



Consolidated non-financial reporting

drawn up pursuant to articles 3 and 4 of Italian Leg. Decree 254/2016



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Sustainability, Strategy and Shared Value

Letter to stakeholders

Our sustainability reporting: confirmations and new ideas

The sustainability report that we are presenting reinforces the innovative contents introduced in 2017 which focused on creating shared value (CSV). The positive results that we have been able to report once again this year and the new targets set for the future are our responses to the important environmental, social and economic challenges that the communities we serve are facing.

Consistent with the goal of further improving our accountability profile, the report includes new pages where results are presented by single area served. A fifth report has been added to our thematic sustainability reports which focuses on Goal 17 of the UN Agenda. It deals with the large range of activities that involve Hera and the citizens and entities of the communities we serve.

A new purpose: business strength to regenerate the ecosystem and the environment

The economic, social and environmental changes we are currently witnessing and that are in some ways of epoch-making significance, are so profound that it is not enough for companies to simply contain the negative impact of their work. Furthermore, in a context where institutions struggle to create effective shared solutions, communities have growing expectations towards the world of business, which is increasingly called upon to address the social and environmental challenges ahead of us.

We believe that the answer lies in our approach towards the creation of shared value. This approach calls for reconsidering the connection between CSR and business strategy, bringing the former at the very heart of the latter. While CSR had so far considered the “what” and “how” of business - i.e. it was “reactive” -, shared value focuses on “why”, embracing the actual reason why the company exists - its mission and strategy - and the qualifying aspects that make it stand out from others. We believe that the companies of the future are those that use business strength to regenerate the ecosystem and the environment. We will use our best endeavours to make Hera become one of them.

Reporting: from focusing on “what” and “how” to steering towards “why”

To significantly improve corporate reporting, it is essential to create a direct, binding link between CSR and corporate strategy which must be able to make us think about the “why” of our company and allow us to regard business as a tool for supporting it. What we need to do, therefore, is to supplement the “what” and “how” of traditional reporting. This not only requires a deep knowledge of the company’s activities and the impact they have on stakeholders, but also an accurate analysis of the external environment in order to highlight the points of intersection between the company’s business and the ecosystem, which can be regarded as opportunities for creating shared value and corporate sustainable development.

The opportunities we have identified for our company, based on the analysis of the 2030 UN Agenda and over 60 sustainability policies at global, European, national and local level, are included in three areas: (i) smart use of energy, (ii) efficient use of resources and (iii) innovation and contribution to development. These three areas embrace the “why” of Hera and positively affect current and above all future competitiveness. They also refer to three of the most significant chapters of our sustainability report.

Confirmation of our new strategic approach: “shared value” EBITDA increases by 14%

One of the strengths of our innovative CSV reporting is the measurement of “shared value” EBITDA: the share of EBITDA that comes from business activities meeting “global agenda” targets, i.e. the “calls to action” for the change to sustainable growth summarised in the three drivers mentioned above. In 2018, “shared value” EBITDA amounted to Euro 375 million, rising by 14% compared to the previous year and accounting for 36% of the total. This result is in line with the 2018-22 Business Plan, developed so that approximately 40% of 2022 EBITDA will come from business activities responding to the priorities of the global sustainability agenda and pertaining to the Group’s activities.

Hera supports the smart use of energy

The projects identified by Hera Spa, Inrete, AcegasApsAmga and Marche Multiservizi in the ISO 50001 area (included in the energy improvement plan) and already implemented, made it possible to reduce energy consumption by approximately 10,300 Toe, equal to -4.4% of 2013 consumption. The improvement plan envisages further energy efficiency projects that will allow an overall saving of 5.3% compared to 2013, thus exceeding the 5% target set for 2020.

Projects for residential customers include commercial offers such as Hera Led, Hera thermo and Hera ContaWatt, in addition to the consumption analysis report, a free service allowing customers to compare their energy consumption with a similar family. At the end of 2018, almost 15% of customers benefited from Hera Comm’s energy efficiency services.

Lastly, of interest is the purchase of 100% renewable electricity to power the business activities of Hera Spa, AcegasApsAmga and Marche Multiservizi, the start of biomethane production from the organic fraction of waste in the Sant’Agata biorefinery in the province of Bologna, and 16% reduction in the carbon footprint of energy production compared to 2015.

Hera supports the efficient use of resources

Separate waste collection continued to increase in 2018, reaching 62.5% (Italian average in 2017: 55.5%), in conjunction with a reduction in the use of landfills for the disposal of municipal waste, settling at 4.5% (Italian average in 2017: 26%). As regards this aspect, Hera has achieved the EU circular economy target almost 20 years earlier, placing it among the best-performing European countries. The ninth edition of the “Sulle tracce dei rifiuti” (“Tracking Waste”) report, published in 2018, showed a total packaging recycling rate of 70%, already in line with the 2030 EU target.

In terms of industrial waste, of interest is the increase in the share of waste recovered by HASI, rising to 41.6% in 2018, as well as the recycled plastic products sold by Aliplast, which exceeded 84 thousand tonnes in 2018 (+4% compared to 2017).

Our strong commitment to the sustainability of the sewage treatment system continued in 2018. Our main projects involved Rimini (7 projects out of the 14 included in the Recovery Plan supplemented with additional projects aimed at mitigating hydraulic risk) and the development of the Servola treatment plant in Trieste (fully operational since June 2018), which allowed the EU infringement procedure (inherited from previous management) to be brought to an end.

Hera supports the innovation and the sustainable development of the local area

In 2018, the Group obtained meaningful results in CSV areas linked to the economic and occupational development of the local area, to innovation and digitalisation, and to air and soil protection.

The value of supplies from local companies reached 69% of total results, coming to Euro 632 million (+7% compared to the previous year), while the estimated employment generated amounted to around 8,100 workers. This figure confirms the Group's key role in developing the local area.

Investments in innovation totalled approximately Euro 62.4 million for projects in four areas: smart city, utility 4.0 and customer experience. The Group continued to develop customer relation digital channels in 2018. The new MyHera app was launched for residential customers which reached 100 thousand downloads.

Air protection confirms its positive results thanks to the emissions of the Group's ten waste-to-energy plants: very low levels once again in 2018 and on average 86% lower than legal limits. Furthermore, regarding soil protection, the planning implemented by HeraTech in 2018 reused 68% of total soil.

To conclude, also in the light of the positive results reported in this document, we can state that sustainability reporting guarantees Hera Group's well-known and consolidated "external" value, but at the same time has paved the way, right from the very start, to creating a highly significant "internal" value. The organisation has been able to develop significant cultural growth exactly on this latter aspect, with tangible and gradual improvements in daily business management and in the relations it holds with stakeholders, by effectively monitoring the company's "what" and "how". The new strategic approach to creating shared value has smoothed the path to a new phase focusing on "why". This has led us to renewing our reporting and, in our opinion, will be able to sustain the future growth of our company.

Tomaso Tommasi di Vignano

Executive Chairman

Stefano Venier

Managing Director

About us

The Hera Group is one of the major multi-utility companies in Italy: it offers the sustainable management of several public services to around 4.4 million citizens in 349 municipalities spread over 5 Italian regions (Emilia Romagna, Veneto, Friuli Venezia Giulia, Marche and Tuscany). Aresgas, a subsidiary of AcegasApsAmga, deals with the distribution and sale of methane gas to around 14 thousand customers in Bulgaria.

It provides energy (distribution and sale of gas and electricity), water (aqueduct, sewage and purification) and waste management (collection and disposal) services to citizens and Group enterprises.

The Group's strengths lie in:

- the **balance of its services**, comprised of services managed according to free market criteria (sale of gas and electricity, and disposal of special waste) and regulated services (gas and electricity distribution, integrated water services, collection and disposal of waste);
- strong **roots in the areas** in which it operates and **deep focus on sustainability**;
- a **widespread shareholding structure** with around 21 thousand shareholders.

Main awards in 2018

Hera's process of expansion is also marked by the awards received. Among the most recent awards, the main ones are:

- **Annual Report Oscar** 2018 in the category of **medium-sized listed companies** and **special award for reporting innovation** (for shared value measurement and sustainability thematic reports)
- **Top Utility** Award 2019 for communication
- **Top employers** Award 2019 for human resource management
- 2nd in the **Webranking by Lundquist** in 2017 for online communication
- 2nd in Italy in the **Diversity and Inclusion Index** of Thomson Reuters
- Cesef's **Project Energy Efficiency Award** for the best idea for an energy efficiency project in the industrial sector

Hera among the top performers in all sectors

The **Hera Group** confirmed its leading position in Italy in all businesses in which it operates and obtained the following ranking, compared to other listed companies:

1st operator in the environmental sector for treated waste

2nd operator in the water cycle sector for volume of water supplied

2nd operator in the public lighting sector for number of light points managed

3rd operator in the distribution of gas for volume supplied

3rd operator in the sale of gas and electricity for number of customers

5th operator in the electricity sector for volume distributed.

2017 data

Services provided

Hera's growth has developed with a strong focus on the aspects of sustainability with regard to regulated services (distribution of gas and electricity, water service and waste collection) and services managed according to free market criteria (hazardous waste disposal, sale of gas and electricity). Development was

balanced across the sectors, confirming that Hera is strongly rooted to the local area and that it places quality at the core of the services it manages.

	Energy services Sale and distribution of gas and electricity, district heating, heat management and public lighting	Integrated water service Civil and industrial aqueduct, sewage and purification	Waste management services Collection, recovery, treatment and disposal of urban and special waste
Customers	Gas: 1.5 million Electricity: 1 million District heating: 12 thousand	Water: 1.4 million	
Municipalities served	Gas distribution: 259 Electricity distribution: 26 District heating: 16 Public lighting: 165	Aqueduct: 230 Sewage and purification: 231	Waste collection: 174
Residents served	3.6 million	3.6 million	3.1 million
Volumes	Gas sold: 6.2 billion cubic metres Electricity sold: 11.9 TWh	Water sold: 291.1 million cubic metres	Waste collected: 2.0 million tonnes Waste treated: 7.3 million tonnes

Customers and municipalities served in the local areas (regulated services)

Local area	Company	Energy services	Water services	Waste management services	At least one service
Bologna	Hera	815 thousand (94%)	857 thousand (100%)	703 thousand (81%)	857 thousand (99%)
Ferrara	Hera	195 thousand (56%)	249 thousand (72%)	132 thousand (38%)	297 thousand (86%)
Forlì-Cesena	Hera	326 thousand (83%)	394 thousand (100%)	213 thousand (54%)	394 thousand (100%)
Imola-Faenza	Hera	195 thousand (76%)	257 thousand (100%)	257 thousand (100%)	257 thousand (100%)
Modena	Hera	476 thousand (68%)	467 thousand (67%)	496 thousand (71%)	499 thousand (71%)
Padua	AcegasApsAmga	328 thousand (35%)	300 thousand (32%)	266 thousand (28%)	418 thousand (45%)
Pesaro-Urbino	Marche Multiservizi	254 thousand (63%)	280 thousand (69%)	268 thousand (66%)	326 thousand (81%)
Ravenna	Hera	240 thousand (87%)	277 thousand (100%)	277 thousand (100%)	277 thousand (100%)
Rimini	Hera	35 thousand (10%)	337 thousand (100%)	320 thousand (95%)	337 thousand (100%)
Trieste	AcegasApsAmga	222 thousand (94%)	235 thousand (100%)	204 thousand (87%)	235 thousand (100%)
Udine, Gorizia and Pordenone	AcegasApsAmga	494 thousand (72%)	-	-	494 thousand (72%)
Hera Group		3.6 million (66%), 263 municipalities	3.7 million (77%), 231 municipalities	3.1 million (66%), 174 municipalities	4.4 million (80%), 349 municipalities

Number of municipalities, residents and percentage of total residents in the province or the local area (as at 1 January 2018, source: Istat) in which Hera manages at least one energy service (distribution of gas, electricity or district heating), water service (aqueduct, sewage or purification) and waste management service (separate or non-separate

waste collection, or sweeping). The local area of Imola-Faenza includes three municipalities belonging to the Province of Florence in which Hera manages energy, water and waste management services. The Padua area includes one municipality from the Province of Venice in which AcegasApsAmga manages water services. The area of Pesaro-Urbino includes six municipalities belonging to the Province of Ancona in which Marche Multiservizi manages the waste management services.

Mission and values

The mission

“Hera’s goal is to be the best multi-utility in Italy for its customers, workforce and shareholders. It aims to achieve this through further development of an original corporate model capable of innovation and of forging strong links with the areas in which it operates by respecting the local environment.

For Hera, being the best means inspiring the pride and trust of:

- **customers** who, thanks to Hera’s responsiveness to their needs, receive quality services that satisfy their expectations;
- **women and men** who work at Hera, whose skills, engagement and passion are the foundation of the company’s success;
- **shareholders**, confident that the economic value of the company will continue to be generated, in full respect of the principles of social responsibility;
- **areas in which Hera operates**, where economic, social and environmental wealth represent the promise of a sustainable future;
- **suppliers**, key elements in the value chain and partners for growth.”

Values

Integrity, proud to belong to a Group of people known for their honest and upright conduct;

Transparency, sincere, clear messages for all stakeholders;

Personal responsibility, shared commitment to the good of the company;

Consistency, living up to our Mission and Values.

Company operational principles

Creation of value and social and environmental responsibility: to be a company that is built to last, and to improve society and the environment for future generations

Service quality and excellence: putting customers first, as a trustworthy provider of services and safety

Efficiency: promoting the value of available resources, never wasting them

Innovation and ongoing improvement: feeling you are part of a team that generates ideas and improvement

Engagement and optimisation of personnel: sharing knowledge for self-improvement and improvement

Empowerment to choose: selecting the optimal solution for growth

The company’s Mission, Charter of Values and Operational Principles are set forth and detailed on the Group’s website, on the corporate intranet and in the Code of Ethics, which is reviewed every three years.

The Mission, Charter of Values and Operational Principles were created with the participation of the Hera Group’s entire workforce and were approved by the Board of Directors of Hera Spa.

Sustainability for the Hera Group

Hera's approach to sustainability

Sustainability has always played a key role in Hera's strategy ever since its establishment. The approach adopted by the Group is based on **integrating sustainability** in its **planning and control** systems and, therefore, in the management of its business activities. This aspect has been effectively implemented through a **balanced scorecard** system involving all the company management and with our constant commitment to stakeholder reporting, as confirmed by the sustainability report. The Report has been published on a yearly basis ever since the Group's establishment and, since 2007, has the timescale as the financial statements.

Competitiveness and sustainable development for the company and local area in which the company operates form the vision at the basis of Group's approach towards corporate social responsibility and sustainability.

The Company's mission and values have merged into the Code of Ethics, which is updated every three years with the involvement of employees, forming the basis of corporate conduct and serving as a point of reference for all the people working in the Group. These values represent the strategic and cultural focus with which to draw up the Business Plan every year and report the results to stakeholders transparently. Lastly, a balanced scorecard system makes it possible to translate the strategy into operational projects that are an integral part of the management bonus system.

This process features a wide range of listening and **dialogue actions with stakeholders**.

In 2016, Hera began a process aimed at designing the Group's approach to the Creation of Shared Value and reached its own definition of **CSV (Creating Shared Value)** consistent with the nature of its business. The aim of the process is to further integrate sustainability into our business activities and to direct both our strategy and sustainability reporting to the urgencies dictated by the Global Agenda on Sustainable Development. Thanks to this process, the Hera Group is reshaping its approach towards corporate social responsibility, which no longer focuses on the "what" and "how" of the company but on its "why", becoming a beacon that inspires strategy and guides innovation, with a more positive, direct and systematic impact on competitiveness, reputation and involvement. Please see the specific paragraph for details.

Integrating sustainability in the Group strategy

Our Group strategy must ensure, as usual, solid and coherent industrial and economic development of businesses, in line with the performance and results achieved over these 16 years.

In order to respond effectively to the needs of our local area and our customers - for example, attention to the environment and new technologies, and the methods for interacting with stakeholders - three critical success factors have been identified for utilities in the coming years: Ecosystem, Circularity and Technology.

Belonging to an **ecosystem** in a constantly evolving context increases companies' resilience to changes in the environment and accelerates the evolution of corporate culture as a result of external contamination. Our Group strategy has always been based on a close relationship with the local area and its ecosystem: this distinctive aspect is regarded today as a real asset, even by investors and rating agencies.

Circular economy responds to a range of critical issues that modern society must address: from the gradual lack of resources to reduced atmospheric emissions or the reduction of non-recyclable waste. Over the years, the Group has developed industrial strategies based on sustainability, allowing it to become an international point of reference in terms of circular economy. Its future actions must also continue to effectively and purposefully steer circularity and decarbonisation goals.

Technological evolution and, more specifically, digitisation have become ever common priorities in the national industrial sector. Greater efficiency by operators will also produce benefits for customers and

citizens, in terms of cost or service quality. The Group needs to use the opportunities offered by new technologies in order to extract cost efficiencies and synergies connected to data management and will be able to play a key role as facilitator for spreading a smart approach throughout the local area, especially in the case of smart cities.

The five strategic levers already used by the Hera Group in recent years (Growth, Excellence, Efficiency, Innovation and Agility) are useful for coordinating the work and strategies of the single units, steering them towards a shared target and actions.

The 2018-2022 Business Plan - drawn up in compliance with the guidelines described above - confirms and strengthens the Group's industrial growth trajectory, projecting an EBITDA goal of Euro 1,185 million in 2022, rising by Euro 200 million compared to 2017. This objective will be achieved also as a result of Euro 3.1 billion investments spread over five years, rising by over Euro 50 million/year compared to the amount allocated in the previous Plan, focusing mainly on meter roll-out, network resilience projects, construction of new plants and external growth projects.

Economic growth targets were defined as usual by ensuring financial balance (the net debt to EBITDA ratio will always be below 3.0x) and focusing on projects and actions that bring benefits to the company while at the same time achieve the 2030 UN Agenda targets applicable to Hera's activities (11 out of the 17 targets). To this effect, almost ¾ of the five-year growth forecast in the Business Plan will be replaced by projects implemented to respond to this "call to action", thus bringing shared value EBITDA to exceed Euro 470 million in 2022 (40% of total EBITDA).

Our commitment to sustainability in the national and international networks

Hera's commitment to sustainability has taken shape over the past years by joining leading international networks.

The Hera Group was the second Italian company to complete the process for inclusion in the **CE100** programme of the **Ellen MacArthur Foundation**, the world's leader in circular economy, which aims to promote issues related to the circular economy, exchange experiences, initiate projects in partnerships and cooperate in the field of research and development. In 2018, Hera took part in the following initiatives of the Foundation: "**New Plastics Economy Global Commitment**" to make the plastics sector more circular, "**Water White Paper**" on water resource circularity, the "**Cities and Circular Economy for Food**" on the circularity of the food supply chain in cities, and the launch of a "**pitch**" at the **2018 acceleration workshop** in Lisbon on the circular economy in cities.

Hera is also among the promoters of the **Circular Economy Network**, a project promoted by the **Sustainable Development Foundation** and by a group of companies and associations involved in the transition to a new model of circular economy.

The Hera Group joined the Global Compact in 2004, and in July 2017 it was included in the **Global Compact Network Italia Foundation**, the Italian network set up in 2013 which has been joined by over 50 business and non-businesses.

Also within the Global Compact, Hera joined the **CEO Water Mandate**, the United Nations Global Compact initiative promoted to re-launch commitment by companies in the sustainable management of water resources.

Hera is also a member of **Impronta Etica**, an organisation that promotes corporate social responsibility and is part of the **CSREurope** network and **CSR Manager Network Italia**, the Italian network of sustainability professionals.

2030 UN goals for sustainable development and Hera projects

The 2030 Agenda for sustainable development ratified at the UN summit in September 2015 by 193 countries includes 17 goals regarding sustainable development (**Sustainable Development Goals** or SDGs),

divided into 169 targets. The SDGs are regarded as the continuation of the millennium development goals, already defined in 2000 by the United Nations.

An in-depth study was carried out in 2018 to understand the exact goals which Hera contributes most to through its own activities. This detailed study required the **analysis of all 169 targets**. The Group activities, projects or policies that currently contribute to their achievement were identified. Contribution was classified as high, medium or low. Goals were considered to be relevant only if one target which Hera contributes to had a medium or high level. The analysis **confirmed the 10 goals** already mapped in 2017, and **target 17 was added**.

The SDGs which Hera contributes to are included in the **CSV impact and driver areas**; only goal 17 was regarded as cutting across the three shared value drivers.

This analysis was used to examine in greater detail the **52 goals for the future** (What we will do...) defined by the Hera Group for forthcoming years, reported extensively in the Appendix and summarised in the table at the end of this paragraph. Each “What we will do...” corresponds either to one of the three CSV drivers or to the organisational bases/levers.

As reported in the table below, **Hera's contribution by number of “What we will do...”** (considering the SDGs affected by 10 or more targets) is predominant in 6 goals: Decent work and economic growth; Sustainable cities and communities; Accountable consumption and production; Companies, innovation and infrastructure; Clean and accessible energy; Combating climate change.

What we will do... 2030 UN Agenda targets

SUSTAINABLE DEVELOPMENT GOALS											
<i>Shared value</i>	2	2	2	2	2	2	2	2	2	2	2
<i>Smart use of energy</i>				6	1	3	2			7	
<i>Efficient use of resources</i>			6	1	4	2	4	9		3	2
<i>Innovation and contribution to development</i>	2			1	3	3	6	2		1	2
<i>Governance and creation of value</i>				1		2		1			1
<i>Quality, cost and safety of customer services</i>				1		2				1	
<i>People</i>	1										1
<i>Suppliers</i>					4			2			
Total	5	2	9	11	18	12	15	15	10	6	8

The balanced scorecard of the Hera Group

The balanced scorecard approach enables us to assign “balanced” objectives to our management team, distributed over four areas: **development, quality and corporate social responsibility, organisational integration and efficiency upgrading**.

It provides a methodology pinpointing strategy which it translates into objectives and day-to-day actions. The innovation of this approach consists of considering the achievement of objectives of social and environmental sustainability as a condition for the achievement of the economic and financial objectives over the medium and long term.

What is the balanced scorecard?

The balanced scorecard is a strategic control system which is based on the connection between strategy and the day-to-day running of the company. It was devised in the early 1990s by the American academics, R. Kaplan and D. Norton. It has generated an immense following among leading corporations in the USA and is now being taken up by major European players.

The **Strategic Map** is updated every year based on the contents of the business plan: it provides a **summary of the Group's strategic objectives** and its commitments to stakeholders set forth in the sustainability report.

During the 2018 budget process, **43 priority projects** were defined to achieve the **30 strategic objectives** set out in the 2019-2022 Strategic Map aimed at creating long-term value for the company and the stakeholders.

In line with the strategic guidelines outlined in the Business Plan, Hera Group's Strategic Map contains the strategic objectives connected to the **3 drivers for the creation of shared value (CSV)** explained for the first time in the 2016 Sustainability Report, namely:

- Efficient use of resources;
- Smart use of energy;
- Innovation and contribution to the development of the area.

Specifically, out of the 43 priority projects assigned to the members of the Management Review Committee, 20 belonged to areas regarding the creation of shared value for the company: 4 projects in the “Efficient use of resources” area, 4 projects in the “Smart use of energy” area and 12 projects in the “Innovation and contribution to the development of the area” area.

The priority projects were assigned to members of the Management Review Committee.

All of the projects planned within the 2018 balanced scorecard system were assigned to a manager and included in the bonus system for Group managers and middle managers.

Each project identified:

- the process and result indicators with goals in line with the budget of the Group and the corporate departments required for their achievement;
- the key action plan for achievement of the project objectives in terms of time and cost.

The objective projects identified were monitored on a quarterly basis by the Hera Spa Management Review Committee and in the individual budget units.

The definition of **objective projects** and the relevant **quarterly monitoring system** of the project elements are a significant strategic management instrument that ensures:

- integration of the several perspectives for the evaluation of corporate performance, in addition to traditional economic and financial measurements;
- integration of business plan objectives into the daily management of managers and middle managers;
- implementation of a continuous improvement process for strategic objectives and the relative projects and indicators;
- formalisation and tracking of both actions and sub-objectives required to achieve the targeted results;

- highlighting and analysis of critical situations and the definition of speedy corrective actions.

The commitments to stakeholders listed in this report (“What we will do...”) are contained in the Hera balanced scorecard. This guarantees consistency among the various instruments used for managing and achieving the Group strategy (business plan, sustainability report, management reporting, bonus system).

Sustainability KPIs

	2005	2016	2017	2018
Financial data				
Value added (in millions of Euro)	722.1	1,454.1	1,480.7	1,540.8
Shared value EBITDA (millions of Euro)	-	300	329	375
Shared value EBITDA (% of total)	-	33%	33%	36%
Shared value investments (millions of Euro)	-	-	198.5	184.0
Shared value investments (% of total)	-	-	41%	40%
Smart use of energy				
Energy consumption reduction compared to 2013		2.6%	3.6%	4.4%
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%)	25.2%	31.3%	30.3%	30.4%
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%) and cogeneration	50.8%	68.7%	67.5%	65.4%
Carbon footprint for energy production (kg/MWh)	-	531	498	482
Efficient use of resources				
Separate waste collection	28.9%	56.6%	57.7%	62.5%
Kilos of separate waste collection per capita	199	367	378	410
Portion of municipal waste collected for disposal via landfill (% total collected solid waste)	37.3%**	7.6%	7.0%	4.5%
Quality of purified water vs. regulations (real concentrations/regulations: optimal value <100%)	-	42.1%	39.0%	33.2%
Non-invoiced water (physical and administrative losses from the domestic aqueduct): m ³ /km of network/day	-	10.0** *	10.2	-
Innovation and contribution to development				
Waste-to-energy plant emission levels vs. regulations (real concentrations/regulations: optimal value <100%)	22.4%	14.1%	14.4%	13.8%
Vehicles using low environmental impact fuels (methane, LPG, electric powered) (% of total)	9.2%	21.0%	22.1%	22.8%
Open-ended contract employees (average annual % of total workforce)	95.5%	97.0%	96.8%	96.2%
Value of supplies from local suppliers (% of total)	62%**	69%	66%	69%
Number environmental education programme students	33,505	96,034	99,482	106,547
Bases and organisational levers				
Total return for shareholders since listing (%)	94.2%	158.5%	225.0%	212.1%
Training hours (average, per capita)	18.5	29.3	28.6	29.8
Workforce attending at least one training course (%)	82.2%	98.1%	97.0%	99.4%
Accident frequency index (number of accidents/hours worked x 1,000,000)	49.6	17.8	17.1	15.7
Internal climate index (score 0-100)	50	-	64	-
Index of customer satisfaction for residential customers (score 0-100)	67	70*	70*	71*
Compliance with AEEGSI and Service Charter quality standards (gas, electricity, integrated water service, district heating)	94.7%	99.8%	99.8%	99.6%
Emergency gas services: percentage of calls with intervention within 60 minutes	94.7%	97.5%	96.2%	96.7%
Average call centre response time for residential customers (seconds, with the exclusion of IVR)	70.2	40	34	36
Average branch operator waiting time (minutes)	26.9	12.3	10.6	9.6
Adjudications adopting the economically most advantageous bid method (% of total)	-	26	25	32

Including AcegasApsAmga since 2013 except as expressly stated.

*Excluding Marche Multiservizi ** 2007 figure ***recalculated using the Arera calculation method

Shared value

An EBITDA of Euro 375 million (+14% compared to 2017) generated in 2018 from activities related to the “Global Agenda” priorities

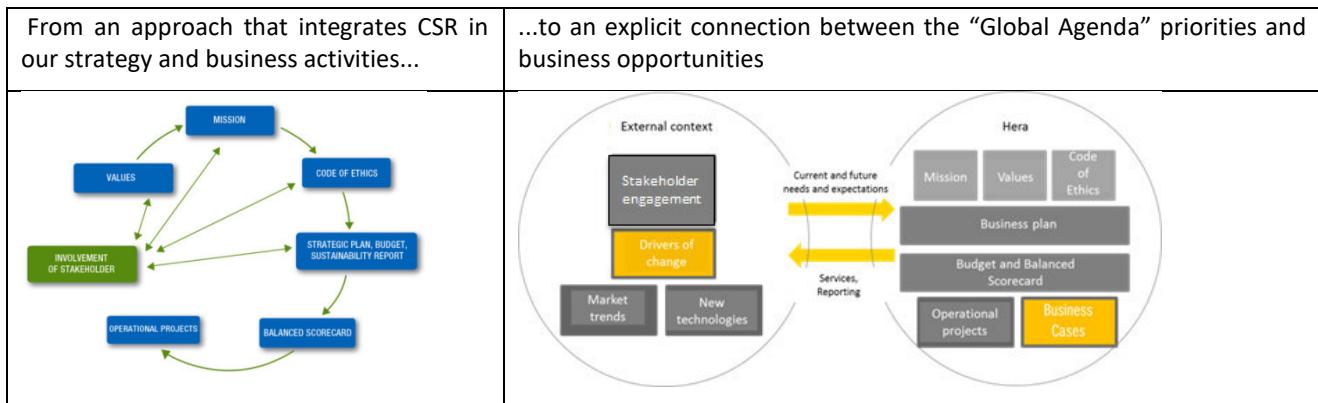
Our approach to shared value

A process was started in 2016 to identify Hera's approach to Creating Shared Value (CSV). Inspiration was taken from Porter and Kramer's indications in 2011 and taking into account the new EU communication on CSR of the same year. The programme made it possible to identify our own definition of CSV which is steering our approach to CSR and has enhanced our sustainability reporting with new views and perspectives, among which **quantification of EBITDA generated by “shared value” activities and projects**, and of investments made in this area.

For Hera, the creation of shared value is the result of all those business activities that generate **operating margins** and meet the **global agenda drivers**, i.e. those “**calls to action**” for change in specific fields, set out in global, European, national and local policies.

This definition of CSV is at the basis of a new, **evolved approach to social responsibility and sustainability**; besides having already enhanced non-financial reporting available to our stakeholders, it is also an important source of inspiration for future strategies and new projects, in line with the sustainable development targets of the 2030 UN Agenda. For Hera, the CSV approach is a consolidated point of reference for the reclassification of economic results, developed projects and future goals, in addition to representing a guide for strategic investment choices. These aspects are described in the Sustainability Report with a completely revised list of contents divided by areas identified for the creation of shared value.

Hera's approach to CSR: confirmations and new ideas



How we identified the “calls to action”

In 2018, we continued to analyse the “Global Agenda” and the needs for change that are outlined in it, which represent the “calls to action” for a company like Hera. Understanding and sharing this scenario is essential for outlining the way we report the sustainability results achieved. At the same time, it is also an opportunity to steer strategy and operational processes in order to address change and meet the needs and expectations of both the market and society, thus enhancing competitiveness.

The process started by analysing European, national and local policies and ended by identifying Hera's Drivers of Change and Impact Areas, while keeping in mind its spheres of competence.

Forty-five global, European, national and local policies were analysed to define the priorities for change towards sustainability, including the 2030 UN Agenda. Further 18 policies were added to this first set, which were examined in detail in 2018. The commitments and quantitative targets of these policies which are of key significance to Hera's activity were analysed. Nine Impact Areas were defined by identifying the cross-

cutting thematic areas that group together several commitments and targets. Lastly, three Drivers of change were identified by grouping the various Impact Areas into strategic development lines for Hera.

The three Drivers of Change and Impact Areas were linked to the 11 2030 UN Agenda goals for sustainable development that Hera identified as priorities in relation to the businesses managed and which include the 52 "What we will do..." (objectives for the future) detailed in this Report.

"Calls to action": the Drivers of Change, the Impact Areas and the 2030 UN Agenda goals of interest to Hera



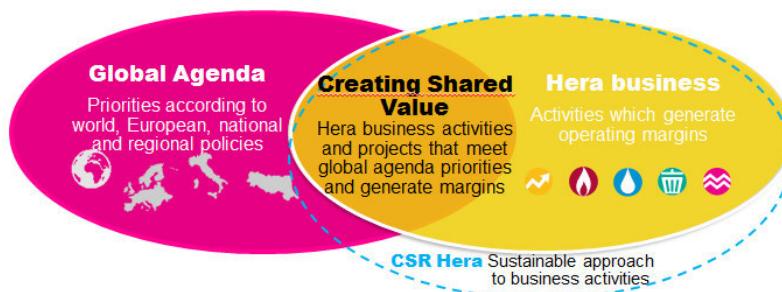
The relationship between CSR and CSV according to Hera

Hera's new approach to CSR merges the prospect for the creation of shared value with the integration of sustainability (already envisaged since the Group's establishment) into its strategies and business activities.

This results in activities and projects that:

- improve its environmental and social sustainability performances mainly related to the businesses it manages (also, but not exclusively, in relation to the law and sector regulations);
- generate operating margins that are consistent with the Global Agenda drivers.

This latter point is a major development in Hera Group's traditional approach to CSR, which will **increase the shared value generated** by overlapping business and Global Agenda priorities.



What shared value and prospects mean to Hera

In their famous article of 2011, Porter and Kramer state that companies can create shared value with policies and practices that strengthen the **company's competitiveness**, while responding to the **needs of the communities** in which it operates and to **society's challenges**. Hera's multi-utility activities are, by nature, highly integrated with the social and economic fabric of the local community and, since benefiting

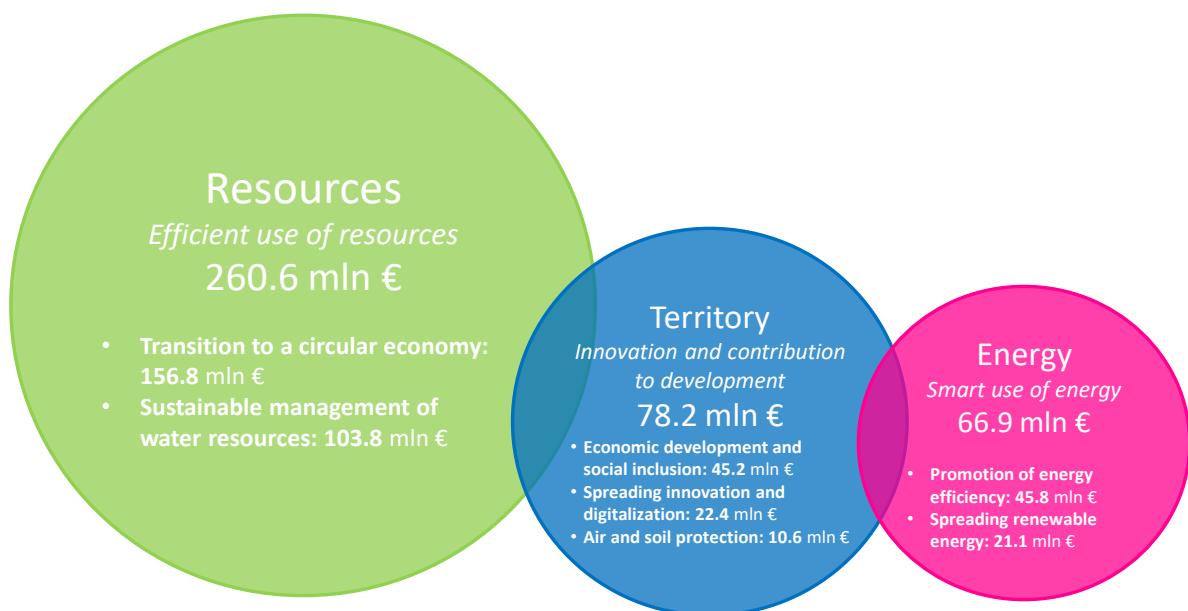
from a ten-year long integration of prospective sustainability within the Group's strategy, may already report a significant portion of shared value expressed through services, activities geared towards the local area and industrial projects. The valuation with regard to the EBITDA reported for the year is the portion of industrial income directly attributable to the Group's activities, related to the total economic value distributed to stakeholders throughout the areas, and detailed in the relevant section in this Report.

"Shared value" EBITDA

The Hera Group continues to report "shared value" EBITDA (started for the first time with the 2016 sustainability report), i.e. the portion of EBITDA resulting from projects and activities that respond to the "calls to action" classified in the three CSV Drivers: **in 2018, this value totalled Euro 375.2 million (equal to 36% of the total)**, a 14% increase compared to the previous year. This result is in line with the 2018-22 Business Plan, created so that approximately 40% of 2022 EBITDA will derive from business activities that respond to the priorities of the global sustainability agenda.

A roughly 14% increase in "shared value" EBITDA is recorded against a 5% increase in the Group's overall EBITDA (equal to Euro 1,031 million) compared to the previous year.

The prevailing contribution derives from activities and projects related to the efficient use of resources (Euro 260.6 million), followed by those related to innovation and contribution to development (approximately Euro 78.2 million). The smart use of energy accounts for Euro 66.9 million in 2018.



The total shared value EBITDA does not correspond to the sum of EBITDA of the single drivers, due to activities that affect several components. Reduction of GHG emissions: sum of Spreading renewable energy and Promotion of energy efficiency.

As pointed out in the diagram, around 70% of "shared value" EBITDA generated in 2018 is mainly the result of activities and projects that meet the "calls to action" of the 2030 UN Global Agenda for an "**efficient use of resources**". As regards "Impact Area", the key role played by the Group in creating value with activities related to the **transition to a circular economy** (+28% compared to 2017) and to the **sustainable management of water resources** (+8% compared to 2017) emerges.

Around 17% of "shared value" EBITDA was instead generated from activities belonging to the Global Agenda areas that lead towards a "**smart use of energy**". 70% of this share of EBITDA comes from initiatives aimed at the **promotion of energy efficiency**, through the development of commercial offers to Group customers and the reduction of internal energy consumption, with particular attention to water

services, public lighting and district heating. The residual percentage of EBITDA for the smart use of energy is connected to the **spreading of renewable energy** achieved both with commercial activities and through the production of energy from renewable sources.

Lastly, the Hera Group generates about 13% of “shared value” EBITDA with reference to **innovation, digitalisation and its contribution to an inclusive development focused on the environment and stakeholders**. With regard to the “**spreading of innovation and digitalisation**”, shared value was achieved also through telecommunication services, via the Acantho company, and through projects for the digitalisation of operational and data analysis processes with a view to their optimisation. “**Economic development and social inclusion**” was especially achieved through generated employment and the outsourcing of environmental services to social cooperatives. This allows disadvantaged individuals to be employed and also leads to economic benefits for the Public Administration (lower welfare costs). Lastly, in terms of “**air and soil protection**”, the purchase of vehicles with a lower environmental impact and the expansion of the volume served by district heating were privileged.

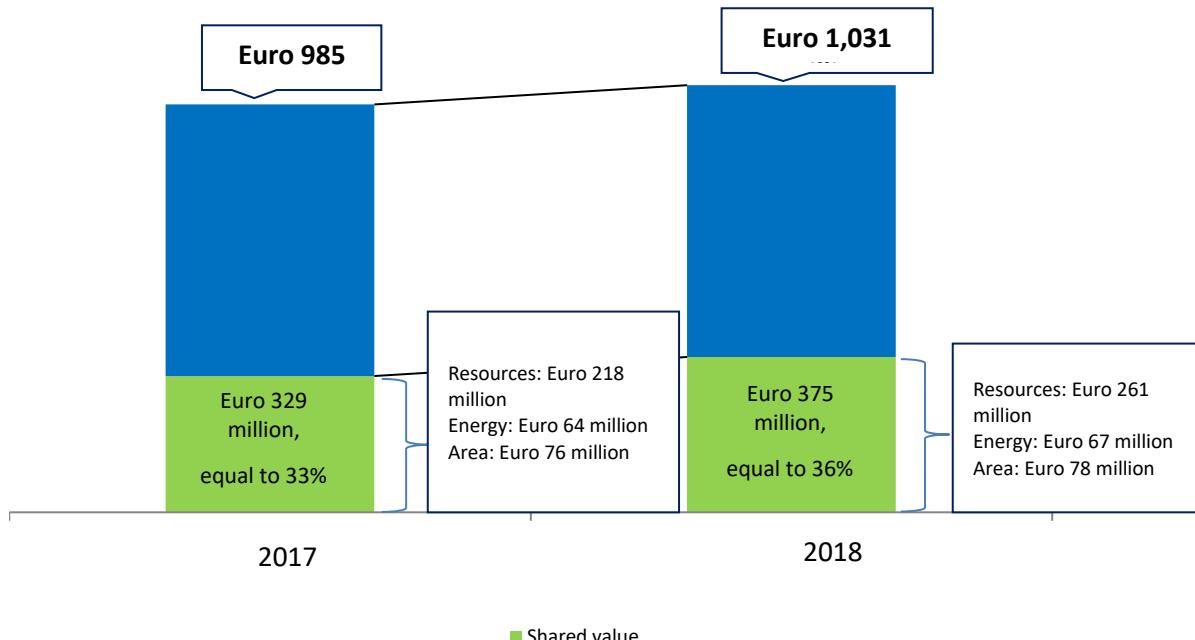
“Shared value” EBITDA growth in 2018: an increase of Euro +46.5 million (+14%) compared to 2017

CSV Drivers	Impact Area	2018 main results
Smart use of energy: Euro +2.7 million	Promotion of energy efficiency: Euro - 1.0 million Spreading renewable energy: Euro +3.7 million	<ul style="list-style-type: none"> Saving from energy efficiency measures: over 8,800 toe saved at the end of 2018 Increase in LED light points in public lighting (14.9% in 2018 compared to 14.2% in 2017) offset by a reduction in margins in industrial cogeneration as a result of the reduction in the value of white certificates Increase in “Nature Package” customers which guarantees the renewable provenance of the electricity purchased: 12.2% in 2018 (8.7% in 2017) Increase in margin/production of renewable electricity from anaerobic biodigesters and geothermal energy used for district heating Further reduction in the use of landfills for municipal waste (5% municipal waste collected and disposed of compared to 7% in 2017) and increase in separate waste collection (62.5% compared to 57.7% in 2017) and in recycling rates
Efficient use of resources: Euro +42.1 million	Transition towards a circular economy: Euro +34.7 million Sustainable management of water resources: Euro +7.4 million	<ul style="list-style-type: none"> Aliplast production increase (84 thousand tonnes of recycled plastic products in 2018; +4% compared to 2017) Increase in industrial waste recovered by HASI (rising from 30.5% to 41.6% in 2018) and of Herambiente selection plants (rising from 76.2% to 77.2%) Increase in urban areas >200 P.E. adjusted to sewage and purification regulations (rising from 83.6% to 91.3%)
Innovation and contribution to the development of the area: Euro +1.7 million		<ul style="list-style-type: none"> Innovation and digitalisation: investments in Utility 4.0 in order to optimise operating processes and management, and remote reading for 34% of meters at the end of 2018 (22% in 2017) Innovation and digitalisation: Acantho business development (telecommunications and connectivity) Social inclusion: 6.6% of customers with at least one instalment (slightly rising compared to 2017) Social inclusion: 816 disadvantaged workers hired (slight increase compared to 2017)

- Increase in the margins of district heating and volume served (+1% compared to 2017)

The total deviations of shared value EBITDA do not correspond to the sum of the single deviations in the single drivers and in the single impact areas, due to activities that affect several components.

Shared value EBITDA compared to total EBITDA



"Shared value" EBITDA growth 2018-22

The **2018-2022 Group Business Plan** targets a 2022 "shared value" EBITDA exceeding Euro 470 million, equal to +43% increase compared to 2017, reaching 40% of the Group's overall EBITDA.

The **approximately 150 million increase during the time interval of the plan compared to 2017**, equal to a 3/4 increase in the Group's 2022 overall margins, derives mainly from the development of activities in the CSV drivers: "smart use of energy" (Euro +59 million), "efficient use of resources" (Euro +64 million) and "innovation and contribution to development of the area" (Euro +27 million).

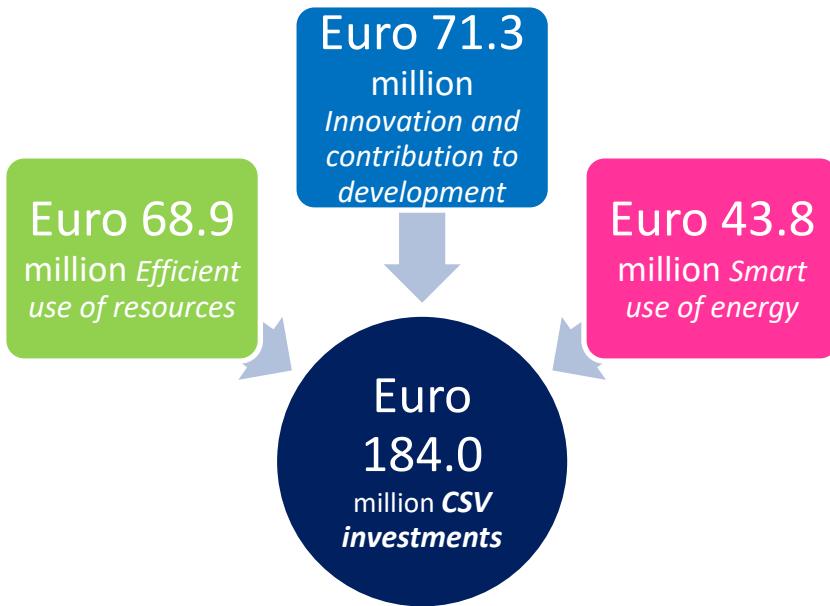
CSV Drivers	Main actions and targets
Smart use of energy: Euro +59 million	<ul style="list-style-type: none"> • Further development of offers for customers with energy efficiency services (customer joining this offer: around 19% in 2022) • Further development of energy efficiency business (industrial cogeneration, heat management etc.) for Public Administrations, companies and condominiums • Measures to reduce internal energy consumption (ISO 50001 action plan: 2022 consumption: -6% compared to 2013) and gradual increase in LED light points (23% in 2022) • Increase in the production of renewable electricity from biogas / anaerobic biodigestion of separate organic waste with full-operation production of biomethane (+12% in 2022 compared to 2017) • Increase in "Nature Package" customers which guarantees the renewable provenance of the electricity purchased (19% in 2022) • 22% increase compared to 2017 in geothermal energy used for district heating
Efficient use of resources: +64 Euro million	<ul style="list-style-type: none"> • Gradual adjustment of urban areas in the territory served in keeping with EU directives and complete resolution of the EU infringements in the Triveneto and Marche regions to ensure full sustainability in the sewage and purification area and as a contribution to achieve "good" aquatic ecosystems within 2025. (ref.: Bologna Charter) (99% of citizens

CSV Drivers	Main actions and targets
Innovation and contribution to the development of the area: Euro +27 million	<ul style="list-style-type: none"> residing in urban areas > 200 equivalent inhabitants adjusted to 2022) • Further increase in overall packaging rate (60% in 2022) and packaging recycling rate (76% in 2022) • Aliplast industrial waste recovery and business development (plastic recycling) • Innovation and digitalisation: investments in Utility 4.0 in order to optimise operating processes and management, and remote reading for 78% of gas meters at the end of 2022 • Innovation and digitalisation: Acantho business development (telecommunications and connectivity) • Innovation and digitalisation: further development of customer-related digitalisation (27% of customers using the online services and 41% of customers with online bills in 2022) • Development of district heating for the benefit of city air (+8% of volume served in 2022 compared to 2018) • Renewal of company fleets (vehicles with lower environmental impact: 31% in 2022)

“Shared value” investments

In 2018, the Hera Group invested around **Euro 184 million** in initiatives and projects aimed at creating shared value. These investments represent **40% of the total investments** made by the Hera Group.

The graph below shows these investments divided by impact driver:



Specifically, as regards the driver **“Smart use of energy”**, the main investments regarded:

- the Sant’Agata Bolognese biomethane production plant (around Euro 20.6 million in 2018 - “Spreading renewable energy” impact area);
- upgrading of public lighting and heat management systems in the public administration as well as energy efficiency measures in condominiums and industries, also through the implementation of industrial cogeneration plants. These projects were carried out by Hera Luce, Hera Servizi Energie and AcegasApsAmga (around Euro 21.7 million - “Promotion of energy efficiency” impact area);

For the **“Efficient use of resources”** driver, a total amount of Euro 68.9 million were invested. The main part of this amount (around Euro 50 million) regarded adjustment operations in the sewage and purification sector in order to ensure the highest quality standards for water resources both in municipal and rural areas (“Sustainable management of water resources” impact area). The remaining part regarded

projects for the development of separate waste collection and for waste recovery and recycling, especially through Aliplast and Waste Recycling (“Transition towards a circular economy” impact area).

Lastly, as part of “**Innovation and contribution to development**”, investments were mainly aimed at spreading innovative technologies related to the development of smart cities, circular economy, Utility 4.0 and customer experience (approx. Euro 62.4 million - “Dissemination of innovation and digitalisation” impact area) and to the development of the district heating service and the purchase of environmentally-friendly vehicles (approx. Euro 9 million - “Air and soil protection” impact area).

The investments outlined in the 2018-22 Business Plan that aim to create shared value amount to approximately Euro 685 million for years 2019-22, almost a third of the total. Around Euro 320 million regard projects connected to the driver “Innovation and contribution to development”, Euro 259 million to “Efficient use of resources” projects while the remainder relate to investments in “Smart use of energy”.

Shared value

Smart use of energy

Objectives and performance

What we said we would do	What we have done	Area *
<ul style="list-style-type: none"> ISO 50001 energy improvement plan for Hera Spa, AAA and MMS: reduce energy consumption by over 4% in 2018 and by 5% by 2020 (compared to 2013). 	<ul style="list-style-type: none"> Consumption down 4.4% in 2018 (compared to 2013), thanks to measures that have been implemented. Further reduction to 5.3% by 2020 expected with measures already planned. 	ER T M
<ul style="list-style-type: none"> Public lighting: implement energy saving measures for 1,300 toe in 2018 including the replacement of luminaires with LED lamps (16% in 2021). 	<ul style="list-style-type: none"> 1,634 toe saved thanks to measures implemented in 2018 including the replacement of luminaires with LED lamps (15% in 2018). 	ER T M
<ul style="list-style-type: none"> Continue to promote new gas, electricity and district heating offers with energy efficiency services. Customers with these offers reaching 20% of the total in 2018 (+30% compared to 2017) and 35% within 2021. 	<ul style="list-style-type: none"> 14.6% of customers joined offers providing energy efficiency services (were 15.9% in 2017). In 2018 the offers Hera ContaWatt, Hera Thermo, Hera Ecomove, Hera Led and Led Business were promoted and the Consumption Analysis Report which help customers check and reduce their consumption. 	
<ul style="list-style-type: none"> Heating management contract for properties in the Municipality of Modena: thermal energy consumption -30% in 2019 compared to historical consumption of the last 5 years. 	<ul style="list-style-type: none"> 18% reduction of thermal energy consumption in 2018 in Modena (compared to historical consumption of the last 5 years), thanks to measures implemented and included in the heating management contract. 	
<ul style="list-style-type: none"> Continue to promote energy saving solutions for the public administration and industrial customers. Launch the "solar thermal system and thermal insulation" offer for condominiums. 	<ul style="list-style-type: none"> 1 new industrial cogeneration plant was built in 2018 and energy efficiency solutions were promoted for condominiums (+25% in the portfolio of condominiums with offers for "energy services", "solar thermal", "thermal insulation", "tax credit assignment offer", "heat metering system"). 	ER T
<ul style="list-style-type: none"> Launch the production of biomethane from organic waste and a new plant to recover energy from decompression of methane. 	<ul style="list-style-type: none"> Production of biomethane from waste started at the Sant'Agata Bolognese plant at the end of 2018. 	ER
<ul style="list-style-type: none"> Start a new energy recovery plant from the decompression of methane, through the experimental installation of a medium-small sized turbo expander (330 electric kW) at a medium-sized R&M (regulation and measuring) station, with an estimated production of 1,600 MWh per year (annual consumption for about 600 families). 	<ul style="list-style-type: none"> Authorization activities and the construction of machinery by supplier were completed in 2018, and installation of the prototype at the R&M station of "Ducati" in Bologna. Preliminary and preparatory tests are underway for the experimental start-up phase, scheduled for spring 2019. 	ER

What we said we would do	What we have done	Area		
		*		
<ul style="list-style-type: none"> Reduce by 22% by 2021 the carbon footprint of energy production compared to 2015 (kg CO₂/MWh). 	<ul style="list-style-type: none"> 16% reduction of the carbon footprint of energy production by 2018 (compared to 2015). 	ER	T	M

What we will do	Area		
	*		
<ul style="list-style-type: none"> 6% reduction by 2022 of the energy consumption of Hera, AAA and MMS compared to 2013, 5% by 2020. 	ER	T	M
<ul style="list-style-type: none"> 1,300 toe energy savings expected in 2019 from measures in public lighting including the replacement of luminaires with LED lamps (23% Hera Group; 21.4% Hera Luce and 60.9% Marche Multiservizi by 2022). 	ER	T	M
<ul style="list-style-type: none"> 19% customers in 2022 with gas, electricity and district heating offers with energy efficiency services. 			
<ul style="list-style-type: none"> 4 new industrial cogeneration plants were built in 2019 and energy efficiency solutions were promoted for condominiums (+5% in the portfolio of condominiums with offers for “energy services”, “solar thermal”, “thermal insulation”, “tax credit assignment offer”, “heat metering system”). 	ER	T	
<ul style="list-style-type: none"> 7 million m³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA). 	ER		
<ul style="list-style-type: none"> 19% customers using energy from renewable sources by 2022. Thanks to Hera Comm’s “Pacchetto Natura”. 	ER		
<ul style="list-style-type: none"> 23% Reduction compared to 2015 of the carbon footprint of energy production by 2022 (kg CO₂/MWh). 	ER	T	M

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Promotion of energy efficiency

Primary energy consumption of the Hera Group

Hera's energy consumption reflects the Group's multi-business nature.

The balanced portfolio of its businesses creates synergies that increase productivity in multiple sectors while reducing energy consumption. Hera manages cogeneration plants for **district heating** which produce thermal energy and electricity to sell to its clients, and **cogeneration plants**, mainly to satisfy internal consumption requirements. It also manages **waste-to-energy plants** that dispose of waste with subsequent energy recovery, **turboexpanders** that take advantage of pressure differentials in the natural gas distribution stations in the local managed networks, and the **recovery of low enthalpy geothermal heat** at the district heating plant in Ferrara. Furthermore, a part of the electricity produced by the Group's photovoltaic plants is used for self-consumption. Through a continuous series of measures, Hera pursues a policy aimed at **increasing the energy efficiency** throughout its business.

Primary energy consumption by type

toe	2016	2017	2018
Energy carriers consumption for production (natural gas, geothermal energy, biogas, others)	139,068	152,973	204,893
Waste-to-energy treatment	336,590	326,743	320,942
<i>Total energy consumed in electricity or thermal energy production plants</i>	<i>475,658</i>	<i>479,716</i>	<i>525,835</i>
Electricity excluding public lighting	86,462	105,743	109,522
Electricity for public lighting	32,336	31,255	30,947
Natural gas and other energy carriers for heating our offices	2,860	2,962	2,819
Fuel for vehicles	9,971	9,843	9,500
<i>Total energy consumed for uses other than the production of electricity or thermal energy</i>	<i>131,629</i>	<i>149,802</i>	<i>153,177</i>
Total	607,286	629,518	679,012

The data refer to energy consumption by Hera Spa, Acantho, AcegasApsAmga, Aliplast, Aresgas Group, Fea, Hera Comm, Herambiente, Hera Luce, Hera Servizi Energia, Hera Trading, HeraTech, Hestambiente, Inrete Distribuzione Energia, Marche Multiservizi, Marche Multiservizi Falconara, AcegasApsAmga Servizi Energetici, Uniflotte and Waste Recycling.

In 2018, primary energy consumption increased compared to the previous year (+7.8%), due to the inclusion of methane gas consumption of in-service cogeneration plants (30,071 toe), operated by Hera Servizi Energia for its customers and not included in previous years in the scope of reporting. On a like-for-like basis, overall consumption increase by 3.0%. Electricity consumption increase slightly (-1% in public lighting - thanks to the energy efficiency measures implemented - and +3.6% in other consumption).

Energy consumed within the organisation

Thousands of GJ	2017	2018
Fuel consumed from renewable sources	(+) 8,308	(+) 8,440
Fuel consumed from non-renewable sources	(+) 13,235	(+) 14,779
Electricity consumed	(+) 2,661	(+) 2,704
Thermal energy consumed	(+) 886	(+) 876
Electricity produced by photovoltaic	(+) 7	(+) 6
Electricity produced	(-) 4,028	(-) 4,500
Thermal energy produced	(-) 2,229	(-) 2,796
Total	18,840	19,509

Energy consumption does not include: AcegasApsAmga Servizi Energetici for 2017, ASA Scpa, EnergiaBaseTrieste Srl, Feronia Srl, Hera Comm Marche Srl, Herambiente Servizi Industriali Srl, Tri-Generazione Srl, whose consumption is estimated at 0.5% of total energy consumption.

The organisation's internal energy consumption, calculated according to the reporting standard used (GRI Sustainability Reporting Standard) were estimated at 19,509 thousand GJ. They are made up of the sum of the **consumption of fuel from renewable sources** (biogas and waste processed by waste-to-energy plants, for the renewable share 51%) and **non-renewable sources** (natural gas, diesel fuel, LPG, petrol, and waste processed by waste-to-energy plants, for the non-renewable share 49%), **electricity consumption**, the **production of renewable electricity from photovoltaic plants**, and minus the electricity produced and fed into the grid and the thermal energy produced. Primary energy consumption is calculated based on data gathered mainly from measurements and on the basis of calculation and conversion methods defined for the application of the regulatory provisions of Italian Law 10/91 (MISE Circular of 18 December 2014).

The Group's energy performance can be represented by a number of indicators that express its development and prospective targets and illustrate the company's savings strategies. A comparison of energy consumption with certain production and operating indicators can provide consumption intensity indices that reflect the improvements achieved by efficiency measures and by corporate energy management.

Intensity indices of primary energy consumption

	2017	2018
Purification: primary energy (MWh)/volumes purified (thousands of m ³)	587.2	414.8
Drinking water purification: primary energy (MWh)/water fed into the water network (thousands of m ³)	462.0	455.0
District heating: primary energy consumption (toe)/thermal energy fed into the network (MWh)	166.4	173.6
Waste-to-energy plants: net energy production (MWheq) / volumes processed (t)	550.1	544.6
Offices: total primary energy consumed (toe) /area of offices (thousands of m ²)	26.0	26.5
Vehicles: primary energy (toe)/distance travelled by the vehicles (millions of km)	163.4	144.2
Public lighting: primary energy (kWh)/light points	370.6	336.4

The data concern the energy consumption of Hera Spa, AcegasApsAmga, Fea, Hera Luce, Herambiente, Marche Multiservizi and Uniflotte. The data refer to the consumption of electricity, natural gas, diesel fuel, LPG, petrol and waste. Excluding Marche Multiservizi for vehicles index.

The **water sector** shows an overall improvement in performance in 2018, with consumption intensity indices decreasing in both purification and making drinking water. However, it should be noted that the

purification index is directly influenced by the volumes treated, against energy consumption that by nature of the plants remain substantially stable. The values for 2017 were higher than the historical data due to lower volumes treated as a result of the drought. As far as drinking water is concerned, also in this case consumption in 2017 had increased due to the particularly dry summer, which had made it necessary to use more energy-intensive sources of supply (groundwater).

District heating shows a general worsening of the indicator compared to the previous year, mainly linked to the greater use of thermal power plants to the detriment of cogeneration with electricity.

The **vehicle** index improved, thanks to the gradual renewal of the fleet. In particular, the index of vehicles used for waste management, prevalent from the point of view of consumption, increased in the 2017-2018 period from 529.5 to 519.2 toe/million km, down 2%, particularly significant on this type of vehicle.

The **public lighting** index has further improved, as a result of the energy efficiency measures described in the respective paragraph in this Chapter.

Energy efficiency in the Hera Group

The Group's focus on energy efficiency is reflected by the **ISO 50001** certification for energy management systems for eight companies of the Group: AcegasApsAmga, AcegasApsAmga Servizi Energetici, Aresgas, Hera Spa, Hera Luce, Hera Servizi Energia, Inrete Distribuzione Energia and Marche Multiservizi. In addition, Herambiente has achieved ISO 50001 certification for some of its plants.

The energy improvement plans of Hera Spa, AcegasApsAmga and Marche Multiservizi drawn up since 2014 as part of their energy management systems, envisaged achieving the aim to reduce energy consumption by 3% (compared to 2013 consumption) within 2017. Based on the positive results obtained, at the end of 2017 this target was increased **to 5% by 2020**. A further target of **6%** is planned **to be reached by 2022**.

The objective is calculated as the average of the objectives that Hera Spa, InRete, AcegasApsAmga and Marche Multiservizi have defined as part of their certification schemes. In particular, the objectives of Hera Spa, Inrete and Marche Multiservizi are calculated using their 2013 consumption as baseline while AcegasApsAmga considers the 2014 consumption.

Significant energy saving has been achieved to date in the water cycle, both as regards purification and drinking water treatment. Important efficiency improvement has also been achieved for district heating, where the measures mainly affect the optimisation of sources and effective utilisation of the best-performing systems.

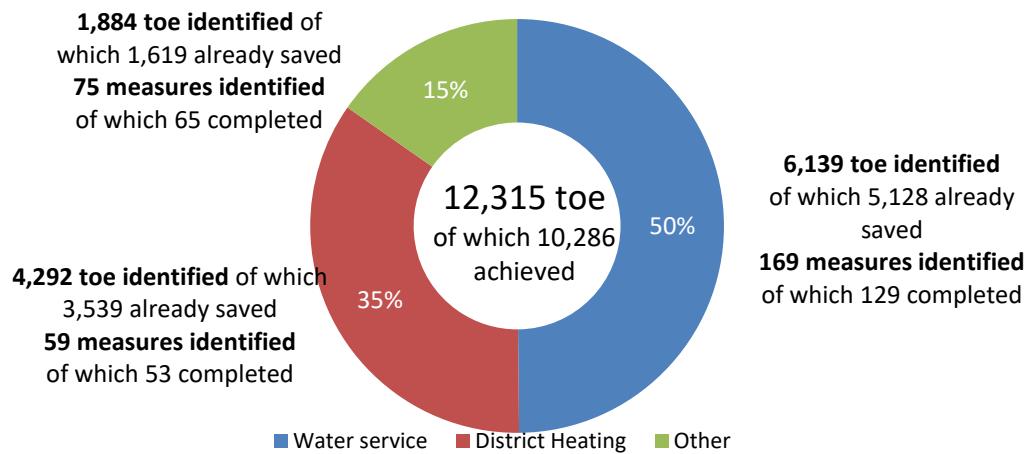
The energy improvement plans of Hera Spa, InRete, AcegasApsAmga and Marche Multiservizi (years 2014-2018)

Type of measure	Number of measures (implemented or to be implemented)	Savings per year due to measures implemented or to be implemented (toe)	Measures implemented by end 2018	Savings achieved by end 2018 (toe)	Company
Integrated water service	169	6,139	129	5,128	H-A-M
District Heating	47	3,600	43	2,853	H
Energy networks	12	692	10	686	H-A-M
Vehicles and waste management services	14	606	8	556	H-A-M
Offices	43	297	40	282	H-A-M
Public lighting system	18	981	17	781	A-M
Total	303	12,315	247	10,286	
	5.3% of 2013 consumption (106% of the reduction target of 5% by 2020)		4.4% of 2013 consumption (89% of the reduction target of 5% by 2020)		

The data refer to Hera Spa, Inrete, AcegasApsAmga and Marche Multiservizi.

The 247 measures implemented by the end of 2018 saved over 10,200 toe (403.7 thousand GJ), equal to 4.4% of 2013 consumption, closing in on the target set for 2020. The 303 measures identified and that at 31 December 2018 are included in the improvement plans of Hera Spa, InRete, AcegasApsAmga and Marche Multiservizi will reduce energy consumption by over 12,300 toe, exceeding the target set for 2020.

Energy improvement plans of Hera Spa, InRete, AcegasApsAmga and Marche Multiservizi for 2014-2020: energy efficiency measures implemented and planned and corresponding savings



The data refer to Hera Spa, Inrete, AcegasApsAmga and Marche Multiservizi.

The measures identified in the action plan are mainly focused on the water cycle where measures are planned that amount to 50% of overall energy saving.

The energy efficiency measures of Herambiente, Hera Servizi Energia and Hera Luce

Type of measure	Number of measures implemented, in progress or planned	Expected annual savings (toe)	Of which measures implemented by end 2018	Of which annual savings achieved (toe)	Area
Measures on waste-to-energy plants and landfills	28	1,939	23	1,509	BO, FC, FE, IS, MO, PD, RA, RN
Measures on businesses, condominiums and other buildings	21	7,222	15	6,076	AQ, BO, FC, MO, PC, RA
Measures on public lighting systems	20	2,934	7	1,634	CR, BG, BS, MI, PN, RM, TE, UD, VE, VT
Total	69	12,095	45	9,219	

In addition to the initiatives of the Energy Improvement Plan, we must also consider 69 more energy efficiency measures implemented, in progress or planned (45 of which have already been completed) by Herambiente, Hera Servizi Energia and Hera Luce on waste disposal plants, condominiums or other buildings, for cogeneration plants and public lighting systems. These measures will save 12,095 toe per year (9,219 of which already achieved, equal to 386 thousand GJ). In addition, in 2018, AcegasApsAmga Servizi Energetici completed 62 projects in the climate sector and 16 projects in the condominium sector for an overall saving of 406 toe. Planned for the following years are 56 projects in the climate sector and 16 projects in the condominium sector for a total of 773 toe.

The **white certificates** mechanism was created in Italy in 2005 as an incentive tool for energy efficiency and is based on Energy Efficiency Certificates (TEE) to which an economic value is attributed. These certificates are obtained by implementing measures that provide certified and measurable energy savings. The system sets saving requirements for gas and electricity distributors, and assigns goals to be achieved each year.

Italian Ministerial Decrees 11/01/2017 and 10/05/2018 changed the procedures for accessing the white certificates mechanism, and redefined the obligations of distributors for the 2017/2020 period. These changes have significantly impacted the system, where uncertainty remains concerning the ability to generate sufficient certificates to meet obligations. The market value of the securities has been curbed, even in the event of a shortage of supply, by introducing a cap on the resources of the community involved in the system, in the form of a tariff contribution granted to obligated entities to cover their costs, a parameter that from 2018 may amount to a maximum of Euro 250 per certificate.

In order to fulfil its obligations, Inrete Distribuzione Energia avails itself of Hera S.p.A. which it operates as an ESCO, which continues the activity in the procurement of white certificates as it started more than ten years ago. Furthermore, Hera S.p.A. has developed **agreements with trade associations** in the areas it serves, collaborating with companies within the scope of the obligations required by Legislative Decree 102/14 on Energy Audits. At the end of 2018, 7 agreements were in place with trade associations and 20 agreements with external establishments.

In 2018 Hera S.p.A. won the **Energy Efficiency Award** promoted by CESEF in collaboration with RSE and Galletti.

As part of the initiatives to promote energy efficiency, Hera S.p.A. has also started cooperating with a team of researchers from the **Politecnico di Milano**, made up of experts in behavioural psychology and statistical sciences, which, in addition to providing a useful contribution to design the initiatives, has the skills necessary to develop scientifically valid programs to measure and verify savings. The collaboration involves the validation, from the point of view of the savings obtained, of energy optimization measures in homes, in industrial plants, in the tertiary sector and in public administration, due not to replacing or implementing

technologies, but to **inducing virtuous behaviours** obtained with methodologies defined by behavioural sciences.

White certificate objectives

toe	2016	2017	2018
Gas distribution	447,630	313,670	326,025
Electricity distribution	69,557	32,183	33,489
Total	517,187	345,853	359,514

In 2018, Hera S.p.A. **presented the GSE with 10 new initiatives** for energy efficiency metered baseline projects, in accordance with the provisions of the new Decree of 11 January 2017. The initiatives detailed in the applications presented are mainly to be implemented in the Group's service area.

Among the energy efficiency improvement measures presented as part of the White Certificates mechanism and relating to Hera Group's plants, the initiatives to **improve the efficiency of Acantho's natural gas distribution networks and UPS systems** are noteworthy.

In particular, it should be noted that Hera has also pursued energy efficiency by working not only on hardware measures, but also on the so-called "**behavioural measures**", i.e. by promoting the diffusion of conscious and virtuous attitudes towards energy consumption. **Five out of ten initiatives submitted to the GSE in 2018 concern this field of activity.**

Hera's measures to increase energy efficiency continue both inside and outside the Group, on the one hand, by implementing and improving the ISO 50001 certified Energy Management System and, on the other, by taking part in events and conferences that address the industrial sector. Among these is the company's participation in the "**Industrial efficiency 2018**" event in **Berlin**, where Hera contributed to the debate on financial barriers to the implementation of energy efficiency initiatives. In 2018, Hera was also invited to the **Sustainable Energy Development Agency** (SEDA) in Sofia, Bulgaria, to bring its expertise in energy efficiency.

To confirm the Group's commitment in this area, since 2015 Hera has been publishing the "**Valore all'energia**" ("Value to Energy") report, entirely dedicated to energy efficiency and extended in 2015 to AcegasApsAmga and Marche Multiservizi, and that was submitted for the first time in 2017 to Dnv-GI for third-party auditing. A case study is dedicated to the report in the relevant section of this Sustainability Report.

Energy efficiency in public lighting

Three Hera Group companies - Hera Luce, AcegasApsAmga and Marche Multiservizi - manage around **534 thousand light points** (+3% compared 2017), guaranteeing the proper operation of the public lighting service in **176 municipalities** in ten Regions: Emilia-Romagna, Umbria, Lombardy, Marche, Lazio, Tuscany, Piedmont, Veneto, Friuli Venezia Giulia and Abruzzo. It also manages traffic light installations in some areas for a total of **over 10,500 traffic lights**.

In **15%** of light points operated **LED lamps** are now used, up compared to 2017. Consumption optimization systems (reduction of brightness, partial switching off, etc.) are used at 51% of the light points operated by Hera Luce. Energy saving light bulbs (i.e. not mercury-vapour lamps which, according to the energy qualification system developed by Hera Luce on the basis of the Minimum Environmental Criteria, belong to class G) are used at 35% of the light points served.

During 2018, Hera Luce's commercial effort aimed at consolidating the territory it serves and expanding its area of influence, offering potential customers smart solutions for their respective cities. Among these

proposals, the commitment to energy efficiency achieved by installing low-consumption systems and, above all, latest-technology LEDs, is particularly important.

Light points and traffic lights operated

qty	2016	2017	2018
No. of municipalities served	153	163	176
Light points at 31/12	514,901	518,659	534,486
of which low-power (%)	45%	42%	35%
of which LED (%)	7%	14%	15%
of which fitted with consumption optimization systems (reduction of brightness, partial switching off, etc.) (%)	54%	51%	51%
Traffic lights	10,371	11,634	10,523
of which LED (%)	71%	65%	62%

The 2016 and 2017 data for the percentage of energy-efficient light points were recalculated on the basis of the calculation criteria used in 2018.

In 2018 Hera Luce was finalizing many Public Private Partnership (PPP) projects using Project Financing ex. art. 183(15) of Legislative Decree 50/2016. The projects presented include the energy renovation and implementation of safety measures for public lighting systems, to comply with the **Minimum Environmental Criteria for lighting devices** (Criteri Ambientali Minimi per l'Illuminazione Pubblica - CAM IP) which came into force in 2017, and for the **public lighting service** – which came into force in 2018. Among the criteria used to award the contracts, references to the circular economy and to presenting the material balance are increasingly frequent. In this context, Hera Luce carried out the first national and European case study of **circular economy applied to public lighting**.

During 2018, the work started in 2017 in 7 municipalities was completed and work started in a further 12 municipalities, of which 2 were also completed. Overall, the measures carried out in 2018 will allow a **saving of 8,739,000 kWh of electricity** each year, corresponding to **1,634 tonnes of oil equivalent (toe)**. Considering an average electricity consumption of a household of four people equal to 2,700 kWh per year, the amount of energy that will be **saved** each year with the measures implemented by Hera Luce in 2018 is equal to the **annual consumption of 3,237 households**. Lower electricity consumption results in **over 3,500 tonnes of carbon dioxide emissions being avoided each year**.

Particular attention has also been paid to the energy renovation of Hera Group's offices: efficiency measures have been carried out at the Viale Berti Pichat headquarters in Bologna – including the spectacular lighting of the gasometer – and at the Ravenna headquarters.

Hera Luce continues the development activities related to various actions and partnerships launched in previous years related to:

- update of the minimum environmental criteria for public lighting (MEC PL) and definition of the new MEC Lighting Services, as a member of the working group created by the Ministry of the Environment, Land and Sea;
- dissemination of the culture of light;
- developing a lighting device performance monitoring system in line with the MEC, together with the Ministry of the Environment, Land and Sea;
- the development of models designed to provide local authorities with tools that enable them to understand the process of analysing and assessing energy efficiency improvement activities, obtain information on the activities to undertake for an energy renovation programme, and attain an initial estimate of the costs of the measures and the benefits that can be obtained;
- analysis of new lighting technologies, assessing costs/benefits and future development options, in association with several universities;

- the creation of projects designed to evolve public lighting towards the development of Smart Cities using the public lighting infrastructure;
- development of a circular economy project, studying a practical case applied to a public lighting plant;

Energy efficiency services for the Public Administration, condominiums and businesses

Through its subsidiaries Hera Servizi Energia (HSE) and AcegasApsAmga Servizi Energetici (ASE), the Hera Group also operates actively in the energy efficiency sector providing a broad range of services. The company mainly targets apartment buildings, large industrial customers and the public administration.

The HSE and ASE solutions are mainly addressed to **condominiums with central heating** to implement measures supported by ecobonus and sismabonus incentives. In addition to building thermal insulations, ventilated façades, replacing doors and windows and implementing seismic improvement and adaptation measures, HSE and ASE offer condominiums the replacement of boilers and individual metering of expenses, the control of heating systems and hot water production using thermal solar panels or by installing heat pumps. The condominiums that have carried out several energy refurbishment measures at the same time, individual metering and transformed their heating system, have achieved savings of 20% to 40% of their consumption. Moreover, thanks to the assigning of receivables and the energy service contract, the measures did not involve any disbursement at the end of the works for the customers.

The commercial solutions, in fact, are integrated with the **assigning of receivables** relating to the ecobonus and sismabonus incentives for energy-related and structural upgrading of buildings, leaving the possibility for each owner to independently choose among a range of solutions that one that best suits its disposable income. Customers can choose whether to bear the cost of the work realized and later deduct the amount on their tax return, assign the tax deduction and pay the excess at the end of the work, or choose for the solution that requires no disbursement at the end of the work adding to the assigning of receivables the financing of the remaining portion, even combined with an energy service that provides a guarantee of energy savings and thus a reduction of heating costs.

At the end of 2018, the professionalism and experience of HSE and ASE have achieved a portfolio of 467 condominiums (+16% compared to 2017) for HSE and 411 condominiums (+35% compared to 2017) for ASE.

In the industrial cogeneration sector, Hera Servizi Energia offers multi-year energy supply contracts through the development and management of electricity and thermal energy production plants dedicated to meeting all the energy needs of top customers. The main product sectors in which the energy service is particularly effective are plastics, food, pharmaceuticals, ceramics and large-scale services such as museums, shopping centres, spas and condominiums.

With cogeneration and trigeneration (production of electricity and thermal energy at the same plant, plus cooling services) primary energy is saved with respect to traditional consumption, emissions are reduced, energy efficiency is increased and supply costs are reduced.

HSE offers a full range of all energy carriers, making it inexpensive and easy for the customers to manage. HSE identifies, in terms of the customer's energy requirements, the characteristics of the technology plant, manage the preparation of all authorisation documents, operate and manage the plant.

At the end of 2018, 15 cogeneration plants run by HSE were operational, of which 3 are trigeneration plants.

The environmental benefits achieved in 2018 by these plants include 14,227 tonnes lower CO₂ emissions and primary energy savings of approx. 6,076 toe.

HSE and ASE operate using public-private partnership instruments in the public administration client market. Also for this particular type of contract, the Group companies propose significant investments both

for heat generation by installing new condensing boilers, heat pumps, and insulating building envelopes by installing thermal insulation and replacing windows and doors with better-performing types. The offer is completed by modern energy management, provided under an “Energy Service” contractual model.

Implementing several measures can achieve savings of 8 to 18%, depending on consumption and previous measures on the envelopes and can be combined with the seismic upgrading of the buildings.

Under this model, energy efficiency measures can be financed with the energy savings provided by those same measures, and when possible, without increasing the current expense level of the recipient of the measures.

ASE is the Hera Group company dedicated to public administration tenders for energy service, facility management, operation and maintenance. In 2018, as a result of the tenders it won, it **invested Euro 10 million**.

Energy-saving commercial offers

In 2018, we confirmed our commitment to environmental sustainability and energy efficiency, with added-value services that provide consumption monitoring and reduction for Hera Comm's household and business customers.

The **consumption analysis report** is a free service that Hera Comm makes available to its customers and helps them compare their energy consumption with that of a similar household in size, in the same province and that uses a similar amount of energy (for domestic customers). The report also compares your consumption in the same period of the previous year and provides advice on how to optimize energy use. All the data are also accessible on the “Consumption Analysis” web platform, accessible from Online Services and in the dedicated section of the My Hera app.

Hera has experimentally carried out an initial analysis on a sample of customers who receive consumption analysis reports for their electricity contracts, compared to a control sample of customers who do not receive it, to assess its effects in terms of reducing consumption. The two samples were identified using statistical methods, taking care to ensure homogeneity by period of consumption, by geographical location (to compensate the effects of external temperature) and by type of consumption.

The analysis showed a **saving of about 2.5%, due to the effect of behavioural changes** adopted by the customers receiving the report, as they had become aware of their consumption habits.

Given the positive result of these experimental analyses, we are now optimizing the service; in particular, we are working on the following aspects:

- simplification of the information stimuli provided by the report;
- simplification of the language used in the report;
- modification of customer clustering algorithms for comparison with “similar customers”.

This service is now available for electricity, gas and district heating, and we will gradually it also to residential water service customers during 2019.

The **Hera LED** option can be combined with many of Hera Comm's free market offers, for both new and existing customers, and offers customers one or two sets of 10 LED bulbs per contract at a 30% discount on their market value. Replacing an incandescent bulb with a high-efficiency LED bulb can save up to 80% energy. As stated in the product specifications, a 9 W LED bulb replaces a 60 W incandescent bulb. So if we consider an average daily use of 4h/day, an LED bulb consumes about 13 kWh/year compared to the 88 kWh/year of an equivalent incandescent bulb, significantly reducing costs and benefiting the environment.

The **Hera thermo** option lets customers control the gas consumption of their home thanks to a smart, remotely controllable thermostat. Using it leads to a greater attention to how the gas is used: in fact, the app makes it easy to check the temperature set in the house and check the operation of the boiler at any

time. This ease of control increases awareness and reduces waste, both by decreasing the temperature set during certain time ranges and by optimising the on/off cycles of the system that were previously needed to keep the desired indoor temperature. Research shows that a 1 °C temperature reduction in a house leads to saving between 5% and 10% of gas during the winter season (Source: Enea).

Hera ContaWatt is the option that helps residential and business customers monitor their electricity consumption: the easy-to-install device connects to the electricity meter via a sensor and makes it possible, using a dedicated app, to check electricity consumption from mobile devices or PCs. A summary with consumption details is also sent by email every week. The ContaWatt independently connects to a data transfer platform, can send real-time anomaly alerts to the app or via email and installation does not require specialists.

Contracts at the end of the year	2016	2017	2018
Contracts at the end of the year with electricity energy efficiency services	58,237	161,947	159,048
% Contracts at the end of the year with energy efficiency services out of total electricity contracts	7.7%	18.7%	18.8%
Contracts at the end of the year with gas energy efficiency services	73,032	162,507	147,811
% Contracts at the end of the year with energy efficiency services out of total gas contracts	6.3%	13.8%	11.7%
Electricity and gas contracts with energy efficiency services	6.8%	15.9%	14.6%

In 2018, customers with Energy Efficiency Services accounted for 14.6% of the total. The data includes the consumption analysis report, Hera LED, Hera ContaWatt and Hera Thermo. The decrease in the 2018 data compared to the previous year is due to a change in how the consumption analysis report is disseminated (which represents the most significant share of contracts with energy efficiency services). Until 2017, only customers who chose the Nuova Idea Hera rate plan received this report, without having to specifically request it. From 2018, all customers can have the analysis, regardless of their type of offer, but only by requesting it. This change reduced the number of customers with consumption analysis reports, but made them more aware of energy efficiency matters.

This reduction was partly offset by the increase in customers with other energy efficiency services (+6,000 contracts in 2018 compared to the previous year).

Spreading renewable energy

Electricity and thermal energy production plants from renewable sources

Herambiente produces heat and electricity from the **combustion of waste**, in its ten waste-to-energy plants with a total installed electrical capacity of over 120 MW. Nine of these waste-to-energy plants are dedicated to municipal waste and, as described in greater detail below, the energy they produce is considered to be **51% renewable** (biodegradable share of waste treated). Three of these waste-to-energy plants, moreover, recover thermal energy to supply **district heating** networks. The Ferrara district heating network, in addition to recovering heat from the waste-to-energy plant, also uses **geothermal** energy drawn from the wells in Casaglia which is, in fact, its main source.

Herambiente owns the **biodigesters** at Ca' Baldacci (RN), Voltana di Lugo (RA) and Cesena, each with a capacity of 1 MW. In addition, the biogas exploitation plants at 9 landfills are still active, as is the biomass plant operated in Faenza by Enomondo, in which Herambiente has a 50% stake.

The plants for recovering energy from **purification sludge** (biogas) in Bologna, Cesena, Forlì and Savignano sul Rubicone (FC) are also part of the integrated water system.

Hera Spa also operates four **turboexpanders**, located in Bologna, Forli, Ravenna and Ferrara, which generate electricity by exploiting the gas pressure differentials in the distribution network.

Hera Spa has a 10% equity investment in Aloe Spa, the owner of 8 **photovoltaic solar facilities** in the provinces of Bologna, Ferrara, Ravenna, Brescia and Macerata, for a total capacity of 7.2 MW. The solar photovoltaic systems installed in Hera Spa's offices and facilities of Bologna, Ferrara, Imola, Faenza, Cesena and Ravenna add a total of 150 kW besides those installed at the Herambiente plants of Mordano (BO), Voltana (RA), Coriano (RN), Pozzilli (IS), and Rimini add a further 1.7 MW. AcegasApsAmga operates three photovoltaic solar facilities with a total output exceeding 100 kW, a turboexpander that generates 2 MW, a natural gas cogenerator with a nominal electricity output of 500 kW and two biogas cogenerators installed at major purification plants, that generate about 500 kW.

Lastly, we note the new plant to produce energy from waste in **S. Agata Bolognese**, inaugurated in 2018, to produce **biomethane from the organic fraction** of separate waste collection (we estimate around 7.5 million m³ of methane/year).

In addition to the above renewable energy production plants, Hera also runs plants that efficiently generate energy (with nominal fuel utilization factors over 80%); among these, the **85 MW cogeneration plant at Imola** stands out, as well as 9 smaller **cogeneration and trigeneration** plants, for an additional total installed capacity of 27 MW of electricity.

MW	2018	%
Renewable electric power	92	30%
Electric power cogeneration + turboexpansion	148	49%
Other	64	21%
Total electric power	303	100%
Renewable thermal power	53	8%
Cogeneration thermal power	125	18%
Other	507	74%
Total thermal power	662	100%

Electric power: renewable electric power includes 51% from waste-to-energy plants (the share considered renewable), biogas and photovoltaic; the Other item includes 49% from waste-to-energy plants (the share considered non-renewable). Thermal power: renewable thermal power includes 51% from waste-to-energy plants (the share considered renewable), biogas and geothermics; the Other item includes 49% from waste-to-energy plants (the share considered non-renewable) and thermoelectric power stations.

The production of electricity and thermal energy

The following table outlines the **net electricity production** of the Group's plants. The energy, net of consumption required by production (auxiliary consumption), may not match that fed into the grid since part of it may be used in other production processes.

Net electricity generated

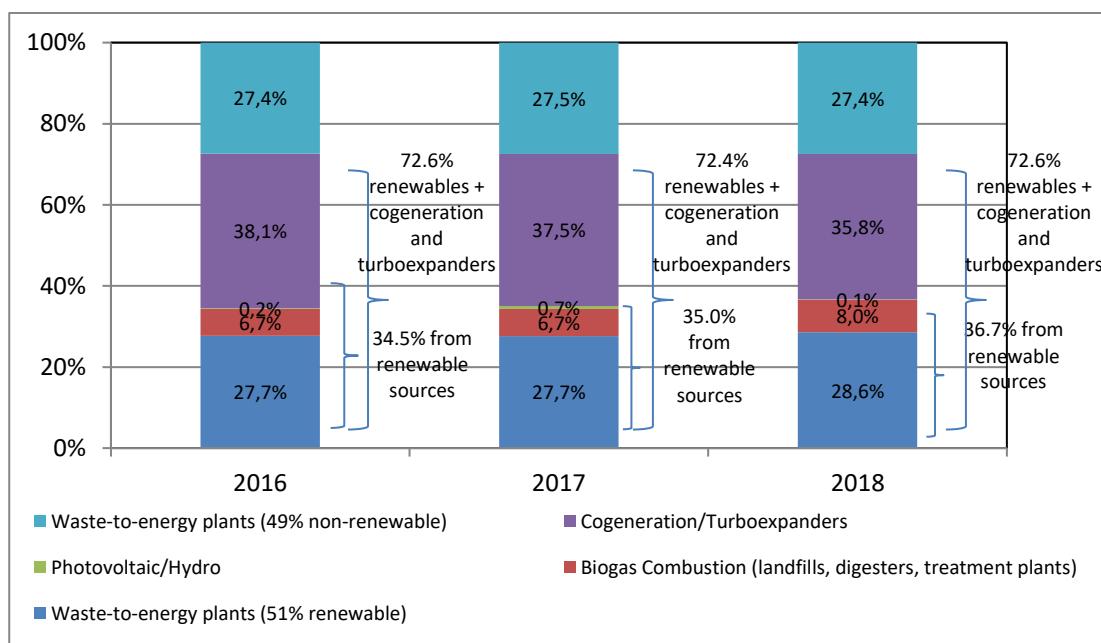
MWh	2016	2017	2018
Waste-to-energy plants (51% renewable)	382,420	367,638	347,481
Combustion of landfill biogas	32,807	50,527	56,373
Combustion of landfill biogas in third-party plants	32,728	12,280	12,922
Combustion of digester biogas	21,735	19,966	22,309
Combustion of purification plant biogas	5,355	6,036	6,139
Photovoltaic energy	1,827	1,971	1,714
Hydroelectricity	706	0	0
<i>Total renewable sources</i>	<i>477,578</i>	<i>458,419</i>	<i>446,937</i>
Cogeneration	348,261	362,337	302,626
Cogeneration operated as a service	169,589	128,194	127,538
Turboexpanders	8,703	7,918	5,725
<i>Total cogeneration + turboexpansion</i>	<i>526,552</i>	<i>498,449</i>	<i>435,889</i>
Waste-to-energy plants (49% non-renewable)	378,715	365,283	333,854
<i>Total traditional sources</i>	<i>378,715</i>	<i>365,283</i>	<i>333,854</i>
Total	1,382,845	1,322,151	1,216,680

Electricity production from renewable sources was 446 GWh (-3% compared with 2017) as a result of a decrease in the total electricity produced by the waste-to-energy plants and consequently also the share of renewable energy. All the other renewable sources (excluding photovoltaic, which decreased slightly) increased, compared to 2017.

Electricity production from cogeneration decreased (-16%) due to lower production at the Imola Casalegnو cogeneration plant (-50 GWh produced) for a lower number of hours of scheduled operation. The production of hydroelectric power is zero for the years 2017 and 2018, due to the sale of the hydroelectric plant Cavaticcio in Bologna.

Overall net electricity produced by the Group plants, therefore, fell by 8%.

Net electricity generated



Electricity produced from renewable sources is equal to 36.7% of the total in 2018, up compared to the previous year. 35.8% is generated by cogeneration and turboexpansion, high energy efficiency systems. Together, the two categories account for 72.6% of the electricity produced. The remaining production has a high level of environmental sustainability, as it is energy recovered from waste-to-energy transformation for the share exceeding 51%.

Incentives to generate electricity using green certificates are awarded to plants fuelled by renewable sources which started operating by 31 December 2012 and to cogeneration plants combined with district heating networks which started operating by 31 December 2009. In both cases, the amount of energy incentivised is not exactly equal to the amount of electricity produced. In the first case, for plants that started operations after 2007, multiplication coefficients were introduced that take into account the plant's technology: for example, if landfill biogas is used, the recognition awarded is calculated by multiplying the energy generated by 0.8. For non-agricultural biomass with a short supply chain, the factor is 1.3. In the second case, the incentive is proportional to the sale of cogenerated useful heat to district heating network users. Starting from 2016, any remaining right to the issue of green certificates has been converted into an incentive for the electricity produced, as required by Italian Ministerial Decree of 6 July 2012.

For waste-derived electricity, the energy recognised for earning incentives, and to which the above-mentioned factors apply, is limited to the biodegradable portion, since it is considered a renewable source by European and Italian regulations. Italian Ministerial Decree of 6 July 2012 defines the criteria for evaluating this portion on a flat rate basis, set at 51% for waste-to-energy plants that use municipal waste downstream from separate waste collection. In calculating the share of energy produced from renewable sources, a figure of 51% was considered for both electricity and thermal energy produced from waste-to-energy plants, applying the flat-rate criteria. This percentage was assumed as applied to all waste disposed of in waste-to-energy plants (municipal and special) and for all the three years considered, in order to have consistent terms of comparison defined in accordance with the regulations in force. The one exception is the special-waste waste-to-energy plant in Ravenna, whose production is given a biodegradability coefficient of nearly zero since the waste it treats is considered non-renewable, because it comes from industrial processes.

For cogeneration plants, the Ministerial Decree of 4 August 2011, implementing Legislative Decree 20/2007, establishes the methods for calculating cogeneration production and the performance level the cogeneration process must achieve in order to qualify as high-performance cogeneration. The subsequent decree of the Ministry of Economic Development of 5 September 2011 determines a new support regime for cogeneration: this incentive is based on white certificates and is recognised by the Energy Services Manager, after attributing the qualification of cogeneration, according to the actual primary energy savings achieved.

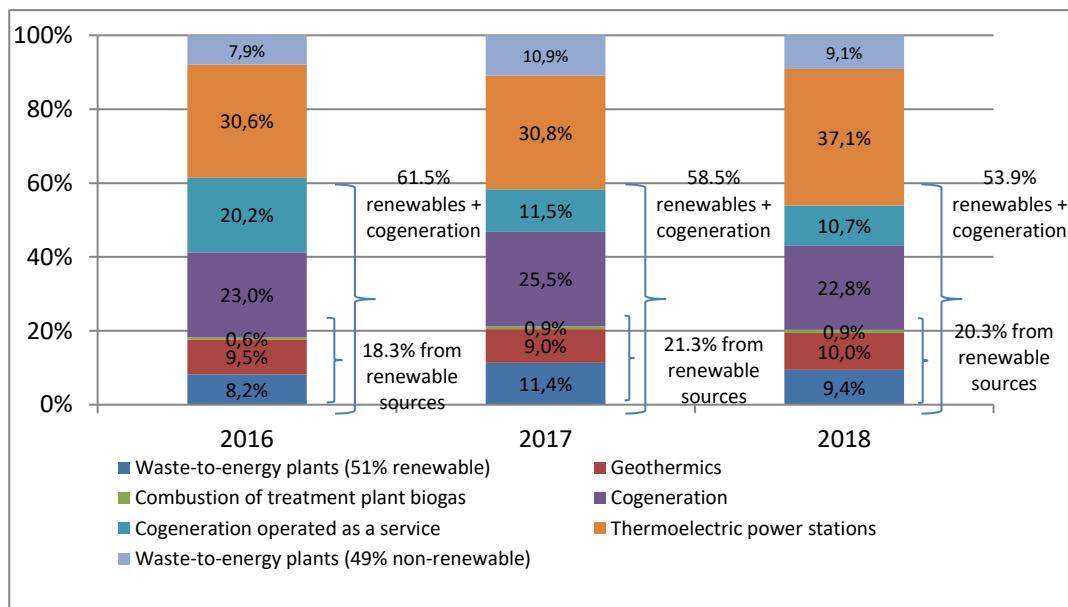
Thermal energy produced

MWh	2016	2017	2018
Waste-to-energy plants (51% renewable)	62,463	79,783	71,231
Geothermics	71,733	63,535	75,382
Combustion of purification plant biogas	4,294	5,985	6,808
<i>Total renewable sources</i>	<i>138,490</i>	<i>149,304</i>	<i>153,422</i>
Cogeneration	174,272	179,250	172,721
Cogeneration operated as a service	153,222	80,873	81,004
<i>Total cogeneration</i>	<i>327,494</i>	<i>260,123</i>	<i>253,725</i>
Thermoelectric power stations	231,607	216,055	280,361
Waste-to-energy plants (49% non-renewable)	60,013	76,655	68,438
<i>Total traditional sources</i>	<i>291,620</i>	<i>292,710</i>	<i>348,799</i>
Total	757,604	702,136	755,946

Thermal energy produced from renewable sources increased by 3% in 2018 following an increase in the energy from geothermal sources (over 11,800 MWh compared to 2017, +16%). The share of energy produced has decreased: from cogeneration (-4%) – due to the lower number of hours of operation of the Imola Casalegno plant as mentioned above – and from the waste-to-energy plants (-11%).

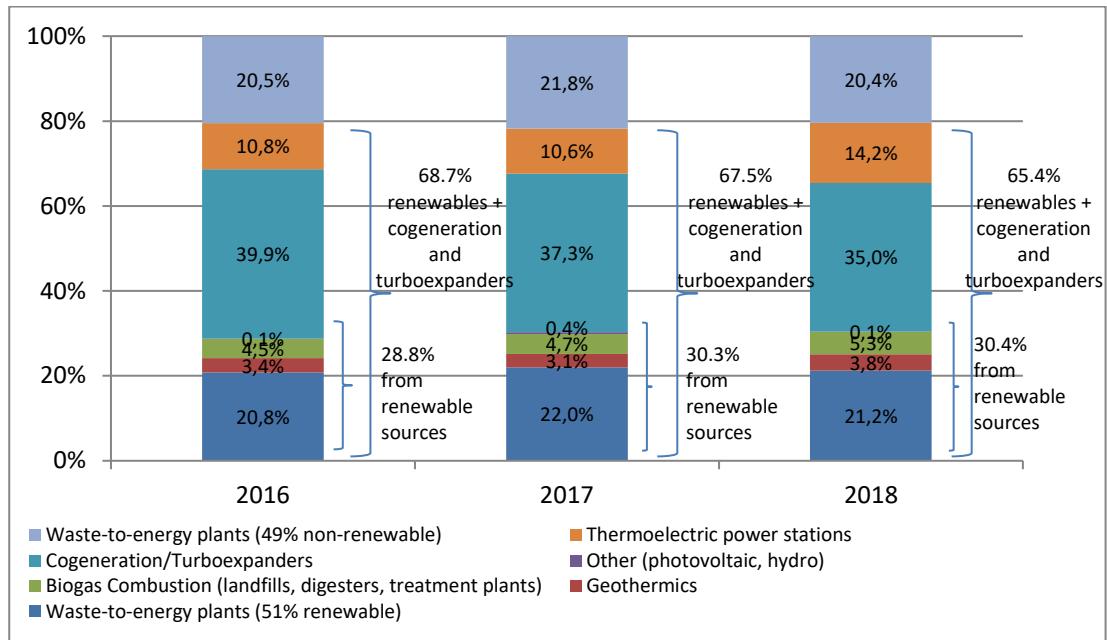
Total net thermal energy produced by the Group's plants increased by 8%, mainly due to the increase in production from thermal power stations (+64 thousand MWh).

Thermal energy produced



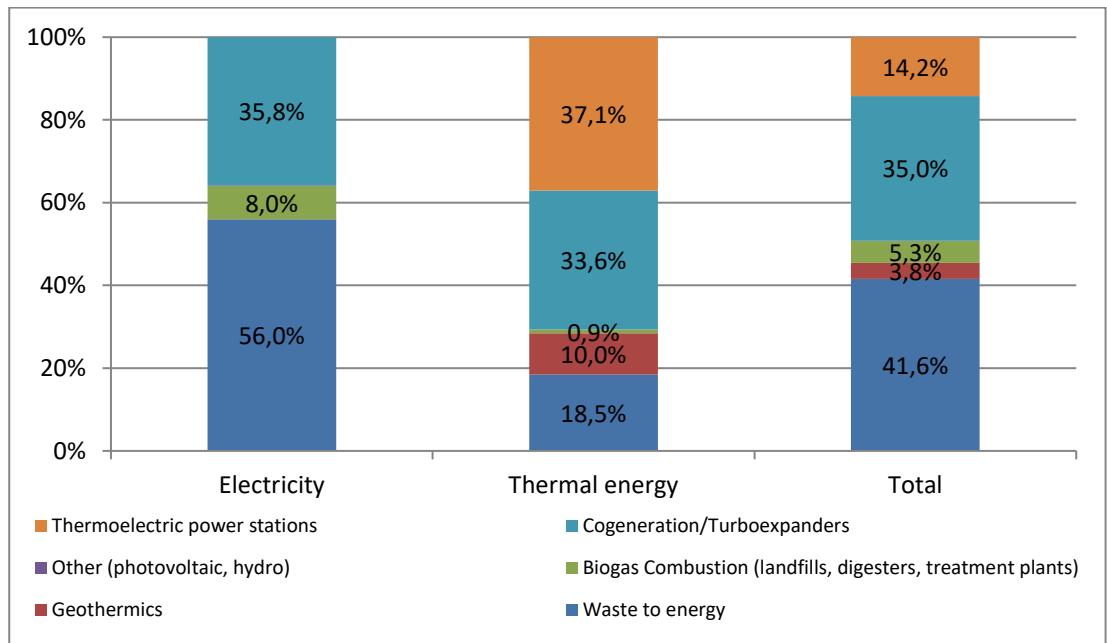
Thermal energy produced from renewable sources was 20.3% of the total in 2018, slightly down compared with 2017, due to the lower production of total energy by the waste-to-energy plants, with consequences on the renewable share of this source. This reduction is only partly offset by the already-mentioned increase in the production of geothermal energy. 34% generated using cogeneration, a high energy efficiency system. Together, the two categories account for 54% of the electricity produced. The energy recovered from waste-to-energy transformation for the share exceeding 51% is 9.1%.

Total energy produced



The **total energy produced from renewable sources in 2018** was 30.4%, in line with the previous year. The share of energy produced by cogeneration and turboexpanders amounts to 35%. Together, the two categories represent 65.4% of total energy produced by the Group.

Total energy produced



In coming years, there will be a further improvement in the Group's energy production sustainability profile, mainly due to:

- full operational start-up in 2019 of the plant mentioned above to produce biomethane from organic waste, in Bologna;

- the 2.7% increase by 2022 (compared to 2018 values) in the use of geothermal energy for the Ferrara district heating system, following the concession for direct operation of geothermal wells being awarded to Hera.

Below is an outline of the environmental performance of the district heating projects financed or refinanced through the Green Bond issued in July 2014.

The performance of the projects financed with the Green Bond

	Thermal energy produced (MWh)	Primary energy saved (toe)	Percentage of renewable and similar sources used
Bologna Area	166,466	6,782	51%
Ferrara Area	141,270	12,623	84%
Forlì Area	61,201	1,659	52%
Imola-Faenza Area	103,508	14,514	96%
Modena Area	26,366	933	45%

Renewable energy commercial offers

Environmental sustainability is one of the pillars on which Hera Comm bases its commercial operations; the planning of new offers and solutions also revolves around this value. Customers that sign up for “Pacchetto Natura”, support electricity production from renewable sources without incurring in additional costs, contribute to reduce paper consumption by using online billing, and are on the road less since they use direct debit to pay their bills.

The number of customers that joined “Pacchetto Natura” increased by 37% from 2017 to 2018, showing their appreciation and greater attention towards options with low environmental impact.

Contracts at the end of the year with the “Pacchetto Natura” option (electricity) (Qty)	2016	2017	2018
Contracts at year end with the “Pacchetto Natura” option (electricity)	55,761	75,277	102,779
% Contracts at year end with the “Pacchetto Natura” option (EE) divided by total contracts (EE)	7.4%	8.7%	12.2%

Reduction of greenhouse gas emissions

The commitment to reduce our greenhouse gas emissions

Since fossil fuels contribute to climate change, reducing their use is essential to limit the increase of the main and most common greenhouse gas: carbon dioxide.

The Group's commitment originates in the transparency and accountability of its actions and its commitment to fight climate change and continues throughout the many projects it has initiated to promote energy production from renewable sources, to reduce energy consumption and to provide its customers with opportunities to reduce their greenhouse gas emissions.

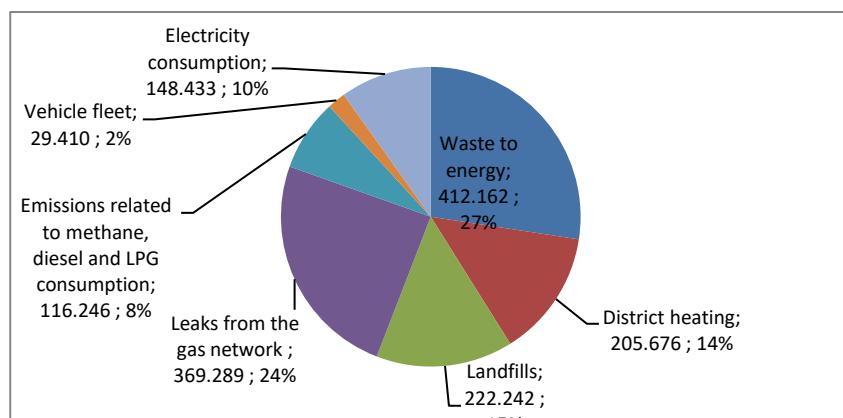
Since 2006, in fact, the Hera Group has been a member of the Carbon Disclosure Project (CDP), an independent not-for-profit organization that offers businesses and countries a way to measure, track, manage and share information about climate change and on the sustainable use of water resources, on a global scale. Compliance with the CDP requires measuring and reporting all of an organisation's performance and the initiatives it takes to reduce greenhouse gas emissions. In 2018, Hera achieved level B on an A-D scale, above the average (level C) for the oil and gas sector.

The Group's greenhouse gas emissions (GHG) are mainly due to its plants (waste-to-energy and district heating plants), and to leaks from the gas network and from landfills.

Total greenhouse gas emissions

	2016	2017	2018
Direct emissions (GHG scope 1) (t of CO ₂)	1,396,716	1,426,401	1,355,024
Indirect emissions from consumption of electricity (GHG scope 2 market based) (t CO ₂)	295,393	193,746	148,433
Total of scopes 1 and 2 (t of CO₂)	1,692,110	1,620,147	1,503,457
EBITDA (Euro mln)	917	985	1,031
Carbon intensity index (t of CO₂ emitted scope 1 and 2/EBITDA Euro mln)	1,845	1,645	1,458

Composition of total greenhouse gas emissions



The following coefficients were used to estimate Scope 1 emissions: the DEFRA 2017 coefficients (expressed in CO₂-eq) for motor vehicle fuels (diesel, petrol, natural gas, LPG) and for emissions associated with diesel and LPG for other uses; the coefficient of the Ministry of the Environment (expressed in CO₂) for methane. It should be noted that the emissions associated with diesel and LPG for other uses and methane gas for uses other than district heating and waste-to-energy plants were considered starting from 2017. Greenhouse gas emissions from landfills were estimated considering the methane contained in the biogas given off by the landfill matter, plus carbon dioxide from the combustion of tapped biogas, from which the portion of biodegradable substances was removed; for waste-to-energy

plants, the estimate was carried out by considering the carbon dioxide during combustion of the non-biodegradable portion of waste and of the other fuels used in the plant; the gas network losses were estimated and considered completely dispersed in the atmosphere - the GWP considered is 25 for methane and 298 for N₂O, (4th Assessment Report IPCC). On the other hand, the NIR 2017 coefficients of ISPRA for the location-based method and the 2016 AIB European Residual Mix for the market-based method (expressed in CO₂) were used to estimate electricity consumption emissions (Scope 2). The indicator does not include the Ravenna waste disposal plant for special waste and the Trieste trigeneration plant, the emissions of which can be estimated at 3.5% of the total.

In 2018, the Hera Group released 1.5 million tonnes of carbon dioxide (-7.2% compared to 2017). Direct emissions (scope 1) amounted to 1.3 million tonnes, down 5.0% compared to 2017 mainly due to (i) a reduction in gas network losses (-22.3%); (ii) a reduction in emissions from landfills (-12.0%), which was affected by lower landfill use for the disposal of municipal waste and; (iii) a reduction in greenhouse gas emissions from district heating (-4.0%) due to lower energy production, particularly electricity, from cogeneration plants (as indicated in the relevant paragraph).

Emissions indirectly caused by electricity consumption (scope 2) amounted to 148 thousand tonnes, down compared to 2017 (-23.4%), as a result of the extension of Hera Spa's choice – made in 2017 to purchase electricity from renewable sources – to AcegasApsAmga and Marche Multiservizi (57% of the total electricity consumption of the entire Group). This has allowed the Group to save about 200 thousand tonnes of CO₂, 13% of the Group's total. The value of the scope 2 emissions indicated above is calculated taking into account the company's energy purchase choices ("market based" method), i.e. the share of renewable energy purchased with Guarantee of Origin (GO) certificates and the share of electricity purchased without certificates. For this second component, the emission factor relative to the national residual mix was used. The scope 2 emissions calculated with the location based method are equal to 234,638 tonnes. This value is based on the company's location and therefore uses the average emission factor of the national fuel mix, without taking into account the company's purchase choices.

As part of the ISO 50001 management system, 303 energy consumption reduction measures have been defined by Hera Spa, InRete, AcegasApsAmga and Marche Multiservizi, some of which have been implemented and some of which will be implemented by 2020, and which achieve an overall savings of over 12,315 toe/year (over the 2020 target of reducing consumption by 5% compared to 2013) and over 21 thousand tonnes of CO₂ per year. In addition, 69 other energy efficiency improvement measures have been implemented, are in progress or are planned by Herambiente, Hera Servizi Energia and Hera Luce, for a total of 12,095 toe/year of overall savings, reaching approximately 21 thousand tonnes of CO₂ per year.

The ratio between carbon dioxide emissions and the Group's gross operating margin shows for 2018 a decrease compared to 2017 (-11%) mainly due to the reasons described above as well as the trend in EBITDA (+12% in the three-year period considered). The ratio versus revenues has also significantly decreased in 2017-2018 (-15%), from 288 to 245 t of CO₂ per million Euro.

The Carbon Footprint of Energy Production

	2015	2016	2017	2018
Waste-to-energy plants (t)	487,162	462,258	421,236	412,162
District heating (t)	216,699	204,025	206,552	190,181
Anaerobic digesters (t)	13,489	21,625	18,565	20,725
Purification plant biogas (t)	4,156	3,853	4,877	5,243
Landfills (t)	361,807	269,965	252,429	222,342
Total (t)	1,083,313	961,726	903,660	850,652
Electricity and thermal energy produced by plants (MWh)	1,884,392	1,812,811	1,815,543	1,764,084
Carbon footprint of energy production (kg/MWh)	575	531	498	482

Considering the emissions produced by the electricity and heat plants shown in the table, the carbon footprint of energy production in 2018 was 482 kg/MWh, down 16% compared to the 2015 baseline and down compared to 2017 (-3.1%) due to lower emissions: (i) from landfills, which were affected by a decrease in use for disposal of municipal waste; (ii) from waste-to-energy plants, as a result of lower energy production; (iii) from plants serving district heating, due to lower electricity production of the cogeneration plants, in particular that of Imola Casalegno (compared both to 2017 and to the forecasts for 2018).

The carbon footprint values for energy production were recalculated in 2018 to include: (i) emissions from the F3 industrial waste-to-energy plant in Ravenna, (ii) emissions from the combustion of biogas in biodigesters and purification plants for the production of electricity, and (iii) the energy produced by district heating power plants. The values for 2015-2017 shown in the table are therefore pro-forma. The carbon footprint for energy production calculated for the year 2018 on a like-for-like basis published in the previous Report was 527 t/kWh, stable compared to 2017.

The measures already in place and those planned by the Hera Group will enable us to further reduce the carbon footprint of our energy production in the years to come. By 2022, we expect to decrease the carbon footprint of our energy production by 23% (442 kg of CO₂/MWh) compared to 2015, mainly by producing biomethane from organic waste and as a result of further decreasing the use of landfills to treat municipal waste.

The EU-ETS (European Union Emission Trading System) sets a cap on the total level of emissions allowed to all participants in the scheme, but it also allows them to trade emission quotas on the market according to their needs. The Hera Group has 9 plants that are authorized to emit greenhouse gases on the basis of Emissions Trading regulations, for a total installed furnace power of 520 MW. Carbon dioxide emissions recorded in 2018, equal to 158,737 tonnes, are lower than those of 2017 (178,161 tonnes), mainly due to a milder climate, noting that all the plants feed district heating networks whose energy demand depends on seasonal weather. For all the plants concerned, the maximum emissions limit set for 2018 is 34,487 tonnes, in down as planned compared to the previous year as envisaged by the regulatory system. The free quota allocation in 2018 amounted to 18,546 tonnes.

Scope 3 greenhouse gas emissions (thousands of tonnes)

	2017	2018
Sales of natural gas	5,433	5,469
Sales of electricity	4,989	4,381
Emissions from industrial cogeneration contracts (not included in Scope 2)	49	49
Emissions from services provided	806	777
Emissions related to energy consumed (not included in Scope 2)	69	66
Total	11,346	10,741

The sale of natural gas item includes the production of the gas sold (upstream) and its use by customers. The sales of electricity item include the generation of the not renewable electricity sold. Emissions from industrial cogeneration contracts include the production of gas consumed (upstream) in industrial cogeneration plants operated as a service by HSE and the gas consumption of plants operated as a service by HSE. Le emissions of services operated as a service include: (i) the extraction and transport of fuels used in the Group's vehicles; (ii) the use of vehicles by suppliers for waste collection; (iii) the use of glass, plastic and recovered paper; (iv) the printing of bills. Emissions relating to energy consumed include electricity grid losses and the extraction and transport of fuels used to generate electricity.

As in 2017, we once again calculated our scope 3 emissions, i.e. indirect greenhouse gas emissions that occur as a result of the company's activities, but from sources that are not owned or directly controlled by the organization. This category may include activities both upstream and downstream of the business perimeter, such as the extraction and production of purchased raw materials or emissions occurring in the use-phase of the products sold. The total emissions of the categories considered in the calculation

amounted to around 11 million tonnes, a value about ten times higher than that of the Group's total direct and indirect emissions (scopes 1 and 2). The highest values are related to the sale of electricity and gas (9.8 million tonnes) to customers. The share of emissions related to non renewable electricity sold to customers decrease compared to 2017 as a result of the increase of the purchase of renewable energy, as indicated in the next paragraph.

Greenhouse gas emissions avoided (thousands of tonnes)

	2017	2018
Energy production from renewable sources	240.8	233.8
White certificates	496.2	515.9
Internal energy efficiency measures	19.3	34.0
District heating	125.7	121.0
Separate waste collection	209.4	217.3
Electricity from renewable sources sold	971.1	1.044.0
<i>of which electricity from renewable sources sold to customers with "Pacchetto Natura" and purchased for Hera Spa, Marche Multiservizi and AcegasApsAmga</i>	235.7	490.1
<i>of which electricity from renewable sources sold under contracts without the "Pacchetto Natura" option (purchased with Guarantee of Origin Certificates)</i>	-	439.2
<i>of which electricity from renewable sources sold under contracts without the "Pacchetto Natura" option (national fuel mix)</i>	735.4	114.8
Sale of recycled plastic by Aliplast	-	150.0
Total	2,062.5	2,316.0

Considering the emissions avoided by producing energy from renewable sources, energy saving initiatives, district heating, separate waste collection and sales to customers of electricity produced from renewable sources, total greenhouse gas emissions avoided in 2018 amounted to 2.3 million tonnes. Comparing this value to the number of inhabitants served by the Group, 528 kg of greenhouse gases per person were avoided by Hera's activities.

The greenhouse gas emissions avoided through the sale of renewable electricity can be broken in three components:

- electricity from renewable sources sold for customers with "Nature Package" and purchased for Group companies consumptions, doubled from the previous year thanks to: (i) the purchase of renewable energy for all the operating activities of Marche Multiservizi and AcegasApsAmga, which are added to Hera Spa, which already used renewable energy from 2017; (ii) the increase in customers with "Nature Package";
- the electricity from renewable sources that the Group has chosen to purchase also for 2018 consumption of all free market household customers without "Nature Package". The choice was made in March 2019, taking into account the availability of renewable electricity and the prices recorded on the market;
- the electricity purchased on the market, which includes a component from renewable sources, assessed on the basis of the composition of the complementary national energy mix, which decreases from 17% to 2.7% in 2017, as better detailed in the paragraph following. To calculate this quota, the last available data are used, which refers to the year preceding the one to which the sustainability report refers.

The purchases of renewable energy are guaranteed by the Certificates of Guarantee of Origin (GO), which attest precisely their origin from renewable sources. For each MWh of renewable electricity fed into the grid by qualified plants, the GSE (national electric grid manager) issues a GO certificate, in accordance with Directive 2009/28/EC. With effect from 1 January 2013, sales companies are obliged to purchase a quantity of GO securities equal to the renewable electricity sold, by 31 March of the year following that in which renewable electricity was supplied to customers finals.

The commitment to reduce our customers' carbon footprint

We implemented many activities to help our customers reduce their emissions by using better tools to control their consumption or by implementing energy saving measures.

In 2018, the offer of energy-saving solutions to Hera Comm customers continued, such as the Consumption Analysis Report, Hera LED, Hera Thermo and Hera ContaWatt, described in the chapter dedicated to energy efficiency.

The Hera Group also, via its subsidiaries Hera Servizi Energia and AcegasApsAmga Servizi Energetici works actively in energy efficiency improvement services, mainly addressing condominiums (who are offered a range of energy efficiency improvement solutions among which a system that provides individual metering of the heat and energy service), to large industrial customers (for which it operates as an ESCO) and the public administration (heat management with renovation of thermal plants and buildings).

In particular, in the industrial cogeneration sector, Hera offers multi-year energy supply contracts through the development and management of electricity and thermal energy production plants dedicated to meeting all the energy needs of top customers (15 plants operated, of which 3 are trigeneration plants, and over 14,227 tonnes of CO₂ avoided in 2018).

In collaboration with external partners, the Hera team provides its own know-how to support energy audits and implementation of measures. As reported in the third edition of our "Value to energy" report on energy efficiency, Hera has supported the creation of 507 projects (from 2007 to 2019) of which 133 at companies in its service area, that saved 753 thousand toe, equal to the annual electricity consumption of about 529 thousand households and 1.4 million tonnes of CO₂ avoided.

The electricity Hera Comm sells is partly generated from renewable sources. In 2017, the renewable share was 9% (was 19% in the previous year). Customers can check the share of renewables in the table published in their bill. The energy mix shown in the bills is calculated by the Energy Services Manager (GSE) by means of a complex procedure defined by the Ministry of Economic Development (as per Ministerial Decree of 31 July 2009). In detail, the electricity from renewable sources sold by Hera Comm is made up of two parts:

- the renewable electricity that the Hera Group offers customers who choose this type of energy with the aforementioned "Pacchetto Natura". Thanks to Hera Group's initiatives, **the quantity of renewable electricity sold through specific offers from 2016 to 2018 has tripled** (12% in 2018);
- the renewable part of the electricity that the Group purchases on the wholesale market, for customers who decide to not use renewable energy. In fact, part of the electricity bought on the wholesale market is from renewable sources, but at the time of purchase there is no distinction by source. This is only reported in the year following the year of sale. **From 2015 to 2017 the share of electricity from renewable sources in the wholesale market has dropped from 27% to 3%.**

The combination of these two factors (the growth in direct demand for electricity from renewable sources on the one hand and the vertical drop in the share of renewable sources in the wholesale market on the other) **means that the percentage of energy from renewable sources purchased by the Group has decreased overall.**

Case study

Promotion of energy efficiency

The renovation of public lighting services

In 2018, work was completed in the **Municipality of Ceccano** (FR), where the remaining 1,500 light points have already been renovated, out of 3,500 in total. The works to make the plants compliant and to ensure they are safe include, among other things, the replacement of sections of the power line, for a total of over 4 km. The traffic lights will also be fitted with LED lamps. Particular attention is paid to the old city centre, where the planned installation of artistic lanterns has been completed to further enhance this special part of town. We expect **energy savings of over 70%** compared to the initial state of the systems, which means about 290 toe, and a reduction of about 625 tonnes/year of CO₂ emissions.

Work has also been completed in Aviano (PN), Chions (PN), Faedis (UD), Porcia (PN), Rho (MI), Rivolta d'Adige (CR), Spinea (VE), Vejano (VT), **while work has begun** in Ardea (RM), Caprino Bergamasco (BG), Civitella del Tronto (TE), Colonnella (TE), Giulianova (TE), Madone (BG), Martinsicuro (TE), Sarezzo (BS), Suisio (BG) and Tortoreto (TE). The works carried out in 2018 will save 8,739,000 kWh of electricity each year, corresponding to 1,634 tonnes of oil equivalent (toe). Considering an average electricity consumption of a household of four people equal to 2,700 kWh per year, the amount of energy that will be saved each year with the measures Hera Luce made in 2018 is equivalent to the annual consumption of 3,237 households.

In 2018 Hera Luce was awarded the contract for the award and management of works to improve the efficiency of public lighting systems in the municipalities of **Lignano Sabbiadoro** (UD), **Madone** (BG), **Suisio** (BG), **Curno** (BG), **Sarezzo** (BS), **Marcheno** (BS), **Bernate Ticino** (MI), **Carbognano** (VT) and **Misano Adriatico** (RN).

The environmental impact in terms of energy savings and avoided emissions for the measures planned for 2019 is 1,300 toe.

New heating management contract in Modena with energy efficiency objectives

The Contract entered into by the Hera Group and the Municipality of Modena is an important example of an Energy Performance Contract (EPC), awarded to the Group as a result of a European Public Tender, competing with some of the most important companies in the industry.

The Hera Group, which partnered in the tender with Sinergie Spa (now AcegasApsAmga Servizi Energetici) committed to provide significant results to the Municipality in terms of energy efficiency improvement, to be achieved through both management improvements and energy renovation measures.

In particular, Hera Group's offer included a 18% reduction of thermal energy consumption compared to the past consumption (based on the average of the last 5 years) for the buildings included in the scope of the contract, and also planned to improve this performance by a further 10% due to energy efficiency improvement measures which will involve investments of Euro 7 million in the first years of the contract.

From the systems engineering point of view, the most significant investments concern implementing energy renovation measures for the thermal power plants, installing thermostatic valves on radiators, replacing burners, building solar thermal and photovoltaic systems, renovating lighting systems by installing LED lamps. "Passive" measures to limit heat dispersion from buildings also play an important role, including installing vertical cladding insulation on 12 buildings and insulating the roofs of 10 others.

During 2018, the positive effect of our management measures undertaken was confirmed, as we achieved a 18% improvement with respect to the historical data used as a basis for the tender (monitored during contract management). The first tranche of interventions was also carried out, both for the plant

renovation part and for the “passive” interventions, while a second tranche is planned for 2019. At the end of Thermal Year 2018-2019, the expected further reduction due to the investments may be confirmed.

Value to Energy fourth edition: energy efficiency for us and for our customers among the priorities

In the fourth edition of the “Value to Energy” report, published in November 2018 (2017 data), the Hera Group reported to its stakeholders the results it achieved in the last eleven years, in terms of energy efficiency. Verified by an independent certification body, the report analyses all the aspects of the multiutility’s commitment to saving and efficiently using energy, in the name of environmental and economic sustainability, in the interests of the area it serves and of its over 4 million customers.

From 2007 to 2017, the Group implemented 507 projects to save energy (of which 133 thanks to the collaboration and support of local businesses), saving 753 thousand toe (tonnes of oil equivalent), the annual consumption of 529 thousand households, and avoiding the release of 1.4 million tonnes of CO₂ avoided, equivalent to about one million fewer cars in circulation in a year (each travelling 10,000 km).

Decarbonisation is crucial to fight climate change. This is the direction taken by both by our energy efficiency measures and by the other projects to promote the production of energy from renewable sources explained in the “Value to energy” report.

Energy efficiency has always been a fundamental objective for Hera Group, as we are committed to constant seek and develop innovative solutions for both process control systems and plants. Energy efficiency is also considered the “fifth fuel”: the cheapest, with the greatest environmental benefit and one that can be generated by everyone, every day. Hera’s commitment on this front is shown by its results and also by Hera being given the CESEF Energy Efficiency Award, for 2018.

Spreading renewable energy

Hera biomethane from waste

From organic waste to biomethane that can directly reach homes after being fed into distribution networks. The project consists in producing methane from renewable sources, specifically by anaerobically biodegrading the organic fraction of separate waste, to be done at the Sant’Agata Bolognese composting plant.

Hera has been producing biogas for years, using biodigesters and landfills, and using it to generate electricity; the next big step is to refine it to make biomethane like the gas that is piped to households. This system is an initial embodiment that will use the organic fraction of separate municipal waste as raw material to produce biomethane and will also become fuel for methane-powered vehicles for local public transport.

The process begins with a semi-dry, continuous flow anaerobic biodigester where the organic waste is anaerobically digested, producing biogas and the digestate. The digestate is then sent to the subsequent composting step that comprises oxidation and final screening, to obtain high quality compost. The biogas is sent to an upgrading section to remove undesired components and obtain methane gas that meets the specifications for being injected into the network. This process is the foundation of a perfect circular economy in which food waste makes natural gas that can be used to cook more food or even be used for heating and for vehicles.

The biodigester will be able to process 100 thousand tonnes per year of organic waste and 35 thousand tonnes of pruning material from separate waste collection, and starting in 2018 it will produce about 7.5 million m³ per year of biomethane and about 20,000 tonnes of compost.

In December 2018, after an initial start-up phase, the biomethane produced began to be injected into SNAM’s network. The biomethane injected into the grid is sold for powering motor vehicles; by doing so

Herambiente obtains the incentive through CICs (Certificates of Release for Consumption of renewable fuels). The total amount of this work requires an investment of more than Euro 37 million, of which 33 million already accounted for.

Energy recovery from methane decompression

The project involves the exclusive development, construction and installation of an experimental system, based on a patented technology, to recover energy from the pressure drop in R&M stations. It is a small to medium sized turbo expander (330 kW electric) installed in the medium sized R&M stations, in combination with a heat pump that uses CO₂ as a heat carrier fluid, designed to use part of the electrical energy to preheat the gas used in the process.

A contract was signed in 2017 with BHGE for prototype testing of the system and the design of the prototype and the complementary works necessary for its installation in the “Ducati” R&M station in Bologna were completed.

In 2018, we completed all the authorization activities, the supplier completed construction of the machinery, all the necessary complementary works were carried out and the prototype itself was installed on the site.

As planned, preliminary tests are underway in preparation for the start of the experimental operation phase scheduled for early spring 2019.

Reduction of greenhouse gas emissions

Aliplast measures the carbon footprint of its products

In order to make available information on the carbon footprint (CFP) of some products, Aliplast has developed a computer tool to rapidly calculate the CFP on five types of product: PE granules, PE films, PET granules, PET plates, PET scales.

Aliplast commissioned this study to understand the environmental performance in relation to global warming of the above products, and therefore the quantity of greenhouse gas emission per functional unit of product (set as 1 kg), to identify the most environmentally critical phases of their life cycles and be able to act to reduce their environmental impact. The method used is IPCC 2013 GWP 100°, version 1.03.

The project involved analysing the greenhouse gas emissions of Aliplast products and comparing them with those of the corresponding virgin products. The result is expressed in kg of CO₂ equivalents associated with production. The CO₂ equivalent is, in fact, the measure used to describe the rate of emission of a mixture of greenhouse gases with different climate-altering effects using a single index (the so-called GWP, Global Warming Potential). CO₂ has been taken as a reference by the IPCC (Intergovernmental Panel on Climate Change) and its GWP set at 1. The other gases are therefore converted into CO₂ equivalents according to their GWP: for example, a gas that has climate-changing potential 21 times higher than CO₂, is counted as 21 tonnes of CO₂ equivalent.

The analysis showed that in 2017, the production of more than 80 thousand tonnes including PE Granules, PE Films, PET Granules and regenerated PET plate, avoided the production of more than 150 thousand tonnes of CO₂, corresponding to more than 385 thousand barrels of oil. The CO₂ savings obtained thanks to the contribution of suppliers and customers who believe in Aliplast's recycled products is equivalent to a reduction of more than 100,000 cars in a year, equal to those of an average Italian city.

Aliplast intends to extend the analysis to all the Group's production plants and to start from them to obtain even better performance with its future industrial developments.

Efficient use of resources

Objectives and performance

What we said we would do	What we have done	Area
<ul style="list-style-type: none"> • Continue implementing projects that prevent municipal waste: <ul style="list-style-type: none"> - extension of “Farmacoamico” (“MedicineFriend”) (increase of the coverage rate to 50% of the residents served in Emilia-Romagna in 2018); - start construction of “reuse areas” at waste collection centres. 	<ul style="list-style-type: none"> • 48% coverage rate of “Farmacoamico” of residents served in Emilia-Romagna (was 44% in 2017); started up the first reuse area for the “Cambia il finale” (“Change the Ending”) service in Ferrara. 	ER *
<ul style="list-style-type: none"> • Extend quantity-based tariff for municipal waste to a further 100,000 inhabitants in 2019. Complete the extension to all the municipalities served, by end 2021. 	<ul style="list-style-type: none"> • 100 thousand additional residents under quantity-based tariff in Emilia-Romagna since 2019. The total number of residents involved in Emilia-Romagna exceeds 13% in 15 municipalities. 	ER
<ul style="list-style-type: none"> • Municipal waste: increase the recycling rate to 60% by end 2021 and the recycling rate for packaging to 70%. 	<ul style="list-style-type: none"> • The recycling rate of packaging was 70% in 2017 (compared to 68% in 2016). The overall recycling rate was 48% in 2017 (compared to 47% in 2016). The 2018 data will be accounted for in the “Tracking Waste” report. 	ER T M
<ul style="list-style-type: none"> • Municipal waste: continue to reduce landfill use: <5% in 2018 and about 3% in 2021 at Hera Group level. 	<ul style="list-style-type: none"> • 4.5% municipal waste disposed of at landfills in 2018 on the total municipal waste collected (-45% compared to 2017). 	ER T M
<ul style="list-style-type: none"> • Municipal waste: increase separate collection: 60.6% in 2018 and 70% by end 2021 at Group level and extend the Rifiutologo (Wasteologist) app to the Marche region. 	<ul style="list-style-type: none"> • 62.5% separate waste collection in 2018. The extension of Il Rifiutologo app to Marche has been postponed to 2019. 	ER T M
<ul style="list-style-type: none"> • Industrial waste: supplement the waste management offer for customers with circular economy solutions and further increase the recovery rate. 	<ul style="list-style-type: none"> • 42% recovery rate (material and energy) of the 480 thousand tonnes of industrial waste managed by HASI in 2018 (was 30.5% in 2017). Commercial offers activated with solutions within the scope of the circular economy. 	
<ul style="list-style-type: none"> • Obtain the environmental permit for a mechanical-biological treatment plant for non-separate waste at Pesaro in order to further reduce the use of landfills. 	<ul style="list-style-type: none"> • The permit for the mechanical-biological treatment plant for non-separate waste at Pesaro will be requested in 2019. 	M
<ul style="list-style-type: none"> • Send to material recovery at least 74% of the waste treated in the 5 Herambiente selection plants and install crushing plants in Bologna (in 2018) and Modena (start of authorization process in 2018) to reduce the use of landfills for the disposal of screened waste. 	<ul style="list-style-type: none"> • 77% recycling rate of waste treated in Herambiente’s five selection plants. The shredding plant has been installed in Bologna and the authorization process for the Modena plant is underway. 	

What we said we would do	What we have done	Area
*		
<ul style="list-style-type: none"> Rimini Seawater Protection Plan: complete 2 of the measures in progress and continue work on 3 more projects in 2018. 	<ul style="list-style-type: none"> 2 measures completed in 2018. Work continued on 3 measures in 2018. At end 2018 7 of 14 measures of the Plan completed. 	ER
<ul style="list-style-type: none"> Start structuring water management activities as a result of joining the UN CEO Water Mandate. In this context, reduce water consumption at the Imola cogeneration plant by 40,000 m³ (-15% compared to 2017) 	<ul style="list-style-type: none"> 40 thousand m³ water expected to be saved every year at the Imola cogeneration plant thanks to the measure completed in 2017. Water management activity started. 	ER
<ul style="list-style-type: none"> Start the upgrade of the sewage and purification sector, in particular by: <ul style="list-style-type: none"> - upgrade of an urban area >2,000 pe by 2018 and of all urban areas >2,000 pe by end 2021; - completing the design for 66 urban areas between 200 and 2,000 pe in 2018; - completing the design of 5 plants for over 10,000 pe in 2018; 	<ul style="list-style-type: none"> The upgrade of the sewage and purification sector is underway: <ul style="list-style-type: none"> - 95% urban areas >2,000 pe achieved compliance by the end of 2018 and the work on Trieste's Servola plant was completed; - design completed for 66 urban areas between 200 and 2,000 pe (upgrade planned by end 2021); - design completed for 5 plants for over 10,000 pe (upgrade planned by 2021); 	ER T M
<ul style="list-style-type: none"> Launch scenario analyses on the impact of climate change on the supply sources and the aqueduct network and the resulting definition of an action plan agreed with public authorities. 	<ul style="list-style-type: none"> An analysis of the medium-long term scenario in the Emilia area was carried out in 2018 and a guideline to 2030 was defined to enhance water supplies and increase the resilience of aqueduct networks. 	ER
<ul style="list-style-type: none"> Start the authorization process to upgrade the Borgheria purification plant in Pesaro. 	<ul style="list-style-type: none"> The contract awarding the work for the adaptation of the Borgheria purification plant in Pesaro was signed. The work will be completed by end 2021. 	M

What we will do	Area
*	
<ul style="list-style-type: none"> 73.2% separate waste collection by 2022 also by extending the quantity-based tariff in Emilia-Romagna (74.2% Hera, 72.5% Marche Multiservizi, 67.6% AcegasApsAmga). 	ER T M
<ul style="list-style-type: none"> 76% recycling rate for packaging and 60% overall recycling rate for municipal waste by 2022. 	ER T M
<ul style="list-style-type: none"> 55% coverage rate of "Farmacoamico" of the residents served in 2020. Extend the presence of "reuse areas" in separate waste collection centres to other areas. 	ER
<ul style="list-style-type: none"> Develop for large industrial companies a unique offer with "circular" solutions in the fields of waste, energy, water and telecommunications. 	
<ul style="list-style-type: none"> +70% plastic recycled by Aliplast by 2025 (compared to 2017), + 30% plastic collected in the municipalities served and +50% plastic sorted and sent for recycling by the Group's plants are the commitments made by the "New Plastics Economy Global Commitment" of the Ellen MacArthur Foundation to combat pollution from plastic waste. 	
<ul style="list-style-type: none"> Explore the possibility of using recycled plastics and, more generally, the use of secondary raw materials in network services. 	

What we will do	Area *
• 2 further measures completed in 2019 for the Rimini Seawater Protection Plan. 9 measures completed by the end of 2019 out of the 14 set out in the Plan, which will be completed by 2023.	ER
• 10% reduction in internal water consumption by 2022, compared to 2017 consumption.	ER
• 90 thousand residential customers and 6 thousand industrial customers with the water consumption control service, to promote water saving.	ER
• Start new interventions for the reuse of purified water and make those started in 2018 fully operational.	ER
• 100% urban areas >2,000 pe to achieve compliance by end 2021 thanks to the continuation of the compliance plan for the sewage and purification sector. Furthermore: - 252 urban areas achieved compliance over 254 served between 200 and 2,000 pe in Emilia-Romagna and Triveneto by end 2021 (1 in Triveneto and 91 in Emilia-Romagna) - by 2021, further 6 interventions in 4 urban areas of more than 10,000 pe (in Emilia-Romagna) in relation to the requirements of Resolution 201/2016 of the Emilia-Romagna Regional Government on the compliance of urban wastewater sewage (8 interventions in total carried out by 2021, compared to 33 to be carried out by end of 2030).	ER T M

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Transition to a circular economy

The results of Hera's integrated waste management system

The Hera Group is a major player in the field of municipal waste management, serving **174 municipalities in 4 regions for a total population of 3.1 million inhabitants**. In Emilia-Romagna, Hera Spa manages the municipal waste service in six provinces, for a total of 119 municipalities. In 2018 Forlì and 12 other municipalities in the province of Forlì-Cesena formed an in-house company and left the management assigned to Hera Spa (in fact in 2017, 132 municipalities were served in Emilia-Romagna). Besides these municipalities, Hera Spa manages three others in the province of Florence. In addition, through Marche Multiservizi, it also serves 40 municipalities in the province of Pesaro-Urbino and another six municipalities in areas adjacent to the Marche Region. Since 2013, through AcegasApsAmga, it has served 6 municipalities in the provinces of Padua and Trieste.

Total municipal waste collected, by area

thousands of tonnes	2016	2017	2018
Hera	1,632.4	1,617.1	1,554.7
AcegasApsAmga	247.3	246.8	252.8
Marche Multiservizi	167.1	175.2	172.8
Total	2,046.8	2,039.0	1,980.3
kg per inhabitant	619	616	632

The analysis of the data on collected waste must take into account the change in scope due to 13 municipalities in the province of Forlì switching to in house management. For the same area, the trend in the 2017-2018 two-year period shows an increase in the quantities collected in Emilia-Romagna (+4.6% compared to 2017), in Triveneto (+2.4%) and a slight decrease in the Marche region (-1.3%).

Hera's service area is characterized by a high level of production of similar-to-municipal waste and, as such, it has one of the highest **annual per capita waste production rates** in Italy: 632 kilograms per inhabitant (650 kilograms per capita in Emilia-Romagna, 645 in Marche and 538 in Triveneto), compared with a national average of 489 kilograms in 2017 (Source: Ispra, 2018 Municipal Waste Report). The value increased overall compared to 2017, in particular in Emilia-Romagna and Triveneto.

Hera Group's service area has a very well-structured collection system that can separately collect many different types of municipal waste, primarily for material recovery, reconciling the needs of the Municipalities with operating efficiency and effectiveness.

Hera's Waste Management System (WMS) is characterized by three main services:

- **local collection:** these are widespread collections throughout the territory, primarily targeted at residential users and small, non-residential users and can be carried out using:
 - roadside bins, set up according to the Basic Drop-Off Points (IEB) model, which groups the main collection chains into individual stations. In recent years, electronic traceability systems for disposal monitoring (e.g. the "lid" model for non-separate waste or locking systems for separate waste collection chains) have become increasingly widespread in combination with road containers;
 - door-to-door collection, carried out at the users' premises, where residents set out the waste for collection on set days and times.
- **residential collection** for "target", non-residential users that produce specific waste similar to municipal waste (cardboard in shops, glass or cans in bars, organic waste in canteens or restaurants, etc.);
- **Waste collection centres:** also known as Drop-Off Points, these infrastructures are present in almost all the municipalities served by Hera and complete the range of services offered to residents for dropping off separate municipal waste. The use of waste collection centres is becoming a real habit for residents: a wide range of categories of municipal waste (including certain hazardous waste) can be safely disposed of besides bulky and heavy waste. Moreover, in many territories, there is a system of discounts that rewards the disposal of various categories of separate waste.

The system is also supplemented by the door-to-door collection of bulky waste (free of charge, by phone call or by appointment), the collection of green waste, and the collection of other types of hazardous waste (such as batteries and pharmaceuticals), at specific businesses. Lastly, roadside collection and collection at shopping centres of WEEE (Waste Electrical and Electronic Equipment) and of used vegetable oil is gradually spreading.

To improve their effectiveness, the collection services are **diversified according to standardized area types** (city centres, residential areas, tourist areas, suburban areas, industrial zones). For each area, the collection system that best fits in with urban, environmental and local characteristics is identified. The aim is to **maximize the percentage of separate waste collection** and its quality by providing a technically and economically sustainable service.

Separate waste collection

The main types of separately collected waste are:

- **packaging and similar:** paper and cardboard, plastic, glass, aluminium and steel cans, wood;
- **durable goods:** iron, waste from electrical and electronic appliances (WEEE) and bulky waste;
- **compostable waste:** kitchen organic waste and "green" waste from mowing and pruning material;
- **other waste:** inert materials from small demolitions, used mineral oil and cooking oil, batteries and accumulators, pharmaceuticals and other hazardous municipal waste.

In **Emilia-Romagna**, Regional Law 16 of 2015 on the Circular Economy set as a minimum objective **by end 2020** the launch of **Quantity-Based Tariff** throughout the region. Quantity-based tariff is one of the economic and financial instruments for implementing the Regional Waste Management Plan and makes the payment of sanitation services no longer only linked to the area and the number of residents in a house, but also to the quantity of non-separate waste produced. The quantity-based tariff rewards responsible conduct.

As regards local collection, which accounts for the majority of waste, Hera is implementing various systems **geared towards the future application of quantity-based tariffs**:

- roadside bins with a control system and user identification (“lid” system);
- residential collection with bins equipped with tag transponders;
- collection centres with weighing and user registration systems.

In many municipalities, there are mixed local collection systems (for example, roadside collection for some materials and door-to-door for others; roadside collection in some areas, door-to-door in others): for the sake of simplicity, the local collection services of each municipality are reclassified by their most common system.

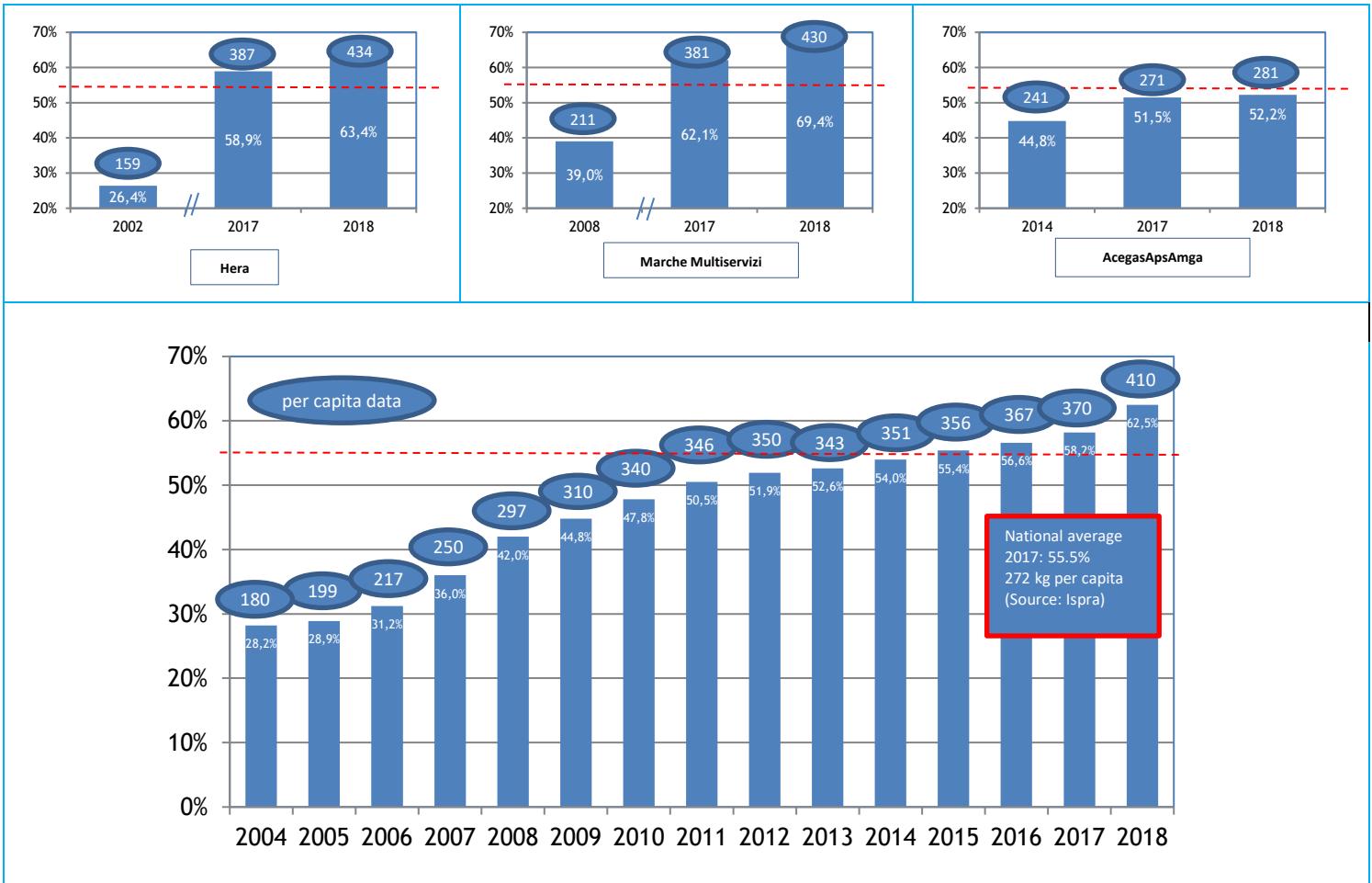
Main forms of waste collection used in the areas served

number of municipalities served	2016	2017	2018	% 2018 (on the number of residents)
Roadside collection	127	106	86	53%
Roadside collection with special disposal-control mechanisms	23	32	31	20%
Mixed system (door-to-door non-separate waste and roadside separate waste)	13	24	31	14%
Total door to door	24	25	26	13%
Total	187	187	174	100%

In view of the gradual switch to quantity-based tariff in **Emilia-Romagna**, reorganization of the service has started and will continue in coming years to implement identification and measurement of disposals. In 2018 in Emilia-Romagna, for the same area, the number of municipalities with a simple container roadside collection system fell again and there was an increase in the collection systems that identify users at the time of disposal, to initiate or prepare for the start of quantity-based tariff. 30 municipalities use **disposal control systems** (plus 1 municipality in the Triveneto area) and 17 use **total door-to-door**, with an increase of 4 municipalities compared to 2017 (plus 3 municipalities in Triveneto and 6 in the Marche region). As far as the “**mixed**” system is concerned, i.e. with door-to-door collection for organic and non-separate waste and roadside collection for other separate waste, the municipalities have become 3, increasing by 2 compared to 2017 (plus 1 municipality in Triveneto and 27 in the Marche region).

In the **Triveneto** area, the methods used by the waste collection service, both in the province of Padua and in the Municipality of Trieste, have not changed. The collection systems already used in 2017 in all the territories served were substantially confirmed. The changes concern the extension of the perimeter of door to door collection to the Mortise and S. Lazzaro districts in Padua, which however confirm a mixed system collection in this area. As far as the Municipality of Trieste is concerned, the collection system is mainly roadside. Also in the **Marche** region 3 municipalities changed from roadside collection to a mixed system (residential collection for the non-separate waste and roadside collection for the separate waste).

Separate waste collection



The percentage of separate waste collection for 2004-2016 is calculated including the quantities of waste from road sweeping, and excluding the waste from the beaches, and only for 2013-2016 takes into account Emilia-Romagna's Regional Government Decision 2317/2009. 2017 and 2018 data are calculated according to Regional Authority Decision. 2218/2016, including road cleaning for recovery and the estimate of waste from domestic composting granted by the Regional Government, excluding neutral fractions (beach, cemetery and EER flows not allowed as municipal). Separate collected waste also includes similar-to-municipal waste disposed of by manufacturers for recovery and waste collected by volunteer associations or directly by municipalities. The differing criteria for considering waste as similar-to-municipal laid down by ATERSIR and Municipalities may be responsible for quota differences from one area to the next. The amount of waste consists of separate (allowed EER sent for recovery, allowed community and domestic composting) and non-separate collection (solid municipal waste, street sweeping for disposal, bulky waste for disposal and any waste collected separately but sent for disposal).

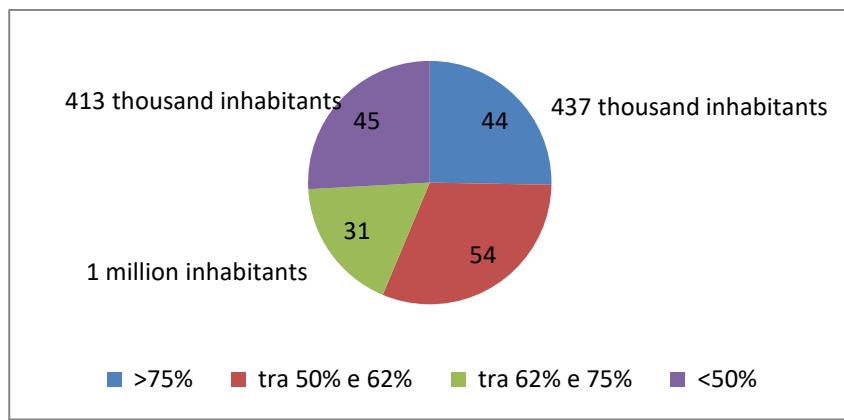
In 2018, separate waste amounted to 1,285.6 thousand tonnes (+5% compared to 2017). At Group level, the percentage of separate waste, i.e. the relationship between the quantity of municipal waste collected in separate form and total municipal waste, went **from 58.2% in 2017 to 62.5% in 2018**. The national average as found by Ispra was 55.5% in 2017 (Source: Ispra, 2018 Municipal Waste Report).

In the **9 provincial capital cities served by Hera Group**, in 2017, the level of separate waste collection reached 55%, compared with a national average of 43% in Italy's provincial capital cities and 56.3% in the cities of Northern Italy (weighted averages, Sources: processing of Legambiente data, 2018 Urban Ecosystem).

In **Emilia-Romagna** the percentage of separate waste collection increased by 4.5 percentage point, from 58.9% to 63.4%. The change in scope compared to last year, due to 13 municipalities in Forlì switching to the in-house company, had no impact in terms of percentage of separate collection in Emilia-Romagna: the 2017 indicator, calculated net of these municipalities, stood at 58.8% (58.9% including the municipalities of

the Forli area). At the provincial level, the percentage of separate waste collection reaches 87% in Ferrara, 65% in the provinces of Modena and Rimini, and 60% in the province of Bologna (up 7.7 percentage points compared to 2017). The remaining provinces still exceed 55.5% of the Italian national average.

Separate collection



At municipal level, 2018 closes with 98 municipalities (out of 174 managed) with a percentage of separate waste collection of over 62% (equal to the Group average). Of these, 44 municipalities exceed 75%. Furthermore, in 54 municipalities, the quantity of unsorted waste is less than 150 kilograms per capita. In Emilia-Romagna the municipalities that exceed 62% of separate waste collection are 60 out of 122, for a total of 1.4 million inhabitants (58% of the total). In Triveneto, four out of six municipalities exceed the Group average. In Marche there are 34 out of 46 municipalities above 62% separate collection, which corresponds to 90% of the total inhabitants of the territory.

The Group's separate waste collection, according to Emilia-Romagna data, includes similar-to-municipal waste sent for recovery by manufacturers and separate waste collected by volunteer associations or directly by municipalities as defined by Emilia-Romagna Regional Authority's Decision 2218/2016, implemented in the municipal and local regulations in force. The situation is very diverse throughout our service area and depends on the revisions of the regulations of the individual municipalities. In 2018, this amount of waste was around 110 thousand tonnes, excluding AcegasApsAmga and Marche Multiservizi, or 11% of the total amount of separate waste collected at Group level, down from 2017 (-16%); note, however, that these quantities are subject to different timing and dynamics not directly related to the services present in the area. At Group level, these quantities amounted to 8.6% of the total separate waste collected, down compared to 2017.

The Group's separate waste collection target for 2022 is 73% (74% for Hera Spa, 73% for Marche Multiservizi and 68% for AcegasApsAmga), as envisaged in the latest Business Plan approved by Hera Spa's Board of Directors in January 2019.

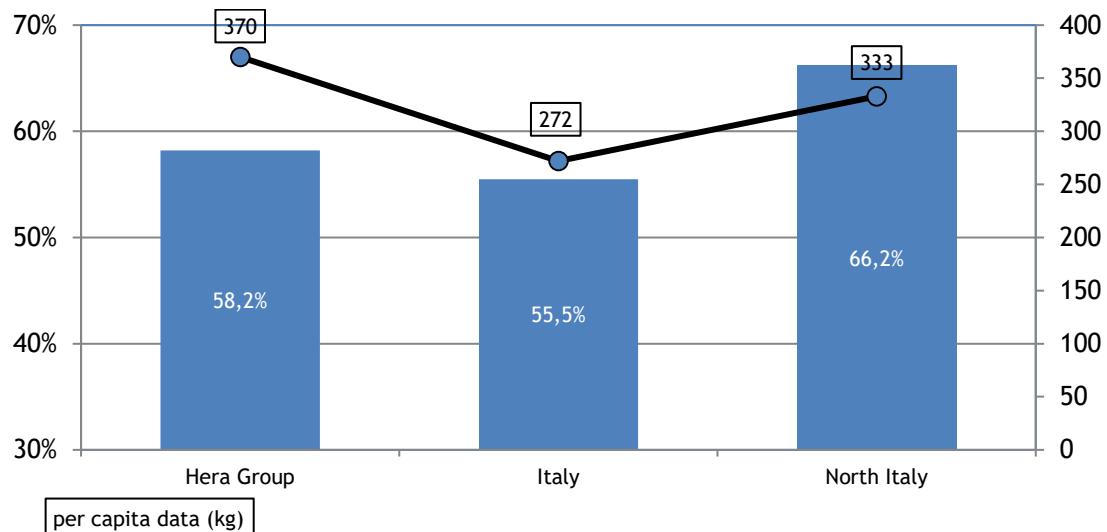
When considering the **effectiveness of separate waste collection**, a useful indicator is the quantity per capita figure, expressed in kg/inhabitant/year, which enables significant analyses on the quantities of waste sent for recovery, both overall and by single supply chain. **Per inhabitant separate waste collection** at Group level increased from 370 kg in 2017 to 410 kg in 2018, up 10.8% compared to the previous year.

At **per capita** level, separate waste collection in Emilia-Romagna, in the areas served by Hera Spa, is around 434 kg/inhabitant/year, with an increase of 12.1% compared to 2017, reaching a total quantity of more than one million tonnes. As to the individual areas, **the strong growth trend in Ferrara is continuing**, with a further 34% increase in separate waste collection per capita compared to 2017. This trend began last year with the reorganisation of the collection system and the application of quantity-based tariff. Also concerning the separate waste collection per capita, there have been **increases in Cesena** (excluding the

municipalities under the in-house company of the Municipality of Forlì, since 2018) with a 19% increase and in the provinces of Bologna and Modena with a 12% increase.

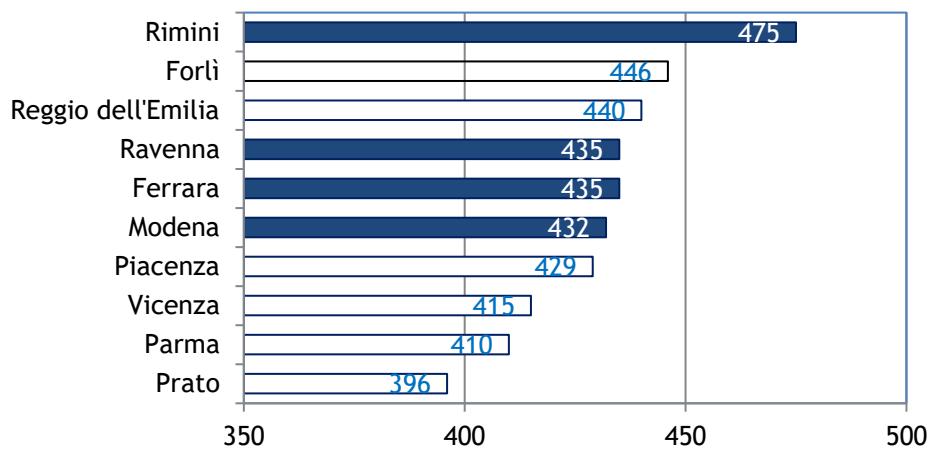
The **comparison** of the Group data for 2017 with the 2017 average national figure (272 kg per capita) is quite significant compared with that of Northern Italy (333 kg) as found by ISPRA, also due to the high amount of similar-to-municipal waste in Hera's service area.

Separate waste collection percentage and per capita (2017 data)



Considering Italy's provincial administrative capitals with populations over 100,000 inhabitants, **4 of the top 10 best-performing Italian cities** by per capita separate waste collection **were served by the Hera Group in 2018**.

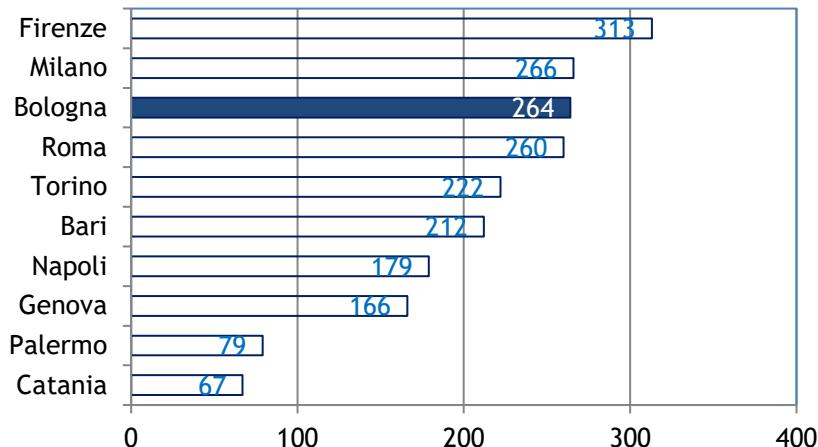
Separate waste collection per capita, in kilograms, for municipalities with over 100,000 inhabitants (2017)



Source: processing of Legambiente data, 2018 Urban Ecosystem

On the other hand, considering provincial capitals with populations of over 300,000 inhabitants, **Bologna ranks third** in Italy, while it was fourth in 2012. (Source: processing of Legambiente data, 2018 Urban Ecosystem).

Separate waste collection per capita, in kilograms, for municipalities with over 300,000 inhabitants (2017)



Source: processing of Legambiente data, 2018 Urban Ecosystem

As regards the separate waste collection data on the **types of material collected**, the details of the individual types are set out below, with the most significant changes in 2018 compared to 2017:

- the collection of plastic (+19%) and glass (+13%) containers on the total grew further, due to the conversion of multi-material collections, the subject of specific communication campaigns in collaboration with the respective Consortia for those types. The data on the per capita quantities in Emilia-Romagna are significant in these sectors, with a 27.8% increase for plastics and a 22.3% increase for glass;
- there was growth in the organic fraction (+9%), particularly in Emilia-Romagna and Marche, introduced in some areas with new reorganizations of services. Also in this case, there was a notable +16.3% on the per capita data for the Emilia-Romagna area;
- collection of bulky waste fell 6%;
- the decline in multi-material collections in Emilia-Romagna continued (-12.3% of the total and - 5.8% per capita) due to the reorganisation of the service, since, in accordance with the guidelines of the Regional Waste Management Plan, the collection of light multi-material is being phased out. This decrease is however compensated by an increase for the Triveneto area, which therefore leads to an overall +4%;
- the Other item increased as a result of the greater quantities of road sweeping dispatched for recovery and the inclusion of the estimate of volumes of waste for domestic composting (as per Regional Authority Decision 2218/2016), which in 2017 had not been counted since the Emilia-Romagna Regional Government had not yet decided on the municipalities admitted.

Separate waste collection by waste type

Thousands of tonnes	2016	2017	2018
Paper and cardboard	259.5	258.5	263.5
Green waste	240.3	227.7	227.6
Glass	95.1	91.2	103.9
Organic waste	197.3	203.4	220.9
Plastic containers	85.4	84.4	100.3
Waste from mixed materials collection	65.8	61.4	63.6
Wood	90.7	95.5	102.1
Bulky waste	50.5	50.4	47.5
Inert materials	59.1	67.4	66.4
Iron	27.9	10.8	12.1
WEEE	16.9	16.9	17.6
Other	26.9	56.5	60.2
Total	1,215.8	1,224.9	1,285.6

Separate waste collection by waste type for 2016 takes into account the Regional Authority Decision 2317/2009 and for 2017 (restated) and 2018 takes into account Regional Authority Decision 2218/2016.

Separate waste collection per capita (2017)

kg/inhabitant	Paper	Glass	Plastic	Wood	Metals	Organic and green waste
Hera Group (2018)	84	33	32	33	4	143
Northern Italy	62	41	26	21	7	127
Italy	54	33	21	13	5	110
Best region	87*	46**	32**	35**	13**	159*

*Emilia-Romagna, **Valle d'Aosta. Source: Ispra, 2018 Municipal Waste Report

Hera's separate waste collection levels are due to the widespread coverage of its services and to the regulations for categorization as similar-to-municipal waste, that encourage the recovery of material. In all cases, except for metal, Hera is above the national average and for all cases, except glass and metal, it is above the average for northern Italy.

The cost of collecting and disposing of municipal waste is also influenced by the revenue coming from the sale of separately collected and recovered material or the contributions that Conai (the national packaging association) provides to the service operator. In 2017, these revenues and contributions were 30% of the direct costs of separate waste collection (including the cost of treating and recovering waste) as described in the "Tracking Waste" report.

Separate waste collection centres

Among other types, the Collection Centres receive waste that, due to its nature or size, cannot be collected with normal local services, and is in addition to roadside and residential collection and is the most sustainable environmental solution with the lowest impact for collection of separate municipal waste.

There are 154 Separate Waste Collection Centres (or equipped drop-off points, including 127 in Emilia-Romagna, 8 in Triveneto and 19 in Marche) for customers to drop-off their waste. Many Collection Centres are equipped with weighing and user-recognition systems that make it possible to track waste disposal and apply tariff discounts.

The waste received by the Separate Waste Collection Centres increased by 7% compared to 2017, and amounted to 296,930 tonnes. As regards Emilia-Romagna, the comparison between the 2018 figure and the 2017 figure on a like-for-like basis (excluding the municipalities currently served by in-house companies) shows an upward trend of 10%, mainly linked to the supply chains of green waste and wood.

During 2018, these collections showed important positive changes compared to the previous year in all Hera Spa areas. Such waste depends on variables not always related to the management of the service, such as weather conditions.

Excluding Marche Multiservizi, there were more than 1.8 million accesses to the separate waste collection centres, 6% more than in 2017.

Smaller separate waste collection categories

The new service for the **roadside collection of vegetable oils**, carried out using new aesthetically pleasing bins specially designed to contain residual domestic cooking oil, was launched in Emilia-Romagna on a trial basis at the beginning of 2014. This new initiative forms part of a broader Hera project, and the only one of its kind in Italy in terms of the service provided and its geographical extension, aimed at the spread of this type of collection which until 2013 was only carried out via the Group's Separate Waste Collection Centres. At the end of 2017, there were around 400 roadside bins located in 70 municipalities in the Emilia-Romagna area, for an overall customer base of over 2 million citizens. During 2018 another 300 road containers were put into service, bringing the total number of containers in the area to 700 units distributed across more than 100 municipalities for a population served of about 2.3 million inhabitants.

The **LIFE Identis WEEE project**, supported by the EU LIFE fund, was designed to prove the traceability of Waste from Electrical and Electronic Equipment and increase the collection of small appliances such as chargers, mobile phones, televisions, electronic toys, and electronic lamps. This collection is especially difficult with traditional systems. Hera Spa is the parent company of the project that was created partnering with two consortia: the Italian Ecolight and the Spanish Eculum. The project, funded by the European Community, ended in 2015 and became part of the collection services in Hera's service area. Currently, 13 "WEEE Point EVO" and 21 "WEEE Shop EVO" service points are installed in Hera's area, distributed throughout the various provinces mainly in shopping malls, for the collection of small WEEE. The "Mobile" model is also in service in the Bologna area, which carries out a scheduled itinerant collection and collects all types of WEEE. In 2018, almost 35,000 disposals were made to the WEEE Shops and WEEE Points and almost 5,000 to the mobile service.

During 2018, the **collection and recovery of used toner cartridges** continued in Emilia-Romagna, carried out by Ecorecuperi, which was awarded the contract to provide this service again in 2019, as a result of a call for tenders for the provision of this service. In 2018, using "Ecobox" containers distributed to public users such as schools and municipal offices, approximately 200 tonnes of used cartridges were collected that were actually provided to the reuse market (regenerated toner cartridges for printers).

In the **Triveneto area**, the separate minor waste collection is carried out through the collection centres, the so-called "Ecological Saturdays" and, for some specific types, through dedicated roadside collections or centres. For example, in the Padua area, specific experimental roadside containers have been installed for the collection of used home cooking oil. Toner collection is also provided by door-to-door collection systems for non-residential users. In smaller municipalities, where there is no collection centre, the presence of the "ecoself" is provided on specific days of the month for the collection of small WEEE and other fractions that cannot be disposed of in the main collection circuits.

Collection of bulky waste

Bulky waste is waste that due to its type, size and weight, cannot be disposed of in bins for municipal waste. Hera currently offers a number of options for the disposal of bulky waste and large appliances, offering the possibility of reusing objects in good condition by preventing the production of waste or by sending them to the correct flow of recovery or disposal:

- **donation of the item to the non-profit organizations** involved in the "Change the ending" project: if the item can be re-used, its user can donate it for reuse through one of the participating not-for-profit organizations. Non-profit organizations may collect bulky waste free of charge at its facility or

at the user's home, to give it a new life and use it for charity. Since 2018, in the Ferrara area citizens can dispose of reusable goods to give to non-profit organizations also at drop-off points, dropping them off at the "Reuse area";

- **to be disposed of at the drop-off points** (Separate Waste Collection Centres): if the bulky goods are not reusable, they can be delivered to the nearest drop-off point using the vast and widespread network of drop-off points active in the area;
- **home collection service** by Hera: if the item is not reusable and the user cannot take it to a drop-off point, the user can call the call centre for the free bulky waste home collection service.

In 2018, these types of waste amounted to 3.2 % of the total waste collected and to 5.4% of separate waste collection, in line with the previous year. In Hera Spa's service area, 108,709 requests were made for the collection of bulky waste, up compared to the previous year (+11.3%). Including the waste disposed of at Separate Waste Collection Centres and the waste dumped without notification, over 48,000 tonnes were collected. The total quantity was lower than in 2017, mainly due to the lack of the Forlì area, which was no longer served. The number of bulky waste collection requests is growing, in line with previous years, due to the greater use of dedicated collection services and a greater number of reports for this type of waste, largely linked to a better usability of the channels to contact Hera and a greater awareness to urban décor matters.

In the Triveneto area, too, there was an increase in bookings for at-home collection of bulky waste, in 2018. In Padua, the increase was +31% while in Trieste it was +27%. Note that in both areas a dedicated service is provided for the collection of abandoned bulky waste. In Padua, the amount of bulky waste abandoned and collected along roads increased by 13.4%. In Trieste, the quantity of abandoned waste collected fell by 5.7%.

Waste collection with particular social relevance

The "Your shoes at the centre" project started at the end of 2017 as an initiative of the CEAS – Centre for Environmental Sustainability Education - to implement the integrated educational actions required by the Regional Education Sustainability Programme for 2017/19. Tender 2017 no. 1.

The aim of the project, in implementation of Regional Laws 27/2009 and 16/2015, is educational and demonstrative, aimed at involving citizens in an activity that will give new life to materials that otherwise would become non-separate waste.

The educational activity focuses on objects close to the lives of young people, sneakers, involving families, schools and other places of aggregation, to promote their transformation into shredded rubber material, specially processed to make ecological flooring (playgrounds or athletics tracks) which in part will be donated to the municipalities of central Italy affected by the earthquake of 2016.

To achieve this, the project has received a contribution from ARPAE on regional resources and is part of the integrated action "Education for the circular economy" of the INFEAS 2017-2019 Programme.

In this edition, the project is completed with the activities of the integrated service for municipal and similar-to-municipal waste and in this context Hera and all the other operators of the Region (excluding ALEA which is still involved in the first phase of activation of the service) have joined.

To support the project Hera has taken on - for the municipalities of its area - the burden of organizing the promotion activities of the initiative, collection, temporary storage and transfer of the shoes to the Benefit ESO SPORT company, in charge of the subsequent phases of management, selection, shredding by the lead organizer CEAS (Centre for Environmental Sustainability Education).

The operational phase took place in the period from the end of April to the end of July and involved 49 municipalities (for about 40% of the regional population), 14 CEAS organizations and all 7 managers of the waste management service, in addition to the Emilia-Romagna Regional Government itself and ARPAE. The communication that accompanied the initiative made it possible to give it widespread importance through the most popular transmission channels including the main social media, the web, TV, various magazines and publications, the projection of videos in stadiums during sports events and was a success factor that

led to a response that totalled about 10 tonnes of material collected, of which about 4.5 tonnes just in Hera's service area.

At the moment there is no news, from the proponents, of a new edition of the initiative in 2019. Hera remains available to support a new edition.

Lastly, among the initiatives with solidarity content, during 2018 Hera started a process to reorganize the "**textile waste collection activities**", typically for used clothes and fabrics.

In the past, these activities were carried out on the basis of agreements between municipalities and various social cooperation operators, private operators and non-profit organizations, sometimes present at the same time in the individual municipalities. To ensure adequate transparency on the collection of used clothing and its social aims, in 2018 Hera carried out special tenders in Emilia open to all market operators, including social cooperatives. The tenders involved the award of an increase of the auction base to the benefit of the share of revenue reserved for the municipalities concerned by the service.

The collection of used clothes provides no margin for Hera and the economic result obtained, net of covering the costs of the service, can be allocated by the individual municipalities either to reduce the costs of the municipal waste collection service for residents (therefore of the TARI or of quantity-based tariff taxes) or, alternatively, to specific non-profit organizations identified by the same municipalities.

Several types of interested operators took part in the tenders, and if successful, and they were all committed to offer open-ended job contracts to personnel who had worked for the outgoing operators for at least 90 days.

The operators awarded in Emilia started their activities in July in the province of Bologna and in October in the provinces of Modena and Ferrara. The resources made available to the municipalities of the province of Bologna in 2018 were allocated for about 25% to deduct the costs of the municipal waste collection service and about 75% to non-profit organizations of the area, identified by the municipalities themselves. At the date of preparation of this report, the report on the allocation of resources available in 2018 to the municipalities of the provinces of Modena and Ferrara and their destination was in the process of being prepared.

Operators awarded the contracts will be involved in 2019 for reporting of the traceability and recycling of textiles collected, as part of the preparation of the report "Tracking Waste", 2019 edition.

Waste prevention initiatives

The European Directive 2008/98/EC on waste, transposed into Italian law by Legislative Decree 205/2010, defines the following hierarchy for the prevention and management of waste:

- prevention;
- preparation for reuse;
- recycling;
- other types of recovery, such as energy recovery;
- disposal.

Waste prevention is also confirmed as a priority action by the European circular economy package, referenced in one of the case studies in this chapter, which, among other things, includes a target for preventing food waste, for which the agreement reached by the three-way meeting held in December 2017 set indicative targets of 30% by end 2025 and 50% by end 2030, compared to the quantity generated in 2014.

Emilia-Romagna's Regional Law 16/2015 on "Provisions in support of the circular economy, the reduction of the production of municipal waste, the reuse of end-of-life goods, separate collection and amendments to Regional Law 31 of 19 August 1996" also addresses waste prevention, including the possibility to grant,

within the framework of the regulation on waste management service fees, incentives for companies that implement waste prevention measures.

During 2018, Hera has developed and participated in many initiatives aimed at encouraging waste prevention. This commitment is in line with the new European, national and regional regulations which, as seen above, introduce prevention and reuse objectives as an essential part of integrated waste management. These initiatives have enabled us to prevent the production of around 9,000 tonnes of waste, equivalent to the annual output of about 14,700 people.

Some of the most significant initiatives included: Among the most significant initiatives there are "Cambia il finale" (Change the ending), "FarmacoAmico" (MedicineFriend), "Cibo Amico" (Food friend), "Hera₂O" and "Sorgenti Urbane" (Urban Springs) which are covered by special in-depth sections of this Sustainability Report (case histories).

Reuse area

Since 2018, Hera has been offering citizens a further opportunity to reduce waste production and extend the life-cycle of products. On the proposal of HeraLAB of Ferrara, the laboratory for the area, activated by Hera to promote dialogue and relations with the local community, created a new Reuse Area inside the drop-off point in via Caretti in Ferrara. The initiative started by joining the Cambia il finale (Change the Ending) project (described in a case study of this Report) and is helped by the non-profit organization Officina68 of Ferrara. It is a real box inside the Hera Waste Collection Centre in via Caretti, open from Monday to Saturday from 8:30 am to 6 pm and also on Sunday afternoon from 2 pm to 6 pm. Residents can bring furniture, tables, chairs, beds and nets, bookshelves, crockery, books and various other items as long as they are in good condition. Everything brought by citizens is for all intents and purposes a donation and at the time of delivery documentation will be completed as a receipt of the donation. The material is then delivered to Officina68, which dispatches the goods considered suitable to be reused. With this initiative, every time a citizen goes to the drop-off point, he or she can therefore choose whether to give a second chance of life to his goods by using the Reuse Area or whether to send it for recovery of material, through the recycling chains. Through the activities of the non-profit organizations involved in the project, the Reuse Area also has social aims, offering support to sensitive sections of the population, making used goods available and creating job opportunities for the unemployed, disabled or disadvantaged.

The Reuse Centres

"Second Life", is a reuse area launched in September 2011 together with the Municipality of Bologna, next to a separate waste collection centre. In 2018, the facility was operated by the social cooperative "Open Group". During 2017 (most recent data available), Second Life received more than 90,000 objects (slightly down compared to 2016), putting almost all of them back into circulation. The most-exchanged items are clothes (43% of incoming and outgoing items), plates, cake-pans, dishes in general (14% of incoming and outgoing items), books (13% of incoming and outgoing items).

In order to avoid that goods still in good condition become waste and are disposed of in landfills or enter the recycling chain, Marche Multiservizi has joined the Marche Regional Government's Reuse Centres project (resolution 1719 of 18 December 2010). The Pesaro Centre is purposely included among the Collection Centres where reusable objects collected in the area are grouped and displayed in order to be redistributed free of charge to users who request them, subject to special regulations. The objects can also be disposed of directly by the citizens and are mainly furniture, furnishing accessories, crockery, household goods, gifts, toys and sports items.

Trashware

Developed by Student Association S.P.R.I.Te. in partnership with the Municipality of Cesena, Hera and the Campus of the University of Cesena, the project represents a reference point in the area for those that wish to get rid of old but functioning computer equipment and for all parties that need reconditioned computers for basic computer activities. The objective of the project is to recover PCs and computer components in

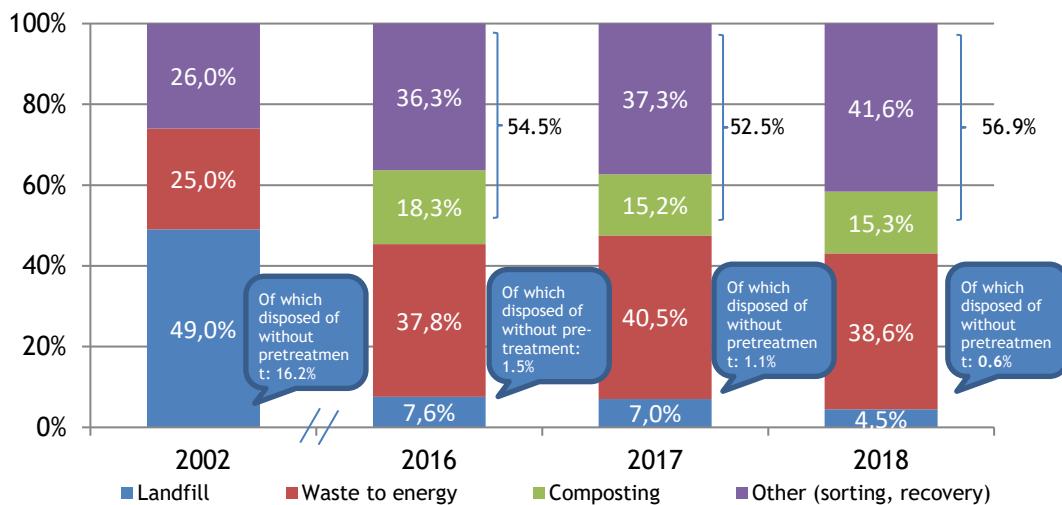
general to counter the problems related to hazardous electronic waste. At the same time, it aims to reduce the digital divide of its residents by donating PCs with related peripherals to private individuals, associations and schools in the Municipality of Cesena. In 2018, after seven years of operation, the Trashware project was confirmed also for 2019. The project was promoted through widespread leaflet distribution, active presence on the main social media and organization of events aimed especially at young people. The initiatives to increase its visibility and generate interaction helped increase the number of volunteers participating. In 2018 a trainee was brought on board to develop data removal systems for the recovered hard disks. In 2018, the association also went through a significant organizational and management update that limited its recovery capacity but will allow it to address its future commitments on a more solid and structured basis. Since the project began, over 3,000 interested people have contacted us to donate equipment. Almost 1,200 reconditioned PCs have been given to schools and associations since the project started in 2011; with over 44 of them delivered during 2018.

Disposal of municipal waste in Italy and Europe and comparison with Hera

National and EU regulations define principles and priorities for waste management, from minimizing waste at source to material recovery, energy recovery and, only as last resort, disposal in landfills.

Over the years, the Hera Group has worked in this direction, as shown by the comparison between 2002 data and data of the last three years. In particular, the results were successful in terms of reduction of material being sent to landfills, for which a further reduction was also posted in 2018 (-2.5 percentage points compared to 2017). This is consistent with the Group's objectives, which, in line with national and European regulations and the plans of the relevant authorities, envisage a reduction in the use of landfills and an increase in separate waste collection. In 2018, the portion of municipal waste disposed of in landfills after pre-treatment was 4.5%, compared with the 2017 Italian average of 26% (Source: Eurostat), therefore below the 2035 goal set by the December 2017 agreement on the revisions to the directives envisaged in the circular economy package. The use of landfills was particularly low in the Emilia-Romagna service area, standing at 2.7% in 2018 compared to the average for Emilia-Romagna of 14% in 2017, (Source: ISPRA). It also decreased in areas served in the Marche region in 2018 (from 34.9% in 2017 to 27.7% in 2018), thanks to the introduction of door-to-door waste collection in 9 municipalities, which decreased the production of non-separate waste and therefore of the municipal waste sent to landfill. At the same time, there has been an increase in the disposal of municipal waste at third-party plants that carry out treatment and recovery. As of 2017, Hera's Triveneto region continues to have no landfills for the disposal of municipal solid waste.

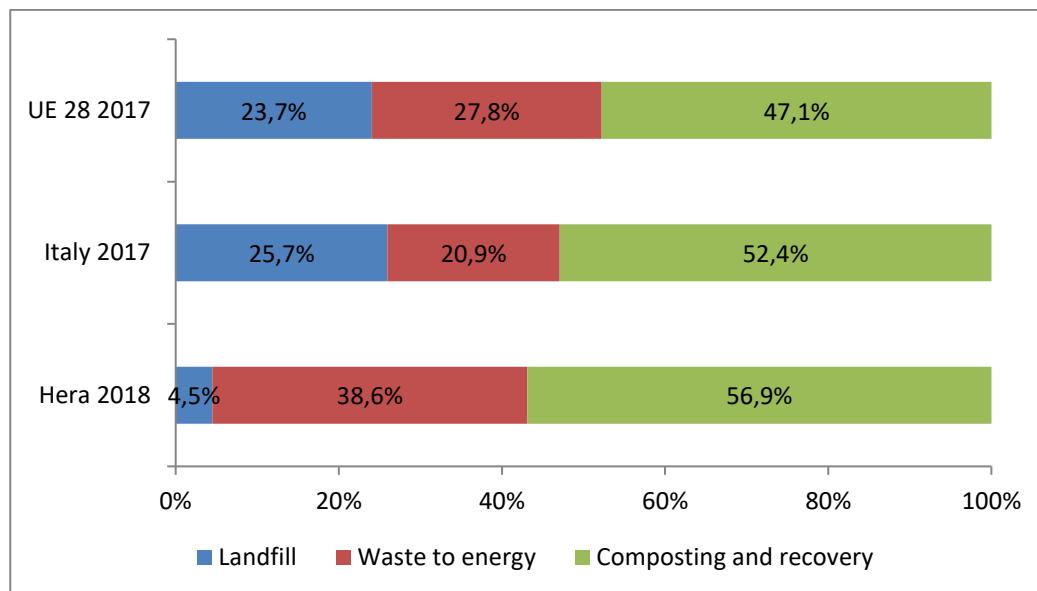
Municipal waste collected by Hera by destination



At European level, the trend towards reducing the use of landfills for municipal waste disposal is also continuing, although there are significant differences among the countries: in the EU-28 the figure for 2017 was 24% (Source: Eurostat). In Italy, 26% of municipal waste disposed of in 2017 was sent to landfills compared to 21% sent for waste-to-energy treatment, the use of landfills decreased by 2 percentage points while use of waste-to-energy treatment increased by 1 percentage point.

Landfills continue to be the primary treatment method in 13 European countries, with peaks of up to 93% in Malta and 80% in Greece. In Sweden, Belgium, Denmark, Holland, Germany and Finland, landfill is used for around 1% and waste-to-energy ranges from 31% to 53%, with the remainder being sent for recycling. Hera is in line with these countries in terms of recycling with further improvements planned for the coming years.

Municipal waste management in Europe and Italy and Hera's ranking (2017)



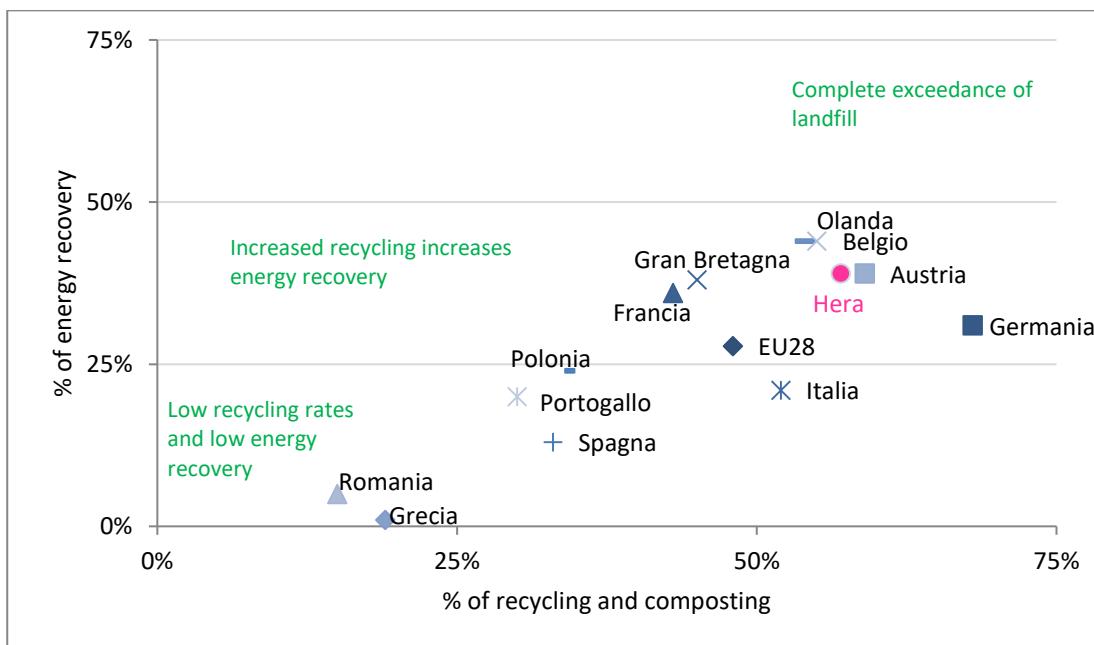
Municipal waste: A three-speed Europe and Hera's area of operation is among the most virtuous (2017)

Country	Landfill	Waste-to-energy	Recycling/Composting
Countries with landfill use lower than the European average			
Sweden	0%	53%	47%
Belgium	1%	44%	55%
Denmark	1%	53%	46%
Netherlands	1%	44%	54%
Germany	1%	31%	68%
Finland	1%	59%	40%
Austria	2%	39%	59%
<i>Hera Group</i>	4%	39%	57%
Luxembourg	7%	45%	48%
Slovenia	13%	14%	73%
Great Britain	17%	38%	45%
Estonia	21%	47%	32%
France	22%	36%	43%
European Union (28 countries)	24%	28%	48%

Country	Landfill	Waste-to-energy	Recycling/Composting
Countries with landfill less than 50% but higher than the European average			
Italy	26%	21%	52%
Ireland**	27%	31%	43%
Lithuania	33%	18%	49%
Poland	42%	24%	34%
Czech Republic	48%	17%	34%
Hungary	49%	16%	35%
Countries with landfill greater than or equal to 50%			
Portugal	50%	20%*	30%
Latvia	51%	5%	44%
Spain	54%	13%	33%
Slovakia	61%	10%	30%
Bulgaria	62%	3%	35%
Croatia	75%	0%	25%
Romania	80%	5%	15%
Greece	80%	1%	19%
Cyprus	82%	0%	17%
Malta	93%	0%	7%

* 2013 data, ** 2016 data. Source: Eurostat

Disposal of municipal waste in Europe: the correlation between recycling/composting and energy recovery. Hera among the European best practices



Source: Eurostat

Equipment to support the circular economy

Through its Herambiente subsidiary, the Hera Group operates over 90 treatment plants for recovery and disposal of municipal waste, and of hazardous and non-hazardous special waste among which the main types are: 10 waste-to-energy plants, 11 composting plants/digesters, 15 selection plants, 16 chemical/physical and stabilization plants. Marche Multiservizi manages two landfills and one biostabilization plant. Herambiente also holds a 50% stake in Enomondo, which operates a biomass plant.

The initiatives launched by Herambiente in terms of material and energy recovery continued in 2018, characterized by a strong acceleration in the process of transformation of its industrial activities in view of a "circular economy". In fact, 2018 was marked by three important and fundamental events that testify to Herambiente's ability to transform the principles underlying the concept of circular economy into facts:

- complete **integration of the plastic recovery chain**, from collection, selection and subsequent recovery, through the synergies achieved following the acquisition, in 2017, of control (through an 80% stake) of the Aliplast Group, a leader in the production of rigid and flexible films;
- construction and start-up of a **plant to produce biomethane** from the organic fraction of separate collected municipal waste;
- award of the contract, worth Euro 28.5 million, for the **reclamation of the port of Chioggia**. Herambiente won the tender for the renovation of strategic areas related to this important maritime port, qualified as a "Site of National Interest" (SNI).

In parallel with the three important initiatives described above, the constant development of Herambiente's plant pool continued, following these main guidelines:

- identification and implementation of solutions to efficiently produce and use **electrical energy** and thermal energy in the sites where waste-to-energy plants and landfills with energy recovery are located;
- implementation, in the **liquid industrial waste segment**, of technologies aimed at recovering, rather than disposing of, organic water, solvents, sludge, etc.;
- modernization and upgrade of organic media **composting and aerobic stabilization plants** to align all Herambiente Group plants to the best available technical standards and BATs (Best Available Technologies);
- **integration of the system** linked to M&A operations, increasingly oriented towards market segments related to industrial waste management and recovery and "full service" services at production plants of medium to large sized companies operating in oil & gas, food & beverage, large-scale retail, etc.;
- activities related to building **new landfill volumes** for non-recoverable fractions.

The recovery of material and energy in Herambiente's selection plants

The selection plants treat the municipal and special waste coming from separate waste collection and from industrial or artisan manufacturing in the province in which they are located. The objective of the process, which uses more or less complex technologies and treatment lines according to the type of waste to be treated, is to recover the greatest possible amount of material from the incoming flow and reduce reliance on landfills. These systems recover: paper/cardboard, plastic, wood, metal, glass, biodegradable waste (pruning material), tires, textiles, inert materials. The treatment lines used are specific to the characteristics of each collection. Five of the 6 plants have computer vision systems that are particularly efficient in selecting plastic and paper from municipal waste both in terms of flow (hourly quantity of waste treated) and in terms of the quality of the material obtained by the selection.

The scrap of the treatment, the so-called non-reusable fractions and non-reusable material are dispatched to be used for energy recovery or to be disposed of.

In 2018, Herambiente's selection and recovery plants handled **425,775 tonnes of waste** (+14.5%), the quantity **treated and sent for recovery of material** was **73.6% of the incoming waste**, the portion used for energy recovery was 3.6%, for an **overall recovery of 77.2%**. The material recovery level confirms the upward trend compared to previous years. A portion of the non-reusable fractions is used for energy recovery, about 13% in 2018. The project to implement crushing lines to increase the non-reusable fractions for energy recovery is still under way, the crushing process was started up and became fully operational in 2018 for the Granarolo plant, while the authorization process was started in Modena and we

expect, compatibly with any requests for further documentation, that it will start in the second half of 2019.

Destination of total waste treated – Herambiente's selection plants

	2016	2017	2018
Waste sent for recovery of material (t)	268,035	270,862	313,318
Non-reusable fractions outgoing (t)	108,204	101,044	112,457
<i>of which for energy recovery</i>	<i>27,571</i>	<i>12,368</i>	<i>15,153</i>
Total treated in selection plants	376,239	371,905	425,775
% of waste sent for recovery of material on total quantity of waste treated	71.3%	72.9%	73.6%
% of waste sent for recovery of energy on total quantity of waste treated	7.3%	3.3%	3.6%
% of waste sent for recovery on total quantity of waste treated	78.6%	76.2%	77.2%

Aliplast's integrated system

The Aliplast Group, that Herambiente acquired in 2017, has **9 plants**. The 4 foreign plants located in Spain, Poland and France, and the 2 Italian plants, at Formigine (MO) and Quinto di Treviso (TV), are engaged in the selection and procurement of plastic. The Ospedaletto di Istrana (TV) and Borgolavezzaro (NO) plants transform waste plastic into finished products, while the Gualdo Cattaneo (PG) plant produces finished products from semi-finished recycled plastic products.

Aliplast **manages the integrated plastic cycle**, transforming waste into finished products, mainly PE films, PET plate and granules/flakes of the leading polymers. Its main commitment is to make the plastic life-cycle sustainable, by collecting and recycling plastic to produce new materials, with the lowest possible environmental impact. Focusing on constant research, development and technological innovation (regarding products, services and processes), Aliplast manages a traceable plastics production chain, which is capable of transforming a disjoined chain into a virtuous circle and of ensuring high quality final products that are efficient and economically more convenient than traditional materials.

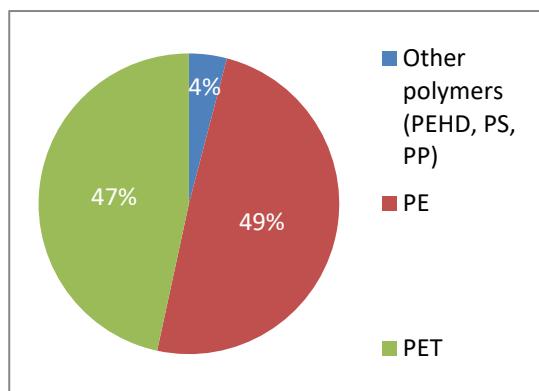
Waste treated by Aliplast (t)

	2017	2018
Incoming waste	83,498	84,802
Secondary raw material from incoming waste	59,556	63,726
Incoming waste sold (material recovered from third parties)	18,865	13,974
Total incoming waste sent for recovery of material	78,421	77,700
% of waste sent for recovery of material on total quantity of waste treated	93.9%	91.6%

The plants treat **waste from industrial scrap and from separate municipal waste collection**. The 2017-2018 trend of incoming waste increased (from approximately 83 thousand to 85 thousand tonnes). This waste has been transformed into new products or transferred to third party companies that operate in the recycling sector (about 14 thousand tonnes). The Aliplast Group directly recycles a significant portion of the incoming waste and discards only a small percentage because it is made up of non-recyclable polymers or because of weight loss due to the presence of liquids. The reduction in the percentage of incoming waste sent for material recovery from 2017 to 2018 is the result of two factors: (i) the start-up of the PET washing plant at the Borgolavezzaro plant, which recycles PET bottles with a waste percentage that is typically higher than that of PE recycling; (ii) the choice – as a result of the external macroeconomic context – to reduce the collection of low quality plastic waste, to focus on high quality, more suitable for the production of finished products.

The secondary raw material from the incoming waste is used to produce recycled plastic products. In 2018 Aliplast sold about 84,100 tonnes of recycled plastic products (compared to about 80,600 in 2017). Of these, 76% of the content is made up of the secondary raw material made from the plastic waste.

Products sold by Aliplast by type (2018)



The food industry demands high safety standards and strict compliance with current food industry regulations. Aliplast's range of products, entirely **certified at European level for food contact**, consists of polymers in granules and flakes, and PET rigid film for thermoforming and extrusion, ideal for the production of food trays and bottles.

In 2018 Aliplast developed an IT tool for **calculating the carbon footprint** of five types of products, as described in greater detail in a case study in this Sustainability Report.

Recovery of industrial waste with Hasi and Waste Recycling

Herambiente Servizi Industriali is the Group company that offers solutions to businesses for the **proper treatment of industrial waste**. A key element of its offer is the identification of the optimal solution to recover and recycle, which ensures **maximum traceability** and **compliance with all environmental regulations** so as to **minimize landfill disposal**. Starting in 2015, a special area for customers was added to Herambiente's website to provide, for each contract, real time information on the treatment operations, showing where each was sent to and the recovery percentage reached versus the total waste disposed of.

During 2018, our commercial strategy was aimed at creating value for the Group and for its customers, also due to synergies with the recently acquired companies, proposing **solutions that are increasingly oriented towards environmental sustainability**:

- optimization of internal processes;
- maximizing recovery, in some cases with a 100% recovery target;

- management – where possible – of certain flows as recoverable by-products rather than waste for disposal;
- on site management of plants.

Many client companies that subscribe to the Global Waste Management offer, in fact, have their own private plants for the treatment of certain scrap from their production processes: Herambiente Servizi industriali has started to offer these customers a service that manages this type of systems, aimed at optimizing them. The integration of our Waste Management services with those of on-site Systems Management helps the Group be effective and well known in the market, encourages customer loyalty and creates value, besides being a factor that sets it apart from its competitors.

HASI managed over **484 thousand tonnes of industrial waste** in 2018, of which 42% was sent for material or energy recovery, a very positive figure, considering that in 2016 the recovery rate was around 25%. This reflects the orientation of the business strategy to increase the recovery rate of industrial waste through commercial development integrated with circular economy solutions, as described above. The data confirm the potential of the offer, with a 60% recovery of material and energy from managed waste for Global Waste Management customers. During the year, also for SMEs, the offer increasingly focused on proposing recovery solutions, as shown by the positive results.

The **objective for 2019** is to increase the recovery rate of industrial waste through a commercial development integrated with circular economy solutions expanding the offer with additional services and integrated solutions in terms of environmental sustainability, such as the supply of renewable energy, energy/thermal efficiency and water cycle efficiency, in synergy with other Group companies.

Destination of total waste treated – Herambiente Servizi Industriali

	Quantity treated (thousands of tonnes)	Quantity recovered (thousands of tonnes)	Share of waste recovered by category
Total	484	201	41.6%
<i>of which large customers</i>	211	32	15.0%
<i>including SMEs</i>	163	108	66.3%
<i>of which Global Waste Management</i>	64	39	60.4%

Waste Recycling, acquired by Herambiente at the end of in 2015, has worked in the special waste collection, storage, treatment and recovery sector in province of Pisa for over 20 years. The two main facilities managed are a **selection plant for non-hazardous waste** and a **chemical-physical-biological plant for hazardous and non-hazardous liquid waste**. The company also operates **three other waste treatment plants**.

Some examples of recovery:

- scraps of leather are used to produce soil improvers and fertilizers
- the recoverable parts of paper are sent to paper mills
- ferrous materials are separated and recycled in foundries
- plastic is washed, cleaned and made into flakes for future processing
- wood scraps are used to produce chipboard panels
- all mixed, not hazardous, waste such as bonded materials or other are used for energy production.

Destination of total waste treated – Waste Recycling

Thousands of tonnes	2018
Waste sent for recovery of material and energy	63.5
Total waste sent for disposal	427.0
Total	490.5
% of waste sent for recovery of material or energy on total quantity of waste treated	12.9%

Main waste treatment plant expansion measures

In 2018 we continued to develop/improve plant equipment in the following sectors:

- energy recovery in the form of biofuels (biomethane) obtained from the organic fraction of separate waste;
- production and efficient use of electricity;
- greater recovery of plastic used to produce new products;
- energy recovery of landfill biogas;
- creation of new landfill volumes for residual waste components that cannot be used in any other way.

In 2018 construction continued on the biomethane production plant and its was inaugurated at the end of October 2018. In December 2018, after an initial start-up phase, the biomethane produced began to be injected into SNAM's network. The biomethane injected into the grid is sold for powering motor vehicles; by doing so Herambiente obtains the incentive through CICs (Certificates of Release for Consumption of renewable fuels). This work required a total investment of more than Euro 37 million.

In addition to these activities, the Herambiente Group made operational investments of a further Euro 42 million in the material and energy recovery sector, as well as in building further landfill volumes. The most important among these are Alimpet's new PET washing line, achieving full operation at the Pozzilli plant following a change to the part of the boiler that houses the superheaters, completion of the energy recovery works serving the 9th sector of the Ravenna landfill, final design development to replace the boiler of one of Trieste's waste-to-energy plant lines, activation of the authorization process for the revamping of the F3 furnace for special waste, including hazardous waste, located at Ravenna's petrochemical complex.

As to the treatment and recovery of glass, the procurement of 2 glass purification and selection lines to be installed at the plant areas of Rimini and Voltana began in 2018 and will end in 2019.

Below is a summary of some of the main environmental measures being planned, in progress or that have been completed at the end of 2018. There are 14 projects in the Marche region, in addition to the expansion of the 2nd and 3rd lot of the Cà Asprete landfill in Tavullia, which is currently being completed, and the final expansion of the Cà Lucio landfill in Urbino.

Main waste treatment plant extension/improvement measures

Plant	Progress at 31 December 2018	Type of measure	Environmental benefits expected/obtained
S. Agata Bolognese	Active plant (some sections being completed)	Implementation of biomethane plant	Production of biomethane to feed into the network (approx. 7.5 million m ³ /year and 20 thousand tonnes of compost expected)

Plant	Progress at 31 December 2018	Type of measure	Environmental benefits expected/obtained
Trieste waste-to-energy plant	Planning stage	Revamping of Line 2	Increased treatment and energy recovery capacity (20 thousand MWh/year expected)
Ravenna waste-to-energy plant	Planning stage	Plant revamping	Increased treatment and energy recovery capacity (from 22 thousand MWh/year to 29 thousand MWh/year)
Finale Emilia landfill	Planning stage	Implementation of lots 5-11	Capacity increase
Ravenna landfill	In progress	Implementation of sector 10	Capacity increase
Castiglione plant	Planning stage	Modification and revamping of high quality secondary solid fuel production line	Reduction of processing waste that cannot be used as fuel
Waste Recycling purification plant	Completed	Installation of flash evaporation for solvents	Treatment of water containing solvents
Borgolavezzaro transformation plant	Completed	New PET washing line	Increase in PET recovery production capacity (increase in flake production by approximately 22 thousand tonnes/year)
Cordenons landfill	In progress	Implementation sectors 1, 2, 3, 4	Capacity increase
Ravenna landfill	Completed	Implementation of energy recovery for sector 9	Electricity production (up to 8.5 thousand MWh/year)
Ravenna landfill	Completed	Capping and environmental renovation of the Ravenna landfill (sectors 5 and 6)	Reduction of leachate production and environmental renovation
Busca Landfill	Completed	Capping and environmental renovation	Reduction of leachate production and environmental renovation
Zocca Landfill	Completed	Capping and environmental renovation	Reduction of leachate production and environmental renovation
Firenzuola landfill	Completed	Addition of an additional 0.5 MWe energy recovery system	Electricity production (up to 4 thousand MWh/year)

Environmental impact assessments presented during the year

The EIA and Screening procedures are accompanied by a series of environmental assessments of the effects of the works (both during construction and at the project stage) on the environment and on human health and well-being, based on the characteristics of the project and following analysis of the components involved in their *ante operam* condition. Interference with the following components was analysed in particular: atmosphere, water resources, soil and subsoil, flora, fauna and ecosystems, noise, human health and well-being, landscape and cultural heritage, settlement system and socio-economic conditions.

The approach used involves performing specific model simulations in addition to qualitative and descriptive evaluations, using software and calculation algorithms, to obtain numerical data that can be compared with standards and limits set by industry regulations and so as to assess the significance of the impact. Model simulations are carried out in particular for the emission of pollutants and odorous substances into the atmosphere, and noise emissions.

All the simulations carried out involve the precise characterization of the sources and the evaluation of the most disadvantageous scenario in order to make out a precautionary assessment. To assess the visual effect of the new works on the surrounding environment, and specifically for creating new lots/landfill sites, landscape assessments are carried out by using renderings and photomontages. In some cases the

applications were also accompanied by a specific "Health impact assessment and proposed health monitoring plan".

Once all impacts have been assessed, specific mitigation measures are identified, where necessary, in order to reduce their impact and, where that is not possible, specific compensatory measures are prepared (construction of photovoltaic plants, planting trees, construction of charging stations for electric vehicles, etc.).

It must be noted that the design of the works is always carried out by identifying and using the best available technologies as required by Legislative Decree 152/06 as amended and Article 29 bis, paragraph 3, which, for landfills, are defined by Legislative Decree 36/03.

The following **Environmental Impact Assessment** applications were activated in 2018:

- **Volumetric recovery at a higher level of the landfill for non-hazardous waste located in the municipality of Sommacampagna (VR)**

The project presented is for a variant of the authorized project and involves increasing the recovery volume by raising the existing landfill and building the final covering with geosynthetic materials instead of gravel and clay. These changes, while exploiting the landfill reservoir differently than envisaged by the authorized project, are aimed at ensuring its full environmental safety from a technical point of view, and an adequate, optimal and precautionary post-mortem management of it. The raised recovery volume not only exploits the landfill's volume better, but enables the construction of new slopes that ensure a rapid flow of surface water, avoiding the formation of pools or damp areas. The final outcome of the work, filling the initial excavation of the former quarry, has positive effects on the surrounding landscape. Compared to the current situation, in fact, the quarry excavation, which was initially clearly visible from three sides, at the end of the work, despite the presence of a morphological element that rises above the ground level, will be shielded to a great extent by a perimeter tree barrier and the new plantings in fact significantly enrich the vegetation on the site. The change of the final roofing package, using geosynthetic materials instead of raw materials, optimizes the construction methods and timing of the final roofing, and saves natural resources. Further positive aspects in terms of reducing environmental impacts concern in particular the atmosphere. In fact, the use of geosynthetic materials, delivered in rolls, involves a lower number of vehicles circulating, thus reducing the vehicular traffic and the related dust and noise emissions. Laying these materials also produces lower dust emissions compared to the use of inert material and the related operations of unloading it and storing it in heaps.

The modelling evaluations we carried out on the dispersion of odorous substances in the atmosphere have shown that, also thanks to the biogas collection network, which is also planned for the raised portion, the project does not cause significant changes with respect to the currently authorized condition. The noise impact assessment shows that all receptors complied with the zone limits.

We also assessed the influence of the work planned on the sites of the Natura 2000 network and in particular on the sites closest to the landfill, which are, however, more than 5 km from the landfill. These assessments showed that the project did not have a significant impact on these sites and therefore it was not necessary to prepare an impact assessment.

- **Revamping of the F3 line of the waste-to-energy plant for industrial, municipal and special waste, including hazardous waste, located inside the Baiona (RA) Ecological Centre**

The revamping project for this line involves increasing the annual quantity of waste to be incinerated by 10,000 t/year, through saturation but without increasing the thermal load of the furnace, i.e. the maximum quantity of "heat" that can be introduced into the incinerator as waste.

After the revamping, the electrical output will be 3,800 kWh/h, for a total annual output of 29.3 GWh, compared with the current figure of about 20.7 GWh.

The revamping of the line also includes work on the boiler and on the thermal cycle (recovery of the process heat) that will increase the average steam production while increasing the plant's overall energy efficiency. In order to maintain a high level of protection of the atmosphere media, the project envisages significant improvements to the flue gas purification section, and the installation of an emission monitoring system (EMS) on the newly constructed chimney. The system will measure flow rate, temperature, pressure, concentration of particulates, oxygen, Total Organic Carbon, hydrochloric acid, sulphur oxide, nitrogen oxides, carbon monoxide, carbon dioxide, ammonia, hydrofluoric acid, and mercury, pollutants that are critical for the Padania area.

In the light of the design methods applied in accordance with the sector's best practices, no impacts were found for the environmental media that require mitigation or compensation works. In particular, in relation to the atmosphere media, potentially more affected by the revamping, simulations were carried out to estimate the dispersion of pollutants in the atmosphere and their precipitation to the ground. These simulations showed that, overall, the impact on air quality can be assessed as insignificant. A further assessment concerned the determination of the emission balance, in relation to the typical pollutants of the Po Valley area such as NO_x and particulate, and showed that the project will significantly reduce the mass flows of these pollutants and consequently reduce the impact on the atmosphere.

In accordance with the regulations on Environmental Impact Assessment, the following environmental screening procedures were carried out in 2018.

- **Optimization of the secondary solid fuel production plant at the selection and recovery plant in the Municipality of Castiglione delle Stiviere (MN)**

The project presented includes some new machinery on the existing secondary solid fuel production line. Remaining unchanged the quantities and types of incoming waste authorized to date, the main objective of the proposed changes is to optimize the production process to improve the quality of the CSS end product and increase its production at the expense of the average size in that line, with the possibility of obtaining also a secondary solid fuel that, if compliant with the criteria set out in Ministerial Decree 22/2013, pursuant to art. 184 ter of Legislative Decree 152/06 as amended, will cease being waste (End of Waste).

We carried out specific assessments on the potential impacts of the planned work, particularly concerning the noise generated by the new machinery on the secondary solid fuel production line. The noise impact assessment reported that the limits at the receptors were respected.

The potential impact on surface water and groundwater media, soil and subsoil was assessed in relation to the provision of a new external storage area (about 700 m²) for waste packaged in bales to be sent to the various destination facilities. In order to protect these environmental media, the area was identified on the existing yard, already paved and waterproofed, served by the plant's sewage system that conveys rainwater to the first flush rainwater tank. In relation to the atmosphere, the planned work will not add points of atmospheric emission, nor involve changes to the existing abatement system and the corresponding point of emission. As for the current machines, the new ones will be equipped with special localized aspiration ducts, conveyed to the current abatement system that is already adequately sized. The packaging of the waste stored outside into film-coated bales will also prevent wind dispersion. Lastly, in accordance with the provisions of Lombardy Regional Authority Decision 4792 of 08/02/2016, a special section of the preliminary environmental study was prepared to assess the project's compliance with the international, national and regional planning acts in the field of public health. This analysis did not find any elements that hinder the completion of the planned works.

- **Extraordinary maintenance and modernization of Line 2 of the Trieste WTE in the Municipality of Trieste (TS)**

The plan includes plant maintenance and modernization on Line 2, mainly to maximize energy recovery from waste combustion by work on the components of the thermal cycle (furnace, boiler and turbine), increasing the effectiveness of flue gas purification by changes to components of that section and also increasing the plant's overall reliability to ensure greater continuity of operation.

These interventions therefore involve an increase in the thermal capacity of the F3 furnace and therefore a request to increase the quantity of waste that can be treated annually by about 19,000 tonnes per year. As a result of these measures, the installed capacity for the production of electricity increased compared to the current 3 MW. The effectiveness of the work planned, in relation to the protection of environmental media, was assessed by modelling the precipitation of the gaseous emissions produced by the plant in the configuration in relation to the main contaminants. The results obtained have been compared with the provisions of Legislative Decree 155/2010. A further comparison was made with the data on the specific air quality of the area made available by ARPA Friuli Venezia Giulia. The results have shown that the air quality standards are also met by adding the effects of operating the plant in the design configuration to the background values already present in the area

Lastly, in 2018, the main requests for **Environmental Authorizations** concerned:

- **Increase in the maximum authorized quantity of waste that can be treated at the chemical-physical plant located in Modena, in via Cavazza 45.**

On 9 June 2017, the request for an EIA verification was activated in relation to the request for an increase in the maximum authorized quantity of waste that can be treated as described below. The incoming waste increase is 12,000 tonnes per year, mainly for landfill leachates and composting plants, necessary in view of seasonal rainfall trends. At the logistics level, the Area 2 chemical-physical plant in Modena plays a strategic role in terms of centrality and proximity for the treatment of leachates generated in particular by landfills in the Modena area (Modena, Finale Emilia, Zocca, Montefiorino, Fanano and Pievepelago), in the Ferrara area (full landfills near Ferrara) and in the Bologna area (Sant'Agata Bolognese, Bentivoglio, Galliera and Guelfa-Bologna landfills).

The application also envisaged a change to the limits on discharge into public sewage in relation to certain parameters, in particular an increase in the limit for total surfactants in order to be able to manage potential peaks of concentration attributable to the discharge of leachate from landfills during periods characterized by low atmospheric precipitation, and a decrease, on the other hand, of the exceptions authorized for BOD₅ and COD considered possible on the basis of the characteristics of the plant's incoming waste.

The application also included a request to modify the lime milk preparation system, which involves supplementing the water supply of the lime milk preparer with the wastewater/inorganic waste in storage, in order to reduce the consumption of drinking and industrial water, estimating a saving in consumption of approximately 3,000 m³/year of industrial water.

On 30 October 2017, the procedure for verifying eligibility was completed, with exclusion from the EIA procedure, and subsequently, on 1 June 2018, the request for a substantial amendment to the IEA obtained on 16 November 2018 was activated.

- **Review of the integrated environmental authorization for the non-hazardous waste landfill, per point 5.4 of Annex VIII to Part II of Legislative Decree 152/2006 as amended, located in Via Bocche 20 in the municipality of Baricella (BO).**

In 2018, the VIPSA service of the Emilia-Romagna Regional Government was asked to extend by 3 years the deadline for completion of the works included in the "Project to expand the landfill for

non-hazardous waste located in the Municipality of Baricella (BO) and project to move the existing medium-voltage line ENEL" approved by DGP 248 of 23/07/2013 (EIA).

This project involves extending the existing landfill for non-hazardous waste in order to increase its storage capacity for a quantity of waste equal to approximately 600,000 tonnes.

The extension consists in building a new module for the landfill unit, substantially similar to the current one, and as a result adapting the primary and service infrastructure of the disposal plant. Like the existing landfill, the planned extension of the landfill is also designed to meet the needs for the disposal of municipal waste and special non-hazardous waste.

With Regional Authority Decision 13238 of 10/08/2018, the Vipsa Service of the Emilia-Romagna Regional Government extended by 21 months the validity of DGP 248/2013 concerning the approval of the landfill extension project. Following this resolution, ARPAE's permits and concessions department announced the start of the AIA Review procedure.

Recovery plant qualification for Hera Group's waste-to-energy plants

Directive 2008/98/EC, implemented in Italy by Legislative Decree 205/2010, introduces a criterion to calculate energy efficiency which makes it possible to classify a municipal waste incineration plant as an energy recovery plant. This criterion makes it possible to calculate the energy efficiency of the incineration process on the basis of the energy introduced with the waste, the amount of energy consumed and the amount of energy produced (thermal and electrical). In order to ensure that the methods used to apply this criterion are consistent, a reference document has been issued at European level to calculate energy efficiency.

The formula used to calculate energy efficiency provided by Directive 2008/98/EC is, in fact, a performance index. Therefore, it does not match the plant performance calculated using the classical thermodynamic criteria, but is an indicator of energy recovery capacity aimed at comparing different plants.

In addition, Decree 134 of 19 May 2016 of the Italian Ministry of the Environment and for the Protection of Land and Sea, added a "climatic factor" to the formula to account for the climate type at the plant's location. This factor was added to offset climate-related effects both on electricity generation and on the quantity of unused heat produced; in fact, the energy performance of plants located in countries with warm climates is "physiologically" lower than those of plants located in colder areas. As well as reflecting the quality of the investments made over the years to upgrade the plants to use the best available techniques, the status of "recovery plant" also makes it possible to attribute to the plant a role of primary importance in the waste management system.

In fact, while the municipal waste to be disposed of is subject to the "principle of self-sufficiency in the water and waste regulatory area (ATO)", the municipal waste to be recovered is subject to the "principle of proximity", meaning that it can be sent to the nearest recovery plant, not necessarily located in the same ATO (Waste Regulatory Authority area) it is located in.

After having determined compliance with the energy efficiency criterion, as set by the regulation, the authorization that governs its activities (Integrated Environmental Authorization) must be modified so that an incineration plant can be operated as a recovery plant. These changes to the authorization are not substantial since they do not increase the plant's potential nor change previously-authorized emission levels.

All the waste-to-energy plants operated by the Herambiente Group (including those of Hestambiente) are R1 recovery plants, except for the Ravenna special waste plant (F3). In this regard, an evaluation process is being initiated in European round-tables to define a common criterion to assign R1 operation also to special waste plants.

The total installed capacity of the WTE plants managed by the Group (besides that of Ravenna) is approximately 140 MWe (equivalent to a medium-small thermoelectric power plant).

The Community framework further investigated the matter, determining at European level a climate correction factor (CCF) applicable to the R1 energy efficiency formula, in Commission Directive (EU)

2015/1127 of 10 July 2015; with a measure of the Ministry of the Environment (Decree 134 of 19 May 2016). The factor has therefore been implemented, so the coefficient has been reduced from 1.38 to 1.25. The plants of the Herambiente group retain the R1 qualification they have acquired.

This plant network makes it possible to manage the flows of non-separate municipal waste beyond the so-called municipal-derived waste in the region, so that in the event of a shut-down of the reference plant, this waste can be sent, either in full or in part, to the closest energy recovery plant, thus limiting the use of landfills and, by doing so, pursuing the objectives set by European and national regulations on the hierarchy of waste treatment. For example, if the Coriano (RN) plant were to shut down or the quantities of waste produced were to exceed its treatment capacity – as often occurs during peak tourism periods – the non-separate municipal waste collected in the province of Rimini could be sent to the closest available plants (e.g. Ravenna or Forlì) for energy recovery and no longer disposed of in landfills.

Concerning the performance assessment of in terms of efficiency, there are two “structural” aspects. The first concerns the process related to the conversion of energy released by the combustion of waste, the second to the external users that can make productive use of the waste heat generated by the combustion. In the first case, the assessment is plant related: The heat generated by combustion of the waste is used to produce steam, and depending on its characteristics (pressure and temperature) achieves different performance of the steam turbine, (the higher the temperature of the steam, the greater the efficiency of the cycle). The choice to opt for more or less advanced solutions takes into account not only performance but also economic factors (for example, to work with steam temperatures particular attention must be paid to the issue of acid corrosion of the pipes in which the steam flows, which increases costs due to a greater thickness of the pipes needed or due to coating them with protective materials such as Inconel, effective against corrosion but very expensive) and management factors (for example, work in more critical conditions may result in the need to increase both the duration and the frequency of ordinary and extraordinary maintenance).

In the second case, finally, it is necessary to assess the capability of recovering the waste heat produced by the combustion processes. The greater the ability to recover this waste by users outside the waste-to-energy plant, the greater the plant's efficiency, also in terms of the R1 index.

Lastly, waste-to-energy plants not only ensure significant energy recovery (electrical and thermal), but also produce heavy slag (called IBA, Incinerator Bottom Ash), for which there are well-established recovery processes whereby the slag is sent to organizations that work in this specific sector, as reported below in this section of the Sustainability Report. Therefore, waste-to-energy plants not only guarantee energy recovery but also contribute significantly to the recovery of building materials from the point of view of a circular economy.

The “Sblocca Italia” Decree and the new regulations on waste disposal

Art. 35 of Legislative Decree 133/2014, converted, with amendments, into Law 164/2014, the so-called “Sblocca Italia” law, aims to develop a suitable, integrated system at national level to manage municipal waste and to meet the separate waste collection and recycling objectives.

This objective is also aimed at guaranteeing national safety in terms of self-sufficiency and, as a result, circumventing and preventing additional violations due to failure to comply with European regulations in the sector. One of its key aims is to reduce the disposal of waste in landfills. In this context, the use of waste-to-energy technology, an alternative to landfill disposal, represents a solution to the various sanctions imposed on Italy by the European Court of Justice, the last of which, totalling Euro 42.8 million for every six months of non-compliance, was applied in December 2014 due to the ongoing non-compliance with the European Directive of the authorizations of 198 landfills in Italy.

The Italian Prime Minister's Decree of 10 August 2016 implements the principles and objectives of art. 35, as it identifies the overall capacity of the treatment plants of waste-to-energy plants at national level, and as a result identifies within macro-areas of Italy the residual requirement to be covered by building waste-to-energy plants.

Thanks to the significant investments made in particular by the Hera Group in the last decade, Emilia-Romagna is one of the few Italian regions that does not risk falling into an emergency situation in the next 20 years as regards the recovery and disposal of waste.

In applying the principles and objectives defined in art. 35, the Hera Group uses the following hierarchy to identify the priority criteria for the saturation of the capacities of its waste-to-energy plants:

- local municipal waste;
- regional municipal waste;
- any municipal waste from outside the region according to the resolutions of the relevant Bodies;
- non-hazardous special waste until saturation of residual heat load.

On the basis of these principles, our Integrated Environmental Authorizations (IEAs) have updated between the end of 2015 and during 2016 and, at the same time, we have signed framework agreements with Local Authorities for the waste-to-energy plants of Forlì, Rimini and Modena. For the waste-to-energy plant of Ferrara, in the context of these updates, we were granted authorization to increase the amount of waste to be treated up to 142,000 tonnes a year to cope with any emergencies outside the region for municipal solid waste, subject to specific request from the relevant authorities. In December 2015, the local authorities in Forlì and the Regional Administration signed a specific agreement for the management of municipal waste in the Forlì waste-to-energy plant to which municipal waste is sent only from the regional catchment area in respect of the planning being approved.

In 2018, no solid municipal waste from other regions was treated in Herambiente's nine waste-to-energy plants.

Special waste: similar-to-municipal waste, hazardous and non-hazardous

When one talks about waste, usually municipal waste and especially household rubbish immediately comes to mind. However, in reality, household rubbish does not even account for 20% of all waste produced. Indeed, in Italy, where a total over 160 million tonnes of waste is produced each year, more than 130 million is special waste, i.e. waste generated by production activities, while around 30 million tonnes are municipal waste (household and non-household waste). In Emilia-Romagna, out of over 11.4 million tonnes of waste produced in total, around 2.9 million are municipal waste.

Municipal and special waste production by province (thousands of tonnes)

Area	Municipal waste	Non-hazardous special waste (excluding C&D, construction and demolition)	Hazardous special waste	Total special waste (excluding non-hazardous C&D)	Total waste
Modena	427	1827	70	1,898	2,325
Bologna	572	1156	169	1,324	1,896
Ferrara	234	734	47	781	1,015
Ravenna	282	1195	153	1,347	1,629
Forlì-Cesena	280	552	30	582	862
Rimini	245	276	65	341	586
<i>Total of provinces in Hera's service area</i>	<i>2,040</i>	<i>5,740</i>	<i>534</i>	<i>6,273</i>	<i>8,313</i>
Piacenza	188	371	106	477	665
Parma	255	782	33	815	1,070
Reggio Emilia	377	1013	41	1,054	1,431
Total Emilia-Romagna	2,856	7,905	714	8,619	11,479

Source: MW: ISPRA, National Centre for waste recycling - Waste Cadastre, SW: ARPAE, Emilia-Romagna waste management report. 2015 data for special waste and 2016 data for municipal waste (most recent data available)

Despite its quantitative predominance, special waste becomes almost invisible in the collective imagination as it is far removed from daily life and also because of the different way it must be treated, by law. In fact, municipal waste must be collected and disposed of in the Region in which it is generated at a cost, for the general public, that is pre-set by the regulatory authorities. Conversely, special waste must be disposed of by and at the expense of its producer and therefore companies use the operators that best cater to their needs, also economically speaking.

Special waste is therefore often transported quite far from where it is actually produced: to other provinces, other regions or even abroad. Over the years, this lower visibility, often coupled with a lower degree of traceability, has been reflected in strategic planning deficiencies for disposal plants, and unfortunately this tends to lead to illegal forms of disposal, which for years has filled the coffers of the so-called environmental mafia.

The Emilia-Romagna Regional Government, in its Regional Waste Management Plan approved in spring 2016, has identified and verified the need for special waste disposal and treatment capacity, comparing the demand with the capacity of existing plants to meet this need or equivalent quantities. With DGR 987/2017 the same Region then updated the assessment of the needs, that increased especially for the disposal in landfills of special hazardous and non-hazardous waste.

Under Italian regulations, waste is classified on the basis of the place it was generated (home or production environment) and not on its physical, chemical or product-related characteristics.

Legislative Decree 152/2006 classifies waste as municipal or special on the basis of its origin and only downstream of this initial classification, according to its level of hazardousness, it is defined as hazardous or non-hazardous.

Municipal waste is household waste (inclusive of bulky waste) produced by homes, waste from cleaning streets and other public places, plant waste from green areas and any type of waste dumped or present in public areas, including beaches and riverbanks, the production of which cannot be traced to a specific source. Also classed as municipal waste is non-hazardous special waste originating in premises and places not used for dwelling, that is similar-to-municipal waste in terms of quality and quantity according to the

Municipal Regulations (or according to the regulations of supra-municipal authorities - Atersir) on the basis of the general guidelines set by the State; this waste is special in terms of origin but, after being ruled similar-to-municipal, it is handled (collected or disposed of) together with domestic municipal waste and subject to the corresponding tariffs or taxes (now called TARI).

Special waste is waste from agricultural, construction, artisan, industrial, sanitary, commercial and services activities, waste coming from waste recovery and disposal activities (therefore also the waste coming from treatment of non-separate municipal solid waste), water treatment sludge, mining or decontamination.

Waste is classified as hazardous or non-hazardous depending on the substances it contains. Hazardous municipal waste is made up of domestic waste that contains levels of pollutants or toxic substances such that it has to be disposed of in special plants (e.g. pharmaceuticals and batteries). Hazardous special waste is generated by production activities and contains the aforementioned pollutants or toxic substances.

In June 2015, the European and national criteria used to classify the hazard characteristics to waste were updated with reference to the regulation on criteria for hazardous substances (the so-called Regulation (EC) 1272/2008 on Classification, Labelling and Packaging). EU Regulation 1357/2014 applies to the assignment of HP hazard properties (except HP14) and Decision 2014/995/EU with the new European waste list (EER, ex CER) already applied and consolidated. EU Regulation 2017/997 entered in force on 5 July 2018 for the attribution of the hazard property HP 14.

For all these new developments, the Group has implemented and developed specific activities to adapt and update the classification and homologation criteria for the waste it manages.

The line between municipal waste and special waste is therefore set by the regulations defined by national law and applied at optimal municipal and/or area level.

Until the national standard is issued, each municipality may independently define the criteria for identifying waste from production, commercial and service activities as being similar-to-municipal waste. The more waste that is similar-to-municipal, the less special waste is left to be handled by the private sector with the risk of lower levels of control and traceability. In Hera Group's service area, and in Emilia-Romagna in general, there is a high level of production of similar-to-municipal waste: the waste handled by the public service is estimated to include 50% waste of domestic origin and 50% waste of non-residential origin, i.e. similar-to-municipal special waste. It is also estimated that there are around 1.5 million tonnes of similar-to-municipal special waste that due to its characteristics (i.e. non-hazardous) is not processed as similar-to-municipal because it is produced by a single manufacturer in quantities above the set limit. Unlike the method used in Italy, in Europe the classification of waste is more directly related to its level of hazardousness and to the type of treatment it undergoes.

	Non-hazardous waste	Hazardous waste
Municipal waste	Residential waste (dry and organic) Waste from the cleaning of streets and other public places Waste similar to municipal waste	Batteries, lead accumulators Environmentally harmful packaging TVs, monitors, fridges, air conditioning units and lamps Mineral oils
Special waste	Waste from agricultural and agro-industrial activities Inert materials and bricks (from construction and demolition businesses) Commercial and industrial packaging Plastics and glass processing waste Artisanal and industrial Coming from waste recovery and disposal operations, including municipal waste	Petrochemical and pharmaceutical production waste Metallic waste Sludge from reclamation activities Used oils Medical and veterinary research waste

The special waste supply chain at Hera

Within Hera Group, the special waste-management chain is managed by Herambiente at Hera, the flow of special waste treatment is highly structured given the variable nature of this waste that comes from

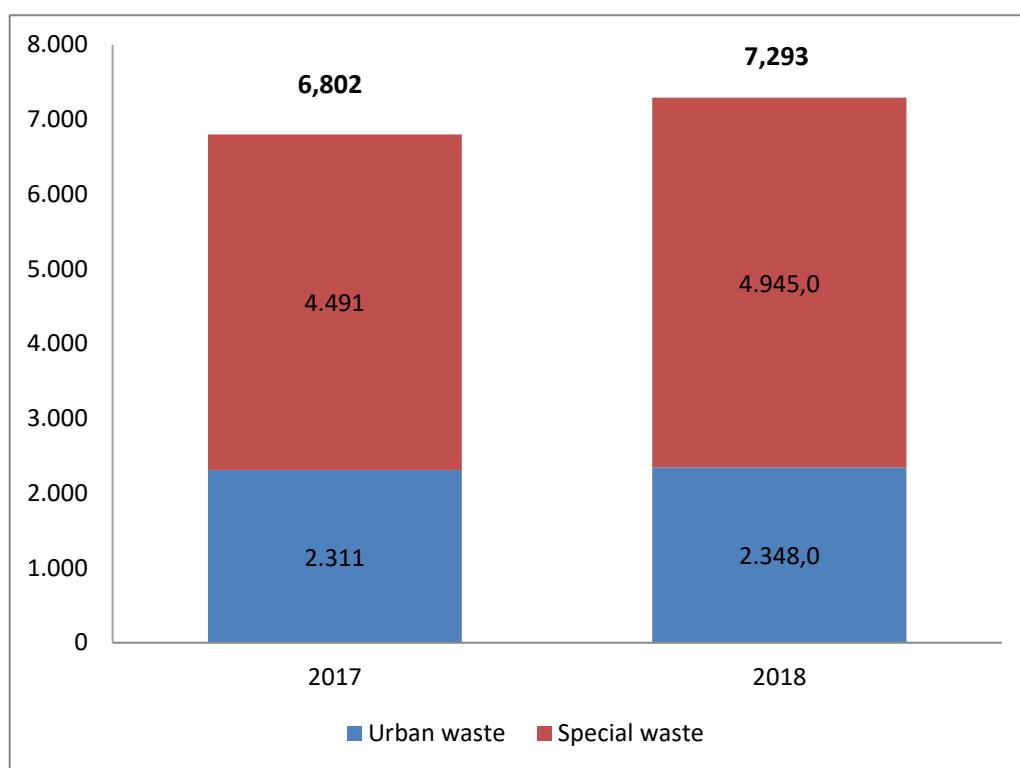
industry, from the purification of wastewater, from construction, from the commercial and services sector, and from the healthcare sector. Herambiente has over 25 plants exclusively equipped for the disposal of special waste, with around 5 million tonnes managed in 2018 (including sub-products deriving from the Group's plant activities).

Herambiente's plants, as regards special waste, include, *inter alia*, plants such as:

- Disidrat (Ravenna) - treatment plant for pumpable sludge, shovellable material, ash, soil (authorized for 150,000 t/year)
- F3 (Ravenna) - incinerator for special waste, including hazardous waste, of industrial origin (40,000 t/year)
- HASI waste storage and pretreatment centre (Herambiente Servizi Industriali), Ravenna - facility for special hazardous and non-hazardous waste (25,000 t/year of hazardous waste)

Total waste treated by the Group

Waste treated by type (2018)



Since 2018, municipal waste has also included the volumes of trade portions that were previously included in marketplace waste. Therefore, the data at 31 December 2017 was been restated, between municipal and marketplace waste, to match the classification of the current year. Municipal waste treated in the Group's plants (4,945 tonnes in 2018) as well as municipal waste collected in the municipalities where Hera manages the municipal waste service, includes about 369 thousand tonnes collected by other parties in the provinces of BO, FE, FC, GO, MO, PD, RN, UD, VE and in the State of San Marino.

Analysis of the quantitative data shows a decrease in waste sold due to marketplace waste, down 5.0%, mitigated by the growth in municipal waste. The drop in market volumes is a consequence of the temporary reduction in plant availability.

Municipal waste shows an overall increase of 1.6%, in particular due to the increase of quantities of separate waste and waste from beaches while the quantities of non-separate waste decrease.

The plant by-products increased because of a greater production of leachates in landfills due to the higher rainfall in 2018 compared to the previous year, which was characterized by an extraordinary drought.

Municipal and special waste disposed of, by plant type

thousands of tonnes	2017	2018
Selection plants	451.2	531.2
Waste-to-energy plants and biomass plants	1,305.4	1,309.8
Compost and stabilization plants	379.4	361.5
Landfill	872.3	704.3
Stabilization, and chemical and physical treatment	1,000.5	1,231.7
Third party plants/Other plants	2,792.8	3,154.6
Total	6,801.6	7,293.0

The data concern plant incoming waste. Duplication may therefore occur. Some of the waste treated in selection plants, for example, may be disposed of in landfills following selection. The outgoing waste from plants, which has therefore been included among the final-use plants, was subtracted from the quantities treated in the separation plants.

Waste treatment increased by 7.2% compared to 31 December 2017. In this regard, notably smaller quantities sent to landfill, while the quantities treated in the waste-to-energy sector increased slightly over the previous year. The increase in quantities at the selection plants is due to the higher quantities treated, mainly at the Castiglione delle Stiviere plant. The lower quantities in composting and stabilization plants are mainly due to scheduled maintenance activities on some plants for regulatory compliance. The higher quantities in the chain of stabilization and chemical-physical plants are due to the increase in leachates from landfills due to the greater rainfall. Lastly, the third-party plants/other plants sector benefited from the higher quantities treated by Waste Recycling and the increase in by-products treated in third-party plants.

The circular approach within the Hera Group

Waste produced by the company

In 2018, excluding AcegasApsAmga, the Group produced around 2.8 million tonnes of waste. Compared to 2017 (2.3 million tonnes), the total number of sub-products leaving Herambiente Group's plants increased, as a result of the higher volumes handled. In particular, there were higher discharges from landfills/composters (leachate) and chemical-physical facilities, as a result of greater rainfall and the expansion of industrial activity (Waste Recycling), and from selection plants due to an increase in the amount of waste treated and the identification of outputs at the Castiglione plant.

Main types of waste produced by the company, by destination (2018)

tonnes	Landfill	Energy recovery	Other treatments	Total
Waste-to-energy plant electrofilter particulates*	0	0	54,651	54,651
Waste-to-energy plant slag	44,300	0	219,345	263,646
Solid waste from stabilization	35,501	189	31,886	67,576
Water purification sludge	17,676	24,515	116,745	158,936
Sludge produced by chemical-physical-biological plants	24,408	1,143	28,293	53,844
Leachate from landfills/composting	0	0	548,000	548,000
Non-reusable fractions from selection plants	71,016	30,881	76,159	178,057
Liquid waste from stabilization	0	0	51,970	51,970
Biostabilised	38,585	2,873	28,352	69,810
Water from chemical-physical biological treatment	0	0	731,976	731,976
Production of fuel derived from waste	0	694	90,251	90,945
Other waste from Herambiente storage and plants	3,903	16,410	519,637	539,950
Total	235,389	76,705	2,497,267	2,809,362

*hazardous waste

Recovery of waste-to-energy plant slag

The waste-to-energy plant growth and renovation plan pursued by Herambiente in recent years has had a positive impact on the production of combustion slag. The new combustion systems and, above all, the systems for the “cooling” and “gondola”-type systems to extract combustion slag, make it possible to have waste with a very low quantity of unburned matter and low water content. This has resulted in a lower percentage of slag produced and, above all, a quality level more suitable for subsequent recovery.

In 2018, the nine waste-to-energy plants operated by the Group for the disposal of municipal waste produced 263,646 tonnes of waste, equal to 20% of the waste treated at these plants. 83% of the slag produced was recovered while the remaining 17% was disposed of at landfills. The Ferrara and Pozzilli plants, and since 2018 the Bologna plant, also have metal separation systems for reuse of the metal in the metallurgical industry. In 2018, 2,506 tonnes of metals were recovered, an increase over 2017 (1,522 tonnes) despite the shutdown of the Pozzilli separation system, which was out of service for all of 2018.

Recovery of purification sludge

Purification sludge is considered special waste and must be managed as specified in **Legislative Decree 152/2006**. In 2018, the plants operated by the Group produced 36 kg of sludge per population equivalent served, in line with the previous year. Recovered purification sludge was used directly in agriculture only in the Triveneto area and accounts for 4.5% of the total. At Group level, the remaining sludge produced was processed by **dedicated incineration** (24,515 tonnes, 15.4% of the total), **transfer to landfills** (approx. 17,676 tonnes, 11.1% of the total compared to 19.0% in 2015) and **indirect agricultural reuse, following composting** (109,639 tonnes, 69.0%). The Business Plan includes several measures designed to optimize the sludge management processes, so as to reduce the quantity and identify innovative circular economy solutions to “transform sludge treatment and disposal into a source of opportunity”.

Sustainable management of water resources

Water supply sources

Hera Group's water supply sources include underground water, surface water and, to a lesser extent, springs. In Romagna, the distributed water is purchased wholesale from Romagna Acque – Società delle Fonti.

The complexity of drinking water purification processes varies depending on the quality of the source water: they range from advanced chemical and physical processes, usually used for surface water, to simpler filtration and disinfection treatments for water coming from deep wells and springs that is already of good quality when collected.

The treatments carried out ensure that the product we distribute has suitable chemical physical and microbiological features for human consumption, and is constantly compliant with the limits laid down by current regulations.

Water fed into the network (by source)

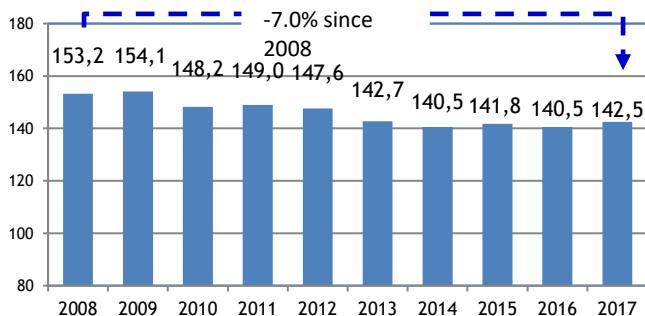
Thousands of m ³	2016		2017		2018	
Groundwater	226,314	53.6%	239,043	55.6%	223,777	53.1%
Surface water	166,309	39.4%	164,887	38.3%	165,414	39.2%
Springs and minor sources	29,460	7.0%	26,146	6.1%	32,558	7.7%
Total	422,083	100%	430,076	100.0%	421,749	100.0%

Figures concern both the civil and the industrial aqueduct networks (the latter being present in the Forlì-Cesena, Imola-Faenza, Modena and Ravenna areas, and account for around 3% of the total).

The data provided shows a total volume of water fed into the network slightly down compared to 2017 (-1.9%), and in line with 2016. The mix of supply sources is substantially unchanged. The less dry period of 2018, compared to 2017, however led to a greater rebalancing of sources with less use of groundwater (-6.4%) compared to 2017. From a geographical point of view, the share of groundwater is lowest in the Marche Multiservizi area (19%), while it is predominant in the Triveneto area (85%).

Limiting the analysis to domestic consumption in Emilia-Romagna only, it is interesting to note that in the 2008-2017 period the water sold decreased significantly, by 7.0%.

Water sold for household use (millions of m³)



Excluding AcegasApsAmga and Marche Multiservizi.

Hera Group's distribution network covers **35,144 kilometres** and, where possible, is interconnected and linked in order to ensure **supply continuity** even in the event of temporary interruptions of one or more pipelines.

Water network components

%	2016	2017	2018
Plastic	52.9%	53.1%	53.7%
Asbestos-cement	20.9%	20.8%	20.5%
Steel	17.0%	16.9%	16.6%
Cast iron	8.4%	8.4%	8.5%
Other materials	0.8%	0.8%	0.7%
Total	100.0%	100.0%	100%

The amount of asbestos cement in the water network is continuing to decrease, and accounted for 20.5% of the Group's share in 2018. The slight decrease is due to use of materials other than asbestos cement in new networks or in those subject to extraordinary maintenance. Over the last 3 years the Group has replaced approximately 60 kilometres of asbestos cement mesh.

Actions for drought risk prevention

Our reaffirmed commitment to protection of water resources led us, during 2018 to identify major **measures to enhance and renovate the aqueduct infrastructure** by 2030, to counter the effects of droughts, increase the reliability of supply and the overall resilience of the systems, increasingly called to support new operating conditions to better cope with current climate change. In this regard, various scenarios have been defined, which can be grouped on the one hand to the **integration or partial replacement of sources** currently exploited, and on the other hand to the creation of **interconnections** to allow the exchange of resources and the possibility of dealing with emergency conditions.

The project for the **collection of water from the Emiliano Romagnolo Canal**, which will allow an increase of about 50% in the available flow rates from surface sources, serving the municipalities of the Bolognese plain, is within the first scenario of development. Also the design assumption of exploiting the volumes accumulated at the artificial lake of Brasimone in the area of Camugnano will allow to make up for the water shortage in the summer periods, which in the past was dealt with using in emergency with tanker trucks.

Interconnection work between aqueduct systems have already been started in Romagna to connect to the Siepi-Pianacci facility of the San Leo backbone, aimed at ensuring reliability of supply in the municipality of San Leo in dry weather. Other important interconnection projects in the Emilia region are also being planned, such as the one that will connect the primary system of Bologna with the Castelfranco Emilia aqueduct or, in the Modena area, the interconnections between the Secchia Valley and the Panaro Valley.

In addition to the new work described above, we would like to mention what we have done in recent years, which have made it possible to **cope with a particularly dry summer in 2017**, an exceptional condition that could occur again in the future. In the Apennines, the Modena area has been equipped over the years with infrastructure designed to manage the water requirements and the original municipal aqueducts have been interconnected so that the physical integration of each of them makes up an infrastructure system capable of mutuality and subsidiarity. The saturation of the transport capacity of the entire aqueduct system, required to transfer the resource from zones where water is available to those where it is lacking, was made possible by the cooperation between the specialist skills of the "on site" operators and those of the remote control system, which were able to create the necessary configurations and optimize them centrally and mainly remotely. In the Apennines area near Bologna, on the other hand, the interconnection with the Modena system, the construction of two new pumping plants in the municipality of Guiglia and in particular the construction of a new storage and pumping plant in the Monte Severo (Monte San Pietro, BO) area,

have made it possible to reduce the need to supply tanks in the mountains using tanker trucks (down by 40% in the summer of 2017 compared to 2012, the most recent significant drought). In Romagna, where Hera operates mainly as a distributor, Romagna Acque Società delle Fonti built the "Standiana" drinking water plant (capable of treating a flow of 1100 l/sec) in the Ravenna area in response to the problem of water reserves on the Adriatic coast, a major tourist destination, supplementing the Ridracoli feeding system. In any case, in the Romagna area, the measures Hera has implemented in recent years (interconnections, upgrading of pumps and implementation of the remote control system) have also mitigated the problems caused by the dry summer.

During 2018, the **network districtisation** and **active search for losses** continued throughout the area, together with a plan to replace pipelines and connections, increasingly governed by criteria for analysing and interpreting the available data, which can be traced back to physical factors of the aqueduct infrastructure (material, diameter, age of the pipeline, etc.) and to environmental factors (type of soil, climatic aspects understood as precipitation rather than external temperature).

In this regard, in 2018 Hera, **with the support of the University of Bologna**, launched a study to investigate the factors that influence the probability of failure, developing guided models that focus precisely on the relevance of climatic factors on the probability of occurrence of the failure event.

This project is part of a broader range of joint actions and strategies involving the various stakeholders (managers, environmental planners, environmental bodies and control bodies), as was explained in detail in the conference promoted by Hera in July 2018. Its purpose is to fight the breakdown of aqueduct networks in relation to the efficient use of water resources and climate change in progress.

Non-invoiced water

The percentage of non-invoiced water compared to water fed into the network is related to physical or real losses (due to breakage of pipes or hydraulic equipment, etc.) or procedural or apparent losses (metering inaccuracies, errors in estimated presumed consumption at 31 December, unrecorded internal consumption, and illegal use). The latter losses result in water which is effectively delivered to the final customer but is not recorded and invoiced.

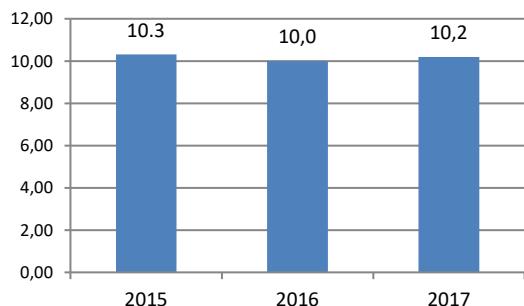
Until 2006, network losses were calculated as the difference between the water fed into the aqueduct network during the year and the water accounted for as supplied to customers during the same period: the amount was estimated at 31 December of every year on the basis of the historical consumption of customers since it is not possible to take a single reading at 31 December of all the meters. This estimate was then supplemented so as to take into account the correct period of recording in accounts of the water sold to customers as at 31 December of the previous year, calculated after reading all the meters. Since 2007, network losses have been calculated by integrating the adjustments coming from meter readings in the pertinent year, thereby ensuring perfect comparability between water sold and the related amounts fed into the system each year. With this approach, it is possible to calculate the final figure for the year only around 4-6 months after the close of the financial statements, after all the meters have been read. For this reason, the table below does not include the provisional figures for 2018. On the basis of the information available at the date of approval of this Sustainability Report, there is no evidence to suggest that the final figure for non-invoiced water for 2018 differs significantly from that for 2017.

At Group level, network losses for 2017 were 30.6%, in line with 2016 (both data calculated according to ARERA's new resolution). The Group continues to rank significantly below the national average of 41.9% in 2015 (Source: ARERA, 2018 Annual report) and the 36% average of the provincial capitals (Source: Legambiente, 2018 Urban Ecosystem).

The corresponding line loss index for 2017 is 10.2 m³/km/day, substantially in line with 2016. We believe that the figure of non-invoiced water per kilometre of network is more representative of the effectiveness and efficiency of the distribution system and more useful for comparison with other companies. The figure

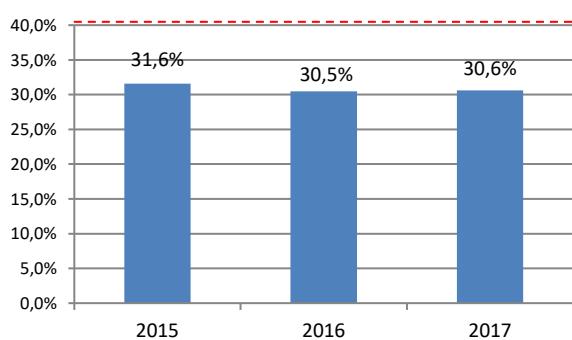
for line losses in Emilia-Romagna was 9.1 m³/km/day in 2017, substantially in line with the average of 8.3-8.4 m³/km/day found by the European Environment Agency on a group of 32 European utilities that took part in the study entitled “Performance of water utilities beyond compliance”. It is an even more significant value if compared with the average of 24 m³/km/day of the Italian utilities for 2017 (Source: Utilitalia, 2017 Sustainability Report).

Non-invoiced water per kilometre of network operated (m³/km/day) (physical and administrative losses from the domestic aqueduct network)



	2015	2016	2017
Hera	8.9	8.7	9.1
Marche Multiservizi	6.8	6.4	6.5
AegasApsAmga	25.7	25.2	23.7

Non-invoiced water (physical and administrative losses from the domestic aqueduct network):



	2015	2016	2017
Hera	29.7%	28.4%	28.9%
Marche Multiservizi	33.3%	32.1%	32.8%
AegasApsAmga	37.5%	37.4%	36.1%

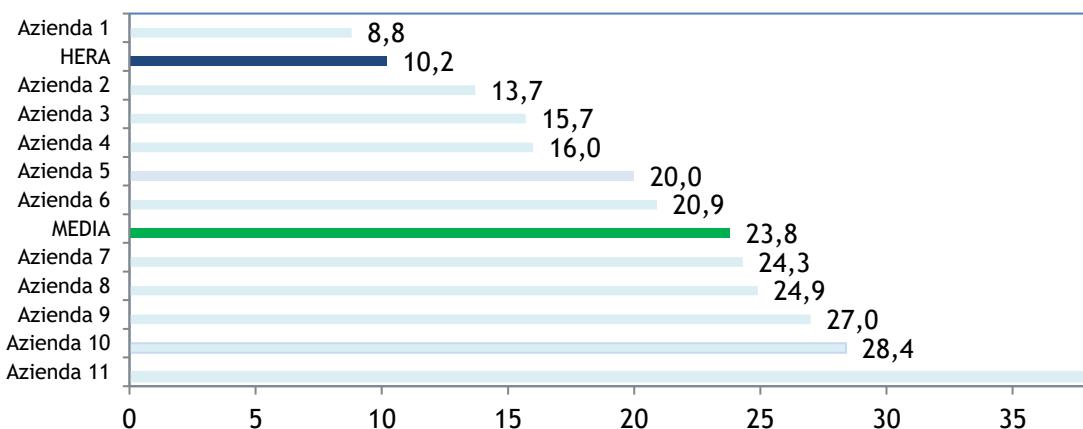
Italian average:
41.9%

The figure for 2018 is not reported since it is provisional.

Non-invoiced water for the main Italian utilities

Utilitatis performed a comparative analysis of the main Italian utility companies in terms of non-invoiced water per kilometre of network. Hera ranks second among the 12 companies considered. In 2018, Utilitalia published its first sustainability report which summarises the environmental performance of 127 Italian utility companies: Hera's 2017 result (10.2) is 57% lower than the average of the utilities considered (23.8).

Non-invoiced water per kilometre of network operated (m³/km/day)



Source: Utilitatis, 2018 Sustainability Benchmarking; Utilitalia – 2017 Sustainability Report

Water consumption within the Group and water reuse

The attention that the Hera Group has always paid to issues of sustainability and circularity, has led to the decision to concretely plan actions aimed at saving, reusing and recovering water. The roadmap, outlined in 2018, will be operationally implemented over the four years of the industrial plan (2019-2022).

The concrete and challenging objective is to **reduce** the consumption of drinking water **by 10% in four years** (compared to 2017 consumptions in water, district heating and waste management areas) in the most “water-hungry” business units, with initiatives that will be carried out starting from 2019. Analysis of the conditions and the perimeter of consumption, completed in 2018, have shown that the presence of plants – for treatment (of waste, wastewater, etc.) or district heating and cogeneration – is the greatest factor for water consumption. The assessment of business customers has led to the same results: wherever there is production, water is an essential element of the process and its availability, a given until now, has not made companies aware of the need for a “circular” use of it.

To promote more efficient use of water, the Hera Group has planned structural (i.e. areas of intervention involving investments in plant modernisation) and non-structural (i.e. aimed at creating awareness of the use of water resources) projects for the next four years. More in detail, the main activities that will be developed within the Group are:

- improvement of the main plants (waste-to-energy plants, purifiers, etc.) to allow the recovery and reuse of process water, otherwise discharged into public sewage or into the body of surface water after purification treatment;
- technological modernisation to optimise cooling systems (cogeneration plants and district heating), thus reducing water consumption for the replenishment of circuits;
- enhancement of the search for hidden leaks downstream of the meter;
- campaigns to analyse consumption of Retail and Business customers, to stimulate and increase virtuous and conscious behaviour in the use of water resources also among our customers.

Water consumption within the Group (2018)

Thousands of m ³	Civil and industrial aqueduct	Canal (surface water)	Well (groundwater)
Sewage and wastewater purification service	222.8	4.6	51.7
District heating	262.4	-	-
Waste treatment plants	717.5	532.6	46.6
Total	1,202.7	537.1	98.3

The consumption data refers to the Group's main purification plants (>100,000 pe), to the largest district heating plants in Emilia-Romagna, to the six waste-to-energy plants of Emilia-Romagna and to that of Pozzilli, to the main industrial waste treatment plants (excluding the F3 waste-to-energy plant) and to Herambiente's composting and recovery plants.

In 2018, the Group's water consumption amounted to 1.2 million m³ of water drawn from the aqueduct, 537 thousand m³ of surface water and 93 thousand m³ of groundwater. In the Group's main purification plants, 84% of the water required for the process is reused (internal and external reuse), thus reducing overall consumption. Also in the waste-to-energy plants of the Emilia-Romagna area and in the plants for the treatment of industrial waste, is used water from the purification plants for 28% of the total consumption.

Wastewater purification quality

In 2017, the Hera Group operated the sewage and purification service in 231 municipalities, 49 of which as Marche Multiservizi and 18 of which as AcegasApsAmga while the coverage of the **sewage service** for all urban areas is equal to 92% of the needs of the territory (population equivalents).

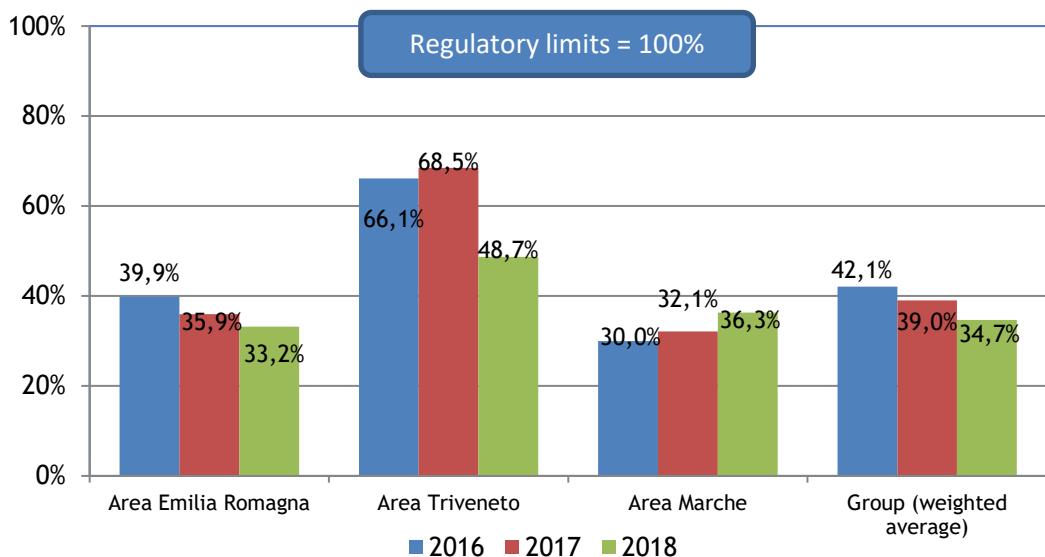
In 2018, the **purification service** covered 91% of population equivalents in the areas served by the Group.

These values are very positive if compared with the average of the Italian utilities that were included in the Utilitatis study in 2016, at 90% for the sewage network and 88% for the purification network. Concerning the country-wide values, the latest data available are for 2007, when 85% of Italians was served by the sewage network and 70% by a purification plant. (Source: 2009 Utilitatis Blue Book). Assessing the percentage of wastewater treated compared to the total, the Italian average in 2015 was 89.9%, with negative peaks for the regions of southern Italy such as 68.5% in Sicily or 76.9% in Calabria (Source: ISPRA).

The Hera Group treated over 382 million m³ of wastewater in 2018, compared to 364 million in 2017 as a result of the low rainfall that year and, therefore, of the lower inflow of rainwater. The sewage networks that feed those plants are generally mixed-type systems, and the volumes treated therefore depend on rainfall.

The sewage network Hera Spa operates is approximately 14,800 km long and about 53% of the total (55% in 2014) is a mixed-type system. At Group level, the sewage network operated is 18,626 kilometres long, and 57% of the total is a mixed-type network.

Compliance of the purified water with the regulatory limits (optimal values <100%)



The indicator concerns the plants that serve over 10,000 population equivalents (the volumes treated in these plants are 87% of the total wastewater treated) and expresses the ratio between the measured concentration of BOD5, COD, TSS, ammoniacal nitrogen, phosphorus and total nitrogen, and the corresponding maximum concentrations permitted by Legislative Decree 152/2006.

The efficiency in removing pollutants to comply with the regulatory limits, as expressed by the indicator in the chart, is related to the purification capacity of the plant and the technologies used. Low indicator values indicate higher purified water quality. At Group level, this indicator averages 35% of regulatory limits, taking into account BOD5, COD, TSS, ammoniacal nitrogen, phosphorus and total nitrogen, and 26% excluding phosphorus and total nitrogen. The indicator that expresses the efficiency of removal of the main pollutants improved slightly compared to previous years, also due to the fact that some large upgrade projects started in previous years are nearing completion. In particular, with regard to the Triveneto area, in the first few months of 2018 the new biological section of the Servola purification plant in Trieste was launched, which went into operation in June 2018. This has allowed us to improve significantly the results compared to previous years, when the plant was only primary chemical-physical. A further improvement is expected in 2019, as 2018 was a year of transition with the first half of higher values.

The following table shows the main improvement and expansion measures of purification plants completed during the year and in progress.

Main purification plant extension/improvement measures

Plant	Population n equivalen ts	Progress (at end 2018)	Type of measure	Environmental benefits expected/obtained
Ravenna	240,000	Construction in progress (to be completed in 2020)	Purification plant revamping, water line and sludge/centrifuge room	Improved handling of water purification sludge and greater efficiency of the plant
Servola (Trieste)	220,000	Completed	Measure to achieve compliance with regulations and expand the Servola purification plant	More effective treatment and greater guarantee of compliance with applicable regulations Resolution of infringement procedures 2004/2034 and 2014/2059

Plant	Population n equivalents	Progress (at end 2018)	Type of measure	Environmental benefits expected/obtained
Cesena (FC)	197,500	Construction in progress (to be completed in 2019)	Measure to achieve plant's compliance with regulations	Improvement of treatment efficiency and upgrade of drainage
Ca' Nordio (PD)	197,000	Ongoing (to be completed in 2022)	Plant upgrade measure	Increase of the nominal power of the system to 230,000 PE
Riccione (RN)	180,000	Completed	Measure to achieve plant's compliance with regulations	Improvement of treatment efficiency and upgrade of drainage
Borgheria (PU)	116,500	Design in progress (to be completed in 2021)	Measure to achieve plant's compliance with regulations	More effective treatment and greater guarantee of compliance with applicable regulations EC Infringement Resolution 2009/2034 and 2014/2059
Imola (IF)	75,000	Construction in progress (to be completed in 2021)	Reclamation of Santerno treatment plant digesters	Improved handling of purification sludge
Montecchio (PU)	30,000	Construction in progress (to be completed in 2021)	Plant upgrade measure	More effective treatment and greater guarantee of compliance with applicable regulations EC Infringement Resolution 2014/2059
Sasso Marconi (BO)	12,000	Construction in progress (to be completed in 2020)	Treatment plant revamping	Improvement of treatment efficiency and upgrade of drainage
Orciano (PU)	3,300	Construction in progress (to be completed in 2021)	Plant upgrade measure	More effective treatment and greater guarantee of compliance with applicable regulations EC Infringement Resolution 2009/2034 and 2014/2059

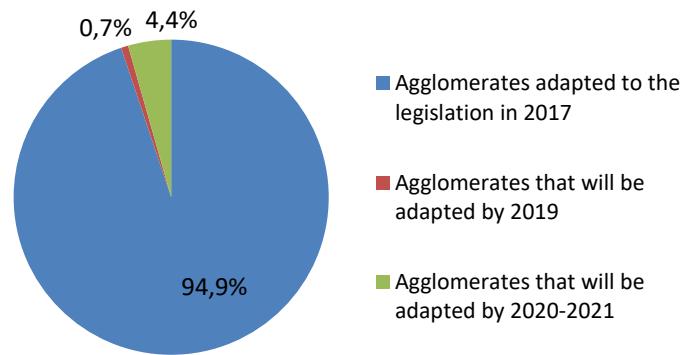
Percentage of analyses on outgoing purification plant water compliant with regulations

%	2016	2017	2018
Plants with over 10,000 population equivalents	99.2%	99.0%	99.7%
Plants with less than 10,000 population equivalents	99.2%	99.5%	99.8%
Weighted average	99.2%	99.1%	99.7%

Considering the 9,443 analyses carried out in 2018 on 230 purification plants, in 99.7% of the cases the results were compliant with the regulatory limits. The final values for this indicator in 2018 show a very satisfactory situation with excellent percentages of the total checks found compliant. Also in this case Triveneto benefits from the effects of the adaptation of the purification plant of Servola, in Trieste. The only cases that exceeded the authorized limits were in relation to purely incidental situations, largely compatible with the variability of the incoming quantities, the operating conditions and the structural condition of the plants.

Wastewater purification quality can also be identified by monitoring the **upgrade trends of urban areas**, defined as areas in which population and production activities are concentrated to the extent that it is technically and economically acceptable to build an independent sewage treatment system. As set out by Directive 91/271/EEC, Legislative Decree 152/2006, and by the Water Protection Plan of the Regional Government of Emilia-Romagna, compliance requires that at least 95% of wastewater must be collected and the capacity of the purification plants must exceed the requirement for the population equivalents of the urban area with secondary or tertiary treatment (where necessary).

Compliance work for the sewage-purification system (% of urban areas >2,000 pe achieved compliance with regulations)



At Group level, at the end of 2018, 130 of 137 **urban areas with more than 2,000 population equivalents (pe)** have been upgraded to Legislative Decree 152/2006. Compliant urban areas amount to 92.2% of the total equivalent population. In **Emilia-Romagna**, this figure reaches 100%. In 2017, in fact, the Ministry of the Environment formally informed the Regional Government of Emilia-Romagna that it had withdrawn infringement proceedings 2014/2059, which therefore ended with compliance of the 206 urban areas >2,000 pe in the region, 101 of which are managed by Hera. In 2016, all of those urban areas achieved the quality objectives set out in the Water Protection Plan of the Regional Government of Emilia-Romagna's Regional Government, in terms of extension of the networks and the presence of treatment plants. As far as the **Triveneto** area is concerned, in 2018 the compliance was achieved for the Trieste Muggia urban area for a total of 256,882 population equivalents: the Servola plant started operation in June 2018 compliant with all discharge parameters. The Regional Government is awaiting formalities from the European Union to close the infringement procedure. In the **Marche** region, in the area served by the Group, 6 urban areas have been declared non-compliant and infringement proceedings 2014/2059 and 2009/2034 have been initiated. Action is already planned to bring each urban area into line with the requirements of Community and national legislation by 2021. By 2021, therefore, all urban areas with a population equivalent greater than 2000 in the service areas of Hera will have achieved compliance.

In addition to the above, the Emilia-Romagna Regional Government, in its resolution 201/2016 on the adaptation of urban wastewater discharges, ruled to implement some additional measures in **urban areas with more than 10,000 pe**. These are structural adjustments relating, for example to the upgrade of undersized network floodways or more thorough nitrogen abatement. Although these situations do not undermine the compliance of those urban areas to Legislative Decree 152/2006, they may locally jeopardize the achievement of quality objectives for water bodies. Therefore, the Regional Government of Emilia-Romagna, together with the integrated water service operators, have defined timescales and compliance criteria in the aforementioned resolution. Two projects have already been completed (Riccione and Cattolica, respectively in 2018 and 2017). Further 6 interventions are planned in 4 urban areas (Castel San Pietro Terme, San Giovanni in Persiceto, Budrio, Medicina) by 2021, 9 by 2024 and 16 by 2030. It should be borne in mind that a total of 26 urban areas are affected by the 33 improvement measures, some of which involve more than one intervention in different years.

With regard to **urban areas under 2,000 pe**, where critical issues remain for subjecting the final effluents to appropriate treatment, Emilia-Romagna's Regional Government identified and set the timeframe for achieving compliance in its Resolution 201/2016 as: 31/12/2018 to prepare the detailed plan; 31/12/2021 to implement the measure. Compliance will be achieved by end 2021 in 91 urban areas in Emilia-Romagna for total 55.5 thousand population equivalents. In the served Triveneto area there are 37 urban areas of less than 2,000 pe, of which 34 are already compliant with the regulations in 2018, one is planned to be finished in 2019 and two will be upgraded in subsequent years. Considering Emilia-Romagna and Triveneto, there are 254 urban areas with less than 2,000 pe for a total of 200 thousand population equivalents, of which 62.2% are compliant (160 urban areas for 103 thousand population equivalents, equal to 64.2% of the population equivalents). By 2021, 252 urban areas out of 254 (99.2%) will have been adapted to less than 2,000 pe. With regard to urban areas of less than 2,000 pe in Marche, the Regional Government is still at a standstill having done their initial identification, without having yet issued provisions in this regard.

Constructed wetlands

Constructed wetlands are a natural process used to treat polluted water based on the capability of soil and vegetation to remove pollutants. They are designed as a system of biological ponds and of planted macrophyte vegetation. The purification process is completely environmentally friendly and does not involve the use of chemicals. The wastewater arriving at the constructed wetlands plant flows into a bed of gravel and aquatic plants: here many different species of microorganisms come into play and through biochemical reactions, eliminate the pollutants present. The action of the plants is fundamental because the micro-organisms necessary for the entire system develop in their roots; they absorb the oxygen produced by the plant species and trigger the processes necessary for purification of the wastewater.

This kind of treatment also contributes to the reclamation of borderline areas, creating natural environments and landscapes that are pleasing to the eye, and often chosen as refuges for various species of birds, amphibians and reptiles.

Hera operates 17 small or medium-capacity constructed wetlands, located in the provinces of Bologna, Florence, Forli-Cesena, Rimini and Ravenna: some are secondary biological treatment plants downstream of primary sedimentation while others are tertiary treatments used for final refinement of the wastewater before its final discharge. Marche Multiservizi operates 5 constructed wetlands plants with a potential of between 80 and 180 population equivalents.

Case study

Transition towards a circular economy

European circular economy package: Hera leads the way in the municipal waste management

While in Italy the transposition of the European Directives included in the “circular economy package” is underway, Hera once again leads the way for packaging recycling and landfill reduction, confirming that it is **ahead of both European targets regarding municipal waste**.

In the Group’s service area, the targets for landfill use have already been achieved (4.5% at the end of 2018 compared to the 2035 objective of not over 10%) while we are on track to reach the target for recycling of packaging (70% in 2017 compared to a target of 65% by 2025 and 70% by 2030). The service area is also on track to reach the overall target recycling rate (48% at the end of 2017 compared to the 2025 objective of 55%, 60% by 2030 and 65% by 2035). The data for these last two targets will be updated to 2018 in the coming months and as usual published in the “Tracking Waste” report.

Projects and collaborations with national and international networks for the circular economy

In October 2017, the Hera Group was the second Italian company to join the **Ellen MacArthur Foundation’s** prestigious international CE100 programme and immediately started a close collaboration relationship to implement the projects carried out to create shared value through activities inspired by the circular economy principles. In addition to large groups concentrated mainly in Europe, the United States and South America, the programme also includes institutions, universities, small and medium-sized enterprises, with the aim of promoting awareness of these issues, the exchange of experience, the launching of partnership projects and collaborations in the field of research and development. Through the Ellen MacArthur Foundation, the Group has the opportunity to increase the exchange of ideas with other members of the CE100 programme, to increase the creation of shared value and contribute to long-term sustainable development.

The main initiatives carried out in 2018 include:

- participation in the “**New Plastics Economy Global Commitment**”, to make the plastic supply chain more circular, to which this section of the Sustainability Report is dedicated;
- participation in the “**Water White Paper**” on the circularity of the use of water resources, a collaborative project of the Foundation coordinated by ARUP. Hera contributed to the definition of the theoretical framework described in the paper and presented some case studies, including the reuse of water from the IDAR purifier in Bologna (described in this Report) and the analysis report of water consumption (in the “we will” section of this Report). The case studies will be included in a collection being prepared. The white paper can be downloaded from the *Completed Co. projects* section of the Ellen MacArthur Foundation website;
- participation in the systemic initiative “**Cities and Circular Economy for Food**”, which analyses the circularity of the food supply chain in cities, from production, to waste prevention, to the enhancement of organic waste. Hera has contributed by presenting some case studies, in particular the biorefinery of Sant’Agata Bolognese and the application of quantity-based tariff in Ferrara, which has significantly increased the organic fraction collected. The city of Ferrara was mentioned in the report, which can be downloaded from the **Foundation’s** website;
- the launch of a pitch at the 2018 Lisbon acceleration workshop on the **circular economy in cities**. The aim is to involve other cities and companies in the network and to explore the subject from a theoretical point of view with the Foundation, presenting Hera’s innovation activities in the field.

Hera is also among the promoters of the **Circular Economy Network**, a project promoted by the Sustainable Development Foundation and by a group of companies and associations involved in the transition to a circular economy. The significant events of 2018 include the thematic session at Ecomondo “The new European directives on waste and circular economy: indications for transposition” (6 November) and the

conference held on 22 November at the Senate, in which the report on “Potential and obstacles for the circular economy in Italy” was presented and the best start-ups carrying out activities in the circular economy were awarded.

Moreover, since its foundation, Hera has been part of **ICESP** (Italian Circular Economy Stakeholder Platform), the Italian platform coordinated by ENEA that groups the main national players in the circular economy. ICESP is the only organization that represents Italy in the similar European platform ECESP (European Circular Economy Stakeholder Platform).

Ambitious targets to make the plastic supply chain more circular

Hera is one of the 250 companies worldwide, the only Italian multi-utility company that has signed the **“New Plastics Economy Global Commitment”** of the Ellen MacArthur Foundation, in collaboration with UN Environment, the United Nations Environment Programme. The Foundation’s initiative has the ultimate aim of tackling the problem of plastic pollution at the source and making the entire supply chain more circular: eliminating disposable products as much as possible, producing and using only recyclable, reusable or compostable packaging and promoting the use of recycled plastic. For this reason, the Foundation has created a global movement, involving all players in the supply chain, such as plastic packaging manufacturers and companies that use them to pack their products, large retailers, recycling companies, but also governments and investors.

Hera Group is committed to:

- **increase by 2025 the amount of plastic collected in the municipalities served, by 30%;**
- **increase by 50% the amount of plastic sorted and recycled by the Group’s plants;**
- **increasing the plastic recycled by Aliplast by 70%.**

Ambitious commitments, which are in the wake of a path started in 2016 with the acquisition of the Aliplast Group, leader in Italy in the recycling of plastic. The same targets were presented by Hera in the context of the **“EU-wide pledging campaign for the uptake of recycled plastics”**, the campaign promoted by the European Commission to accelerate the diffusion of recycled plastics and achieve the European target of 10 million tonnes of recycled plastic used for new products by 2025.

Achieving these targets will be possible only by continuing the efforts on the innovation front and by leveraging the Group’s industrial capacity, but also requires the fundamental contribution of citizens, in the framework of a logic geared towards- also on this front - encouraging reuse and recycling, thus extending as much as possible the average life of products and plastic materials.

A new waste tariff for 13% of the residents served by Hera in Emilia-Romagna

During 2018, Hera managed the first year of application of large-scale quantity-based tariff, overcoming the experimental phase and entering the “fully operational” phase, thanks to an integrated management of systems and processes that has allowed its effective and uniform application in all its aspects and phases, from customer management to the measurement of non-separate waste disposed of, and up to final invoicing. The new system is a fairer and more transparent way to finance waste management services and allows for the promotion of virtuous behaviour and participation in separate waste collection.

In particular, quantity-based tariff was applied for the first year in **six municipalities of the area** - Ferrara, Castelfranco Emilia, San Cesario sul Panaro, Bomporto, Bastiglia and Monte San Pietro - while in **two municipalities**, Budrio and San Giovanni in Marignano, quantity-based tariff was applied respectively for the third and second consecutive year. In all the municipalities activated in 2018, the quantity-based tariff was calibrated according to the needs and characteristics of the area, combining roadside bins equipped with disposal measurement, volume limiter on non-separate waste, containers equipped with user recognition system and door-to-door collection service. In the municipalities of Castelfranco Emilia, San Cesario sul Panaro, Bastiglia and Bomporto, the quantity-based tariff has been applied uniformly throughout the area, also thanks to a special joint control room that has enabled an effective and organic relationship between Hera and the Administrations involved. Invoicing for 2018 was calibrated on four

quarterly instalments of advance payment for Ferrara and three quarterly instalments for the other municipalities, with an annual balance to be issued in 2019.

In **Ferrara**, quantity-based tariff took into account the complexity and needs of a large capital city. In 2018, communication initiatives continued to inform and involve citizens on the new collection and invoicing system, in particular, information on the new bill was published in newspapers and the Facebook page dedicated to “Assistance with separate collection” was set up. During the year, for the first time in a municipality using quantity-based tariff, the delivery of equipment was done directly at the Hera customer desk in Via Cesare Diana, to making the relationship with our customer direct and effective in all its phases.

During the year, Hera also undertook all the **preparatory activities for the transition to quantity-based tariff**, from 1 January 2019, in the municipalities of Marano sul Panaro, Spilamberto and Vignola (province of Modena), Dozza and Mordano (province of Bologna) and Coriano, Cattolica and Misano Adriatico (province of Rimini). The new tariff system will thus reach about **320,000 inhabitants in 2019**, equal to 13% of the residents of Emilia-Romagna served by the Hera Group through the integrated management of municipal waste.

For these municipalities, the new quantity-based collection services have been activated and personal equipment for disposal has been distributed to all citizens and companies. For an effective and consistent introduction of the new tariff model and the new services, special control rooms have been set up jointly between Hera and the municipal administrations.

The necessary communication initiatives have also been taken to inform and involve users on how to introduce the new system. Notable communication initiatives implemented include:

- articles and press releases for the communication of first results;
- information meetings open to citizens and dedicated meetings for trade associations;
- setting up of additional information points to support citizens and distribution of information materials;
- sending home letters to explain the introduction of the quantity-based tariff to domestic and non-domestic users;
- systematic updating of the customer website/web with dedicated information for each municipality.

In the municipalities where the quantity-based tariff was applied in 2018, excellent results were achieved in terms of separate collection, exceeding 80%. This result is particularly significant for the municipality of Ferrara considering the size and complexity of the area concerned.

In the municipalities that will switch in 2019, the introduction of the new collection services has already led to significant increases in separate collection in 2018, albeit to a different extent due to the different timing of the start of services. The results of **Dozza, Mordano, Spilamberto, Coriano and Misano** are particularly noteworthy, where the percentage of separate waste exceeded 80% with significant increases compared to 2017. In all municipalities, however, there was a marked increase in the percentage of separate collection.

In the coming years, further municipalities served by Hera will gradually transition to quantity-based tariff (an additional 50 thousand residents will switch in January 2020), increasing the services for measuring non-separate waste and the application of the tariff according to the Group model, always in accordance with the provisions and guidelines defined by regulatory bodies.

Circular economy and separate waste collection: thanks to the commitment of Hera and residents, 93% of the separate waste collection was actually recovered in 2017

For the ninth consecutive year Hera published the “Tracking Waste” report, which transparently and completely certifies that the percentage of separate waste collection actually recovered by the company reached **93%** in 2017, divided into 90% of material recycling and 10% of energy recovery that is obtained

exclusively in the plastic and green waste sectors. The initiative regarded the main materials that are collected separately: green waste, paper, organic waste, glass, plastic, wood, iron and metals (aluminium, steel and tinplate packaging).

The report, that for the first time includes the entire Group, shows a recovery rate of 98% for green waste, 95% for paper, 92% for organic waste, 96% for glass, 71% for plastic, 99% for wood, 98% for iron and 92% for metal, and over 276 kg of separate waste per capita.

To produce this year's report, **58 companies** were analysed, that operate **71** first-destination waste **plants**. Thanks to them we have gone up the entire recovery chain, tracing the 170 final recovery plants managed by 162 companies that **regenerated, renewed and entered into a circular economy cycle** waste from separate waste collection, reinstating it in the production cycle in a circular economy perspective. Of these, 34 plants are in the Group's service area.

The report also includes two sections on Hera's initiatives for the circular economy, which summarize the main initiatives for recycling and reuse and for the circular economy and the Group's commitments and results in relation to the European Commission's objectives in terms of recycling and use of landfills. Lastly, for the first time this year, there is a section that allows users to view for each material the percentage collected separately and recycled, but also the portion still present in the non-separate waste, highlighting the important effort still to be made by all.

The report was presented at the international "Ecomondo 2018" event, and emphasizes how recovery is one of the key supply chains of the green economy. The circular economy of recovery, in fact, feeds 162 recovery facilities that employ a total of **20 thousand people** and achieve a total turnover of over Euro **11 billion**. To ensure maximum transparency and reliability of the data provided, **the report** was examined and entirely audited by DNV GL.

The extended contents of the project and further in-depth data can be found on the website www.gruppohera.it/report.

Separate waste collection in the old town centre of Bologna exceeds 60%.

The project for the city centre, consisting in the construction of underground mini drop-off points for glass and organic waste, and simultaneously starting door-to-door non-separate waste collection district by district, began at the end of 2014 in the former San Vitale neighbourhood, continued in June 2015 in the former Porto neighbourhood, in May 2017 in the former Saragozza neighbourhood, and in March 2018 in the former Santo Stefano neighbourhood. The businesses were also supervised to assess needs on the target services.

The project was delayed initially by the demanding requirements set by the Archaeological Superintendence, due to the need for continuous stratigraphic surveys and the relevant restrictions related to underground utilities, and subsequently for the inclusion of the project (3rd portion mini drop-off points and 3rd portion upgrade of large underground drop-off points) in a regional financing operation and therefore, before starting all the related activities, it had to wait for the completion of the authorization process.

Of the 140 mini drop-off points initially planned, a total of **109 were built below ground and 14 above**. The lower number compared to the plan is due to the presence of underground utilities found after starting the work, which prevented the tanks from being installed.

During 2018, the transformation of the 15 large underground drop-off points of the historic centre was started, from the collection of non-separate waste to the collection of plastic for the 12 dual container drop-off points, and to the collection of paper/cardboard for the remaining 3 single points.

The entire municipality reached 52.2% in 2018 compared to 47.6% in the previous year while the entire old-town changed from 50.0% of 2017 to 61.8% in 2018. In the three neighbourhoods of the old-town with a collection system in place, separate waste collection is on average 63%. Checks on the quality of the organic and glass waste continue to be encouraging, with percentages of compliant materials around 90%.

Lastly, the analyses on the quality of the plastic and cardboard of the large underground drop-off points, recently converted, show compliance values of more than 95%.

With Riciclandino we help the environment and schools

Riciclandino is a project that engages children and families in an environmental initiative that involves the part of a town's residents that gravitate around school matters, in its role as an institution and a community of people. Under the project, the more separate waste collection is done, and the more waste is sent to drop-off points, the more points are obtained, giving the local school the opportunity to receive financial incentives. Families of students can use their Riciclandino Card to dispose of waste at drop-off points, obtaining a discount on their own bill, as per municipal regulations, and providing a matching incentive to their child's school. The added value of the initiative is raising environmental awareness and sharing actions that create and strengthen the civic and social sense of the community.

In 2018, the project, which started in the 2010-2011 school year in Ravenna, involved 18 municipalities in the Ravenna area, and 22 municipalities in the Modena area, and Ferrara, for a total of 41 municipalities. It involved 392 schools and 74,600 students in the 2017-2018 school year. The participating schools were awarded prizes for their work, amounting to over Euro 103,400. In the framework of the project, over 1,437 tonnes of waste were taken to drop-off points by children and their families.

CiboAmico: 91,000 meals recovered in Hera's canteens since the beginning of the project

Launched in 2009 with the support of Last Minute Market, a company of the University of Bologna that promotes environmental sustainability and the fight against waste, CiboAmico is a concrete action taken by our company to promote the development of the circular economy, linking different businesses of the area for a shared social responsibility, addressing a concrete help to the most needy. Currently there are 5 company canteens involved: Bologna, Granarolo dell'Emilia, Imola, Rimini and Ferrara. The recovered meals are donated to non-profit organizations in the area that provide hospitality and daily care for people in need.

In 2018 alone, about **11,000 meals were recovered** in favour of **5 local non-profit organizations** that assist over 110 people daily, corresponding to about 5 tonnes of food for an economic value of **over Euro 47,000**. This also avoided the production of 4.8 tonnes of waste, corresponding to the capacity of more than 10 bins and the emission of almost 21 tonnes of CO₂ into the environment. In addition, the waste of water, energy and land consumption that was necessary to pack those meals was avoided.

After 10 years from the start of the project around over 91,000 meals were donated overall for an overall economic value of about Euro 375,000. This avoided the production of 39 tonnes of waste (corresponding to about 86 bins) and the emission of almost 170 tonnes of CO₂.

There are many partners of non-profit organizations in the area involved to ensure increasingly important results such as: Fraternità Opera di Padre Marella (OPM) and Associazione Arca in the Bologna area, Associazione Papa Giovanni XXIII (APG23) in Imola and Rimini and Associazione Viale K di Ferrara. In addition, there are many partner structures of the initiative where the consumption of recovered meals takes place: Pronto Soccorso Sociale of Bologna, Comunità Terapeutica of Cadriano, Comunità L'Arcobaleno of Quarto Inferiore, Pronta accoglienza adulti of Imola, Capanna of Betlemme di Rimini, Casa delle Donne, Casa Mambro and Mensa of via Gaetano Pesci in Ferrara.

At the end of 2017, Ciboamico also went beyond the confines of the company canteens to involve a city market. The initiative, created on the basis of a proposal of HeraLab Modena, is carried out with Consorzio del Mercato Albinelli and the collaboration of the Municipality of Modena and the non-profit organizations Porta Aperta and CEIS Group. While in the canteens the objective was the recovery of unconsumed meals, the collaboration between Hera and the Albinelli traders aims to avoid the waste of the fresh products that, at the end of the day, can be left over on the market stalls: food that is still perfectly edible but that, for various reasons, the next day could no longer be sold. Food recoveries from individual retailers takes place every Wednesday and Friday when the Mercato Albinelli is open, it is mainly bread and baked goods, and

fresh fruit and vegetables. There is now a virtuous alternative for these products, which otherwise would be thrown away, thanks to the collaboration between the Municipality of Modena, the Hera Group and the market itself. Traders, in fact, can choose to donate their leftovers to Porta Aperta, so they can be used for the benefit of people in distress. In 2018, more than 2,000 kg of food was collected and reused by 21 operators who collaborated in the project. The Italian Bike Messenger (IBM) association is among the partners involved in the project, the headquarters of which is within the Mercato Albinelli and provides support for the delivery of surpluses.

FarmacoAmico: 46 thousand packets of pharmaceuticals not yet expired recovered

FarmacoAmico is the project promoted by Hera to collect medicines that have not yet expired and to create a charitable network in the local area. The pharmaceuticals, which must still have at least six months to go before their use-by dates and which have been properly stored, are thus reused by non-profit organizations that operate in local or decentralized cooperation projects. The goal is to prevent the production of waste, spreading good practices on the decrease of waste and supporting the organizations that help the weaker sections of society.

Launched in 2013, in Bologna, FarmacoAmico is jointly organized with Last Minute Market and currently involves 17 municipalities in Emilia-Romagna where there are about 1.2 million inhabitants (48% of the population served). The result is positive because, despite the Forlì and Forlimpopoli areas being no longer included, since they have switched to in-house management, the extensions in other municipalities have made it possible to almost achieve the goal we had set for ourselves (50% by 2019). It should be noted that the Non-profit organization of reference in the two areas mentioned, Comitato per la lotta della fame nel mondo, has not been excluded from the Last Minute Market network, but has been accredited as a beneficiary of second-level pharmaceuticals.

In 2018, in the areas mentioned above, **about 46,000 packets of pharmaceuticals were sent for reuse** (-14% on 2016 values, but +15% on a like-for-like basis) for a total value of over **Euro 549 thousand** (-18% on 2016 values, but +10% on a like-for-like basis). Despite the fact that impossibility of continuing the project in the areas of Forlì and Forlimpopoli has certainly negatively affected the total numbers of the initiative, the new activations during 2018 (ceramic district of Modena, Castel San Pietro Terme, Castenaso) and the upcoming activations in 2019, certainly confirm the growth of the project as a whole.

The project involved a total of 102 pharmacies and 27 not-for-profit organizations, some of which operate abroad, as well as several partners, institutions, trade and business associations, for a total of 31 parties involved.

Since the beginning of the project, more than 221,000 packets of pharmaceuticals with a total economic value of Euro 2.4 million have been collected and sent for reuse, corresponding to an equivalent saving for the National Health System.

In July 2018 Hera and Last Minute Market signed, with the **Department of Health of the Emilia-Romagna Regional Government**, a **Protocol of Intent on the recovery of donated pharmaceuticals**. In addition, we are adapting the Farmaco Amico project to the guidelines for recovery of pharmaceuticals proposed by the Emilia-Romagna Regional Government. This adjustment required, in some areas, short suspensions of the project's operation, to allow the installation of the management software and training of pharmacists on its use. This activity, which has particularly affected the Modena and Ceramic District areas, has led in the very short term to a drop in results, and has made it possible to consolidate the foundations on which the entire Farmaco Amico project is based.

In the Bologna area, thanks to the initiative of Fondazione ANT, as part of the **joint school-work experience** courses, students from several high schools in the Bologna area attended lessons that introduced the FarmacoAmico project, and a 40-hour internship was then developed, in which the students worked to raise awareness among residents in a number of pharmacies that participated in the project.

Change the Ending is an ongoing success: 820 tonnes of bulky waste collected in 2018

The project, now in its fifth year of activity, makes it possible to intercept all objects in good condition otherwise to be disposed of as bulky waste and allow their reuse, thanks to a network of non-profit organizations spread throughout the area, giving a new life to the goods donated by citizens. The project is linked to the specific memorandum of understanding between Atersir and Hera on the management of bulky waste, developed in collaboration with Last Minute Market. The goods can be donated by residents to a circuit of non-profit organizations in Emilia-Romagna that collect bulky goods at their headquarters or door-to-door, using them for second-hand markets, using them in their offices or donating them to people in need. The collection of goods carried out by non-profit organizations is promoted through all of Hera Group's communication tools, in particular through call centre operators, who offer users the possibility of donating bulky objects in good condition if they intend to dispose of them.

The initiative promotes good habits related to reuse and generates positive social effects thanks to the activities of the charitable associations involved, in line with Hera Group's social responsibility and environmental protection principles. It also responds to current developments in environmental legislation, which aim to establish a management model based on the concepts of prevention and reuse.

At the end of 2018, 17 **participating non-profit organizations** were distributed throughout the Emilia-Romagna region served by Hera, ensuring coverage of all its main cities. In 2018, the associations received over 7,400 phone calls from residents willing to donate bulky goods and performed over 5,800 collections, for a total of about 188,000 items and about **820 tonnes collected**, confirming results in line with the previous year despite the lack of contribution of the non-profit organisations of the Forlì area (due to the transition of the municipality to in-house management). The majority of the goods donated were **dispatched to be reused**, with an average percentage close to **70%**: from January to December 2018 the project as a whole therefore made it possible to avoid a total of about 577 tonnes of bulky waste, achieving a result in line with the previous year with great savings to the benefit of the environment and lower charges for waste collection.

Recovery of used vegetable oils

During 2018, Hera Spa relaunched the project for the collection of vegetable oils, generating a virtuous case of "circular economy". In fact, through an experimental framework agreement signed in November 2018 with Eni, all spent vegetable oil collected by Hera, once processed in affiliated plants, will be transported to Eni's Bio-refinery in Porto Marghera (Venice) where it will be **transformed into biodiesel**. These 500,000 litres of diesel fuel will be used to power part of the compactors used for waste collection in the province of Modena. To further strengthen this collection service, during 2018 another 300 road containers were put into service, bringing the total number of containers in the area to 700, distributed over more than 100 municipalities for a population served of around 2.3 million inhabitants. The total collection of vegetable oil in 2018 amounts to 850 tonnes, of which about 400 from the collection centres and 450 from the road containers, but in 2019 the total collection will exceed 1000 tonnes, and be sent to Eni's bio-refinery.

Recycled plastic to be used for the pipes of future network services

The Hera Group, thanks also to the expertise of its subsidiary Aliplast, the Italian leader in plastic treatment and recycling, is the first company in Italy to start an important experiment to use recycled, traced-origin plastic to build polyethylene pipelines. The first construction site, where the laying of the pipes has just been completed, concerns a total of one kilometre of electricity grid, partly in the area of Modena and partly in that of Imola. The second construction site, which will start in January, will involve two kilometres of sewage network in the municipality of Bellaria-Igea Marina (RN), thus bringing further added value to the plan to safeguard Rimini's bathing area, the largest sewage restoration project ever carried out in Italy. For the development of pre-production and for laboratory tests, Hera has made use of the expertise of Idrotherm 2000, Italian excellence in the construction of pipes for network services: this has allowed Hera to obtain a multilayer polyethylene pipe with low environmental impact, at least 70% of which comes from

recycled material without any cost increase and with identical technical performance. After this first phase, the new method of pipeline construction could be extended to other construction sites and, in the future, to other uses, thus making it possible to achieve important sustainability objectives. On the basis of the metres of new pipes that Hera lays on average over a year, the use of recycled plastic could in fact guarantee an estimated CO₂ saving, for the electricity grid alone, of 126.6 tonnes, equal to the annual emissions of 95 medium-sized vehicles (assuming that each of them covers 10,000 km).

SCART®: the beautiful and useful side of waste

In 1998, Waste Recycling started up SCART®, an ecological and original project founded on the desire to restore life to the materials that become waste every day. SCART® is now a registered trademark in Italy and in Europe under which exclusive works and installations are 100% made of waste. Its goal is to encourage responsible behaviour versus environmental matters, offering new stimuli to create useful and artistic objects starting only and exclusively from waste as their raw material. As a result, sofas, armchairs, tables, chairs, lamps, drawers, games, musical instruments, clothing, and installations were made, but also scenery for shows and costumes. SCART® is an invitation to think of new styles of intelligent, creative and most importantly sustainable life.

Many initiatives at national and international level, such as the important conventions with the Academies of Fine Arts in Florence and Bologna, involve many students every year in seminars and workshops that are held at Waste Recycling's SCART® workshop. These are artistic and training initiatives addressed to students and their topic is experimentation on the artistic use of industrial waste. Over the years SCART® has attended many national and international exhibitions. After Ravenna, Imola, Modena, Pisa, Udine and, after the stop in Bologna at Arte Fiera, in 2018 it's Padua's turn: the SCART exhibition – the "travelling exhibit" that inserts art in an original way in the virtuous path of circular economy – has reached the splendid setting of the Agora of the Altinate - San Gaetano cultural centre. The exhibit in Padua closes a particularly significant year in its history: SCART was founded 20 years ago with the intention of raising the curtain on the scenario of reuse and recovery of material, integrating and completing the mission of Waste Recycling, which has always been committed to the treatment and disposal of industrial waste.

"More trees in the city" if you go to the Hera Green Stations

After the great success of the "Get rid of bills. Give a tree to your city" campaign, in collaboration with the City of Modena we launched the "More trees in town" project, designed to promote urban forestry through the increased use to drop-off points or waste collection centres.

Thanks to this initiative, throughout 2018 Hera donated a tree to the city for every 50 new households in Modena that dispose of their separate waste at the drop-off points. The Municipality of Modena, according to its urban green projects, has focused the planting on the large green area of the Chinnici Park.

Thanks to the collaboration and commitment of citizens, the objective of the initiative has been achieved and by the end of 2018 more than 150 trees had been donated to the city, with the last plantings scheduled for February and March 2019.

The project was developed to encourage greater use of Hera drop-off points: this behaviour, in fact, is beneficial for the environment and for the appearance of city streets because it helps to reduce the phenomenon of waste abandonment and to increase the quantity and quality of separate waste collection, and it also translates into an economic advantage for citizens: the municipality grants users a discount on the TARI waste tax.

"More trees in town" has made it possible to improve air quality and mitigate the negative effects of climate change: each tree can capture 100 kg of CO₂ annually. Once fully operational, the plants donated by Hera will be able to remove 15 tonnes of carbon dioxide from the air every year, which is equivalent to the amount produced by a car travelling 112,000 km.

Full details of the initiative are available at www.ilrifiutologo.it/alberimodena

In March 2019 the project will be extended to Ferrara.

Sustainable management of water resources

The Rimini Seawater Protection Plan continues

The Seawater Protection Plan aims to eliminate swimming bans and reduce the pollution measured in terms of COD by 90% by 2020, through structural measures on the sewage and purification system of the City of Rimini.

The numerical modelling of the sewage and purification system already started in 2014, led to further optimization of the measures that had already been planned for the system of tanks that serves the southern area of Rimini and to the identification of 3 additional measures. The optimization of the tanks, introducing a different way to manage rainwater, together with additional measures that involve the construction of the works called the Ausa backbone sewage collector, Mavone spillway and the sewage pumping system in via Santa Chiara are able to determine synergies that significantly reduce the risk of flooding in most of the built-up area where this problem often occurs and thus expand the objectives of the plan to include a mitigation of hydrological risks. In this regard, it should be noted that the preliminary investigation is also under-way for these additional works, aimed at obtaining further public funding in the so-called "Italia Sicura" sector.

The Plan is currently essentially made up of the 10 measures originally planned, plus the filling of the Ausa Canal, added in 2015, and the additional measures mentioned above, **for a total of 14 measures**.

The further optimisation of the Plan, with the design improvements that had to be made and the necessary authorisation steps required, meant that the achievement of the environmental objectives, initially planned for 2020, was postponed to 2023. It should be noted that by that year, the works necessary to reduce the city's hydrological risks will also be completed: the extension of the timeframe for implementing the plan as initially envisaged is closely linked to the substantial improvement in the impact of the Plan on the city, which, for all the above reasons, will in fact benefit from a significant improvement in both hydrological and environmental performance.

The progress of the construction work does not lead us to expect any significant issues and the quantity goals we have set are in sight. All other interventions are underway and in the design phase.

The situation of the 14 measures is as follows:

Measure	Progress at 31 December 2018	Expected/actual year of completion	Motivation/benefits
1. Doubling of the Santa Giustina wastewater treatment plant	Completed	2016	Purification process improvement
2. Conversion of the Rimini Marecchiese purification plant into a collection tank	Completed	2018	Purification process improvement
3. Construction of the Dorsale Nord backbone, for drainage of the Bellaria purification plant into the S. Giustina purification plant	Completed	2016	Purification process improvement
4. Completion of the separation of sewage networks in the northern area of Rimini	Design of second portion in progress (first portion completed in 2018)	2022	Conversion of 5 sewage drains discharging into the sea into rainwater drains (of which 3 already under the 1st portion)

Measure	Progress at 31 December 2018	Expected/actual year of completion	Motivation/benefits
5. Construction of the Dorsale Sud backbone	Under construction the third portion pressure unit, under design the third portion pumping stations (second portion completed in 2018)	2020	Reduction in the number of openings of the Ausa and Colonnella I drains into the sea
6. Completion of the separation in the Roncasso and Pradella basins	Acquisition of permits in progress	2022	Conversion of 2 sewage drains into the sea into rainwater drains
7. Construction of subsea pipeline and pumping station for the Ausa basin and reservoirs	Construction in progress	2019	Reduction in the number of openings of the Ausa drains into the sea
8. Construction of hospital detention reservoir	Completed	2016	Reduction in the number of openings of the Colonnella I drains into the sea
9. Construction of conduit between Fossa Colonnella I and Fossa Colonnella II; Vasca Colonnella II and Vasca Rodella and subsea discharge conduit	Design in progress	2023	Reduction in the number of openings of the Colonnella I, Colonnella II and Rodella drains into the sea
10. Isola sewage decontamination	Completed	2014	Optimization of the sewage system
11. Filling the Ausa beach stretch	Completed	2016	Improvement of the usability of the area and of its environmental conditions
12. Sewage collector of Ausa backbone	Design in progress	2022	Reduction of hydrological risks
13. Mavone spillway	Completed	2018	Reduction of hydrological risks
14. Sewage pumping in via Santa Chiara	Construction work to start soon	2019	Reduction of hydrological risks

The conclusion of 7 interventions has made it possible to obtain significant environmental benefits, with the reduction of the quantities of organic substances (COD/BOD) discharged into the sea during intense weather events.

The measures planned for 2019 – the completion of the Ausa reservoirs and underwater pipelines, together with the gradual separation of the networks in the northern area of the city – will lead to a considerable reduction in the pollution load discharged near the shore, benefiting the quality of the water along the coast. This will mean that the bathing bans laid down in the event of discharges being opened up to a large part of the city's coastline, including both those areas where the separation of the sewage networks has been completed and the stretch of sea bordering the Fossa Ausa, will not apply. From this point of view, since 2017 **3,084 metres of beach have been “freed” from bathing bans and in 2019 we expected to increase to 4,144 metres**.

Moreover, as a further proof of the strong link between the Plan and the City of Rimini, clearly a part of the interventions under the Plan will be integrated into the broader coastal redevelopment project called Sea Park, so as to pursue synergies that can provide an overall improvement of the urban structure of the city.

Rimini Seawater Protection Plan was included among the best practices in the SDG Industry Matrix report published by the Global Compact and KPMG in 2017, which reports on business opportunities linked to the objectives of the UN 2030 Agenda.

Upgrade work at Servola purification plant in Trieste: towards the full resolution of a 2014 Community infringement

The adaptation of the Servola wastewater purification plant in Trieste: the urban area has been declared compliant exiting from the 2014 EU infringement procedure. The new purification plant has been fully operational since 23 June 2018. All the functions of the plant (water line and sludge line) have become fully operational and the concentrations of pollutants at the outlet have been significantly reduced: phosphorus and nitrogen halved, COD reduced by 30%, BOD by more than 60% and suspended solids by 45%. About Euro 50 million were spent for the work. The recovery of the process water has also been planned to amount to about 180 m³/day: the purified water coming out of the plant is fed back into it for other industrial uses, such as, for example, washing the machines.

The first public openings of the new plant were organized, in view of the inclusion of Servola in the list of AcegasApsAmga plants that can be visited by the public (trade associations, private individuals, schools), becoming quite popular among participants, taking into account the great innovations that this project has developed in the field of plants and wastewater treatment plants.

Satellite used to search for water network leaks

There is an innovative solution, based on satellite technology, to fight hidden leaks in the water networks, the leaks that do not appear as visible water leaks and are often present in distribution networks.

In 2016 Hera was the first company in Italy to have used this technology, developed in collaboration with the Israeli company Utilis as part of a pilot project in Ferrara, and extended its trials in 2017 and 2018 to some areas of the provinces of Modena and Bologna in Emilia and of Forli-Cesena in Romagna as a tool to supplement its scheduled leak detection work, identifying 204 hidden leaks in these three years. The innovative technology is based on the analysis of a scan of the subsoil, using an algorithm. The images are acquired by the Alos-2 satellite, managed by the Japanese Aerospace Exploration Agency (JAXA), that orbits about 650 kilometres above ground, and uses electromagnetic signals with a wavelength capable of penetrating the soil.

Distorted information is filtered out of the data obtained by the scan and then cross-referenced with the network diagram, to obtain a map that shows the network points where leaks are present.

The actual search for leaks on the spot is then carried out using traditional methods, but thanks to the precision of the new system, it covers much smaller areas.

In 2018, as part of the Circular Water initiatives and with a view to experimenting with innovative leak detection technologies applied to the aqueduct network, the "Water Hound" project was launched to experiment with in-line technologies, i.e. with internal inspection of the pipelines. The following technologies were then tested

- "Smart Ball": a metal ball containing several sensors, floating and wireless, capable of detecting leaks from inside the pipeline;
- "Sahara": a wired device pushed by the flow of water thanks to a parachute on its top, able to perform video analysis, detect leaks and air bubbles from inside the pipeline, and trace the exact position of the pipeline.

The experimentation was carried out on the area of Ravenna on two stretches of pipelines of different sizes and materials with the identification of some hidden leaks as well as data and information on the condition of the pipelines.

Innovation and contribution to development

Objectives and performance

What we said we would do	What we have done	Area *
<ul style="list-style-type: none"> Continue to promote electronic billing (22% of contracts used electronic billing in 2018 and 31% in 2021) also by continuing the "Digi e Lode" campaign on digitalization in local schools. 	<ul style="list-style-type: none"> 24% of customers receive their bills by email. The second edition of "Digi e Lode", a project that brings customers and the company together to digitalize schools in the area, has started. 	ER
<ul style="list-style-type: none"> Improve the customer experience for our customers: increase customers using online services to 20% in 2018 and to 24% in 2021. 	<ul style="list-style-type: none"> 21% customers registered for online services at the end of 2018 (19% in 2017). 	ER
<ul style="list-style-type: none"> Continue the implementation of business intelligence/data analytics projects to: <ul style="list-style-type: none"> - optimize the scheduled gas leak detection work, and the operation and maintenance of gas networks; - optimize waste collection routes, also based on the filling level of bins/containers; - optimize the management of treatment plants (energy consumption and performance) by developing predictive methods. 	<ul style="list-style-type: none"> The implementation of 3 business intelligence/data analytics projects continued. - scheduled gas leak detection work, and the operation and maintenance of gas networks will be optimised in 2019 on the basis of the analyses and instruments carried out in 2018; - the paper collection routes in Ferrara were optimized and 5 operational research projects for the optimization of the collection routes in Ferrara, Modena, Bologna and Ravenna were completed; - the project for the optimization of energy consumption and performance of the Modena purification plant started and will continue in 2019 and will involve another 12 purification plants (Senseable Dep). 	
<ul style="list-style-type: none"> Continue to involve the workforce using Heureka: stimulate innovative ideas in three new areas in 2018. Start feasibility studies for selected employee initiatives. 	<ul style="list-style-type: none"> 3 new areas (health and safety, diversity management, waste management services) in which workers with Heureka have been involved. 39 ideas were proposed during the year. Feasibility studies for selected employee initiatives have been started. 	ER T M
<ul style="list-style-type: none"> Improve the customer experience: develop tracking services for the main practices to inform customers on the progress of their applications and alert services, i.e. reminders that can be set according to customer's preference. 	<ul style="list-style-type: none"> Since 2018 customers can use tracking functions on the main practices (transfer, change of power and flow rate, etc.) and can use the Alert service, a reminder for events such as: bill issuance, deadline for self-reading, reminder of appointments, etc. 	ER
<ul style="list-style-type: none"> Improve the customer experience for our customers: simplify procedures for acceptance of offers and subscription of contracts, by applying digitalization: extend the simplified procedures to all branch offices by 2018. 	<ul style="list-style-type: none"> In 2018, the procedure for accepting quotes and signing contracts was simplified by implementing digital signing at all branch offices. 	ER

What we said we would do	What we have done	Area *
<ul style="list-style-type: none"> Continue/start new, innovative circular economy projects and projects to improve handling of purification sludge. 	<ul style="list-style-type: none"> New, innovative circular economy projects continued and started also for a new way to manage water purification sludge, such as Biorefinery 2.0 (to produce advanced biofuels from the treatment of collected mowing and pruning material) and ultrasonic hydrolysis system sludge (for the optimization of the water cycle and the disposal of sewage purification sludge from urban wastewater). 	
<ul style="list-style-type: none"> Promote awareness of tariff concessions also in the Triveneto and Marche areas. 	<ul style="list-style-type: none"> Postponed the promotion activities for the knowledge of the tariff reductions in Triveneto and Marche. 	T M
<ul style="list-style-type: none"> Supplier selection: continue to reward social commitment in the sustainability points, also by including disadvantaged personnel, in particular for waste management services. 	<ul style="list-style-type: none"> 816 disadvantaged people in 2018 found jobs through outsourcing to social cooperatives, particularly in the management of waste management services. 	ER T M
<ul style="list-style-type: none"> Extend the protocol that prevents service disconnections for customers assisted by social services to even more municipalities. Maintain an avoided disconnections rate at 80% of the total. 	<ul style="list-style-type: none"> 90% of disconnections avoided in 2018 (it was 82% in 2017) thanks to protocols signed with 85 municipalities (stable with respect to 2017). 	ER
<ul style="list-style-type: none"> Continue with the activities of the regional protocol on work-school alternation paths: offer a further 40 internships in 2018, to reach 180 internships by 2019. 	<ul style="list-style-type: none"> 72 internships were offered in 2018 under the school-work alternation programme signed with the Emilia-Romagna Regional Government. 212 in all, in the first 2016-2018 three-year period. 	ER
<ul style="list-style-type: none"> Continue to apply the social clause to guarantee employment in the contracts for emergency services on networks and services relating to customer handling (excluding insourcing situations). 	<ul style="list-style-type: none"> 23 tenders, among the most important, in which the social clause to protect employment was included. 	ER T M
<ul style="list-style-type: none"> Land consumption: 725,000 m² of land reused between 2018 and 2021 to design infrastructure (2/3 of the total land involved in new projects). 	<ul style="list-style-type: none"> 68% of land reused in the construction of new infrastructure in 2018 (115 thousand m²). 	ER
<ul style="list-style-type: none"> District heating: increase the volume served (+1% compared to 2017) and the share of energy produced from renewable sources and from recovery, by +5% compared to 2017, improving the air quality in the cities served. Start the project to increase the use of geothermal energy in Ferrara. 	<ul style="list-style-type: none"> the volume served by district heating increased by 1.1% in 2018 compared to 2017. The share of energy produced from renewable sources and by recovery did not change. The project to increase the use of geothermal energy in Ferrara started, through the acquisition of the concession for direct management of geothermal wells. 	ER
<ul style="list-style-type: none"> Continue to encourage the purchase of vehicles with low environmental impact (29% in 2021) 	<ul style="list-style-type: none"> 22.8% low environmental impact vehicles in 2018 (22% in 2017) 	ER T M

What we will do	Area *
<ul style="list-style-type: none"> • 41% of customers with online bills and 27% of customers using the online services in 2022. Promote digitalization among customers also through the extension of "Digi e Lode" in favour of the digitalization of schools in the area. 	ER
<ul style="list-style-type: none"> • Continue the implementation of business intelligence/data analytics projects. Main objectives: to optimise gas leak detection work, waste collection and treatment plant operation, improving results. 	ER
<ul style="list-style-type: none"> • Promote circular smart city solutions in municipalities and universities. 	ER
<ul style="list-style-type: none"> • Continue research into the production of bioplastics from organic fractions and from CO₂ and hydrogen, in partnership with Bio-on. 	
<ul style="list-style-type: none"> • Promote tariff concessions and initiatives to support customers facing financial hardship through the new SOSStegno Hera initiative. Maintain a rate of avoided service disconnections of 80% of the total thanks to protocols signed with municipalities to prevent service disconnections for customers assisted by social services. 	ER
<ul style="list-style-type: none"> • Supplier selection: continue to reward social commitment in the sustainability points, also by including disadvantaged personnel, in particular for waste management services. 	ER T M
<ul style="list-style-type: none"> • 2019 Learning Plan: training interventions for the development of the new skills required in the three reference axes (technical-professional, managerial, technological), to support the evolution of the reference context and of the businesses managed. These include, for example, those in the field of digital transformation, modelling and predictive analysis, circular economy, etc.. 	ER T M
<ul style="list-style-type: none"> • Continue to apply the social clause to guarantee employment in the contracts for emergency services on networks and services relating to customer handling (excluding insourcing situations). 	ER T M
<ul style="list-style-type: none"> • 700,000 m² of land reused between 2019 and 2022 to design infrastructure (3/4 of the total land involved in new projects). 	ER
<ul style="list-style-type: none"> • 8% increase of the volume served by district heating by the end of 2022 compared to 2018 for the benefit of the air quality in the cities served. Start projects to increase the use of geothermal energy in Ferrara (+2.7% by 2022 compared to 2018 of geothermal energy exploited) and for its use at low enthalpy. 	ER
<ul style="list-style-type: none"> • 31% low environmental impact vehicles in 2022 (42% Uniflotte, 8% AcegasApsAmga, 11% Marche Multiservizi). 	ER T M
<ul style="list-style-type: none"> • +200 public and private infrastructures built in 2019 for electric transportation in cities. 	ER T

* ER: Emilia-Romagna; T: Triveneto; M: Marche

Spreading innovation and digitalization

The term innovation traditionally is used to identify a process that makes an idea turn into a good or service to which a value is assigned. In addition, innovation must be repeatable at an affordable cost and must meet specific needs. Innovating does not mean inventing, nor planning, but rather seeking, perceiving, discovering, making progress, improving and knowing how to gain value in the present and future contexts.

Progress, change and development can take place both as an evolution and an improvement of the current state, both breaking with, or sharply diverging with respect to the present situation. We can therefore talk about two types of innovation:

- **evolutionary innovations**, which lead to technological, process, product or service advancement;
- **revolutionary innovations**: they occur where there is discontinuity with the past, at times leading to new, disruptive technologies, or completely replace the current situation.

There is always an element of risk to innovation: it may not prove to be successful or there may be effects and interactions that were not initially foreseen. This requires us to carry out a detailed preliminary evaluation to minimize the possible waste of resources or unexpected negative impacts.

Innovation for the Hera Group

Innovation is one of our Group's **five strategic cornerstones**. The model we use is based on widespread innovation: each department is responsible for its own individual innovation initiatives, from the review of processes to the identification of new services, from instruments for improving efficiency to the launch of new operating models.

However, there are guidelines, factors and tools that enable the innovation process, such as information technology. This is why Hera has set up a specific **Central Innovation Department**, reporting to the Managing Director, with the goal of analysing the main market trends, identifying the areas of greatest interest, evaluating and proposing projects and solutions to individual departments, and supporting developments with Information and Communication Technology and tools.

The Central Innovation Department includes Information Systems, connectivity and telecommunications (through the subsidiary Acantho), and the Development Department, which identifies scenarios and possible action areas and proposes engineering and technology innovation projects.

Action areas

The main **areas of innovation** in the Hera Group, also in line with the Business Plan, can be summarized as follows:

- **circular economy** aimed at environmental sustainability, the optimisation of materials and maximising the recovery of waste and scrap.
- **customer experience** aimed at understanding the needs and wishes, expressed and not, of consumers in order to shape actions to improve their satisfaction level;
- **digitalization and data analytics (Utilities 4.0)** with activities linked to implementing new technologies, particularly IT, for the digitalization, automation, and flexibility of processes, the enhancement and efficient use of data;
- **smart city** for the introduction of technologies to improve living conditions in cities and the services supplied to the general public.

To encourage and boost innovation in its businesses, the Group has also launched **social innovation initiatives**, involving both external stakeholders through HeraLAB (see section "Dialogue with our stakeholders") and internal players, through Heureka (see section "Case studies" of this chapter).

Investments in innovation

In the portion of investments aimed at creating shared value in 2018 (see the section on shared value in the chapter “Sustainability, Strategy and shared value”), Euro 62.4 million were invested by the Group in innovation. Specifically, in order of size, the Group invested approximately Euro 31.6 million in smart cities (where investments for the installation of electronic gas meters are located); Euro 25.1 million in utilities 4.0; Euro 5.1 million in innovative circular economy initiatives and Euro 0.6 million in projects aimed at improving the customer experience.

The main projects and the related scope of the activities are listed below.

Innovation areas	Main projects
<i>Smart city</i>	Smart drop-off point
	Environmental sensors
	Dashboards for municipalities
	City energy maps
<i>Circular economy</i>	Hera biomethane from waste (see Case Study in the chapter “Smart use of energy” - p. Errore. Il segnalibro non è definito.)
	Bioplastic from organic fraction
	Bioplastic from hydrogen and CO ₂
	Biorefinery 2.0 to produce biomethane from pruning material
	Ultrasonic sludge hydrolysis system
	Greenhouses from drying purification sludge
	Reuse of wastewater
<i>Internal digitalization and data analytics (Utility 4.0)</i>	Smart Hera
	Workforce management (Hergo Reti)
	Digital workplace
	Senseable Dep: purification plants trend dashboard
	Robotic process automation
	Optimisation of purification plants operation
	HergoAmbiente and data analysis for waste management services
	HERATech digitalization projects
	The evolution of the gas meter with Hera
<i>Customer experience</i>	Customer experience project
	New ways to pay bills

Smart city: Smart drop-off point

The aim of the project is to create a technological infrastructure to gather the services for the city in a single point, with a view to optimising energy, environmental, economic and IT resources. The services envisaged include municipal waste collection with user identification, environmental quality monitoring, video surveillance, telecommunication services and electrical charging.

The **main innovative aspects** of the project are:

- urban quality, by creating a point that gathers together and provides city services;
- monitoring of the main environmental parameters to check the city's health levels;
- communication, through Wi-Fi hotspots, data concentrators and other telecommunication equipment;
- sustainable transport, by developing a city network of charging stations for vehicles and bicycles;
- security, using a video surveillance and video analysis system;

- a high aesthetic standard of the basic drop-off points for municipal waste collection.

After the first indoor prototype made in 2016, the outdoor prototype was built in 2017, consisting of a technological totem and two waste containers. Subsequently the drop-off point was optimized and integrated with another container to collect paper and cartons, plastic and cans and glass.

In October 2018 an **experiment** was started **in the Municipality of Castel Bolognese** in which about fifty families were involved to give their separate waste to the island. The experimentation will last about six months to test the prototype and validate the technological choices and construction details. Wi-Fi and air quality monitoring service have been activated at the drop-off point, while the video surveillance service of the area is being set up in collaboration with the Municipal Police, the only subject responsible for the control of the area.

To increase the supply of smart services, during 2018, a **smart drop-off point** was designed consisting of a canopy to accommodate electric bicycles and group other services such as video surveillance, Wi-Fi, electric charging for tri-ride, monitoring of air quality and noise levels of the area, the production of renewable energy through a photovoltaic roofing and the parcel storage. This smart drop-off point was built and installed in October during the inauguration of the **Cesena University Campus** to start the prototype testing period.

At the end of the trials, the prototypes will be transformed into industrial products and these infrastructures will be extended to other areas.

Smart city: Environmental sensors

The project aims to develop a network for monitoring the main parameters of **air quality** in the city through the use of "low cost" equipment capable of providing indications with hourly rather than daily frequency.

In November 2017 6 units were installed in the town of Castel Bolognese, while in 2018 a continuous **monitoring** and processing of environmental parameters was carried out, highlighting the key role of rain in reducing pollutants. Chemical analyses carried out on particulate matter ($PM_{2.5}$) have revealed the presence of compounds from the combustion of biomass, a quantity prevalent in the winter months.

The data collected are still **being processed** in order to better understand the contribution of each source (residential, traffic) to the air pollution found. In addition, in 2018, in collaboration with the CNR-Ibimet institute, **acoustic sensors** were developed to detect noise in urban areas. In the area of Castel Bolognese 6 of these units have been installed, located according to the acoustic classification of the area. The acquisitions and their processing are still ongoing.

Smart city: Dashboards for municipalities

The dashboard for municipalities is a **tool to analyse and monitor the city**. It provides an integrated view of the processing and correlation of data (Big Data) from various services and sensors installed within the municipal areas.

The objectives that are monitored come from the SDGs of the **2030 UN Agenda** and the Bologna Charter Protocol for the Environment.

Through this tool, Municipal Administrations are equipped with a computer system that allows the constant and real-time monitoring of environmental data. This analysis process is useful to assess the environmental and qualitative state of the area and consequently to implement improvement and change processes.

In 2018 the dashboard was released to the Municipality of Castel Bolognese including the following services: environmental sensors, totems and smart waste, energy maps, environmental passport.

In 2019 a second release of the platform will be released with optimizations to give more value to sustainability objectives, also facilitating the use of the tool by municipal technicians.

Smart city: City energy maps

Energy maps are useful tools to **assess a city's energy consumption over time** and to carry out efficiency analyses. During 2018, data were collected on energy consumption from the Castel Bolognese municipal administration (consumption of gas, electricity, water and TARI waste tax data for municipal waste management services) and their processing led to the identification of building consumption classes, as well as the assessment of the consistency between water consumption and the number of residents and an estimate of the type of system used for heating. Further processing is underway, also taking into consideration the contribution of renewable sources. Energy maps may also be useful to public administrations to gain more detailed knowledge of their local community and to **promote virtuous, energy-saving behaviour**.

Circular economy: Bioplastic from organic fraction

In 2018, a partnership was founded with **Bio-On**, a world leader in the production of bioplastics. Among the projects planned is also the "**PHA-CELL**" which aims to **produce PHA**, a 100% biodegradable **bioplastic**, using as raw material the **sugars contained in lignocellulosic biomass**. These sugars are present in all types of wood, but are difficult to use because they are bound in complex structures such as cellulose and hemicellulose. Through appropriate treatments that involve the use of heat and particular enzymes, it is possible to "break" these structures and release the sugars that can then be used in the production process of bioplastics.

The project stems from the desire of the Hera group to obtain high-value products in the future using the organic waste it collects in the area, including mowing and pruning material that could be used in the PHA-CELL process.

Circular economy: Bioplastic from hydrogen and CO₂

In 2018 Hera and Bio-On formed a new company called **Lux-On**, which aims to rapidly develop the technology that uses **carbon dioxide** present in the atmosphere as a source of carbon **for the production of bioplastics**, natural and 100% biodegradable. Lux-On's bioplastic production will be based only on renewable solar energy and, thanks to the use of hydrogen as an energy management tool, will operate 24 hours a day. The **laboratories** and the **first plant** will be built by 2019 near the Bio-On Plants industrial plant in Castel San Pietro Terme (Bologna). The development of the technology will be favoured by the fact that many of the principles and equipment used in the standard Bio-On technology can also be used in the new Lux-On production systems; for this reason, the transition from the development phase to the pre-industrial phase will be greatly accelerated. The plant will be built on an area of 1,500 m², of which 600 m² will be covered, and will have a flexible production capacity and expandable quickly.

This new production process will use electricity produced by photovoltaic systems. International partnerships with major players in hydrogen (H) technology will be used for energy storage. Hydrogen, a non-polluting gas, will be produced from solar energy, stored until it is used, and then converted back into electricity to power the system when the solar panels do not work, at night or in low sunlight.

Circular economy: Biorefinery 2.0 to produce biomethane from pruning material and agricultural by-products

Hera started targeted research to analyse the technologies to produce **advanced biofuels** obtained by processing **mowing and pruning material** collected in the area. These waste materials are currently used in composting processes or are used for energy recovery but in the future, they could be used to produce

bioethanol and biomethane. Both of these fuels can be considered advanced because they are produced from waste materials and not from dedicated energy crops which use land which can potentially be used for human food or animal feed. To be able to obtain these fuels from ligno-cellulosic waste, pre-treatments are required, such as steam explosion (a particular thermal treatment with high-pressure steam) that makes the material readily degradable by bacteria, enzymes or yeasts, in anaerobic digestion processes or alcoholic fermentation.

The positive results of the tests carried out in 2017 have reinforced the possibility of producing biomethane from mowing waste, while the idea of production of ethanol has been discarded due to the low yield. During 2018, the **experimental period** was carried out, and included, among other activities, two continuous digestion tests lasting 5 months and more than 40 batch tests. The tests confirmed the good yields that can be obtained from anaerobic digestion of the pruning material subjected to pre-treatment and the results obtained will be used to start the feasibility phase of a full scale plant. In 2019, the design phase will be completed and the authorization process will be launched.

Circular economy: Ultrasonic sludge hydrolysis system

The project was developed after research carried out in 2017 to identify new technologies to **optimize the water cycle and dispose of the sludge from urban wastewater purification**.

The ultrasonic sludge hydrolysis system requires that a part of the thickened sludge from the sewage treatment process (20-50%) is subjected to sound waves which, by cavitation of the liquid to be treated generate a cellular breakdown which makes more of volatile solids available for biodegradation, increasing biogas production and reducing the final dry matter in the sludge and thus reducing its volume.

The **Forlì treatment plant** has been identified as the optimal site for the installation of ultrasonic hydrolysis technology and some preparatory work has already begun. The installation is expected to end in 2019 and subsequently the results will be monitored and the performance of the system evaluated.

Circular economy: Greenhouses from drying purification sludge

During 2018, the technological scouting and technical feasibility of using special greenhouses to dry purification sludge was completed. The application case chosen was that of the sludge produced by the Ferrara purification plant, which could be dried using geothermal energy, as well.

In addition, during 2018, AcegasApsAmga S.p.A. completed the construction of a pilot plant at the Padua purification plant for drying sludge in a greenhouse powered only by solar energy.

Circular economy: Reuse of wastewater

In April 2018, the Emilia-Romagna Regional Government, ARPAE, ATERSIR and Consorzio Bonifica Renana signed a three-year programme agreement to **recover the wastewater discharged from the Bologna purification plant (IDAR)**.

The Protocol has been operational since August 2018, and the flow rate of recovered purified water is over 500,000 m³ (under the agreement the Consortium can withdraw about 2,160 m³/h, equal to about 40% of the flow rate treated in the summer).

In particular, part of the water purified by the IDAR plant to the "Abandoned Savena" is carried through a dedicated pipeline, leaving the corresponding flow, coming from the river Reno, to the "Canale Navile". This is done through a modulated management of surface water flows by the Consorzio della Bonifica Renana, in relation to the demands and degree of drought of the water bodies.

Under the agreement, Hera and the Consorzio della Bonifica Renana have invested about Euro 120,000 to implement the transfer system (sluice gate and pumping/extraction plant) of part of the flow rate of the Bologna purification plant (IDAR), to the network of channels managed by the Consortium.

During the activity, **additional analyses** are planned on the waste water discharged by IDAR, to monitor additional parameters with respect to those already in the authorization.

This initiative, in addition to the primary objective of protecting water bodies in the area, also pursues the principle of reuse of water as a good to be preserved. Given the importance of these objectives and the positive results of the project, the Group has chosen to extend the experiments to guarantee the minimum vital flow of watercourses in correspondence with the dry seasons:

- in Sassuolo and Savignano the agreement being signed with the Burana Reclamation Consortium and the Region will allow the reuse of approximately 500,000 cubic meters starting from the 2019/2020 irrigation season;
- in Modena an agreement is envisaged with the Municipality and the Region for the recovery of approximately 600,000 cubic meters of water leaving the Naviglio purification plant that will be conveyed to the Cavo Argine for irrigation of agricultural areas north of Modena;
- the POR-FERS project in which Hera participates (ENEA leader), includes among its objectives the application of smart systems for on-line monitoring of the quality of purified water destined for re-use and the definition of a model to decide the best destination (agronomic, industrial, other) for the water leaving the Cesena purification plant.

Utilities 4.0: Smart Hera

Since 2015, some Hera employees have been meeting periodically to study and develop small projects to improve and increase the efficiency of working tools, and to introduce innovations. They have already carried out a series of activities, while others are ongoing.

The **initiatives completed** in 2018 include:

- virtual receptions for managing visitor access to Hera sites through remotely-connected operators;
- the implementation of new technologies applied to company badges (such as opening company vehicles);
- the introduction of highly reliable systems that ensure operational communications in the event of emergencies that make regular voice transmission networks unavailable.

Notable **ongoing** initiatives include:

- the addition of new functions to the corporate app to facilitate the use of a set of services for employees (as for example the display of inter-site travel of employees to enable vehicle sharing);
- the installation of multimedia totems at various Group sites to allow all employees to access the Group's digital services and news.

Utilities 4.0: Workforce management (Hergo Reti)

Geocall is the new **software platform for the management** of field activities of network systems, from operation and maintenance, to technical assistance, to emergency response. The first release in November 2018 immediately allowed a significant **increase in the efficiency of the emergency activities**, with a simplification of activities, an intuitive graphical interface and the use of all the features made available by the technology of smartphones.

Geocall has been fully integrated with our information systems based on SAP technology, and overcomes the previous operational inefficiencies due to consultation of documents offline, persistence of paper documents, the need for continuous phone calls with assistants, access to data only from fixed locations, use of different devices for different functions.

The main characteristics are briefly described below:

- immediate access to technical information of user facilities;
- data entry and search with direct access to company databases (e.g. technical specifications of the instrumentation supporting a specific activity);
- possibility of creating, updating, assigning, and reporting the various work phases directly from mobile devices;
- optimization in the monitoring and scheduling of work orders thanks to the quality of data related to the traceability of individual activities (time and space);
- possibility of direct, in-field readings of the meters;
- online and offline access to cartography;
- access and visibility of the data concerning the staff in service (e.g. on-call time, unavailability bands, work calendars) in order to optimise the management of activities to be carried out on the area;
- “navigation” function to the address of the call;
- acquisition and consultation of multimedia documents (images, pdfs, CAD files, etc.) with the possibility of attaching them to the work order.

All this translates into three terms that well represent what has been done: efficiency, performance and satisfaction. The dissemination path now continues with the management of operation and maintenance activities.

Utilities 4.0: Digital workplace

At the end of 2018, the **pilot** project (more than 100 users involved) of a fundamental component of the digital transformation underway within the Group was successfully concluded. The introduction of the Office365 Microsoft “Digital Workplace” will provide everyone with a **modern technological architecture** on the Microsoft Azure Cloud platform, providing mobility, collaboration, integration, ease of use and management, flexibility and security.

Workstations become a device like a smartphone, secure and always up to date, documents will be equally accessible from all devices and all channels, continuous backup, services will always be available even in case of problems to the corporate network, the user will be independent in the installation of business applications and the mailboxes will become virtually limitless.

Also from the point of view of IT service management, the Digital Workplace provides enormous efficiencies in terms of ease of installation and upgrades, self-service deployments, integration of management and maintenance systems, advanced telemetry with identity protection, threat and breach blocking, storage management, governance and data discovery in accordance with GDPR.

During 2019 and the first few months of 2020, the platform will be **distributed to the entire population** of the Group.

Utilities 4.0: Senseable Dep: Sewage purification process monitoring dashboard

The project aims to create a platform to **monitor purification processes** by using simplified dashboards that show just a few indices to summarize the “state of health” of the purification process from the biological, hydraulic and energy points of view.

After the construction of this platform at the Forlì purification plant, in 2018 the extension phase to the Cesena, Cesenatico and Savignano plants began, purchasing the equipment necessary for complete monitoring of the process.

In parallel, software optimizations to the platform were carried out to improve the quality of the indices, graphics and user experience of the system operators.

During 2019 we plan to extend the platform and implement artificial intelligence algorithms to create a tool capable of optimizing the purification processes.

Utilities 4.0: Robotic process automation

A new Robotic Process Automation platform was launched in 2018, to **automate processes** that involve interaction with **repetitive and low value-added** systems. The experimentation of the technology, carried out with the specific aim of testing its potential, has given extremely satisfactory results in the two processes involved (management of the DURC of suppliers and management of communications between the seller and distributors of energy), both in terms of speeding up the process, and consequent efficiency, and in terms of reliability of the operations carried out. These first experiences will lead to **enhancements of the platform** during 2019, creating a real “software automation hub” for operating processes that are traditionally resource-intensive, but with low added value. The results in terms of potential efficiency on a Group scale are certainly significant, but above all they will free up time.

Utilities 4.0: Optimisation of purification plants operation

The project, carried out on the Modena wastewater purification plant, involved the development, with the support of Energy Way, of a **control system based on predictive logic MPC** (Model Predictive Control) and artificial intelligence for the optimized supply of oxygen in the oxidation tanks. The project has the following objectives:

- to improve the performance of total nitrogen abatement compared to the regulatory limits;
- optimize oxygen delivery in the aerobic compartment;
- minimize the energy costs of air blowers.

The project also included the development of a dynamic baseline aimed at forecasting energy consumption, to quantify the real performance of the process and develop multi-variable, real-time **energy and production performance indicators** (KPIs), aimed at improving control over the real performance of the wastewater purification plant. In 2019, we expect to complete the field installation of the predictive controller and complete the test phase.

Utilities 4.0: HergoAmbiente and data analysis for waste management services

In 2018 we added various Data Analytics tools to **HergoAmbiente**'s system.

The Waste Management Services, therefore, actually fit into the world of IoT (Internet of Things), characterized by the production and consequent analysis of the Big Data system.

These tools are part of the company's Data Management and, in addition to consolidating the system through the introduction of performance indicators extended to the collection centres, they have also consolidated the engineering of predictive analysis tools, aimed at comparative benchmarking and changes in service logistics.

Particular attention must be paid to the development of operational research tools that improve the design of collection services, and can quickly identify logistical scenarios and the related economic benefits.

In 2018 the analyses relating to the study of the degree of filling of the collection containers were refined so as to understand the dynamics of the service with a view to aiming for an on-demand collection.

The experience determined the extension of volumetric sensors based on signal concentrators (LoRaWAN) in the Ferrara and Trieste area. The data collected have made it possible to understand the dynamics of filling containers on the area, profoundly changing the nature of the service with the introduction of the caps on the containers of non-separate collection and controlled closures on those of other separate fractions.

Utilities 4.0: HERAtech digitalization projects

For HERAtech, “Digitization” is synonymous with an innovative change that involves the entire corporate structure, through the implementation of an “integrated” system of new functions on corporate management (SAP) and on apps that are accessible from mobile devices. The objective is to collect a set of different project initiatives, to rationalize and digitalize operational processes end-to-end, with particular focus on the services offered to our customers.

Given the complexity of the project, it spanned two years (2017-2018) and covered several areas:

- **Customer quotes:** an integrated dashboard centrally manages all quotes requested by customers and dispatches on a mobile device the individual technicians that carry out the work, which can then be performed “on the field” using a specific App, without the need for operators to pass through the company headquarters. All the data collected are immediately transferred automatically to the central system, where all the technical and economic information is stored and from which the estimate is then sent, also automatically, to the customer.
- **Execution of work for customers:** likewise, a dashboard has been developed to manage all works for customers, which also includes the management of the authorizations needed. Again in this case, each “work order” can be assigned on a mobile device both to the technicians of HERAtech’s Works Management office and to the subcontractors. Through specific apps, all the information to carry out the activities of competence are made available to these parties, which once completed can also be finalized in the app, automatically updating the central system.
- **Work progress accessible to customers:** an application has been prepared, available via web with reserved access for each customer, which allows them to check the progress of technical activities that they requested and to receive a text message at each step of the process.
- **Technical work back-office:** a CRM (Customer Relationship Management) management system has been developed for all back-office activities for technical work. Tools have also been implemented to digitally manage paper-based documents which are needed for other technical customer account activities (e.g. supply activation/deactivation).

The main environmental benefits are a reduction in the need for personnel to travel, which is due to a reduction in the use of company vehicles and therefore a reduction in emissions, and the digitalization of a set of activities previously managed in paper form, which now saves paper.

Utilities 4.0: The evolution of the gas meter with Hera

The innovation proposed by Hera involves a **device that measures the consumption of residential gas customers**, based on a novel approach. The current devices, required by ARERA resolution 554/2015, makes it possible to stop the supply of gas to users but cannot be used to identify potentially dangerous conditions.

Hera's new **gas meter 2.0** is a device for measuring the consumption of gas customers which, besides the regular monitoring of consumption, also makes it possible to check the working conditions of the gas supply system and to intervene autonomously in the event of anomalies, both automatically and controlled by the customer. Anomalies can be caused by earthquakes or by abnormal network conditions in the user's internal system or in the public distribution system.

By checking the gas pressure and flow data, the device can intervene, blocking the supply of gas using the solenoid valve. Once corrective action has been taken it can perform a test to check that the user system works properly, to promptly resume the service. After concluding the development phase, 2019 will be the year in which the production of these devices and installations will begin for residential users.

Customer experience: Customer experience project

The activities relating to the customer experience project are nearing completion. The project aims to reduce the gap between the service provided by the Hera Group and customer expectations.

Thanks to this project, customers have new channels to improve and complete their digital experience, such as the Selfcaring portal, the app and the social networks. The customer experience has also been improved through the Touch Points of the physical channels, the functional redesign of the layout of the branch offices, the introduction of digital signatures, the **Alert** service (bill issuance, deadline for self-reading and reminder of appointments) and the **Tracking** function to control the time development of one's requests (via SMS, e-mail and notifications on the App and On Line Services) for an ever-increasing number of processes (switch, transfer, power and flow rate variation).

Lastly, the "Hera Angel" service was released, a reminder developed to support home change management, the "Queue management system" was improved with the introduction of room and workstation displays and branch office tickets can now be booked through call centers, branch offices, on line services and apps.

For 2019 the following is planned:

- the **Go Live of the new site** and the enhancement of social CRM services, with new releases to improve/add functionalities to the on line services and app, to support omni-channel service and digitalization;
- the **overall redesign of the Customer Experience** and the conclusion of the Projects to involve customers and enhance the brand, in support of the centrality of our customers;
- other activities to support the values of operational excellence, flexibility and speed.

Customer experience: New ways to pay bills

Hera has signed several cooperation agreements with major banking players (Unicredit, CBILL, MyBank, Jiffy, Amazon Pay, Paga con Postepay, Masterpass) to develop services that will facilitate a significant **simplification of payments and related accounting management**.

Under the agreement with **Unicredit**, 6 million dedicated "virtual" IBANs have been generated that Hera, the first company in Italy to do so on a large scale, has made available to all customers through a communication on the bill, or on the invoice. The customer can thus pay conveniently also from their own internet banking service, without queues, with automatic and unique recognition of the payment.

In addition to the "virtual" IBAN system, Hera is developing **additional "smart and mobile" payment methods** for its customers, such as digital wallets, to make transactions even simple, immediate and more intuitive.

Specifically, **MyBank** supports irrevocable online transfers simply and securely using the internet banking service of the customers' bank. The service provides real-time confirmation of payment and speeds up 100% automatic reconciliation processes and further reduces the risk of fraud.

The **CBILL** service, on the other hand, through an innovative and advanced, multi-bank and multi-channel approach, allows the customer to make payments through his own internet banking, but also through mobile, ATM and branch office, guaranteeing security for the payer, real-time reporting and complete and integrated coverage of the entire bill collection process, from the issue of the notice to reconciliation.

Customers will also be able, using the **MyHera** app or the Group's online services, to pay bills by simply entering their mobile phone number, through Jiffy (Bancomat Pay), without having to enter their credit card or bank account details.

Lastly, the digital wallets Amazon Pay (payment of the bill through your Amazon account), Masterpass, and Paga con Postepay, simplify payments via mobile device or desktop, providing a simple and fast user experience.

The initiative is part of the broader **infrastructure and services digitalization process** that the Hera Group has started some time ago, with the aim, among other things, of identifying and satisfying the needs of an increasingly “connected” and demanding public. A roadmap that is fully consistent with the European Union’s strategy for creating a digital single market based on three pillars: improving online access to goods and services for consumers and businesses, creating an environment conducive to the development of digital networks and services, maximising the growth potential of the digital economy.

Diffusion of digitalization within Hera Group and its served area

Internal digitalization

Starting in 2018, the Hera Group undertook a **change management process** aimed at developing its internal staff and services in the area of digitalization, data analysis and smart working. The aim of this course is to accompany the Hera Group along the necessary change to successfully face the digital transformation and the change in working methods. The project acts on the dimensions of culture, processes, tools and enhancement of human capital. The range of initiatives includes: bite-sized training units, distance learning, envisioning sessions, application sessions and participation in masters/external interventions. As part of the change management process, the activities of the **Community Data Analytics community** also continued, with 8 meetings held in 2018.

In parallel with the change management process, **internal meetings are held** with the Group’s **top management**, coordinated by the Managing Director, in order to update the top management on the progress of the initiatives underway in the various business units and on the projects being defined in the area of digitalization and data analytics. These internal meetings involved about 20 people within the Hera Group. During the year, the work team met 3 times and monitored the progress of 18 projects. The main projects concern business intelligence systems for energy efficiency improvement and process quality, data management for waste management services and gas networks, document optimization tools, development of projects for process digitalization and advanced data analysis, technological implementations to supply energy as needed to third parties.

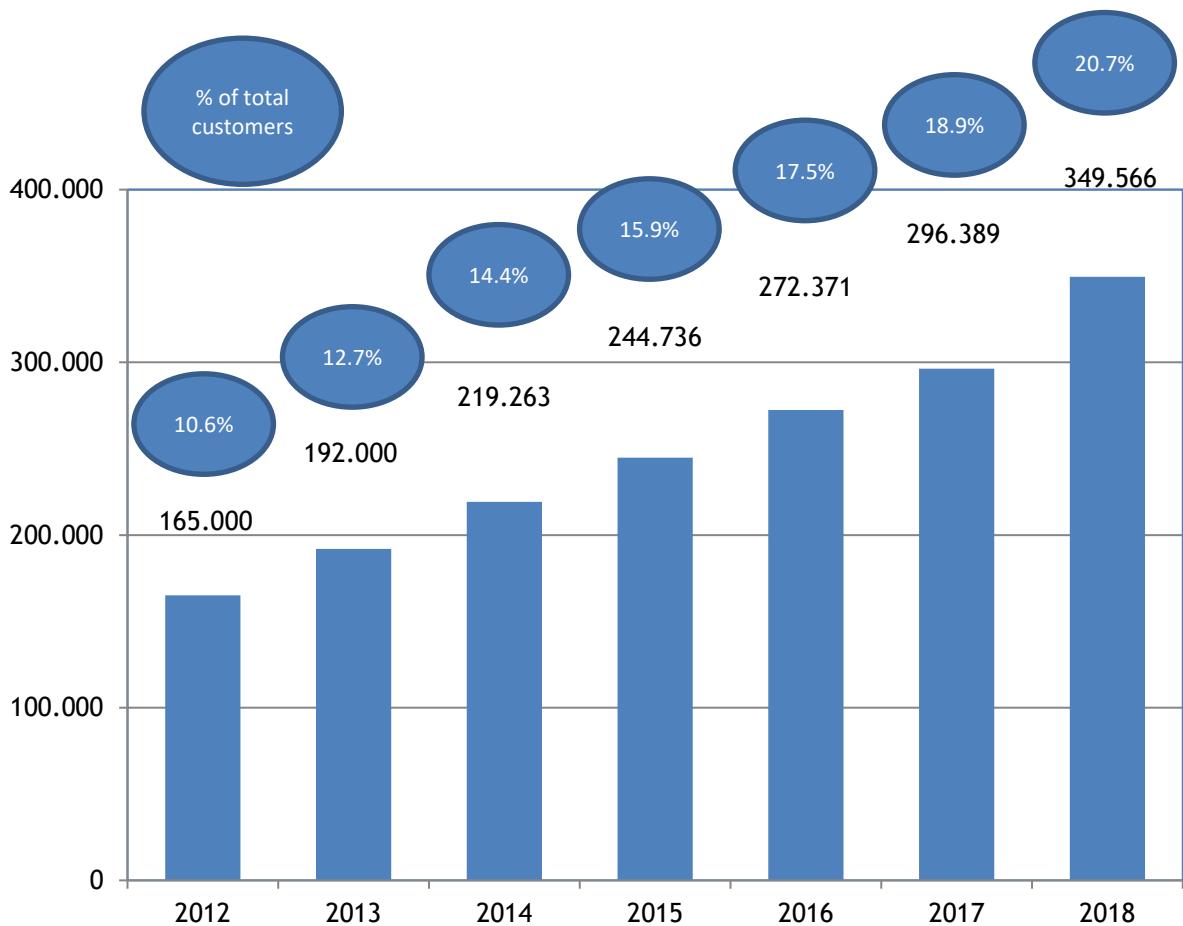
Digitalization for our customers

The Hera Group continues to help its customers become more digital, both by developing and updating its on-line services and by providing applications for mobile devices (Rifiutologo, Acquologo, and My Hera), described in the “Case Studies” section of this chapter.

The Group’s On-Line Services, for which we had already overhauled graphical design and content at the beginning of 2017, are a useful tool for customers to view their bills, check their consumption, submit reports, report self-readings and check the progress of their procedures.

In 2018, the online services were further developed, allowing the implementation of new methods of online payment, the activation of new contact channels (such as Live Chat, the Call Back service and the booking of tickets for visits to our physical points, which were added to the possibility of sending written requests) and the improvement of dedicated services for business customers.

Customers subscribed to online services



Figures apply only to Hera Comm

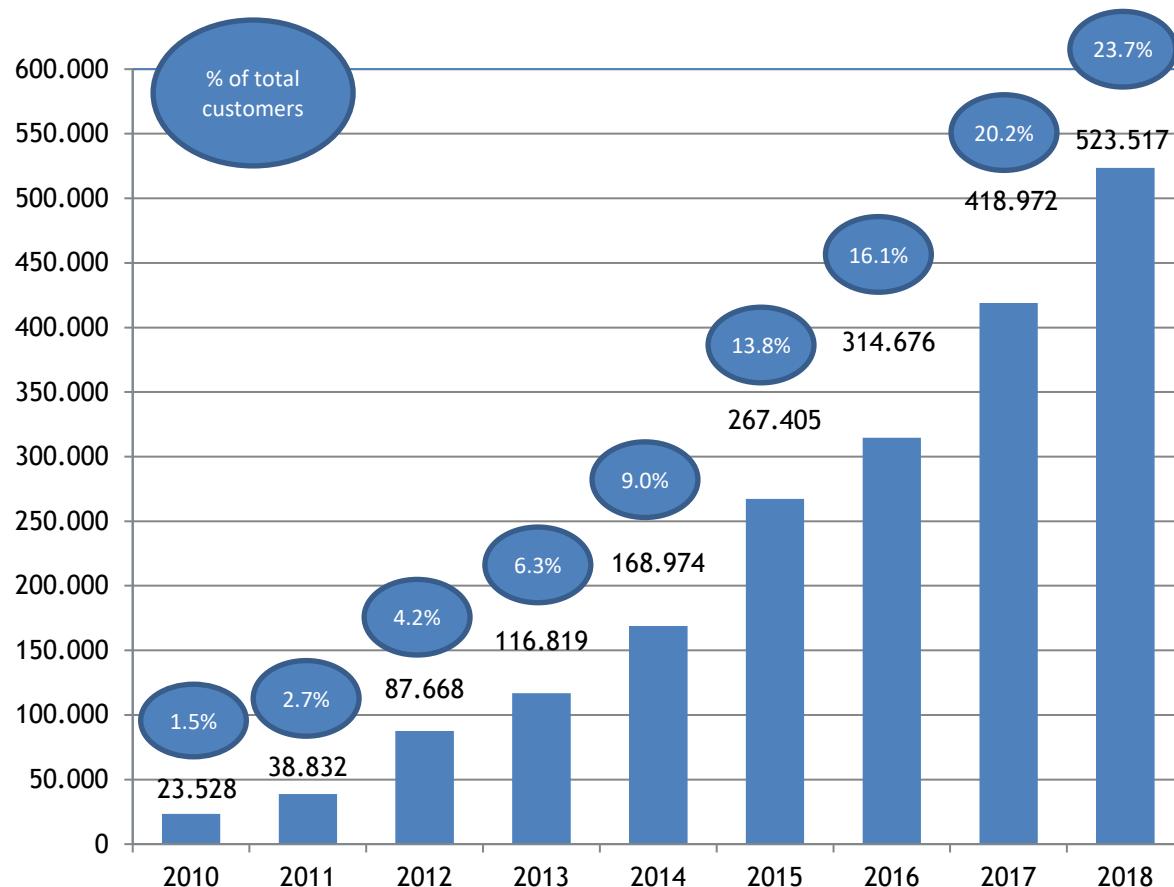
Hera Comm's online services proved very popular among customers again in 2018: the growth trend of the past five years is continuing and this year, 20.7% of our customers had subscribed to the services. In fact, the number of subscribers rose by almost 18% compared to last year, reaching about 350 thousand customers. The interest of customers in receiving their **bills in electronic format** continues: 23.7% of participating customers have chosen to receive their bills via email, an increase of 25% compared to 2017. The growth is also due to the merger of Amga Energia & Servizi Srl into Hera Comm. For customers who have not chosen the bill in electronic format, the bills are printed on 100% recycled paper and delivered by regular mail.

There are 38,856 customers registered with **Estenergy**'s on-line services, while those with **Marche Multiservizi** are 16,874 (up respectively by 32% and 20% compared to 2017), while customers sending electronic bills are 35,638 for Estenergy (+ 44% compared to 2017) and 3,557 (+56% compared to 2017).

Hera Comm Marche's customers are also continuing to grow towards digitalization: in 2018, 11.4% of the total number of customers registered for Online Services (9.1% in 2017) and 12% of them preferred to send their bills without paper (compared to 7.3% in 2017).

In 2018 **AcegasApsAmga** more than doubled the number of customers who registered for online services. Electronic bill sending and the number of self-reading bills also grew considerably in 2018 (+30% bills by email; +13% bills by self-reading). During the year, a Whatsapp channel and an SMS channel dedicated to the communication of readings were opened.

Customers with electronic billing



Figures apply only to Hera Comm

In 2018, actions to promote the digital behaviour of the Group's customers continued.

For example, in the 2017-2018 school year, the **Digi e Lode** project was launched (see the "Case Study" section), which encourages the virtuous behaviour of Hera's customers by using the digital services offered (online services, electronic bills, applications for mobile devices, etc.). Specifically, the project financed school digitalization projects for first-degree public and state-authorized primary and secondary schools in the Bologna, Modena, Ferrara, Forlì-Cesena, Ravenna and Rimini areas with Euro 100,000 for their digitalization projects to the benefit of students. Given the success of the initiative, Hera has launched a new edition for the 2018-2019 school year and has scheduled its extension in the Triveneto and Marche regions (see section "What we will do" at the beginning of this chapter).

In 2018, **Acantho**'s customers' subscription to the digital bill service reached 60% of total bills issued, avoiding the printing of around 165,600 sheets of paper. In addition, Acantho decides not to produce reports on electronic customer traffic on paper; those who so wish can consult the customer portal. Overall, the digitalization of these two processes saved more than 1,682 kg of CO₂ equivalent per year.

Electronic billing in the main Italian utilities

In 2018 Utilitalia published its first sustainability report summarizing the environmental performance of 127 Italian utility companies: Hera's result regarding the use of electronic billing for the year 2017 (20.2%) is more than double the average of the utilities considered (equal to 9.6%).

Acantho's role in the digitalization of the territory and the Hera Group

Acantho is the **digital company of the Hera Group** that serves the main cities of Emilia-Romagna and Triveneto with a proprietary fibre optic network approximately 4,200 km long. The company has been developing an **ultra-broadband fibre-optic** network for more than 15 years, on which it offers next-generation telecommunications services. The **Data Centres in Imola** and **Milan** offer cloud services to our customers, providing high levels of service quality and data security.

Among the **main services offered**:

- connectivity services up to 10 Gigabits per second;
- virtual private grid services;
- voice services and virtual switchboard;
- video presence services;
- video analysis and video surveillance services;
- Data Centre services (housing, virtual server, virtual Data Centre, storage and backup, business continuity and disaster recovery).

Together with the Hera Group, Acantho also offers services for local **Smart Cities**, such as public Wi-Fi services, smart security systems and digital signage. The latter are multifunctional totems (digital signage), located near points of sale or public spaces, and which show users information or promotional content.

In 2017-2018 Acantho upgraded and extended the public Wi-Fi service for the city of Ravenna by installing 42 Wi-Fi oases, 6 of which are at UNESCO sites, and a total of 78 access points that enable free high-speed connectivity service for residents, tourists and businesses.

With particular reference to business customers, the connectivity services offered are based on fibre optic technologies, radio links and copper. The objective for the future is specifically to increase the number of customers connected to optical fibre, compared to copper technologies, also thanks to the integration with other operators (regional and national).

The Italian Ultra Broadband Network Strategic Plan has set specific objectives for 2020 and the implementation of the strategy is coordinated by the Ministry of Economic Development (MiSE) as follows:

- Coverage at least 100 Megabits per second for up to 85% of the population;
- Coverage at least 30 Megabits per second for the remaining population;
- At least 100 Megabits per second coverage for public buildings (schools, hospitals, etc.), areas of major economic interest and population concentration, industrial areas, major tourist destinations and logistics hubs.

With its fibre optics, Acantho can provide ultra-wideband connectivity (with connection speeds of up to 10 Gigabits per second) to 14,571 companies out of the 28,283 surveyed in its service area, thus covering 52% of them.

The expression "digital divide" indicates uneven distribution in the access to information and communication technologies between districts or areas, both in terms of public infrastructure and private equipment. "Digital divide" is synonymous with technological backwardness and in particular indicates the lack (or slowness) of the connection to the web.

Acantho participates, through a formal expression of interest, in the integration of other operators' fibre-optic networks in order to reach, with its own commercial services, business users based in areas of digital divide.

In 2018, Acantho extended its commercial coverage to 10 new areas in digital divide in the municipalities of Bologna, Ferrara, Forlì-Cesena and Ravenna, by showing interest in another regional operator with positive results.

Acantho is also involved in many projects for the Hera's digitalization, including: cassONetto Smarty; Smart drop-off point; Smart Metering and Smart Grid; Queue Management (HeraComm branch offices); Hera Meal Vouchers Management; Hera physical security and building automation.

Economic development and social inclusion

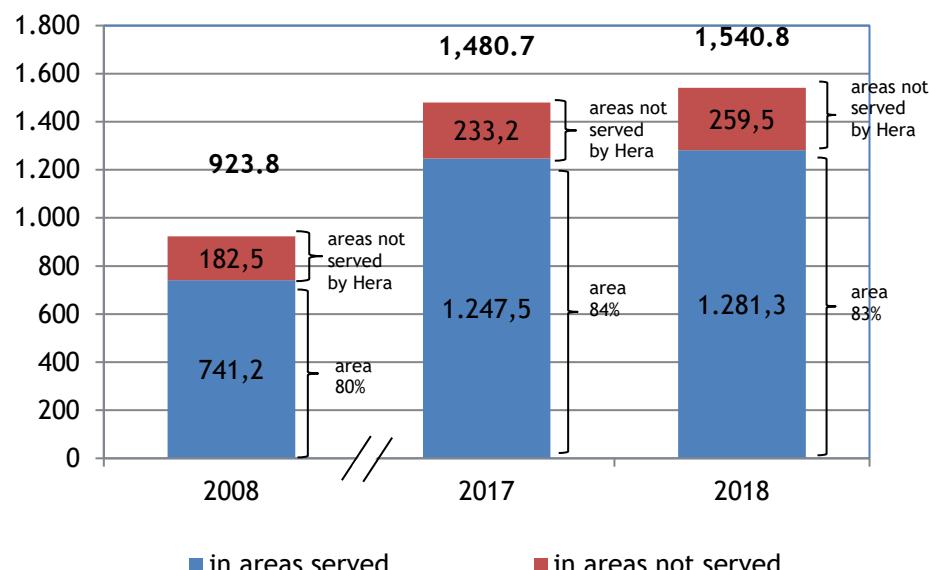
The economic value for the local area

In 2018, the value added distributed to stakeholders in the local area was Euro 1,281.3 million (+2.7% compared to 2017).

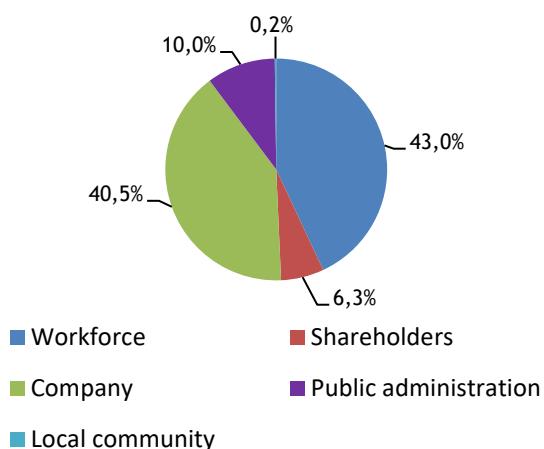
It includes:

- employee salaries (43.0% of the total);
- dividends to local Hera Spa shareholders (6.3%);
- duties, taxes and fees to local authorities (10.0%);
- charitable donations and sponsorships (0.2%);
- resources re-invested in the company (40.5%).

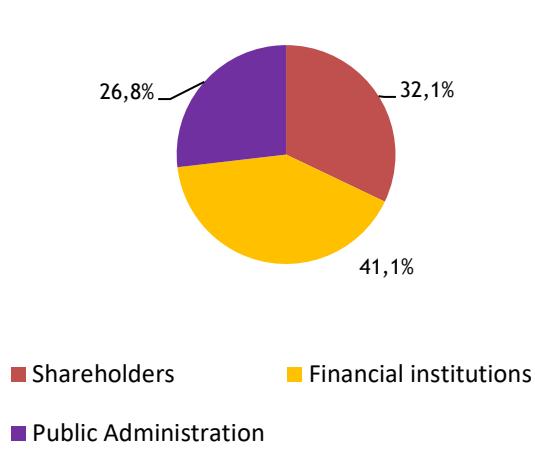
Value added distributed (in millions of Euro)



Allocation of value added to local stakeholders (2018)

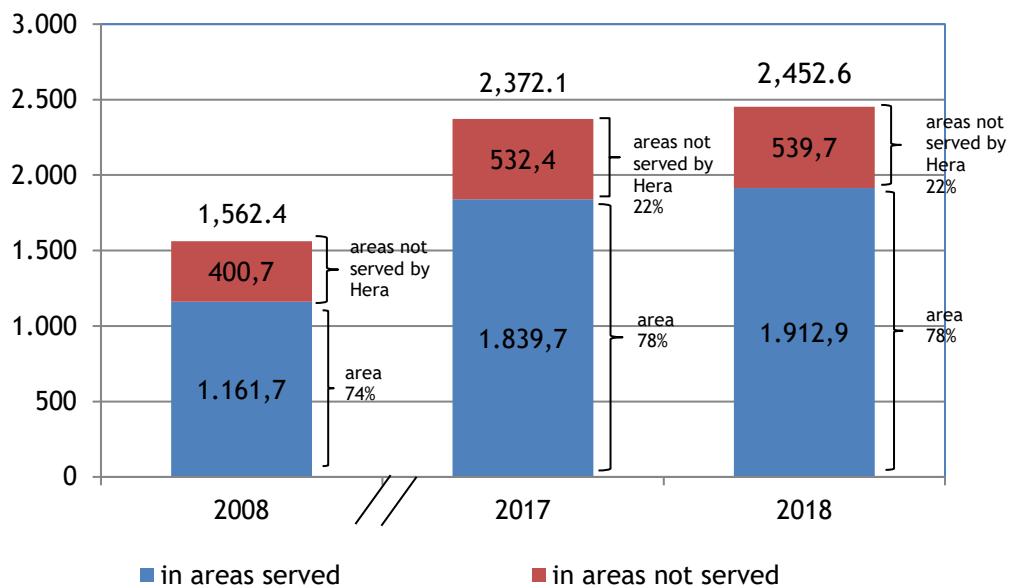


Allocation of value added to non-local stakeholders (2018)

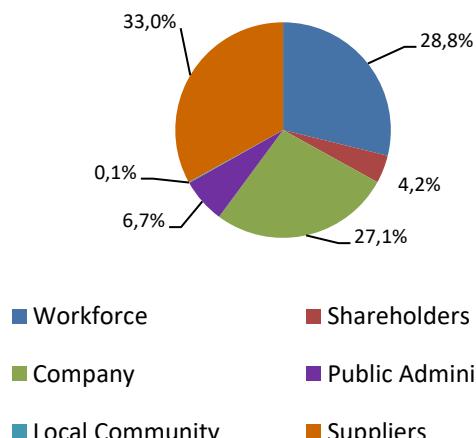


If the added value distributed in the local areas is added to the amount of the supplies from suppliers in the local areas (which account for 69% of total Group supplies at consolidated level and which can be valued as 631.6 million), the economic value distributed to local areas in 2018 in total can therefore be valued as Euro 1,912.9 million (+4.0% compared to 2017), equal to 78% of the total of the wealth produced which was Euro 2,452.6 million.

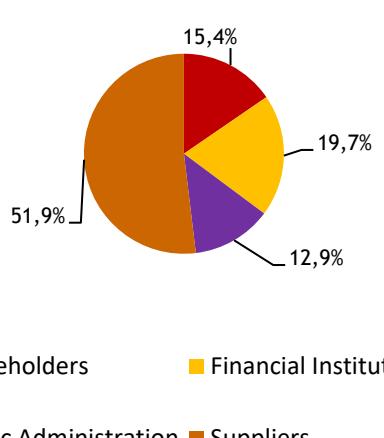
Economic value distributed (in millions of Euro)



Allocation of economical value to local stakeholders (2018)



Allocation of economical value to non-local stakeholders (2018)



The minority shareholders of the subsidiaries have not been taken into account to calculate the value added distributed to the local areas; as to the distribution of Hera Spa's dividends, reference is made to the share composition as of the 2017 dividend payment date.

Impact on areas served

The effects on employment that the Hera Group has created in the local area are linked to the economic effects on the local communities it serves.

Over 60% of the companies enrolled in the supplier register are **based in our service area** (Bologna, Ferrara, Forlì-Cesena, Modena, Ravenna, Rimini, Triveneto and Marche).

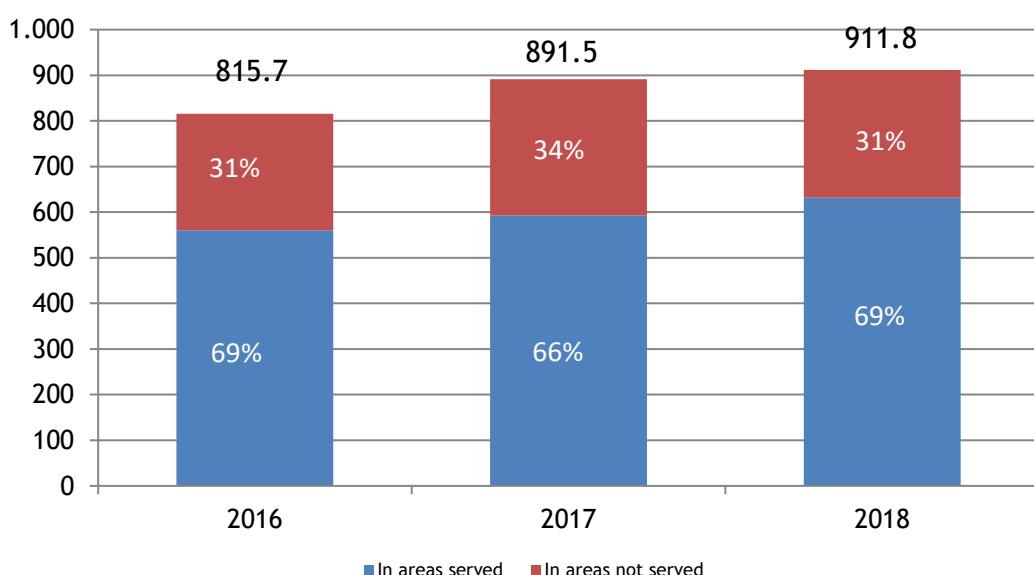
Marche Multiservizi had a total of 916 suppliers, of which over 73% based in the local reference area.

Suppliers (by geographic area)

Qty	2016	2017	2018	% of 2018 total
Bologna area	523	461	475	9.3%
Ferrara area	160	143	148	2.9%
Forlì-Cesena area	267	237	239	4.7%
Imola-Faenza area	199	172	173	3.4%
Modena area	290	241	256	5.0%
Ravenna area	229	208	206	4.0%
Rimini area	202	170	175	3.4%
Triveneto	1,235	1,187	1,269	24.8%
Marche	-	101	125	2.5%
<i>Total local area</i>	<i>3,105</i>	<i>2,920</i>	<i>3,066</i>	<i>60.0%</i>
Other Italian regions	1,935	1,761	1,954	38.2%
Other European Union nations	74	56	65	1.3%
Other	25	28	25	0.5%
Total	5,139	4,765	5,110	100%

The data refers to the companies Hera Spa, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hera Luce, Herambiente, Fea, Herambiente Servizi Industriali, Hestambiente, Hera Comm, Inrete Distribuzione Energia, HERAtech and Uniflotte; intercompany purchases are excluded. Excluding Marche Multiservizi.

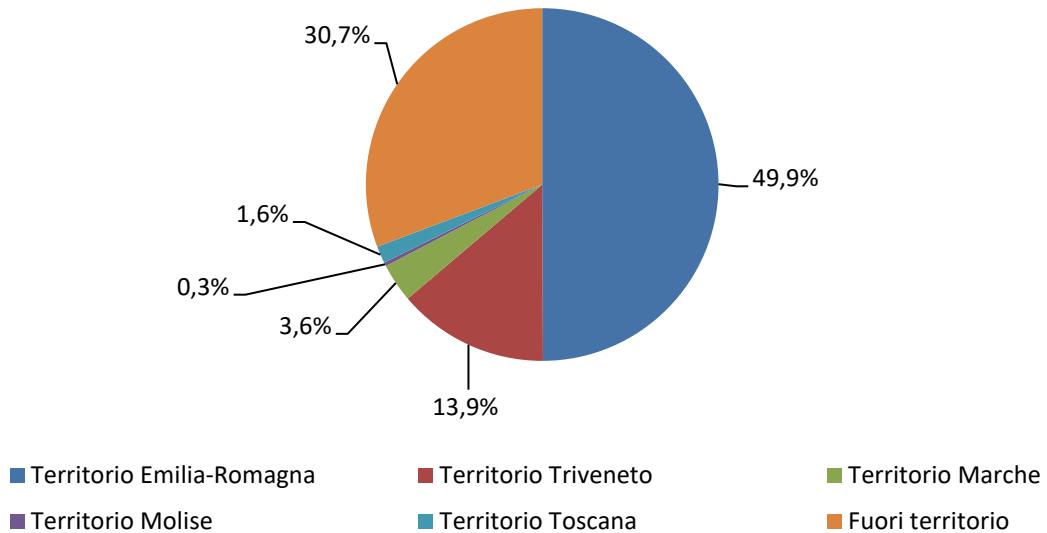
Value of supplies: breakdown by geographic area (in millions of Euro)



In terms of **economic value**, Hera issued purchase orders for around **Euro 631.6 million (69% of the total and up by about 6.6% over 2017)**, to businesses **based in the area Hera serves**, a percentage substantially in line with previous years.

Purchases outside the European Union were made from suppliers based in Canada, Switzerland, Israel, the Republic of San Marino, and the United States.

Value of supplies: breakdown by geographic area (2018)



Sponsorships and donations

Supporting excellences that are capable of stimulating social and cultural growth, to achieve an overall improvement in the quality of people's lives. This is the leitmotif of the **partnership** activity that the Hera Group promotes **in the area** thanks to intense research and development of the best project proposals. In this respect, identifying and rewarding significant partnerships translates into acting in the interest of the area and stimulating its growth, fostering positive relationships and promoting the proactive role of the Group in the areas it serves.

Sponsorships

thousands of Euro	2016	2017	2018
Recreational activities	202	160	551
Culture	1,152	1,071	1,062
Sports	484	297	416
Social	44	31	51
Environmental	421	360	239
Other	209	168	110
Total	2,513	2,087	2,429
<i>of which in areas served by Hera</i>	2,354	2,042	2,212
<i>of which in areas not served by Hera</i>	159	45	217

In 2018 the Hera Group contributed to over 150 activities with Euro 2.4 million of sponsorships that in various fields contributed to enrich the content and the initiatives of the local communities. In fact, of the total of sponsorships, 91% was allocated to the local area.

In this perspective, the Group's commitment to **promoting art, music, cinema, theatre, sports and community support** becomes the driver both to convey highly artistic content, and to make it usable and accessible to all.

Art. During 2018, Hera contributed to the creation of prominent **shows, exhibitions and artistic projects**. Among the most significant partnerships: the "**Eterno e Tempo fra Michelangelo e Caravaggio**" (Eternal and Time between Michelangelo and Caravaggio) exhibit set up at the San Domenico Museums in Forlì, which attracted 100,000 visitors from all over Italy; the "**Revolutija: da Chagall a Malevich, da Repin a Kandinsky**" (Revolutija: da Chagall a Malevich, da Repin a Kandinsky) exhibit at the Mambo in Bologna, which allowed the public to admire about 70 masterpieces by famous painters who in various ways represented Russian artistic culture between the 19th and 20th centuries. 2018 was also the year of drawing: the **12th edition of "Bilbul"**, the international comics festival of which Hera is the main founding partner, brought to Bologna, for the first time in Italy, the exhibition dedicated to "Jack Kirby", the king of superheroes. The 3rd edition of the "**Biennale del disegno**" in Rimini transformed the city into a beating heart of creativity and research through 33 exhibitions and a journey through 2,000 works, which touched upon all the creative processes: ancient and modern drawing, comics and architecture, calligraphy and graphics, painting, street art and cinema.

Access to culture and support for the area are evident concepts also thanks to the Group's commitment to **SalaBorsa**, the historical library in Bologna which thanks to Hera's support can now extend its opening hours in the winter, and stay open to all, also on Sundays.

Art and the local area are key concepts also in the project supported at Imola, where Inrete, a company of the Hera Group, promoted the project "**TAG: Torre Arte e Graffiti**". It is an initiative of urban regeneration and promotion of the area that has transformed eight electric substations into eight works of art with the collaboration of a local association consisting of many young people.

Theatre. From Modena to Rimini, the Hera Group has maintained a high level of interest in the theatres and theatre seasons in the area. From the Teatro Comunale in Bologna with the operas "**Simon Boccanegra**" and "**La fille du Régiment**", to the **ERT Foundation**, from the **Teatri Comunali** in Modena and Ferrara to the **International Theatre Festival** in Piazza di Santarcangelo di Romagna, the Hera Group has supported small and large recognized organizations of excellence by promoting and disseminating culture. Hera has also helped the most important events of Romagna's art season by supporting reviews which, in the city as in its province, can thus schedule high quality shows and artists. For instance, it is worth mentioning the partnership with the Teatro Rossini in **Lugo**, with the Rete dei Teatri della Valmarecchia in the **Rimini area**, with the season of the Teatro Mentore di Santa Sofia in the upper **Cesena area**, while in Emilia Hera supported the season of theatres of the Fondazione ERT (the Storchi and Passioni theatres in Modena, Arena del Sole in Bologna, and the Fabbri theatre in Vignola), the Teatro Duse in Bologna and the Teatro Comunale in Modena and Ferrara. In the **Modena area**, among the leading and high-profile initiatives also at national level, there was the Group's presence at **Festivalfilosofia**, which promoted Julian Nida Rumil's lectio magistralis on democracy in Piazza Grande.

Music. Every year, Hera identifies the concert seasons of great excellence, of interest to a broad range of audiences. Among these, there is the **Bologna Festival** with the "I grandi interpreti (The great performers)" review, the **Musica Insieme Foundation** and the **Ravenna Festival**, the prestigious exhibition that in 2018 also due to Herambiente's support, staged its 29th edition, dedicated to America, land of dreams, under the slogan "We Have a Dream". Herambiente considered it important to support the Ravenna Festival and be part of the success of one of the most prestigious and acclaimed festivals of performing arts at a European level: from symphonic to chamber music, from opera to theatre, from dance to ethnic music for a varied and diverse audience.

On the occasion of the 150th anniversary of the death of the **composer Gioacchino Rossini**, the Group is a partner of the events organized by the City of Pesaro to celebrate the musician's life and work.

The Group has shown renewed interest also for the **Bologna Jazz Festival**, which celebrated its thirteenth edition with a full calendar of very popular concerts with the best musicians in the world of jazz.

We also confirmed our partnership with the **Ferrara Buskers Festival**, an international festival of street musicians, and with the Verucchio Music Festival in the Rimini area.

Cinema. Among the successful partnerships, Hera confirms its support for the **promotion of film culture**, which involves and excites audiences. Among the most prestigious partnerships, we consolidated our support for the **Bologna Cineteca**, that by producing the “Il cinema ritrovato” (Cinema rediscovered) and “Sotto le stelle del Cinema” (Cinema under the stars) reviews, not only offered great masterpieces, but also gave thousands of people free access to the projections in the attractive setting of Piazza Maggiore during the summer. We also renewed our successful partnership with **Biografilm Festival**, which has been hosting the Biografilm Hera Theatre for several years, where numerous screenings were held during the famous festival. We confirmed our interest for theatre and cinema also by supporting initiatives that take place in other areas, such as “Rassegne itineranti”, in the 10 municipalities near Imola.

In 2018, we also supported an interesting collaboration with the **Cinevisioni association** was also promoted, which made possible the creation of a multimedia cinema inside the Bologna prison.

Sports and Social activities. Sports as wellbeing and a driver for solidarity are messages launched years ago by the Bologna stage of the **Race for the Cure**, a “pink” race to raise awareness on the importance of breast cancer prevention and to promote correct information on the matter. The initiative, which was a great success, was an opportunity to highlight the Group’s presence also thanks to the participation of a Hera team, which joined the other 20,000 participants in a march of solidarity and awareness. In the **Ferrara area**, the presence of Hera is witnessed by the partnership with UISP and various running events that attract many participants.

Hera is at the side of the world of basketball by supporting the youth teams **Ravenna Basket** and **Andrea Costa Imola Basket**, and of rugby with the under 14-16 and 18 teams of **Bologna Rugby 1928**, and of youth football at **Felsinea**.

In addition, **Hera Comm** supported a number of major events during 2018, mainly in commercial expansion territories:

- **Flower Show.** A leading nursery and gardening event in its sector of reference, of which 4 editions are held. Hera Comm promoted two events of each edition on sustainability, the culture of respect for the environment, knowledge of environmental ecosystems.
- **Partnership with the Toscanini Foundation.** The Foundation’s activity is divided into reviews, educational programs and individual events with original formats in order to spread the culture of music and offer a range of high level concerts.
- **Macerata Opera Festival** The main topic of the event is “Verde Speranza” (“Green Hope”), alluding to the conservation and respect for the environment and the reconstruction of the local areas affected by the earthquake, in particular the restoration of the environment in areas recognized as important for their landscape and environmental value.
- **Festivaletteratura Mantova.** Hera Comm is a partner of “READ ON”, a European project in which Italy takes part with the city of Mantua and in which Ireland, Portugal, Spain, Norway and the United Kingdom participate. The project is aimed at adolescents and aims to encourage young people aged 11 to 19 years to write and read through 8 specific projects.
- **World Ducati Week.** Hera took part in the international gathering of Ducati enthusiasts from all over the world that was held in Misano. Hera Ambiente provided separate waste collection, Hera Comm contributed educational initiatives on energy efficiency and the installed two charging stations for the organization’s electric cars, while Hera Servizi Energia built and manages the trigeneration plant of the Ducati factory in Bologna.

The Hera Group continues to cooperate with about **80 trade associations** who are therefore able to take advantage of innovative services and favourable supply conditions.

In 2018 we consolidated our relationship with Arci at national level and Hera Comm was sponsor of the association's National Congress held in Pescara, an important opportunity to highlight the facilitated supply conditions we offer to local clubs and their members.

Concerning local initiatives, this year Hera Comm was present with a corner focused on sales and information activities in the summer cinema evening events organized by **Arci Reggio Emilia**; in addition, thanks to the support of **Hera Comm** and the collaboration with Arci Modena and cinema Raffaello, the "Cinemamme" initiative gave many mothers the opportunity to watch first-window films in a theatre set up to accommodate them with their young children.

The collaboration with the **CNA of Parma** continued again in 2018, as Hera Comm actively supported the association's Sustainability Report presentation event.

Hera made its support to the local community tangible in Bologna through an agreement with the **Social Cooperative Piazza Grande**, which works in the field of social exclusion, in support of homeless people.

In Marche, on the other hand, collaboration continued with **Ascom Confcommercio of Pesaro and Urbino**, which created the "Itinerari della bellezza" project that included the following main initiatives: gastronomic weekends, economic agreements with members and a publication that "tells the story" of the touristic, cultural, environmental and gastronomic itinerary that makes its way through Urbino, Sant'Angelo in Vado, Pergola, Fossombrone and Mondavio.

These are initiatives to support associations that help the most needy but also measures aimed at encouraging the economic development of businesses throughout Italy.

Donations

thousands of Euro	2016	2017	2018
Recreational activities	4	5	27
Culture	100	159	46
Sports	7	9	6
Social	147	134	174
Environmental	5	38	6
Other	-	17	70
Total	272	361	329
<i>of which in areas served by Hera</i>	259	268	284
<i>of which in areas not served by Hera</i>	14	93	45

Donations are a further **opportunity for supporting the area**, an action in which Hera Group actively supports the weakest social categories. This sensitivity is also extended by the **HeraSolidale** initiative (see the case study in the chapter People).

In 2018, the Group donated over Euro 329 thousand, 86% of which to its service area. About 55% of donations are for cultural and social purposes.

Also, in 2018, Hera renewed its membership in organizations and associations involved in both **disease prevention** (through scientific research) and **patient care**. Some examples among many are our support for the LILT association which finances research projects in the field of cancer, and for the ASPHI not-for-profit organization, which in Bologna, through new technologies, promotes the integration of disabled people in schools, work and society, as well as other Emilia-Romagna organizations that continue to implement worthy projects such as the Association "Insieme a te" (Together with you), which has created services and aids for free access on a beach at Punta Marina dedicated to seriously disabled people.

On the **social front**, the Group is also a partner of the “Agire Sociale” association based in Ferrara, and of “Porta Aperta” association based in Modena, which provide income support by distributing basic necessities, and also by offering training opportunities, work orientation and social and health services, family budget management, education for responsible consumption and promotion of active citizenship. Hera has also supported the activities of the “Piantala” Association which, with the Ortoterapia project, teaches children in the Bologna juvenile prison about the cultivation techniques of herbs, fruits and vegetables, which can be used in the juvenile prison canteen, in the cooking workshop and even sold in organic food markets.

In the **environmental field**, the Group collaborates with the Fondazione Cetacea of Riccione, a centre that deals with rescuing, caring for and rehabilitation of animals in distress, especially sea turtles and cetaceans.

Company policy, in compliance with its own Code of Ethics and 231 protocols, does not allow contributions of any kind to any party or politician.

The investments

During 2018, the **Group's investments** amounted to Euro 431.8 million, with the benefit of Euro 30.8 million in capital grants of which 12.5 million for Fondo Nuovi Investimenti (FoNI), as envisaged by the tariff method for the integrated water service.

Gross of the capital grants, total Group investments amounted to Euro 462.6 million. **Net investments rose by Euro 35.6 million**, from Euro 396.2 million in 2017 to Euro 431.8 million in 2018.

The **Group's operating investments, amounting to Euro 462.3 million**, were up 5.1% compared to the previous year and mainly concern work on plants, networks and infrastructures. In addition, regulatory adjustments were made, particularly on gas distribution for the mass replacement of meters and for the treatment and sewage sectors.

Investments

in millions of Euro	2017	2018
Gas area	101.5	115.4
Electricity area	23.6	23.0
Integrated water cycle area	156.6	157.9
Waste management area	67.2	78.1
Other services area	18.7	18.8
Central structure	72.4	69.1
Total operating investments	440.0	462.3
Financial investments	0.5	0.3
Total gross investments	440.5	462.6
Capital grants	44.3	30.8
<i>of which for FoNI (Fondo Nuovi Investimenti)</i>	<i>8.2</i>	<i>12.5</i>
Total net investments	396.2	431.8

in millions of Euro	Hera		AegasApsAmga		Marche Multiservizi	
	2017	2018	2017	2018	2017	2018
Gas area	67.8	74.4	31.8	37.5	1.9	3.5
Electricity area	15.8	15.8	7.8	7.2	0.0	0.0
Integrated water cycle area	95.9	110.7	50.0	30.0	10.7	17.1
Waste management area	60.6	69.1	4.2	4.7	2.3	4.3
Other services area	12.7	10.0	4.7	6.7	1.4	2.0
Central structure	67.0	63.0	4.0	3.8	1.4	2.3
Total operating investments	319.8	343.1	102.5	90.0	17.7	29.2
Financial investments	0.5	0.2	0.0	0.1	0.0	0.0
Total gross investments	320.3	343.3	102.5	90.1	17.7	29.2

In 2018, the **net investments in the gas area** were Euro 115.4 million, up by Euro 14.0 million compared to the previous year. In the distribution of gas, there was an increase of Euro 12.0 million due to increased extraordinary maintenance on networks and plants and to work on the cathodic protection of the steel network in the Trieste municipality where work was completed on 37 km of the network, bringing the compliance level over 95%, in line with ARERA's requirements. The demand for new connections has increased compared to the previous year.

Investments also increased in heat management with the activities of the companies HSE and ASE, while the district heating service decreased as a result of the substantial work carried out the previous year on the Barca di Bologna plant, resulting in an overall increase of Euro 1.9 million compared to 2017. New district heating connections are up compared to the previous year.

Investments in the **electricity area** for 2018 amounted to Euro 23.0 million, substantially in line with the Euro 23.6 million of the previous year. The measures carried out mainly concerned the extraordinary maintenance of plants and distribution networks in the Modena, Imola, Trieste and Gorizia areas. Compared to the previous year, there were fewer network extensions and more extraordinary maintenance on plants and networks, while requests for new connections were down compared to the previous year.

The investments for the **integrated water service** mainly concern extensions, enhancements and upgrades of networks and facilities, and regulatory compliance, mostly for water and sewage treatment. Investments were made for Euro 81.5 million in the aqueduct area, Euro 49.5 million in the sewage area and Euro 26.9 million in the purification area.

Net investments in the **waste management area** concerned maintenance and enhancement measures on plants and amounted to Euro 78.1 million, up Euro 10.9 million, compared to the previous year.

Investment in the composting/digesters sector increased significantly, by Euro 9.8 million, mainly due to measures on the Sant'Agata Bolognese composting plant for construction of its biomethane plant, besides other measures including plant upgrades at the Tre Monti mechanical biological treatment plant. Investments in landfills increased by Euro 0.9 million due to the combined effect of reductions due to lower investments at the Tre Monti site and the completion in 2017 of the 9th sector of the Ravenna landfill, offset by the 2018 work on Cordenons and on the plants of Marche Multiservizi, of greater overall value. The waste-to-energy sector was in line with the previous year due to substantial compensation between the lower investments in 2018 on the Pozzilli plant and the extraordinary maintenance work on the plants in Bologna, Padua, Ferrara, Forlì and Trieste. The increase in investments in the special waste plants chain is due to maintenance work on the Ravenna plants. Investments in drop-off point and collection equipment sector were up by Euro 1.0 million, mainly in the service area of Hera Spa while the Euro 1.8 million decrease in the selection and recovery plants sector is primarily attributable to Aliplast Group's lower investments, due to the significant measures of the previous year on the PET Line for Alimpet Srl, not entirely offset by the higher investments made in the same sector by Waste Recycling Spa.

Investments in the **Other Services** area came to Euro 18.8 million, in line with last year.

In telecommunications, Euro 10.0 million were invested in network and remote control services and Internet data centres, up by Euro 0.8 million compared to 2017, while Euro 8.7 million were spent on the public lighting service, for maintenance, requalification and modernisation of the lighting systems of the areas served, down Euro 0.8 million due to the work carried out the previous year in the municipalities of Modena, Udine and Cesena, not entirely offset by investments in the Spinea and Aviano areas and, in the municipality of Pesaro, by Marche Multiservizi.

In the **central structure**, the investments concerned measures on the buildings of company premises, on information systems, on the vehicle fleet, as well as the laboratories and the remote control structures. Overall, the structure investments decreased by Euro 3.4 million compared to the previous year.

Hera's contribution to social inclusion

The tariffs for families facing financial and physical hardship

Social Bonuses are aids that **reduce the expense** sustained by residential customers, for the electricity and gas they use. Residential customers with an **ISEE indicator of no more than Euro 8,107.5** are entitled to the reduction, or in the case of families with more than 3 dependent children, not more than Euro 20,000, as defined by the Government in Ministerial Decree of 28/12/2007.

The **Electricity Bonus** was designed to provide savings on the annual electricity expenditure for two types of households: those experiencing economic hardship and those where a person lives in serious health conditions and is kept alive by household electromedical equipment. For families facing financial hardship, the Electricity Bonus provides savings ranging from Euro 112 to 165, while for families facing physical hardship, it provides savings of Euro 173 to 620.

The amounts of the **Gas Bonuses** are determined differently depending on the climate areas. They provide savings ranging from Euro 31 to Euro 266.

Gas and electricity bonuses issued

	2016	2017	2018
Number of bonuses issued	54,942	57,702	65,305
Value of bonuses issued (thousands of Euro)	4,995	5,255	6,471

In 2018, **Gas and Electricity Bonuses** issued to Hera Group customers amounted to 65,305 (+23.1% compared to 2017) for a total of over Euro 6 million. As regards Hera Comm on its own, 55,778 disbursements were made for bonuses, for a total of around Euro 5.5 million (+22.9% compared to 2017).

As far as the **water service** is concerned, Resolution ARERA 897/2017 of 21 December 2017, established the **Social Water Bonus** from 1/1/2018 to **supply water** to residential users in conditions of economic and social hardship (ISEE indicator not exceeding Euro 8,107.50 for families with a maximum of 3 dependent children, or not exceeding Euro 20,000 for large families). For the year 2018 alone, applications for admission to the social water bonus could be submitted from 1 July 2018 to the municipalities of residence or to the tax assistance centres designated by the municipalities themselves, which, after verifying eligibility, submit the names of those entitled to receive the bonus to the Water Service Manager. When fully operational, applications for admission to compensation for water supply must be submitted together with the applications for the social bonus for electricity and/or gas and will be valid for 12 months with the possibility of renewal within the month preceding the expiry of the aid. As an exception, for 2018, affected users were paid a one-off compensatory component equal to the share of the social bonus they would have received if they had been able to submit their application on 1 January 2018.

In the service areas of Hera SpA and AcegasApsAmga, the first disbursements will be made in early 2019.

In Hera SpA's service area, ATERSIR has established an **additional bonus** for the supply of water as a further protection measure (Resolution CAMB 45/2018).

In Pesaro and Urbino, a facility has been provided for households of more than 4 people, by doubling of the consumption brackets, upon request at a customer desk of Marche Multiservizi.

In addition, from 2018, AcegasApsAmga plans to apply the tariff methods contained in the Consolidated Act of Water Service Fees (Resolution 665 /2017 -TICSI), which defines a per capita tariff structure for resident household use, and the Social Water Service Bonus to support families in conditions of financial and social hardship, as already done in the energy sectors.

Regarding **waste management services**, a total or partial exemption from the payment of Tari or quantity-based tariff may be granted in favour of subjects facing conditions of serious social and welfare hardship. The municipalities allocate the funds for these benefits according to the income of the applicants. In some areas of Emilia-Romagna, discounts apply to individuals living alone that are affected by over 60% of permanent invalidity.

Hera's initiatives to support users facing financial hardship

Hera allows customers in financial difficulty to **pay their bills in instalments**. **Households facing financial hardship** (that are not behind with any payments, including instalments previously granted) are allowed to pay their bills in three instalments, applying an interest rate equal to the FCA (the official reference interest rate at which the European Central Bank grants loans to other banks and equal to 0% at 16/03/2016) increased by 3.5%. For amounts over Euro 2,000, Hera reserves the right to carry out more accurate checks before granting the instalment plan. In certain cases of financial hardship (customers using the temporary state layoff fund, or on unemployment benefits, beneficiaries of the income support fund of the Emilia-Romagna Bilateral Agency or customers who are unemployed as a result of the reduction or termination of their employment) the number of instalments is increased to 6, interest-free. In addition, subject to approval of social workers, the instalments may be increased to nine. This procedure is also applied to **professionals and small condominiums**.

Businesses facing financial difficulty can also ask to pay Hera in instalments. In these cases Hera grants similar conditions after checking their creditworthiness.

AcegasApsAmga offers its customers the opportunity to postpone the due date of their bills or to agree on a repayment plan in 3 instalments. In both cases, the sums of the instalments may be increased by interest at the rate set by the ECB (0%). In addition, the company grants customers in particularly difficult economic conditions additional favourable payment terms.

In the service area of Marche Multiservizi, the company grants payment of the bills by instalments to customers that are experiencing financial hardship, provided that they have always paid their previously granted instalments. Payment by instalments for residential customers concerns only bills over Euro 100. The instalments are agreed with the users in proportion to the amounts of the bills issued and up to 4 instalments may be allowed, except in special cases agreed with the social services of the municipalities, where multiple instalments can be agreed. In these latter cases of financial hardship (customers using the temporary state lay-off fund, or on unemployment benefits, beneficiaries of the income support from municipalities or customers who are unemployed as a result of the reduction or termination of their employment and assisted by social services) the instalments are interest-free. For users that fall within the above procedure, an interest rate equal to the FCA is granted (the official reference interest rate at which the European Central Bank grants loans to other banks and equal to 0% at 16/03/2016) increased by 3%. This procedure is also applied to professionals and small condominiums. In particular, for businesses, payment by instalments is authorized following checks on their level of solvency.

In 2018, **214,618 instalments were made** (+9.5% compared to 2017), of which 208,048 were mass market customers (+9.6% compared to 2017) and 6,570 were business customers (+7.5% compared to 2017). Overall, the amount paid in instalments amounted to Euro 121.3 million (+7.8% compared to 2017).

At the geographical level, more than 209,480 bills were paid in instalments in Emilia-Romagna (+10.3% compared to last year), 3,149 in Triveneto (-24.4% compared to last year) and 1,989 in Marche (+2.9% compared to last year), for a value of about Euro 118 million in Emilia-Romagna, about Euro 2 million in Triveneto and about Euro 1.4 million in Marche.

Number and value of bills paid in instalments

	2016	2017	2018
Bills paid in instalments (qty)	186,843	195,974	214,618
of which mass market (qty)	180,863	189,863	208,048
of which business (qty)	5,980	6,111	6,570
Bills paid in instalments (thousands of Euro)	112,705	112,591	121,315
of which mass market (thousands of euro)	83,770	81,273	89,690
of which business (thousands of Euro)	28,953	31,317	31,625

The application of the **Agreements** continued in 2018, to **prevent service disconnections** for assisted persons. The Group's attention to the weaker social groups is also confirmed by its collaboration over many years with the **Social Services** of the municipalities and with the **Organizations that provide services to citizens**, an aspect that sets Hera apart in the panorama of multi-utilities and sales companies and provides a dedicated channel with operators that offer support and counselling to social workers through structured forms of relief for the most economically fragile portion of society. Collaboration with the Authorities makes it possible to avoid service disconnections or **reactivation** of the service if it has been stopped, optimizing the management of economic contributions by the Social Services.

In 2018, more than 17,000 requests were handled in Emilia-Romagna, following reports from social workers, and 89.6% of disconnections were avoided. The number of municipalities which have agreed to the protocol has remained unchanged at 85. All the provincial capitals of Emilia-Romagna are concerned, except for Rimini.

AcegasApsAmga also continues to collaborate with the municipalities of Trieste and Padua, within the framework of the protocols signed for the management of users in economic difficulty. These agreements involve instalment payments on bills, granting subsidies and preventing service disconnections. In 2018, there were 914 water service-related contacts, of which 815 in the municipality of Trieste and 99 in the municipality of Padua.

In 2010, on its own initiative, Hera introduced a **bonus** to offset expenses for the **district heating** service, to be attributed to customers who have the income requirements with the same procedures as those used for gas and electricity expense compensation. The bonus for 2018 is worth Euro 118 per year for households up to 4 members, and Euro 163 per year for households with a greater number of members. At the date of approval of this Report, 1,050 applications had been submitted for 2018 (1,070 in 2017) amounting to about Euro 130 thousand.

As regards **Hera** and **AcegasApsAmga**, the contracts state that if the **bill is not paid the service may be disconnected**. In these cases, a first reminder is sent approximately 20 days after the bill's expiry (only for reliable payers and debts of up to Euro 150) and a subsequent reminder (after an additional 20 days) is sent by registered mail, to inform the customer that the service may be disconnected. For amounts due under Euro 150, if payment is not made the supply is disconnected, on average two months after the bill's due date. If the invoice is for more than Euro 150, a single reminder is sent by registered mail, warning the customer that their service may be disconnected. In this case, the service can be disconnected about one

month after the invoice's due date. The customer may request to pay the bill in instalments, up to the time the supply is disconnected. If the disconnection involves condominium users, Hera informs thee residents individually before disconnecting the service.

As concerns the **supply of water**, until February 2014 Hera limited or disconnected its supply in compliance with the provisions of the Integrated Water Service Charter and with the regulations of competent authorities in force. In March 2014 Hera voluntarily decided that in the event of late payments by residential customers or mixed-type customers, it would limit the service in all Emilia-Romagna and Triveneto areas served but never disconnect it.

If it is **not possible to disconnect** the service (e.g. the meter cannot be accessed) an additional notice is sent to the customer to inform that the service will be disconnected (connection cut off) should they fail to pay their bill in the set timeframe. For energy services, (gas, electricity, district heating), if the disconnection is not technically feasible, the selling party may terminate the contract and activate the last resort services.

In addition, the updated **SOSTegno Hera** guide is available on the Group's website, and it contains all the information necessary on the opportunities of reducing expenses for energy and water services, reserved for customers in difficult economic and/or physical conditions. It also provides information on how to pay bills in instalments and what to do in the event of late payments. The guide also explains how users can benefit from the social bonuses for electricity, gas, water and district heating, and who to contact in the event of water leaks. Lastly, it provides advice on good practices for reducing consumption, actively contributing to the responsible use of environmental resources. A new version of SOSTegno Hera will be updated and released during 2019. The distribution will affect all the areas where Hera provides energy services, i.e. those that have the greatest impact on household budgets.

Placement under supply contracts with social cooperatives

In 2018, the **value of supplies** by types of work or services requested by the Hera Group to social cooperatives remained over **Euro 62 million**.

Over Euro 61 million was assigned for **waste management** services, amounting to **27.4%** of the Group's total awards for these services. Supplies involved 49 cooperatives or consortia of social cooperatives, hiring 816 persons facing hardship (pursuant to Article 4 of Italian Law 381/91), slightly up compared to 2017: 558 under open-ended employment agreements and 392 under full-time contracts. At geographic level, 348 individuals found jobs in the Emilia area, 335 in Romagna, 84 in Triveneto and 49 in Marche.

Supplies from social cooperatives

	2016	2017	2018
Social cooperatives or consortia (number)	50	48	49
Value of supplied goods/services (in thousands of Euro)	57,180	62,654	62,158
Persons facing hardship hired (number)	748	807	816

Workers employed for less than one year were also counted among the hired persons facing hardship.

The Valoris economic evaluation model developed by the University of Brescia in 2013 provides a measurement of the value created by social entrepreneurship of job placement, based on the results of empirical research. In particular, the model makes it possible to quantify the **economic impact for the Public Administration** of the social integration of type B social cooperatives. The research showed that the benefits essentially are a result of lower welfare costs and greater tax revenues due to the payment of income tax on the employment of disadvantaged persons. The lower revenues for the Government deriving from tax and contribution exemptions which type B social cooperative benefit from have been deducted from the benefits. All of this ends up being a benefit for the Public Administration equal, on average, to Euro 4,209 in the year for each able-bodied individual facing hardship. The economic benefit for Public

Administrations deriving from Hera Group awarding contracts to social cooperatives can therefore be considered around Euro 3.4 million for 2018.

Hera contributed to the inclusion in the national collective agreement for waste management services (renewed in July 2016) of a specific protection clause for outsourcing in favour of social cooperation. This clause sets forth that a portion of outsourcing for the sweeping, collection, waste transportation activities, cleaning of septic tanks and cleaning of bins, is excluded from the requirement to apply the waste management services Italian collective labour agreement, via the definition of socially inclusive projects. This portion is 5% and can be raised to 15% at company level. Hera applies 15% on the basis of an agreement entered into in March 2012 with the trade union organizations and with the Group's union coordination.

Protected categories among Hera's workforce

In all the provinces in which it operates, Hera complies with the obligations of Law no. 68/1999, which **requires that personnel belonging to protected recruitment categories be hired** in the proportion set forth in that law.

According to the regulations on the rights of people with disabilities to work, companies that, due to the special conditions of their business, cannot provide jobs to the entire percentage of entitled (disabled) workers, may apply for **partial exemption** from the obligation to hire on condition that they pay to the Regional Fund for the Employment of Disabled People a sum equal to Euro 30.64 for each worker not employed and for each working day not worked; the maximum percentage allowed is 60%. Hera also uses this option, which requires payments to the provincial governments by the individual Group companies if they employ fewer disabled people than required by law.

This regulation, that promotes the recruitment and integration into the working world of certain categories of people (disabled, orphans, etc.), also requires that the worker's employment placement must abide by solutions agreed among the company, the regional employment office and the worker.

At the end of 2018, there were **394 persons belonging to the categories protected by Law no. 68/1999** working in Group companies: **327** (230 Hera, 69 AcegasApsAmga and 28 Marche Multiservizi) are present pursuant to art. 3 of the law (disabled).

Persons belonging to the categories identified by Law 68/1999

qty	2016	2017	2018
Persons belonging to the categories identified by Law 68/1999	387	379	394

The data, at 31 December, apply to the following companies: The data apply to the following companies: Hera Spa, Acantho, AcegasApsAmga, Fea, Herambiente, Herambiente Servizi Industriali, Hera Servizi Energia, HERATECH, Hestambiente, Hera Comm, Hera Luce, Hera Trading, Inrete Distribuzione Energia, Marche Multiservizi, AcegasApsAmga Servizi Energetici, Uniflotte and Waste Recycling.

Development of occupation and new expertise

Hera's contribution to the development of employment

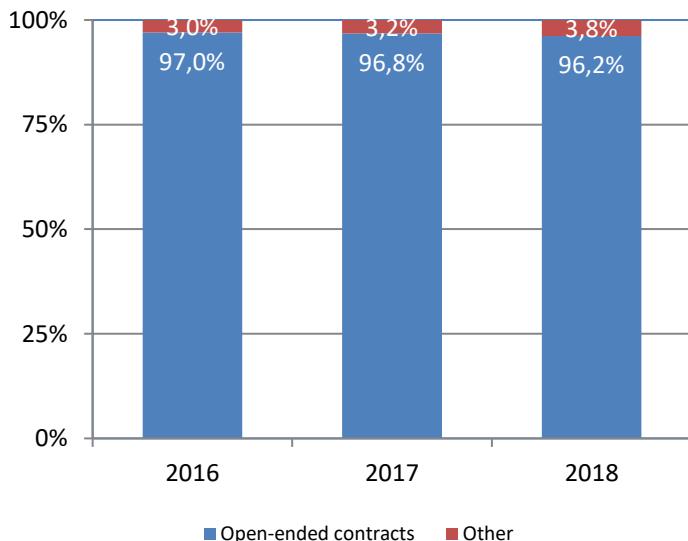
The importance that the Hera Group attributes to employment development, as highlighted in this paragraph, is not only reflected in the number of employees of the company itself, but also in indirect job creation and development of social responsibility initiatives in tenders. Adding to the Group's average number of workers the workforce employed by its suppliers, the **total employment impact is approximately 17 thousand employees**.

Employment in the Hera Group

Of the Group's average workers, **96.2%** have open-ended contracts.

The slight **decrease in the percentage** of average open-ended contract workers compared to 2017 is due to the changes in the company scope during the year (as Medea and the waste management services branch of Hera S.p.A. were sold to Alea Ambiente in Forlì) and, above all, to the effects of **compensating a large number of people retiring** and the need to replace them with temporary workers place on consolidation paths aimed mainly at occupying operational positions in operations.

Workforce figures (average)



The total average number of workers was 8,898, of which 8,562 were **open-ended** employees, 303 were **fixed-term** employees (3.4%) and 33 were **non-hired employees** (0.4%), hired with other flexibility instruments (temporary workers and staff leasing contracts). In 2018, the average number of workers with this contract was stable compared to 2017 and decreased by 21.4% compared to 2016.

We hereby reiterate the Group's will to **reduce the use of flexible contracts**, applying them only for urgent situations (seasonality, extraordinary and temporary work peaks, substitution of workers who are absent temporarily). However, the employees hired under flexible contracts are given priority for hiring under open-ended contracts.

Personnel hired during the year (by position)

Qty	2016	2017	2018
Managers	6	1	1
Middle managers	3	2	2
White-collar workers	142	161	238
Blue-collar workers	75	120	222
Open-ended contract workers	226	284	463
Fixed-term contract workers	250	236	361
Staff leasing contracts (temporary workers)	54	53	25
Job training and entrance contracts	0	0	0
Project based and freelance contract workers	1	0	0
Seasonal workers and apprentices	5	2	5
Non-open-ended contract employees	310	291	391

New employees are generally **hired from outside the company** for top-ranking professional positions (both specialised and operative), which are difficult to cover with internal personnel. Most of the clerical and operational roles are normally covered by internal personnel.

In 2018, 463 **workers were hired under open-ended contracts**. In addition, there were 221 consolidations of fixed-term workers.

Over the past three years, overall **973 open-ended contract workers were hired**, 483 of which following initial hiring within the Group under fixed-term contracts.

Women hired under open-ended contracts during the year, by position

Qty	2016	2017	2018
Managers	0	0	0
Middle managers	1	0	0
White-collar workers	64	77	111
Blue-collar workers	0	2	0
Total	65	79	111

In 2018, 111 **female workers were hired under open-ended contracts** (32 more than in 2017). The percentage of newly-hired female managers, middle managers and employees was 46% of the total number of hires.

Personnel hired with open-ended contract during the year (by age and gender)

Qty	2017			2018		
	F	M	Total	F	M	Total
under 30 years of age	40	71	111	51	97	148
between 30 and 50 years of age	38	112	150	55	220	275
over 50	1	22	23	5	35	40
Open-ended contract workers	79	205	284	111	352	463

Among the hires, 148 were for new, open-ended contract workers **under 30 years of age** (+37 compared to 2017), 275 between 30 and 50 years (+125 compared to 2017) and 40 over 50 years old (+17 compared to 2017).

Open-ended contract workers leaving, by reason

qty	2016	2017	2018
Resignations	78	90	143
Retirements	151	189	266
Deaths	16	14	14
Dismissals	7	8	15
Inabilities	32	23	12
Transfers to other companies/demergers	0	7	74
Total	284	331	524

There was a significant increase in 2018 in the number of **pensioners** and **resignations**, plus 74 workers who left the Group's perimeter for the reasons given above.

Workers leaving by age and gender (2018)

Qty	Men	Women	Total
under 30 years of age	13	2	15
between 30 and 50 years of age	68	24	92
over 50	368	49	417
Total	449	75	524

In 2018, 524 employment relationships ended, of which 51% were due to retirement.

Turnover rate for workers, by role

%	2016	2017	2018
Managers	5.3%	3.9%	7.1%
Middle managers	2.3%	2.6%	4.3%
White-collar workers	2.6%	3.4%	4.4%
Blue-collar workers	4.6%	4.3%	8.2%
Average	3.4%	3.7%	5.9%

Turnover rate for workers, by gender

%	2016	2017	2018
Men	3.7%	4.1%	6.8%
Women	2.3%	2.7%	3.4%
Average	3.4%	3.7%	5.9%

Turnover rate for workers, by age

%	2016	2017	2018
under 30 years of age	3.6%	2.5%	4.2%
between 31 and 50 years of age	1.1%	1.6%	2.3%
over 50	5.7%	5.9%	9.6%
Average	3.4%	3.7%	5.9%

The **turnover rate** is calculated by dividing the number of leaving employees during the year by the number of employees at the end of the year: in 2018, it was 5.9%. The category most subject to turnover is the male workforce over 50 years of age, due to the increase in retirements over the past years.

Lead-on employment

In order to globally assess Hera Group's social repercussions on Italy, however, we should also take into account the **employment at our suppliers** who supply goods, various services or support certain stages of the company process.

Lead-on employment can be estimated as the portion of the workforce of the suppliers which carries out activities on behalf of the Hera Group. In 2018, lead-on employment generated an estimated **8,120 jobs** of which over 2,836 in Emilia, 1,956 Romagna, 1,004 in Triveneto, 548 in Marche and 1,776 in other areas.

This figure was obtained by analysing the financial statements of the Group's leading suppliers which cover 80% of the volume purchased in 2018. In order to estimate the lead-on employment generated, the **ratio between the value commissioned by Hera and the total sales turnover of the supplier** was considered; this percentage was multiplied by the number of total employees declared in the suppliers' financial statements.

The further actions for social responsibility in tenders

Hera Group's employment impact is also due to concrete actions of **social responsibility in tenders**, which the Group continued to implement in 2018, so as to effectively implement social responsibility in tenders on a consistent basis with the standards expressed in the Group's Code of Ethics and with the matters required by the SA 8000-compliant management system on attention towards the work conditions in the supply chain.

As for 2017, again in 2018 we applied the **Memorandum of Understanding regarding tenders**, entered into on 26 October 2016, by the Hera Group and the National Trade Union Organizations. In addition to specifying the sectorial National Collective Labour Agreement to apply to the main business sectors, the Procurement Protocol also governs aspects related to **employment continuity**, requiring application of the **social clause**, of "voluntary" application (i.e. when not directly due to the specific NCLA), in particular in the area of regulated and labour-intensive sectors, in labour contracts and services relating to activities after first intervention on networks and services related to the management of the relationship with the final customer (meter reading and auxiliary metering activities), for new contracts for services that have been already outsourced.

This social clause requires the new contractor must **make a job offer that is consistent with the overall conditions in force at the time of the contract change** such as retribution, professional requirements and duration of the contract to the personnel that is employed on a permanent basis and employed directly and mainly in the activities covered by the contract in force at the operator leaving the company in the period of 90 days prior to the start of the new management. In all the other cases of takeover of tenders, a prior meeting must take place among the outgoing contractor, the new contractor and the local trade unions to assess any possible solution to safeguard employment.

The most important tenders to which the Procurement Protocol rules described above were applied were the following 23 (of which 2 for AcegasApsAmga):

Type	Description	Legal entity	Amount (Euro million)	Duration (years)	NATIONAL COLLECTIVE LABOUR AGREEMENT	Clause
Negotiated procedure	Emergency services and scheduled maintenance work	Hera S.p.A.	77	2	Construction	Voluntary social clause
Negotiated procedure	Support for emergency services and scheduled maintenance work	Inrete Distribuzione Energia S.p.A.	34.7	2	Construction	Voluntary social clause
Negotiated	Specialist mechanical	Hera Group	30.7	4	Metalworking	Social clause

Type	Description	Legal entity	Amount (Euro million)	Duration (years)	NATIONAL COLLECTIVE LABOUR AGREEMENT	Clause
procedure	maintenance on plants					
Negotiated procedure	Specialist mechanical maintenance on plants	Hera Group	17.8	4	Construction	Social clause
Negotiated procedure	Massive replacement and enrolment/affiliation on gas meters	Inrete Distribuzione Energia S.p.A.	16	2	Gas Water	Voluntary social clause
Negotiated procedure	Specialist electrical maintenance to be carried out in the plants	Hera Group	15	4	Metalworking	Social clause
Negotiated procedure	Back office services for management of complaints	Hera Group	14.2	2	National Collective Labour Agreement for the sector	Social clause
Negotiated procedure	Company canteen replacement service using the employee's company badge or on presentation of meal vouchers on paper	Hera Group	14	5	National Collective Labour Agreement for the sector	Social clause
Negotiated procedure	Rental, washing and sanitizing of clothing	Hera Group	7.1	6	National Collective Labour Agreement for the sector	Social clause
Restricted procedure	Electrical and electro-instrumental industrial maintenance on waste-to-energy plants and other waste treatment plants	Herambiente S.p.A.	7	2	Metalworking	Social clause
Negotiated procedure	Auxiliary activities on gas (methane/LPG), water (drinking water/industrial aqueduct) and heat (district heating) meters	Hera S.p.A.	6.3	3	Gas Water	Voluntary social clause
Negotiated procedure	Operating leasing of personal computers and related accessories	Hera Group	5	3	National Collective Labour Agreement for the sector	Social clause
Open procedure tender	Analysis services for laboratories	Hera Group	4.5	4	Chemical industry	Social clause
Restricted procedure	Waste recovery and mechanical/manual selection at the Granarolo dell'Emilia (BO) plant	Herambiente S.p.A.	4	2	National Collective Labour Agreement for the sector	Social clause
Negotiated procedure	Health supervision services and appointment of company physicians	Hera Group	3.6	4	National Collective Labour Agreement for the sector	Social clause
Restricted procedure	Operating activities for waste handling, screening and processing At the Rimini plant:	Herambiente S.p.A.	3	3	National Collective Labour Agreement for the sector	Social clause
Restricted procedure	Material handling activities and operation of the Ravenna landfill	Herambiente S.p.A.	2.8	2	FISE Assoambiente	Social clause
Negotiated procedure	Fleet Management service for all workstations	AcegasApsAmpa S.p.A.	2.8	3	communication, IT and innovative	Social clause

Type	Description	Legal entity	Amount (Euro million)	Duration (years)	NATIONAL COLLECTIVE LABOUR AGREEMENT	Clause
					services National Collective Labour Agreement	
Restricted procedure	Door-to-door collection service in artisan, industrial and forensic areas in the municipality of Ferrara	Hera S.p.A.	2.4	1.5	FISE Assoambiente	Social clause
Open procedure tender	Hidden water leaks detection service	Hera Group	2.1	4	National Collective Labour Agreement for the sector	Social clause
Negotiated procedure	Service for the maintenance of laboratory equipment	Hera Group	1.6	4	National Collective Labour Agreement for the sector	Social clause
Restricted procedure	Operating activities for handling, crushing, screening and processing waste at the Ozzano dell'Emilia (BO) plant	Hera S.p.A.	1.2	2	National Collective Labour Agreement for the sector	Social clause
Private tender	Washing service of vehicles and dumpsters of the company fleet of Padua	AcegasApsA magna S.p.A.	0.4	2	National Collective Labour Agreement for the sector	Social clause

It is hereby also pointed out that in the following tenders a **clause limiting the discount percentage** was also introduced, worded as follows “having taken into account the technical singularities subject to the tender and the economic analysis which underlies the price items which make up the unit price list under tender, the contracting body deems that reductions of the tender base higher than 25% may present critical elements of sustainability and reductions higher than 30% may be difficult to accept”:

- tender for emergency response and scheduled maintenance work, network redevelopment, connections and accessory services in water and sewage mains in the area served by Hera S.p.A.;
- tender for the annual services supporting emergency response and scheduled maintenance work, network extension, connections and accessory services in the gas and district heating commodity sectors in the area managed by Inrete Distribuzione Energia SpA;
- tender for the auxiliary services on gas (natural gas/LPG), water (drinking water/industrial aqueduct) and heat (district heating) meters and any other product sectors, in the Romagna area;
- tender for the massive replacement and enrolment/affiliation service on the gas meters related to the services provided by Inrete Distribuzione Energia S.p.A.;
- tender for specialist building maintenance work to be carried out at the plants operated by the Hera Group and used to provide the Integrated Water Service;
- tender for specialist mechanical maintenance work to be carried out at the plants operated by the Hera Group and used to carry out the Integrated Water Service;
- tender for specialist electrical maintenance work to be carried out at the plants operated by the Hera Group and used to carry out the Integrated Water Service;
- tender for specialist building maintenance work to be carried out at energy plants;
- tender for specialist mechanical maintenance work to be carried out at energy plants.

In 2018 we maintained, in the standard specifications for the work and services categories used in the tender procedures, both the **clause that requires requesting authorization to use temporary manpower**,

and the clause that **prohibits using accessory work services** (so-called vouchers) under contracts for works or services.

Lastly, it should be noted that in 2018 a new **Operating Instruction** was issued **regarding the verification of tax payment regularity**. As part of its corporate social responsibility, the Hera Group attributes a value to the automated and centralised method used for **verification of tax payment regularity** that, in addition to ensuring the application of the regulations, identifies and implements a checking and auditing process that responsibly involves the company's entire supply chain involved in the management of supplies, so as to make this control even more systematic and widespread.

Development of new skills in the Hera Group

Since 2018, the Hera Group has offered various training activities to its employees in order to support their development towards new skills and to embrace the digital transformation.

The main **initiatives already launched or under way** on new skills and on skills undergoing "transformation" include the following:

- communication and training initiatives in the field of **change management** and, in particular, on agility and flexibility in the implementation/extension of Smart Working;
- **hER@futura** programme on competences in the digital transformation field, with differentiated targets;
- specific training initiatives on skills in **Data Analytics** and in **modelling and predictive analysis**, in particular with application training for the resources of the Community Data Analytics;
- in-depth studies on the **Smart City** topic, such as participation in external training and discussion initiatives, in particular by resources within the Central Innovation and Development Department;
- training the **circular economy**, such as participation in various initiatives (including the workshop "The plastics sector between discontinuity and opportunity" and those related to the presence of Hera in the CE100 network of the Ellen MacArthur Foundation);
- transversal training initiatives to strengthen **influencing and negotiation** skills, in particular for managers (leadership model, speeches on advanced management negotiation techniques);
- vertical training initiatives on advanced skills in the field of **cybersecurity** for resources in on quality, safety and the environment and in the field of information technology;
- training on **new corporate applications** (for example: Geocall, Salesforce, Oracle).

Further initiatives are planned for **2019** such as for example:

- consolidation of initiatives in the field of digital transformation and Data Analytics;
- change management initiatives (communication and training) on planning and collaboration within the implementation/extension of Smart Working;
- change management program related to the Digital Workplace – Office 365 project;
- specific initiatives to strengthen skills in the field of project management.

Development of digital skills

One of the initiatives launched in the field of new digital skills is **HER@futura**, which aims to develop a digital-friendly culture and widespread know-how on these issues, while strengthening the vertical and cross-functional skills of Group employees. The **first phase** involved creating a survey, based on an online gaming path and aimed at exploring the Group's propensity for Digital, Data Analytics, Smart Working and ICT topics. The **second phase**, which started in April 2018, included a training and application programme differentiated by channel, target and content, aimed at strengthening basic skills and managerial approach of our staff, and increasing the speed and effectiveness of corporate projects in those areas. In this regard, 9 **bite-sized training units** were released on issues related to the digital world, which were associated with

video tutorials to provide more in-depth analysis of trends and digital tools, a digital skills development course customized on the basis of the outcome of the digital profile found during the survey phase.

In addition, the **Digital & Analytics for Managers project** was implemented with the development of a special ad hoc platform, two “digital lab” **action learning projects** aimed at developing innovative ideas in digital innovation were implemented and an **envisioning initiative** for management was implemented.

Sustainability among the “new skills” of young people: Hera Group’s contribution

Environmental education

For years the Hera Group has been promoting many **environmental education** projects, in all the areas, in order to raise awareness in schools on issues related to services and to take part in the disclosure processes, making available a variety of company skills.

The “**La Grande Macchina del Mondo**” (“The Great Engine of the World”) project closed the 2017-2018 school year with results that attest to a significant success, confirming how the school world, from kindergartens to secondary schools, is in the free educational programme that Hera offers throughout the area it serves.

The results of the latest school year were very positive both for the number of students admitted and for the requests met. In **Emilia-Romagna**, the part of the project dedicated to the groups from 4 to 13 years of age has seen an ever-increasing participation. The new laboratories have been very popular and the new features introduced, both at a methodological and narrative level, have met with the approval of the teachers. Particular attention was paid to the schools of Ferrara, a city in which quantity-based tariff (TCP) was introduced, to ensure that students were aware of the subject and that they spread their knowledge and awareness among their families.

The didactic part reserved for **high schools** involved more than 21,000 students, about 1,000 more than the previous school year, proving that the topics proposed continue to be of great interest and highly innovative for schools.

For the 2018-2019 school year, the projects will focus mainly on the “**ecological mind**” topic, especially with reference to the environmental issues of our core business: scarcity of resources, biodiversity and the reduction of polluting sources, with a view to integrate the different disciplines for a more circular and sustainable model of society.

Environmental education projects

Qty	2016	2017	2018
Participating students	96,034	99,482	106,547
Teachers involved	7,700	8,169	8,821
Schools involved	1,243	1,213	1,278

In 2018, the total number of **students participating** in the initiatives rose further (+7.1% compared to 2017), as did the number of **teachers involved** (+7.9% compared to 2017) and the number of **schools involved** (+5.4% compared to 2017).

In line with Hera Group’s guidelines, the intense activity of free educational proposals to schools continued throughout the territory served by **AcegasApsAmga** under the “The Great Engine of the World” and “*Un pozzo di scienza*” (“Science Well”) programmes. The number of schools involved has slightly decreased (251 compared to 280 in 2017), but with an increase in the number of students (+1.9% compared to 2017) and schools involved (+4.6% compared to 2017). AcegasApsAmga continues to pursue with conviction its

commitment to environmental education for children, also offering access to major water and waste treatment facilities. The main objective is to encourage young people to cultivate a responsible attitude towards the environment and the rational use of resources.

In the case of **Marche Multiservizi**, 11 schools, 40 teachers and 1,030 students were involved, a significant increase compared to the previous year (+74.9%). Marche Multiservizi promotes environmental education projects throughout its area, in order to raise awareness in the school world on issues related to services and act upon information processes, also by providing business expertise. This year, the main activities focused on organising the Festival of Reuse and Recycling, the goal of which is to continue to raise awareness among citizens, especially young people, on the importance of reducing the consumption of raw materials and the production of waste by reusing goods and materials. The event, accredited by the European Community and the Ministry of the Environment, is part of the initiatives of the National Festival of Sustainable Development 2018, one of the main Italian contributions to the "European Week of Sustainable Development", during which events were held (exhibitions/shows/book presentations/demonstrations local promotion) to draw attention to the 17 objectives of sustainable development of Agenda 2030. The event was held at the Reuse area in Marche Multiservizi, from 28 May to 1 June 2018, and was attended by about 800 students from secondary and high schools. The students of the Genga-Bramante Institute in Pesaro also provided their support. Marche Multiservizi provided its support with training activities, distributing information material and organizing plant visits.

The collaboration with the Gulliver non-profit organisation has continued to prepare the Festival 2019. An interesting environmental education project was presented (launched in 2019) supported by Coop. IDEA that created the Museum of the Recyclosaurs. Lastly, training sessions on the topic of water were held for the inaugurations of the Water Houses at Montelabbate and Pesaro. Before the ribbon was cut, children met in classrooms to learn about the water cycle, from collection to its return to the environment.

Air and soil protection

Atmospheric emissions of waste-to-energy plants

All Hera Group waste-to-energy plants are equipped with fume purification and process and emission control systems, designed and built so as to attain:

- high fume purification performance in all process conditions;
- high operational versatility;
- high reliability of emission control systems.

In order to meet these goals, the new plants and those that have been renovated (Modena, Bologna, Ferrara, Forlì, and Rimini) are equipped with the following systems:

- double reaction and filtration system to lower the concentrations of particulate, hydrochloric acid, hydrofluoric acid, sulphur dioxide, heavy metals, dioxins and furans and aromatic polycyclic hydrocarbons (the Modena plant has a bag filter and an electrostatic precipitator);
- double reaction system (catalytic and non-catalytic) to reduce concentrations of nitrogen oxides;
- double fume monitoring system for process control: the two systems measure the concentrations of the main pollutants from the oven and downstream of the first reaction and filtration phase, on the basis of which a calculation is made of the volume of reactants required to ensure purification levels that ensure compliance with statutory emission thresholds and which are, on average, 80-90% below these;
- continuous double monitoring system for chimney emissions: one as a reserve for the other in order to ensure the continuity of the analysis of concentrations in atmospheric emissions.

The possibility of using double purification and monitoring systems in series (in parallel as regards chimney monitoring) allows the above objectives to be successfully pursued.

This paragraph also contains data on the Faenza biomass plant (operated by Enomondo, 50% owned by Herambiente and not consolidated using the line-by-line method), equipped with a double reaction system (catalytic and non-catalytic) to reduce concentrations of nitrogen oxides.

The Padua, Pozzilli and Trieste plants have a single reaction and filtration system to lower the concentrations of particulate, hydrochloric acid, hydrofluoric acid, sulphur dioxide, heavy metals, dioxins and furans and aromatic polycyclic hydrocarbons, a single reaction system for reducing nitric oxide concentrations (double for Padua) and a single fume monitoring system.

In addition to the aforementioned activities, the following operations are carried out on an annual basis to monitor emissions and environmental impact:

- timely controls of the chimneys, at a frequency set by the Integrated Environmental Authorization, for the parameters which cannot be continuously monitored, using certified inspectors;
- checks on soil fallout of pollutants: through external monitoring programmes in collaboration with University and research agencies, deposition analyses are performed on soil, ground and vegetation, etc., in order to ascertain that the emissions, in addition to being within the regulatory limits, do not have any significant impact on the surrounding environment.

Atmospheric emissions from waste-to-energy plants

t	2016	2017	2018
Particulates	6.4	6.2	6.2
Hydrochloric acid	15.6	17.4	16.7
Nitrogen oxides	703.7	705.3	689.9
Sulphur oxides	11.7	14.9	13.1
Carbon monoxide	72.7	83.0	82.2
Hydrofluoric acid	0.7	0.6	0.6
Total Organic Carbon	9.4	10.4	9.7
<i>Waste treated in the plants (thousands of t)</i>	1,439	1,403	1,407
<i>Net electricity generated (MWh)</i>	828,906	802,675	754,043
<i>Thermal energy produced (MWh)</i>	239,282	265,920	245,493

The data are calculated using continuous measurement systems which are subject to the approval of the supervisory bodies at the time of authorization for operation of the plant. The procedures used by individual plant systems to collect and calculate the volume of substances released are not completely standardized. Including the Enomondo waste-to-energy plant.

The mass flow analysis shows an improvement in terms of emissions of hydrochloric acid (-4% compared to 2017), nitrogen oxides (-2% compared to 2017), sulphur oxides (-12% compared to 2017), carbon monoxide (-1% compared to 2017) and total organic carbon (-7% compared to 2017). The values for particulate and fluoridic acid remain stable. Note, furthermore, that for all continuously monitored pollutants, the concentrations at the chimney, in 2018 were once again much lower than the regulatory limits: from a maximum of 97.9% below the regulatory limits for sulphur oxides to a minimum of 63.3% for nitrogen oxides.

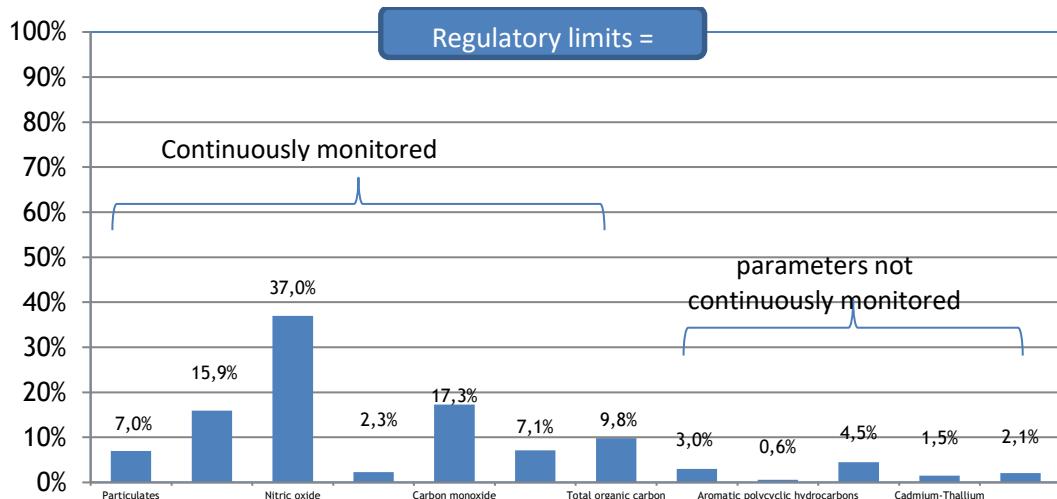
Concerning pollutants not continuously monitored, total emissions can be estimated on the basis of the results of the analyses performed during the year. In 2018, 120 kg of metals were emitted (154 in 2017), along with 0.56 kg of aromatic polycyclic hydrocarbons (0.55 in 2017) and 22.7 mg of dioxins (40.9 in 2017). All values are at least 95% below regulations.

The results of the emission measurements at Hera Group's waste-to-energy plants confirm that, since they are equipped with the best technologies available and run in the most efficient manner possible, these plants emit levels of particulate, dioxins and furans, aromatic polycyclic hydrocarbons and metals that are

far below the emission limits. Compared with the other parameters, subject to continuous monitoring, at plants equipped with the double reaction sulphur oxide reduction system (Bologna, Ferrara, Forlì, Modena, and Rimini) the **concentrations** were not only **well below** the regulatory limits, but **also below the limits set by local authorities**, which are much more stringent than national regulations.

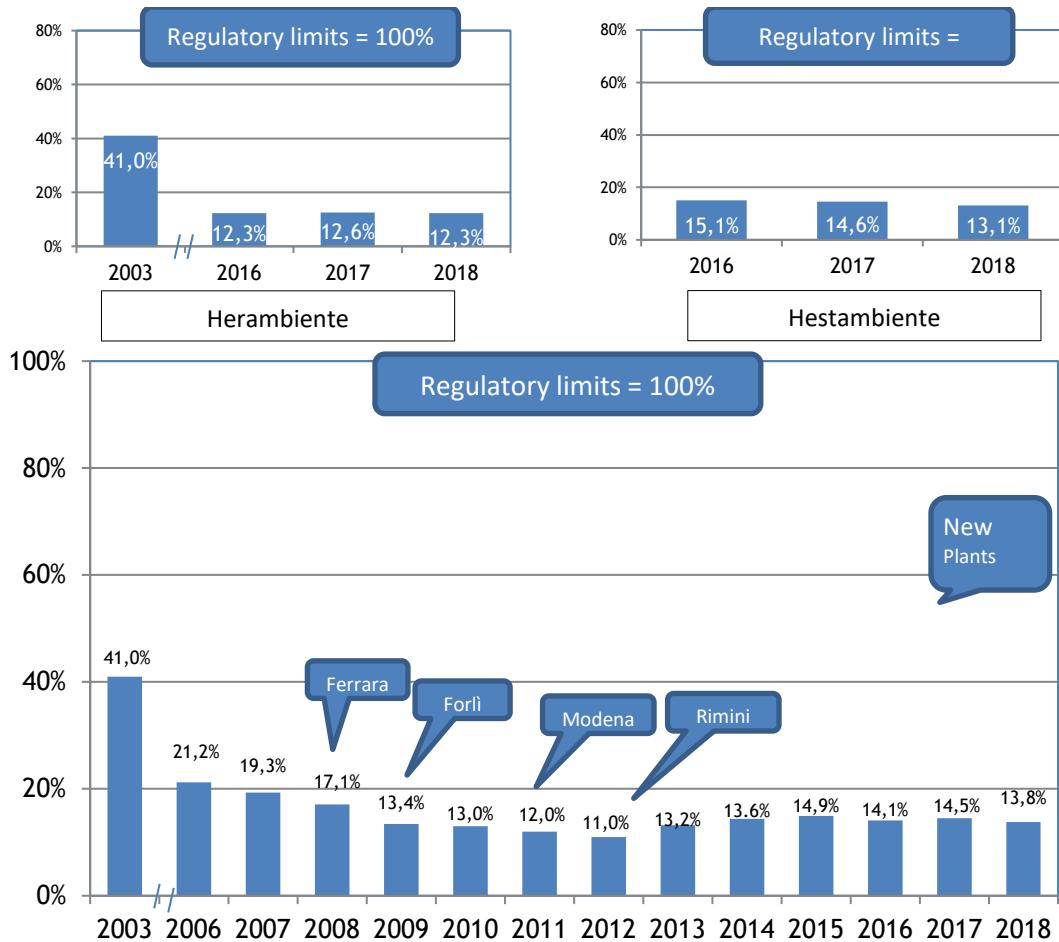
Legislative Decree 133/2005 requires continuous monitoring of flue emissions for seven parameters. In addition, in the Ferrara, Forlì, Modena and Rimini plants, mercury is also continuously monitored.

Compliance of waste-to-energy plant atmospheric emissions with regulatory limits pursuant to Legislative Decree 133/2005 - (optimal values <100%), 2018



Including the Enomondo waste-to-energy plant.

Compliance of waste-to-energy plant atmospheric emissions with regulations pursuant to Legislative Decree 133/2005- continuously monitored parameters (optimal values<100%), weighted average on the volumes of waste treated in the plants

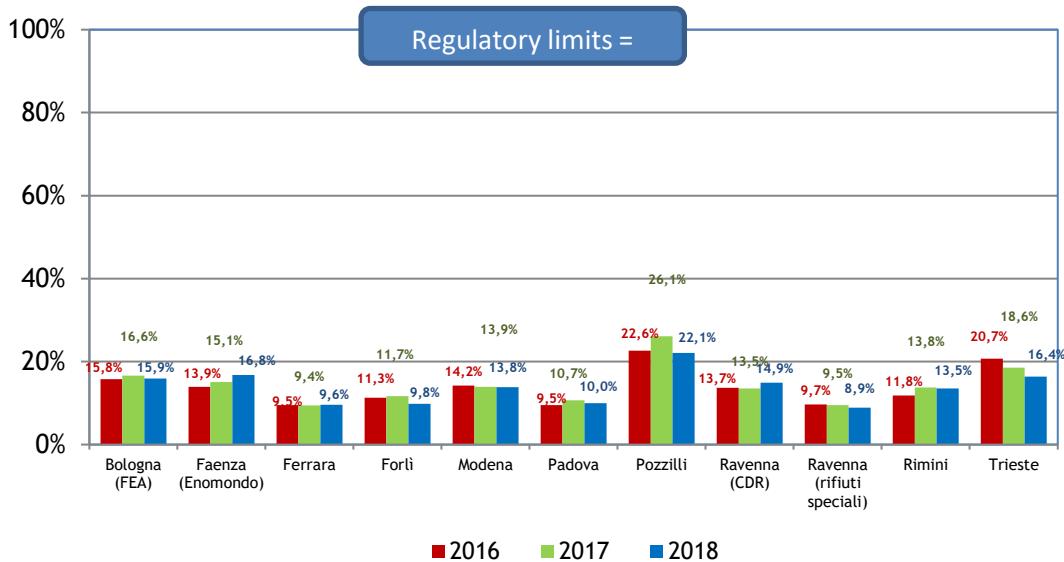


The **plant renovation process** has resulted in a significant improvement in the abatement percentages of pollutant emissions:

- in January 2008, two new lines of the Ferrara waste-to-energy plant became fully operational;
- the new Forlì plant became fully operational at the beginning of 2009;
- in April 2010, the new line 4 of the Modena waste-to-energy plant became operational;
- in October 2010, the new line 4 of the Rimini waste-to-energy plant became operational;

In 2018, the average concentrations of the **atmospheric emissions of the waste-to-energy plants were 13.8% of the regulatory limit**. This means that in 2018, emissions were 86.2% below the limit, while in 2003 the percentage stood at 59%. The levels of parameters that do not require continuous monitoring (total metals, polycyclic aromatic hydrocarbons, dioxins and furans, cadmium and thallium, mercury) are also below legal limits: from -95% to -99%.

Compliance of waste-to-energy plant atmospheric emissions with regulations pursuant to Legislative Decree 133/2005 - continuously monitored parameters (optimal values <100%), detail by plant



Atmospheric emissions from waste-to-energy treatment plants compared to authorized limits – continuously monitored parameters (optimal values <100%)

%	2016	2017	2018
Bologna (FEA) waste-to-energy plant	27.1%	28.3%	26.7%
Ferrara waste-to-energy plant	10.7%	10.2%	10.8%
Forlì waste-to-energy plant	21.3%	22.2%	23.8%
Modena waste-to-energy plant	17.4%	16.7%	17.7%
Ravenna waste-to-energy plant (special waste)	11.6%	11.4%	13.4%
Faenza (Enomondo) waste-to-energy plant	16.9%	20.7%	20.3%
Average	17.5%	18.2%	18.8%

The Integrated Environmental Authorisations for the plants in Ferrara, Forlì, Modena and Faenza also require continuous mercury monitoring.

The same indicator was calculated for the six plants with authorized limits that are more stringent than the Italian regulations for 2018 (for the eight continuously-monitored parameters on average the limits set by the authorizations are 73% of the limits set by Legislative Decree 133/2005). The data are shown in the table above. The results are excellent also in this case: the concentrations are, on average, 81.2% below the most restrictive limits. Note that since the limits set by the individual authorizations depend on the specific plant, they are not comparable.

Electricity generated in relation to waste disposed of

kWh/t	before revamping	2017	2018	2018 delta (before revamping)
Ferrara waste-to-energy plant	251	395	438	75%
Forlì waste-to-energy plant	295	513	574	95%
Modena waste-to-energy plant	282	588	545	93%
Rimini waste-to-energy plant	351	468	447	27%
Weighted average on volumes of waste treated	290	503	504	74%

The performance of some plants is expressed here as the ratio between electricity generated and waste disposed of, highlighting the improvement resulting from their revamping. After revamping the waste-to-energy plants, electricity generation performance improved by 74%.

District heating: an answer to protect air quality

District heating is a service involving the sale of heat for customer home heating and domestic hot water. It is an alternative system to traditional autonomous or condominium-based boilers which makes it possible to concentrate the production of heat in central installations, which are more efficient and better controlled than home boilers. From these installations, the heat, in the form of hot water, is brought to customer homes through a distribution network made of insulated piping. The heat then fuels the domestic heating system via non-polluting heat exchangers.

Customers have the advantage of increased safety and lower running and maintenance costs, while maintaining the freedom to independently adjust the temperature of their homes.

District heating provides a solution to air pollution problems in cities by replacing home boilers, which are sometimes fuelled by gas-oil or fuel oil, with high-efficiency heat production methods that use renewable energy, or energy recovered from other production processes.

By continuing to replace fossil fuels with renewable energy or recovered energy, significant energy-environmental improvements have been achieved in the Group's district heating plants.

During 2018, some new factors arose:

- the connection of the TLR Forlì Centro network was completed, extended with the connection of new institutional customers, to the TLR Forlì Campus network, served by the same trigeneration plant, which assumes the role of main heat production pole of the entire network now called Forlì Centro - Campus;
- in the last few months of 2018, Hera S.p.A. was awarded the GEO concession as a temporary joint venture with Enel Green Power for the direct management of geothermal wells, which will be consolidated in 2019;
- some minor systems with production from traditional boiler sources have been sold. The systems sold are Ravenna Centre and Ravenna Lama South and Cesena Islands. The plants have been sold to their original owners.

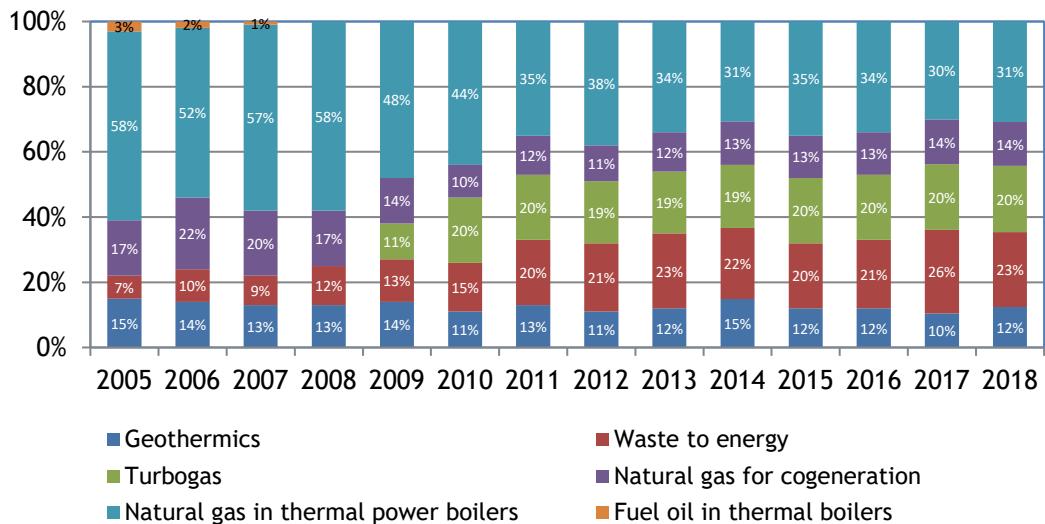
Environmental advantages of district heating

	2016	2017	2018
Primary energy saved (toe)	33,776	37,450	36,495
Nitrogen oxides avoided (t)	296.4	300.9	265
Carbon dioxide avoided (t)	129,153	125,684	121,022
Sulphur oxides avoided (t)	278.2	295.6	268

Calculated as the difference between a traditional system (existing boiler park comprising 65% natural gas-powered boilers and 35% diesel boilers with an average seasonal yield of 75% (Source: Comitato Termotecnico Italiano, 2009), and the national electricity grid) and Hera's district heating systems for the quantities of energy (thermal and electric) produced by Hera. Excluding AcegasApsAmga. The emissions factors of the national electricity and thermal grid were updated in 2016.

In 2018 the plants managed by Hera saved primary energy of 36,495 toe, slightly down compared to 2017 by 954 toe (2.5% less).

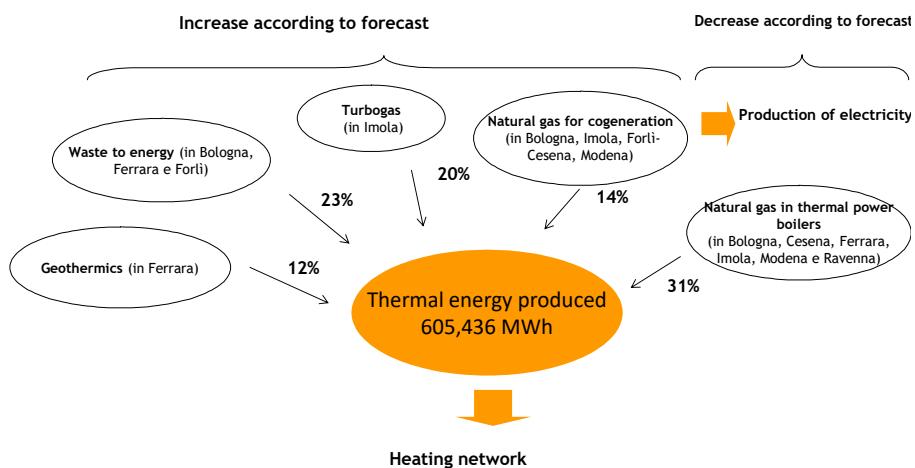
Sources used for district heating (2005-2018)



Excluding AcegasApsAmga.

As for the sources used for district heating, the percentage of **thermal energy** produced with gas boilers has gone down from 58% in 2005 to 31% in 2018. On the other hand, the production of **thermal energy from cogeneration** decreased slightly compared to that produced by boilers because, as mentioned above, in 2018 the combination of lower hourly value of electricity and the cost of gas made cogeneration operate for a smaller number of hours and therefore it provided less thermal energy.

Sources used for district heating (2018)



Excluding AcegasApsAmga.

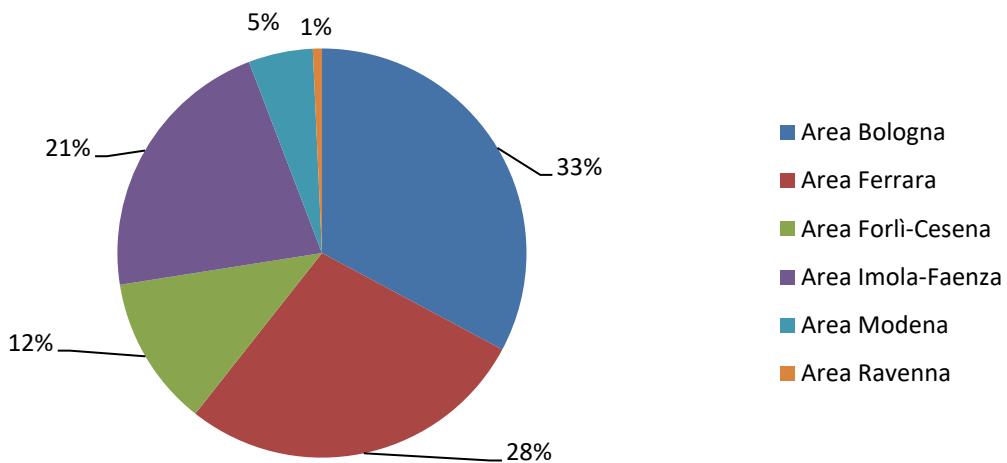
District heating: energy sold and volume served

	2016	2017	2018
Thermal energy sold (MWh)	487,896	499,144	500,916
Volumes served (thousands of m ³)	20,396	20,935	21,174
Housing unit equivalents served (no.)	84,987	87,231	88,225

The housing unit equivalents were calculated on the basis of an average apartment volume of 240 m³. Excluding AcegasApsAmga.

The volume served increased by 1.1% compared to 2017 due to commercial development initiatives. Thermal energy is substantially stable compared to 2017, and is affected, in addition to the seasonality, by the fact that some systems present in 2017 were sold in 2018.

Housing unit equivalents served per area (2018)



Excluding AcegasApsAmga.

Cogeneration for district heating

The term cogeneration identifies the combined production of electricity and thermal energy from a single source (whether fossil fuel or renewable) implemented in a single integrated system. This is done in specially-designed thermoelectric power plants, which recover heat from the flue gas produced by an engine powered by any fuel: thus, obtaining a significant energy savings (about 40%) compared to separate electricity and thermal energy production.

Thanks to their connection with district heating networks, Hera Group's cogeneration plants help improve the air quality of the towns where they are located: thanks to them many boilers have been replaced with modern, efficient systems to heat and supply hot water to buildings. With district heating, systems are monitored continuously, both in terms of combustion processes and atmospheric emissions.

Hera S.p.A. – District Heating Department operates 10 cogeneration plants, of which 3 are trigeneration plants, for an overall nominal electric capacity of 27.15 MW which in 2018 produced 201,138 MWh of thermal energy for district heating in all our service areas.

Atmospheric emissions generated by district heating

In 2018, the district heating plants produced a total of 679.8 GWh of electricity and thermal energy, down 1.1% compared to 2017. Retention of maintenance activities carried out on our plants, the objective of optimising production and network management and the integrated management of the source portfolio allowed savings of 36,495 toe in 2018, slightly down by 954 toe (equal to 2.5% less) compared to 2017.

Despite this slight decrease in one of the major systems such as Bologna, for example, a saving of 14% in terms of nitrogen oxides and 7% of tonnes of CO₂ emitted was achieved compared to 2017, as the renewable source WTE was used more than traditional boilers.

Atmospheric emissions generated by district heating

t	2016	2017	2018
Nitrogen oxides	114.2	123.0	119.2

The data refer to the thermoelectric and cogeneration power stations that provide district heating (source of emission factors for NO_x: Corinair 2004 for boilers and data from manufacturers for cogenerators). Data does not include Imola's power plant, detailed below.

Atmospheric emissions generated by district heating (2018)

t	Nitrogen Oxides
Bologna	56.2
Ferrara	7.6
Forlì-Cesena	30.8
Imola-Faenza	2.6
Modena	21.2
Ravenna	0.8
Total	119.2

The data refer to the thermoelectric and cogeneration power stations that provide district heating (source of emission factors for NO_x: Corinair 2004 for boilers and data from manufacturers for cogenerators). Data does not include Imola's power plant, detailed below.

Emissions of the Imola cogeneration plant

Again in 2018, the **absolute specific emissions** of the Imola cogeneration plant remained at extremely low levels: The environmental authorization for the Imola plant requires pollutant limits 75%/80% lower than national regulations for the pollutants most present in the flue gases (NO_x and CO).

In 2018, the Imola Cogeneration Plant, with its 80 MW of electrical and 65 MW of thermal power, produced 122,628 MWh of thermal power and 233,974 MWh of electricity.

238,647 m³ of industrial water were consumed, of which 162,238 m³ were used to replenish the cooling tower, in compliance with the 210,000 m³ authorized by the EIA for that year.

Atmospheric emissions from the Imola cogeneration plant

mg/Nm ³	National limit	Authorized limit	2016	2017	2018
Nitric oxide	60	15	8.2	9.3	10.0
Carbon monoxide	50	10	1.2	1.0	2.2
Ammonia slip	not required	2.5	0.35	0.40	0.45
Total particulate matter	not required	5	0.01	0.01	0.01
PM ₁₀	not required	1	<0.04	<0.04	<0.04

The authorized emission limits are those set by the environmental compatibility decree issued by the Ministry of the Environment, Land and Sea DEC/DAS/2006/00142 of 15 February 2006 (only NO_x, CO and NH₃) and the Integrated Environmental Authorization of the province of Bologna of 11 April 2007, reference no. 124043, as amended. The values are the average continuously-measured values (for PM₁₀ the values are the average of the 8 analyses carried out). The limits reflect the hourly average (except for PM₁₀).

The Imola plant, used for district heating, stands out not only for its excellent performance in terms of energy production but also from an environmental perspective since its low atmospheric emissions were achieved while also saving a significant amount of energy. The trend in average monthly concentrations of some pollutants (e.g. carbon monoxide) shows a slight increase compared to previous years, due to some combustion problems on the gas turbines. However, these concentrations remain far below the authorized limits, which are already considerably lower than the limits set by national rules.

In 2018, following the outcome of the Energy Audit carried out on the plant, energy efficiency actions continued, achieving an overall consumption reduction of 978 toe.

In addition, action was also taken at the Imola cogeneration plant to reduce water consumption. In fact, a tank was built to recover waste water from the recovery boilers to be reused in the evaporative cooling towers, thus reducing the volume of water needed for replenishment, saving 40,551 m³ overall. However, this operation caused an increase in the water used to cool the recovery boilers themselves (+27,657 m³ compared to 2017), which contain water at very high temperatures. The overall reduction in water consumption was therefore 12,894 m³ (-5% compared to 2017).

The corporate vehicle fleet and mobility management

Fleet (no. of vehicles)

Qty	2016	2017	2018
Diesel	2,821	2,785	2,796
Petrol	429	376	326
Natural gas	501	503	496
LPG	336	373	404
Electric powered	25	19	22
Total with lower environmental impact	862	895	922
Total	4,112	4,056	4,044

Non-circulating vehicles being disposed of were not included.

The strategy of streamlining the use of the vehicles continued, beginning with the purchase of technologically advanced **vehicles powered by fuels with reduced environmental impact** to replace obsolete vehicles.

The Group owns 4,044 vehicles, of which 496 are methane powered, 404 are powered by LPG and 22 are electric, amounting to 22.8% of the total. In 2018, 347 vehicles were **sold and/or scrapped**, while 238 vehicles were **registered**, of which 178 diesel vehicles, 12 petrol vehicles, 26 methane vehicles, 18 LPG vehicles and 4 electric vehicles.

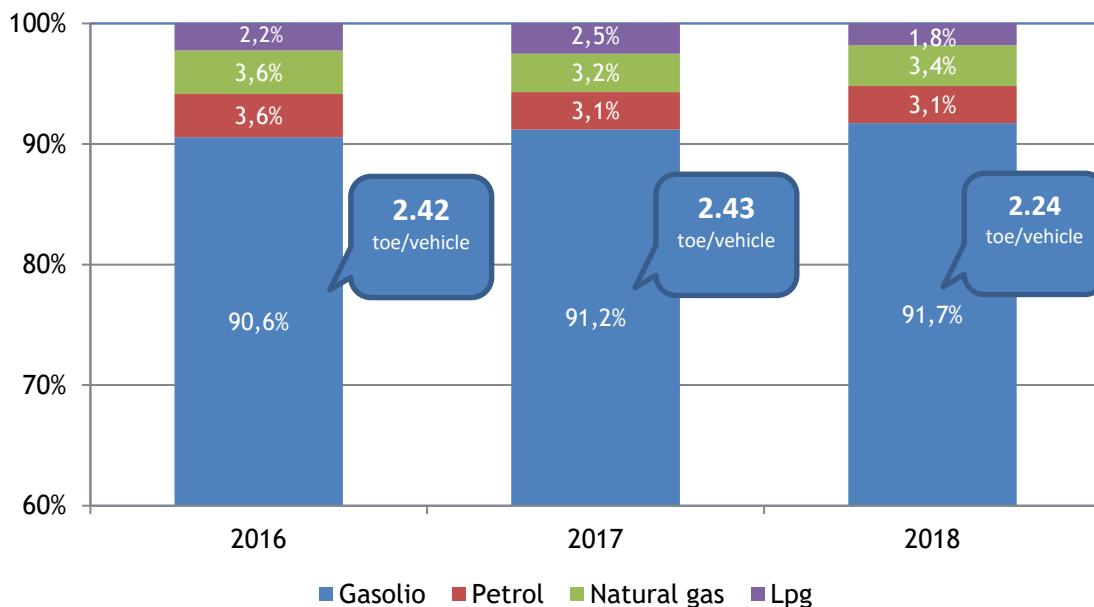
Currently, **excluding AcegasApsAmga and Marche Multiservizi**, the Hera Group has 2,715 vehicles, of which 419 are natural gas powered, 402 are powered by LPG and 9 are electric, amounting to 31% of the total. In 2018, 165 vehicles were sold and/or scrapped, while 143 vehicles were registered, of which 21 used natural gas, 18 used LPG and 1 was electric, amounting to 28% of the total quantity of vehicles purchased. Currently, excluding AcegasApsAmga and Marche Multiservizi, the Hera Group uses 2 methane powered automatic waste compactors out of an overall total of 160.

The Group's commitment to reducing the environmental impact of its fleet was further consolidated by the release, in 2013, of operating guidelines that prioritize vehicles with lower environmental impact (methane, LPG) when purchasing light commercial vehicles. Prepared in accordance with the principles set by EU legislation, the aim of the guidelines is to reduce environmental impact by identifying more environmentally-friendly fuels and paying close attention to the different local contexts in which the vehicles have to be used. The benefits of the entry into force of the operating instruction are shown in the

above table. At Hera Group level, in fact, the number of **light vehicles powered by low environmental impact fuel** increased further in 2018: by 3% over 2017.

Also, in order to reduce consumption and improve safety on the **waste collection vehicles**, in 2013 Hera added the **Drive System Tool** (DST) device. Fully operational since 2015 on all vehicles, the device uses a measurement box to record the driving style of the drivers of side-loading waste collection compactors. This measurement allowed consumption to settle at around 1.65 km/l (2018), generating a reduction of 276 toe between 2017 and 2018. The drop in fuel consumption also reduced environmental impact, given the lower amount of CO₂ released into the atmosphere.

Fuel consumed by vehicles



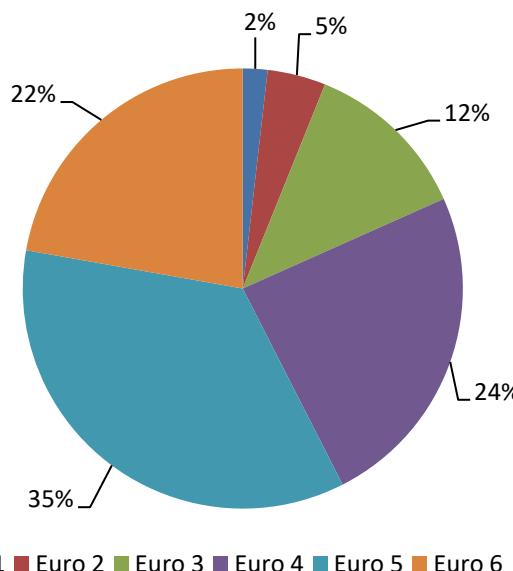
A comparison between the several types of fuel was made considering the primary energy present in the single fuels.

The consumption of fuel consumed by the vehicles remains stable. Diesel consumption is in line with 2017, while gasoline and LPG consumption are up, by 2.6% and 2.1% respectively. Methane consumption decreased by 3.5%. Overall, the consumption of fuels with a reduced environmental impact decreased by 1%, mainly due to the reduction in kilometers traveled.

Fuel consumed by vehicles (toe)

	2016	2017	2018
Diesel	9,022	8,977	9,025
Petrol	358	305	313
Natural gas	360	312	301
LPG	224	245	250
Total	9,964	9,839	9,889
<i>Consumption per vehicle (toe/vehicle)</i>	2.42	2.43	2.45

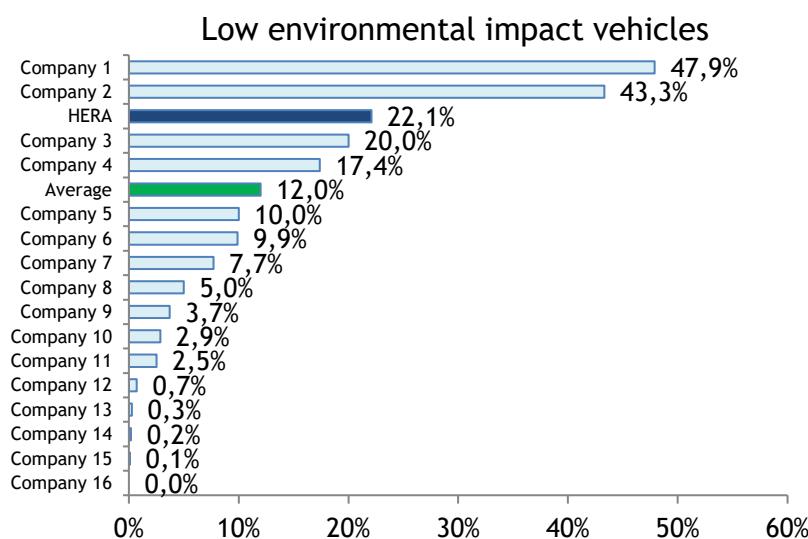
Breakdown of vehicles for anti-pollution directive (2018)



The **average age** of the Group's fleet in 2018 is 7.9 years. For Hera SpA, instead, it is 7.18 years, slightly down compared to 2017 and continues to decrease compared to 2013, when it was 8 years. These results are the fruit of the company's investments to renew its vehicle fleet.

Low environmental impact vehicles in the leading Italian utilities

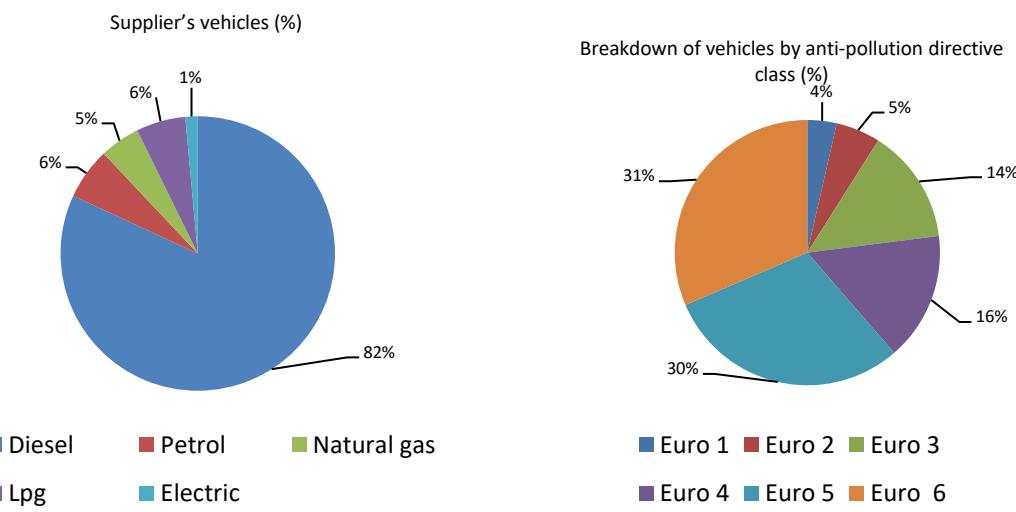
According to a comparative analysis carried out by Utilitatis among the leading Italian utilities, Hera ranks third among the 17 Italian utilities considered, as to percentage of low environmental impact vehicles. In 2018 Utilitalia published its first sustainability report that summarizes the environmental performance of 127 Italian utility companies: the Hera's result (22.1%) for the 2017 is 84% higher than the average of the utilities considered (12.0%).



Source: Utilitatis, 2018 Sustainability Benchmarking; Utilitalia – 2017 Sustainability Report

Hera's commitment to sustainability and energy efficiency also affects the **supply chain** and in particular the criteria used to choose suppliers. Given the high environmental impact of waste management, especially in terms of atmospheric emissions, the Group has decided to reward the best-performing suppliers in this field, favouring those who use low environmental impact vehicles.

In 2018, excluding Marche Multiservizi, waste management service providers used approximately 2,400 vehicles for waste collection. Of these, 12% has low environmental impact (6% use LPG, 5% use methane and 1% is electric) and over 60% is classified Euro 5/6. In 2018, the number of vehicles in the Euro 6 emissions stage increased by 215; these vehicles partly replaced vehicles with greater environmental impact and partly were additional compared to 2017. There was also an increase in light vehicles (+296 units) at the expense of heavy vehicles (-95 units) due to the increase in home collection services provided by suppliers.



Excluding Marche Multiservizi

Mobility management

In 2018, actions continued to reduce the environmental impact of Group employee **commutes**. These included the continuation of the **shuttle bus service** in Bologna that connects Stazione Centrale (Central Station) with the offices in Viale Berti Pichat, Via del Frullo/Via Cristina Campo and the Imola Station to the offices in Via Molino Rosso e Via Casalegno.

Furthermore, to encourage sustainable transport, Hera has joined the **Bella Mossa** initiative, organized by the Municipality of Bologna, which aims to promote sustainable ways for workers to go to their workplaces, by rewarding those who travel on foot, by bike, by bus, by train or by car sharing and car pooling.

In 2018, over 200 staff members took advantage of special discounts on annual **public transport** passes: 50% for the services provided by T-per (urban public transport company in the Bologna and Ferrara area) and 45% for those run by Trenitalia.

During the year, the Group participated in the **PUMS** (Urban Sustainable Transport Plan) programmes of some cities in Emilia Romagna. These plans contribute significantly to achieving the climate and energy objectives set by the EU Member States, aimed at reducing greenhouse gas emissions by 40% by 2030.

Lastly, the new Bologna office in Viale Berti Pichat has been equipped with about 100 new covered bicycle stalls, thus continuing our commitment to facilitate the adoption of sustainable means of transport.

Hera for electric transportation

In September 2018 the Hera Group, through Hera Comm, and other operators in the sector, signed a memorandum of understanding with the Emilia-Romagna Regional Government to expand the public regional network for recharging electric vehicles. The operators have jointly committed to increasing the number of charging stations to 1,500 by 2020.

This agreement updates the previous memorandum of understanding of 2011 in the light of the regulatory changes that have occurred in the meantime, which have opened up the management of the charging service to parties outside the energy world. With this in mind, the Hera Group has decided to handle all its electric mobility activities through the Hera Comm sales company, which, starting in 2019, will also be responsible for managing the charging infrastructure.

In 2018, demand for the recharging service continued to grow, both in terms of use of the Group's infrastructure and growth in the number of commercial contracts. The Group's network of charging stations, currently about 50 (35 of which are public and 15 private) located in the provinces of Trieste, Gorizia, Udine, Modena and Bologna, recorded consumption of about 60,000 kWh (+12% compared to 2017). Recharging contracts, which are now 140 (+52 compared to 2017), provided a total of 11,000 recharges (+45% compared to 2017), equal to a consumption of more than 110,000 kWh and an estimated benefit for the environment of 90 t of CO₂ avoided.

Hera for land protection

Land reuse in Group projects and re-use of excavated earth

In 2018, the network and plant works we completed **used** almost 170,000 m² of **land**, 68% of which was **already occupied** by existing infrastructure. The Integrated Water Service, which recovered more than 95,000 m² of soil, is the **most significant contribution**, in relation to the number of interventions carried out in the period under review.

From the **preliminary analyses to the design** of works, the Hera Group identifies technical solutions aimed at **reusing areas** that have already been urbanized and/or preserving the natural context of the land subject to intervention, in line with the objectives of the UN's 2030 Agenda.

The following are among the main design criteria:

- in the **network area**: extensions carried out using existing roads and/or urban fabric, improvement of the network layout by upgrading or reclaiming of existing pipelines, laying of new pipelines adjacent to existing services;
- in the **plant area**: reuse of existing/occupied areas and infrastructures; disposal of infrastructure and restoration/return of the area at the end of its life cycle, use of technological solutions to reduce the overall size of the infrastructure.

During 2018 we completed many **projects** that involved a significant recovery of soil, among those in the **field of purification** are certainly noteworthy. These include the upgrade of the Cesena purification plant (20,000 m²), the construction of the head tank of the Riccione purification plant (14,000 m²) and the recovery of the via dell'Ambiente plant in Ozzano dell'Emilia (BO) (5,000 m²).

In the **2019-2022 period** we plan to reuse almost 700,000 m² of land in the design of infrastructure, or 3/4 of the total land involved in new projects.

Biodiversity

As regards the **protection and conservation of habitats and wild species**, the EU issued two regulations, Council Directive 409/79, adopted in April 1979, on the conservation of wild birds (the "Birds Directive") and Council Directive 43/92, adopted in May 1992, on the conservation of natural habitats and wild flora

and fauna ("Habitats Directive"). These directives created a consistent ecological network of protected areas in the European Union, known as **Natura 2000**.

In the province of Ferrara, the two largest water collection plants, Pontelagoscuro and Stellata, on the Po river, are located within the Special Protection Area called "**Fiume Po da Stellata a Mesola e Cavo Napoleonico**". In the province of Ravenna, the Marina di Ravenna treatment plant is located within the EU Conservation Area "**Piallassa Piombone**" and discharges the treated wastewater into the "**Piallassa Baiona**" special protection area.

At these two plants, in order to protect biodiversity, Hera Group carries out **acute toxicity tests** on the purification plants.

Case study

Spreading innovation and digitalization

Social innovation: The Heureka+ Project

Heureka+, launched at the end of 2016, is a social innovation platform in which all employees can submit their innovative proposals and also jointly develop an idea with their colleagues, contribute to ideas or vote on the proposals of others. The Heureka+ platform permits direct and immediate interaction among employees to contribute to the Group's development and innovation.

To fine-tune the focus of the proposals, the Heureka+ platform has been organised into areas or "**challenges**". During 2018, 3 challenges were launched, for which a total of 39 ideas were proposed:

- the first challenge was on **health and safety** (18 ideas);
- the second challenge was **diversity management** as a corporate ambassador of inclusive culture (5 ideas);
- the third challenge was the opportunity to offer new services to citizens in the field of **waste management services** (16 ideas).

Among the ideas received during previous editions and challenges, including those listed above, several ideas were implemented in 2018:

- **Car sharing app**: a web application similar to Blablacar for publishing or viewing car sharing opportunities between Hera locations;
- **Office 365 in the Cloud**: installation of Office 365 to manage email in the cloud;
- **Smart working**: possibility to work at a location other than the assigned one, for one day a week;
- **Heracover**: making covers for mobile phones with environmentally sustainable materials;
- **M'illumino di Led**: the improvement of outdoor lighting with the use of LED technology;
- **Circular economy** applied to a public lighting system, to measure the economic and metric circularity of public lighting systems.

In addition, the following proposals are currently being implemented:

- **Change the ending in the office**: increasing separate waste collection in Hera's offices;
- **Hera without paper jams**: competitions among Departments to reduce the quantity of prints and photocopies;
- **Fast & Sustainable**: competitions among organisational units to reduce the use of the most polluting fuel in the company fleet;
- **Be safe drive smart**: integrated systems to reduce smartphone use when driving.

Further challenges and improved functions of the Heureka+ platform will be launched during 2019.

Hera, Iren, Smat and A2A together to improve the integrated water service

On 8 April 2014 Hera, Iren and Smat signed a 5-year partnership agreement to carry out applied research to **develop joint research, innovation and training projects** in the sectors and activities connected with the integrated water service.

Three projects were developed in 2017-2018, on:

- breakage of aqueduct networks: analysis and decision support systems;
- integrated environmental modelling used to assess the impact of intense weather events to support the management of urban drainage networks;
- recovery of material from the urban wastewater purification cycle: struvite.

The latter was coordinated by Hera and was the subject of reporting in a Beacon Event of **Ecomondo 2018** organized by the European Platform on Phosphorus, an event supported by the Hera Group.

At the end of 2018 the Partnership Agreement was extended to **A2A**.

For the **2019-2020 period** we plan to develop further projects related to:

- recovery of material from the urban wastewater purification cycle, the PHA for the production of bioplastics (coordinated by Hera);
- early warning systems for monitoring the microbiological quality of drinking water (coordinated by Iren);
- control systems of the production of chlorites and chlorates in drinking water, monitoring of Legionella in the aqueduct networks (coordinated by A2A).

Besides the specific issues of each project, **sharing the diverse experiences and approaches** helps critically analyse the methods used, so as to set up a network of relationships - both within the companies and with the relevant external qualified partners - that will surely be very useful even after the end of the projects.

Forlì remote control hub

The Remote Control Centre of Forlì is the heart of Hera Group's plants and networks: this facility is unique in Italy, and controls over 5,600 plants. Among the main innovative development and evolution projects implemented in 2018:

- Cloud Upgrading, which provided better interaction between map and systems (<2 sec); significantly increased speed (updates <3 sec) and the possibility for the operating structures to autonomously "take charge" of the systems in the cloud without the need to call the Technical Call Centre Room and have the operator deal with it.
- Cameras Project, to allow internal staff to view plant sections. The project became operational in October, installing the first cameras in the plants of the Rimini wastewater drainage system.
- Satellite Vector, to allow the connection of "isolated" plants that currently could not connect (lack of GPRS coverage) or as a redundant system for critical and/or important plants. Ten systems have been installed that are shared with the Hera group's internal operating structures.
- Voice commands, to make the experience of using the device for operational activities faster and more efficient.
- 3D plants: the innovative function developed in 2017 for the Forlì and Servola (TR) treatment plants has been extended to other plants. This function provides a very realistic 3D overview of the plant with the integrated representation of all functional parameters.

Il Rifiutologo, an app for separate waste collection and more: over 300 thousand citizens use it!

Il Rifiutologo is a free app for mobile devices with several features, also available online.

As of 31 December 2018, the number of **downloads reached over 257,600 and there are almost 309,000 active users** of the application proving the usefulness of the tool.

In 2018, the Rifiutologo went online with **new and smarter features** as today the tool is able to provide citizens with the status of waste management services, geolocated for each address of residence. By **searching for waste**, in fact, users can find up-to-the-minute information on the individual local collections or the dates of door to door collections scheduled for their address, and even set up a reminder for the day and time of each collection. It is a great change for the service information that will be made available to users through the new customer site, as well as with the latest release of the app.

In addition, the “**environmental reporting**” feature is even easier to use. Residents will be able to use it to report a waste management services, sending a real time picture to Hera’s staff, and correspondingly receiving a report when the issue has been dealt with, besides customised alerts.

In 2018, 38,950 (+31% compared to 2017) reports were sent concerning emptying bins, cleaning roads and removing abandoned waste; 4,272 suggestions were sent on new types of waste to be added to the database (-25% compared to 2017).

The “**Scan barcode**” feature also popular. It helps users recognize materials by scanning the barcode printed on products and shows how to properly dispose of each package, by accessing an archive that as of 31 December 2018 includes 1,366,000 barcodes of the most widely used products. For packages made of multiple materials, the app can provide instructions on where to dispose of each component. If a code isn’t recognised, or if a type of waste is missing, citizens can report this via the Rifiutologo so that the missing information is added to the system. In 2018 there were 12,233 **reports of bar codes sent by residents** to update the database compared to 7,529 in 2017. The searches carried out by scanning barcodes increased from 282,804 in 2017 to 430,266 in 2018.

With L’Acquologo, the entire water service is smartphone-accessible

L’Acquologo (The Waterologist), released in July 2016, is a free application on the local water service for residents who live in Hera’s service area. It provides many useful features for users, from **self-meter reading** to checking **data on the quality of the water** in their municipality, and includes **alerts for water network interruptions** for ordinary maintenance work and **reporting breakage or leakage of water** on public land.

In 2018, the application was downloaded 6,392 times for a total of 31,800 accesses. Residents with Hera bills can use the Acquologo to report their actual water consumption by easily reporting their meter reading. In 2018 5,915 **readings were sent** in using this system (up 9% compared to 2017).

Hera manages the water service, providing good drinking water for its customers, that is complaint with regulatory requirements and carefully monitors the entire drinking water supply chain. To confirm this, users can use the Acquologo to consult the main quality data (average values) of the water supplied for each of the municipalities served by the multiutility, comparing them with the regulatory limits. In addition to this function, the application also shows the **savings generated by the drinking tap water** instead of bottled water. It is also possible to ask questions to experts and inquire about the local water service or the read the answers to frequently asked questions on the subject, in the “**Experts answer**” section. In 2018 there were 54,090 accesses to the Acquologo pages on quality, 8,676 views of specific qualitative data and 22 requests for further information through the “Expert answers” service.

Experimentally, in some areas, the app can also be used to report major water leaks due to breakage of pipes under the road surface. After taking a picture and adding a brief text, users can send the report directly to **Hera’s Emergency Service**. By using geolocation, the system can rapidly detect the location of the report and provide it to the service personnel who will go to the site. During 2018, 251 **reports** were made using the app (photographic reports and calls to the toll-free number).

My Hera: Hera's services accessible using an app

My Hera is the completely free application for residential customers, to enable them to **manage all their services**, as well as to access **information on the services** offered by the company. My Hera was designed to be a clear and easy tool for customers to use. Users can also customize the content by deciding which parts to focus on.

All the **functions** can be accessed from the My Hera homepage:

- pay bills online and consult the bills archive;
- perform self-meter reading;
- monitor the trend and detail of consumption;
- display the nearest drop-off points and Hera Points on the map;
- access the "Rifiutologo" and "Acquologo" apps;
- discover commercial offers and new initiatives;
- request electronic billing;
- activate direct debit payment;

My Hera is also an additional **channel to contact** the company, since customers can:

- receive contract, bill and payment assistance;
- activate the bulky waste collection service;
- submit environmental reports;
- alert emergency services operators if a network problem occurs.

Since its inception, many changes have been made to improve and increase the functionality it offers. During 2018, the main changes were:

- **Addition of new contact channels:** My Hera customers can now leave their phone number to be contacted by one of our call centre operators, to request the reservation of a ticket to visit our physical offices or to start a live chat for help. The work carried out is in line with the CX improvement projects in terms addressing multiple channels.
- **Addition of new digital payment methods:** we have expanded the range of digital payment channels to include some of the most innovative methods for mobile devices. The new methods added are: Masterpass, Amazon Pay, PostePay, Jiffy, My Bank.
- **Making My Hera available to some non-residential customers:** small businesses (under VAT), sales activities and professionals.
- **Creation of a specific section for customers under quantity-based tariff:** to display their progress of disposals made.
- **Documentary section:** we have added the possibility for customers to download and upload documents relating to their contracts.

During 2018, My Hera reached and exceeded the threshold of 100,000 **downloads**.

Digi e lode

Digi e Lode, now at its **second edition**, is the project that brings together customers and the company to digitize **schools in the area** by promoting Hera's digital services under the patronage of 89 municipalities in the area.

Digi e Lode consolidates the contribution that the Group wants to bring to the territory, as a continuation of the business strategies that identify innovation and sustainable development of the territory as one of the drivers for the development of shared value, in line with the objectives of the UN's 2030 Global Agenda.

The project involves all primary and secondary schools, both public and private, in the Bologna, Modena, Ferrara, Forlì-Cesena, Ravenna and Rimini areas, providing Euro 100,000 to **finance projects to promote the digitalization of schools**, with students as beneficiaries.

During the **2017-2018 school year**, Hera Group awarded the 40 schools (with Euro 2,500 per school) in the area that have reached the highest score. Projects carried out by the winning schools include: the development of computer study rooms; the purchase of 3D printers, interactive multimedia whiteboards, desktop computers, trolleys for storing and recharging notebooks and tablets, robotics kits and the purchase of tablets for autistic students.

The value of this initiative also lies in the construction of a **partnership between the company, customers, municipalities and schools**, to create shared value.

With the launch of its **new 2018-2019 edition**, Digi e Lode is doubling its prize money by offering an additional Euro 100,000 for the digitalization of schools. It is the same mechanism: every time a customer activates one of the digital services offered by the Hera Group, it donates 1 point that can be assigned to a specific school (this way it is multiplied by 5) or distributed among the schools of the customer's Municipality. During the school year, the Hera Group will award 40 more local schools that have reached the highest score.

The **digital services** of the Hera Group that contribute to the project are:

On-line services, to manage services on the website;

- Information and support apps for virtuous behaviours (Acquologo and Rifiutologo);
- Service app (My Hera) for fast and easy management of contracts;
- Electronic billing, to receive it quickly while respecting the environment;
- Direct debit, to pay bills easily and on time;
- Digital self-meter reading (using On Line Services, the app, SMS or on the phone with automatic answering system);
- Hera Fast Check Up, to be helped to reduce gas and electricity waste.
-

Economic development and social inclusion

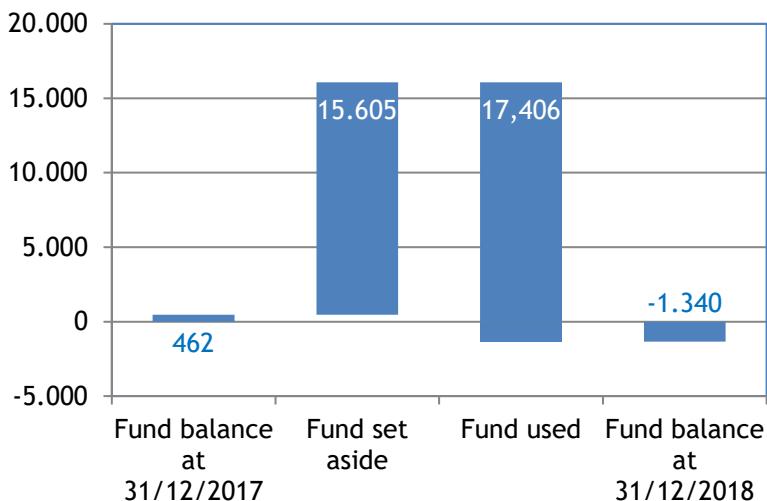
The “water leak fund”

In July 2014, Hera S.p.A defined a joint regulation across all the areas it serves that sets up a “leak fund” to protect customers in the event of water leaks in their plumbing system, i.e. downstream from the meter. This voluntary instrument partially covers bills of even very high amounts that are due to accidental and unknown leaks within a customer's own plumbing system. By paying Euro 15 per year in their bill, participating customers can receive, for hidden water leaks within their system, a reimbursement for the entire amount for the volumes that exceed their usual average consumption by 80%, up to a maximum of Euro 10,000.

Participation in the fund is not compulsory and customers may withdraw at any time by simply asking to do so.

The “leak fund” is exclusively designed to cover the additional costs incurred by customers that have a water leak.

Water leak fund (thousands of Euro)



Leak fund and customers that have benefitted from the fund

	2016	2017	2018
Funds disbursed (thousands of Euro)	14,990	17,636	17,406
Number of customers that have benefitted from the fund	10,902	12,539	12,146
Average reimbursement (Euro)	1,375	1,407	1,433

The fund's balance at 31 December 2018 is negative, at about Euro -1,340 thousand, (including interest income for previous fiscal years). The balance, relating to 2018 alone, is negative by Euro 1,801 thousand. During 2018, the effect of the increase in the number of leaks downstream of meters, which became significant from the summer of 2017, continued and affected the entire current year. This led to a significant reduction in the fund, which for the first time since its creation, entered into negative area. In view of this situation, and taking into account that the fund regulations allow updating the membership fees after verification of its size, during 2018 we examined options to reduce the balance of the fund following the significant increase in the number of redemption requests. As of 1 January 2019, a new method for charging the membership fee was implemented, which will consist of a fixed fee of Euro 10 per year per contract and a variable fee of Euro 5 per year per property unit served.

Since the fund is exclusively designed to benefit its participating customers, and since the monthly balances were almost negative in 2018, no interest was calculated. Since its inception, the fund has reimbursed around 52 thousand users, 12,146 of which in 2018, for an average reimbursement of Euro 1,433. Less than 4% of customers is not covered by the "Leak fund". In 2018, we received just over 1,000 requests for withdrawal from the fund.

Per capita tariff rewards water savings and helps large households

In its resolution 665/2017 of 28 September 2017 ARERA introduced the **per capita tariff for all resident domestic users**, to be gradually applied in all municipalities starting in 2018 and to be completed by 2022. In fact, a **transitional period** has been set, during which the Water Service Operator, lacking information on the actual number of components, can invoice according to a standard criterion (i.e. considering a typical three-member resident domestic household user).

Per capita tariff **facilitates large households** because the water consumption charged a lower rate (the price of the reduced rate is 50% of the basic rate) is proportional to the number of members of the household. As per capita consumption increases, the cost increases very significantly, so this mechanism rewards households **that consume less**.

In the provinces of **Bologna and Modena** and in the Municipality of **Faenza** (79 municipalities in total), Hera already applies per capita tariff to resident households based on the actual number of members. In all the other areas managed, the standard per capita tariff will be applied and gradually the real composition of the household will be used, without prejudice to the possibility for the user to provide a self-declaration.

In 2018, 16 municipalities in **Triveneto** (Abano Terme, Arzergrande, Brugine, Codevigo, Correzzola, Legnaro, Padova, Piove di Sacco, Polverara, Pontelongo, Sant'Angelo di Piove di Sacco, Cona, Trieste, Muggia, San Dorligo and Duino Aurisina) also shifted to per capita tariff.

When environmental and social sustainability go hand-in-hand

Hera continues to be committed to initiatives dedicated to the support and social inclusion of people in difficulty and in disadvantaged conditions, through the following initiatives that have proven to be effective.

The “**RAEEbilitando**” project, initiated in 2010 with the collaboration with the Consorzio Remedia, the Opera dell’Immacolata Onlus (OPIMM) and Tred Carpi Srl, continued its activity until 30 June 2018, when the protocol expired. The partners then agreed to terminate the activity, which had been carried out in the Laboratory of Bologna, to allow OPIMM to plan and implement a set of measures to restructure the premises and to reorganize the logistical management of the spaces used for the various activities carried out within the Laboratory. The intention, however, is to be able to resume operation of the project from July 2020. In all these years of activity, children and adults in disadvantaged conditions have worked in the laboratory providing their energy and their commitment to disassemble **132,000 kilograms of small electrical and electronic equipment** into about 20 smaller categories of parts, thus ensuring for each of them the most appropriate type of recovery or recycling.

The “**Manolibera**” project, active since 2011, in collaboration with the Forlì Prison and the Techne Training Institute, involves operating, within the penitentiary, a quality artisan paper mill that produces, using an ancient Arab-Chinese processing technique, paper products of high artistic and ecological value. Coop. Sociale Onlus CILS of Cesena is responsible for monitoring and verifying the activities carried out in this laboratory, which are reported regularly. The Berti Bindery is responsible for commercial and marketing management and over the past year it has participated in trade fairs and events and for “wedding planning”, in constant search for new marketing and collaboration channels. Relations with the national prison economy network “Freedhome” have also been consolidated. In 2018, **4 prisoners were involved in the laboratory** and our partners are considering the implementation of a new funded training program, in which five more people will be able to participate.

The “**RAEEincarcere**” project was confirmed in 2018 for a further three years. This project, that started more than a decade ago at the Prisons of Forlì, Ferrara and Bologna, was developed starting from a study and joint collaboration between Hera and the Techne Training Institute. These partners were joined by the Emilia-Romagna Regional Government and many other Bodies, such as the Ecolight Recovery Consortium, and local organizations. By doing so the objective of the project, namely the social and working inclusion of men and women who are paying for crimes or detained, has been guaranteed for all these years, allowing them to return to legality and the civil life of the community. Within the **3 Prisons** there are still active laboratories where prisoners alternate training and further education activities, acquiring all the skills and knowledge necessary to disassemble small and large waste electrical and electronic equipment from the Waste Collection Centers managed by Hera. A range of components are obtained from this activity and are separately sent to suitable plants for recovery of material. The results obtained by the labs continue to increase. On the social front, **34 former prisoners were hired or helped to find jobs** in local companies and more than **101 attended training courses** thanks to the collaboration and commitment of the social

cooperatives that coordinate and manage the laboratories. From an environmental point of view, in a decade of activity the laboratories treated about **4,915,000 kg** of waste electrical and electronic equipment.

In 2018, we laid the foundations for two more years of the collaboration called "**Informatica Solidale**", a joint project of Hera and the Techne Training Institute, designed to promote computer literacy and to reintegrate people with disabilities into the world of work and social life, with the further objective of promoting the reuse of assets with residual use potential.

Under the Project, **Hera will give away free of charge its own IT equipment** (no longer suitable for its own business and therefore to be disposed of disposal but perfectly able to satisfy the basic needs of users such as those identified and protected by the Project) and Techne will take care of the functional updating and testing, the identification of the recipients and the management of the deliveries. The recipients of such "regenerated" IT equipment have been identified mainly among institutional, public and private local organizations, whose vocation is to support the inclusion and integration of disadvantaged people through services and initiatives (educational, training, empowerment) that can find real benefit and strengthening from the availability of appropriate technological tools. In this context, the donated equipment made it possible to set up of computer labs at schools, cooperatives/social enterprises and social promotion associations, prisons and education centres for adults at risk of "social exclusion". In 2018, **100 computers were decommissioned and made available to local associations** and at the end of the year the process of allocation and delivery of a further batch of equipment was started, which will be completed in the early months of 2019. The new edition of the project, which we strongly desire, based on the results and the interest obtained by the past edition management, will extend the local catchment area, extending it to beneficiaries in all the provinces where Hera is present as a service provider. The "Informatica Solidale" project will once again contribute to social support and environmental protection.

Development of occupation and new skills

Hera Educational and the joint school-work experience courses

In 2018, the Group continued its activities with the Hera Educational system by creating **school-work alternation courses** based on a model that involves the integration of company and school skills, and by the **renewal of the three-year memorandum** of understanding with the Regional School Office for Emilia-Romagna.

In the **first three years** of the 2016-2018 protocol, **212 joint school-work experience courses** were created (72 of which in 2018).

Furthermore, the "**Hera teaches you a trade...at school**" initiative continued, as a development of the Scuola dei Mestieri, and focused on planning and developing educational activities, with the **participation of Group employees** acting also as teachers, at technical institutes based in the local area of reference (currently in the areas of Forlì, Modena and Ravenna).

In 2018, we also started designing an experimental project for the curvature of educational paths with a view to strategic workforce management for the entire three-year period of the "**Meccanica Energia**" initiative, that focuses on technical and operational trades in the field of operation and maintenance of gas networks and plants.

Dissemination of an ecologically responsible mentality: plant tours

The Hera Group, through its subsidiary Herambiente SpA, proves its attention to **environmental issues** and the **diffusion of an ecologically responsible mentality**, offering the possibility of guided tours of waste treatment and wastewater purification plants.

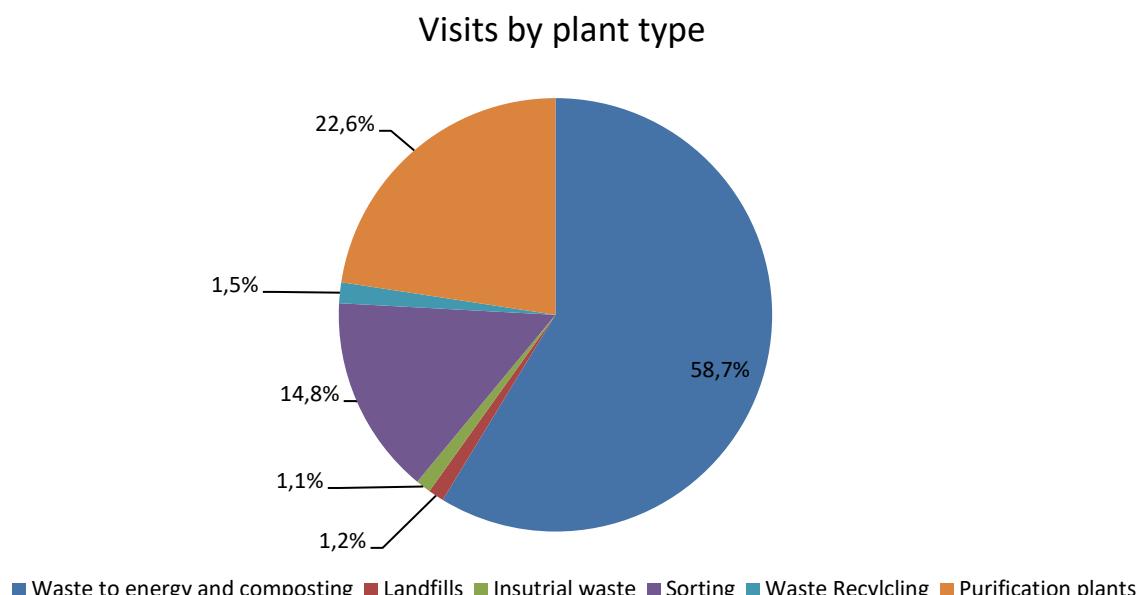
Such visits provide stakeholders with insight into **how installations are operated and work**. Our waste treatment plants are **among the most advanced in Europe** in terms of operating and quality standards and

visits enable visitors to understand how they properly handle waste in the most environmentally-friendly manner possible, using solutions with the lowest possible overall impact on the environment.

In addition to offering “traditional” guided tours (on site) and to stimulate greater interest among the “new generations”, we have implemented **“virtual” tours with schools**. By doing so, directly from their school desks, students can listen to an environmental educator that illustrates the various phases of operation of the plant.

In total, in 2018, **4,546 visitors** (+15% compared to 2017) visited Herambiente Group’s facilities over 205 days. In addition, **368 students** visited our facilities through “virtual” visits. Over a video call, they attended a visit from their “school desks” as an environmental educator illustrated the different phases of operation of the plant. This new method promotes the use of multimedia technologies for learning to **stimulate curiosity and involvement in the pupils while reducing the environmental and organizational impacts** due to the transfer from the school to the plant to be visited.

Furthermore, the possibility of booking visits online directly from Herambiente’s website, in order to make it easier for stakeholders to book visits to our facilities, was met with a positive response. In 2018 the possibility of booking visits online was extended to the **waste-to-energy plants in Padua, Trieste and Pozzilli (IS)**. The number of installations for which it is possible to book a visit online has therefore risen, with the 3 new entries, to 26.



Analysing the data, in 2018 the visits involved: waste-to-energy plants with 3032 visitors, 416 visitors to composting and anaerobic digestion plants, 69 visitors who followed learning path on landfills, 66 visitors to industrial waste treatment plants, 872 visitors to selection and recovery plants and 91 visitors to Waste Recycling (a Herambiente Group company).

The data confirm that the various types of visits provided by our company have been well received by stakeholders.

There were 1,327 visitors to the **purification plants** in 2018, of which about 86% were students, over about 60 days.

Air and soil protection

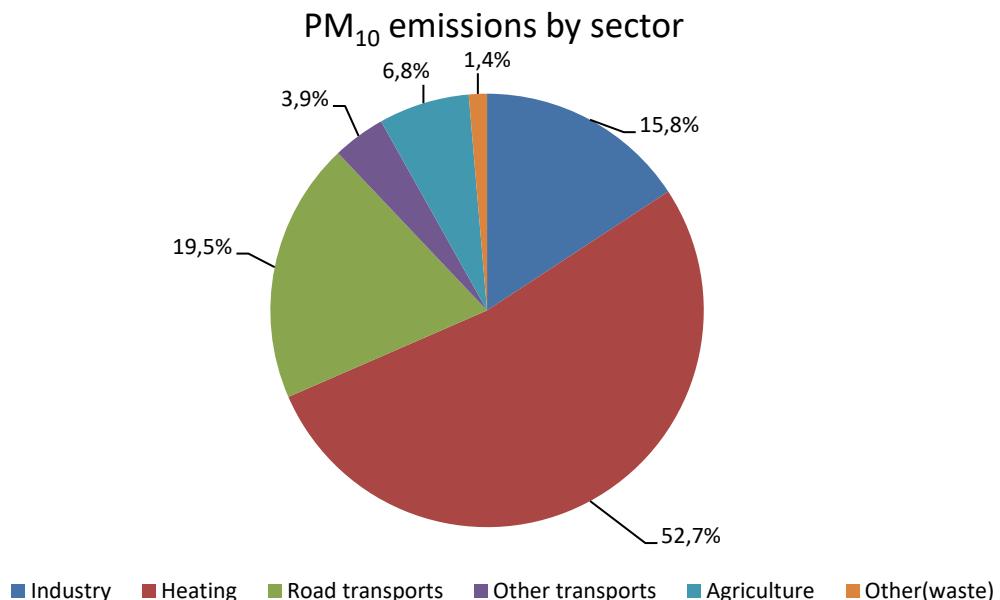
Studies on the environmental impacts of waste-to-energy plants

For many years, activities related to the incineration of waste have been the subject of many **studies and monitoring**, as well as of important **technical improvements** also related to the introduction of increasingly stringent plant and management criteria by European and Italian legislation. The technology has reached **very high performance in terms of reducing emissions and environmental impact**.

As a result of the changes to regulations and technologies, there has been a 99% decrease in emissions from waste incineration in Italy between 1990 and 2016, if we consider the total annual atmospheric emissions of dioxins as the sum of all waste incineration throughout Italy for the whole tertiary sector (Source: Sinanet-Ispra-SNAP databank).

Placing this analysis in the context of the various production segments, since 2001 waste incineration has been the least representative source in terms of **dioxins and furans emissions**, contrary to the iron industry, the steel industry and the entire residential segment (e.g. domestic heating).

The trend in terms of total annual **PM₁₀ emissions** shows a significant decrease of around 80% in waste incineration emissions (between 1990 and 2016), also due to regulatory and technical changes. The PM₁₀ emissions by Italy's incinerators are around three magnitudes lower than those of the residential segment. The main sources of PM₁₀ at national level are the residential segment, vehicular traffic, combustion processes with contact (e.g. foundries) and agriculture.



Environmental supervision and air quality monitoring projects

According to the Authorizations regarding the **waste-to-energy plants in Ferrara, Modena, Forlì, Rimini, Padua and Isernia**, the Hera Group must carry out studies on the potential impact that its plants have on the surrounding environment.

In 2008, in accordance with the provisions of the Integrated Environmental Authorisation of the **Rimini** incinerator, the level of air quality was monitored by ARPAE (pre-construction monitoring). This study was

designed to determine the air quality in the areas around the incinerator, potentially affected by the plant's emissions. In 2013, with the new line 4 fully operational, the monitoring process was repeated in the same way in order to assess any differences or impacts on air quality that could be attributed to the new plant (post-construction monitoring). The monitoring results have been prepared by the Regional Agency for the Protection of the Environment (ARPA) of Rimini in 2014 and made available in 2015. The study shows that there is no significant impact on air quality, post-construction vs. pre-construction.

In the industrial area in which the **Forlì** plant is located, Hera has installed a station for monitoring air quality that is run by ARPAE Forlì. This station has been operational since 2009, and provides a continuous stream of data that are validated by ARPAE and published on their website. Periodical campaigns are also carried out at the station to search for micropollutants and metals in the particulate matter. The results show that there is no substantial difference between a public area and the area around the plant, indicating the presence of a uniform environment, influenced significantly by the town rather than the presence/contribution of the plant. These results were confirmed in 2017, when ARPAE Forlì made available the previous year's air and soil quality monitoring data.

For over a decade, environmental monitoring tests have been carried out at the **Modena** plant on various environmental compartments: air and soil quality, biomonitoring, total depositions. Since 2013, the monitoring network has been operated by the local ARPA (now ARPAE), which carries out all the analyses required by the waste-to-energy plant's IEA. In addition, in Modena in accordance with the IEA, a health monitoring study was carried out in 2003 to assess health risks for the population that lives near the incinerator and the workers at industrial sites near it. Two reproduction indicators were analysed: teratogenic risk, i.e. congenital malformations, and spontaneous abortion risk. The program ended in 2014 with the processing of the data collected in 2013 and showed no dose-response relationships between exposure and relative risk of miscarriage and birth defects.

Between 2010 and 2012, a genuine environmental and health monitoring protocol was carried out at the **Ferrara** waste-to-energy plant. Its details were defined by ARPA (now ARPAE), AUSL and the province of Ferrara and it examined a number of environmental compartments. The scientific coordination for these studies was entrusted to institutions with proven experience in the sector (CNR and Universities). The results of the first study, which ended in October 2012, confirmed the preliminary evaluations made when the Integrated Environmental Authorization was granted and showed that the plant's contribution, in terms of air quality, cannot be distinguished from the environmental background levels. In the light of the results that have been obtained, a subset of the monitoring was extended for a second period (2013-2015), to examine only the aspects considered most significant: air quality and studies of soil pollutants. Air quality monitoring activities ended in early 2015, confirming the results of the two previous years. In particular, the study of the soil, repeated in the autumn of 2013, showed no accumulation of metals and micropollutants in the areas surrounding the plant, thereby confirming that the incinerator's emissions cannot be distinguished from the environment baseline. In 2015, the monitoring guidelines for coming years were also agreed with regulators. In particular, in 2016, we signed a convention with ARPAE to continue the three-year soil monitoring project. In **2018**, environmental monitoring continued with three air quality monitoring campaigns (spring, summer and autumn).

The **Padua** waste-to-energy plant, in line with the requirements of the "Memorandum of understanding on the assessment of the health impact in the city of Padua and in its metropolitan area" signed by the municipalities of Padua and Noventa Padovana, with Arpav, ULSS 16 of Padua, and the University of Padua was the subject of a study that was completed in December 2015, with the presentation of the "Report on the pilot project of population health monitoring assisted by ASL 16 of Padua, particularly on potential health effects from air pollution - a longitudinal study in Padua (SLPD)". The conclusions showed on one hand insufficient statistical evidence to identify statistical effects on people's health related to the plant's emissions, on the other the differential of the concentration estimates (with three decimal digits precision) is not compatible with measurable health effects, i.e. the effect of PM₁₀ emissions from the waste-to-energy plant on the background pollution levels. The same system is the subject of the Voluntary agreement to monitor the effects of the San Lazzaro waste-to-energy plant near Padua, which lasts three

years. Hestambiente and Arpav have carried out some environmental studies in addition to those required by the legislation in force and by the authorizations. In more detail, we managed the operation of two of HestAmbiente's fixed air quality monitoring stations (to monitor SO₂, CO, O₃, NO_x, PM₁₀ and PM_{2.5} with automatic equipment and publish on Arpav's website a page dedicated to waste-to-energy plant data, validated by Arpav itself). An annual air quality monitoring campaign was carried out using a mobile lab provided to Arpav by Hestambiente. We sampled the soil at 5 sites near the waste-to-energy plant, and performed laboratory analyses on it for the metals: Pb, As, Cd, Ni, and Hg, for aromatic polycyclic hydrocarbons, dioxins, furans and PCBs and we measured the sound pressure levels around the plant. All the surveys summarized above highlighted negligible environmental impacts of the plant. Hestambiente has already expressed its willingness to sign a three-year extension of the agreement that will soon expire, and to continue its activities even while awaiting the formalization of the new agreement.

In the area surrounding the **Isernia** waste-to-energy plant, in agreement with ARPA Molise, a series of representative monitoring points have been identified at which studies on atmospheric depositions and PM_{2.5} atmospheric particulate sampling have been carried out in the 2017-2018 two-year period. At all monitoring points, the annual average PM_{2.5} was below the regulatory limit, and the deposition study showed values for organic micropollutants (dioxins, PAHs) always below the instrumental detection limits.

Transparency of waste-to-energy plant emissions

Since 2008, the Group's website has provided the previous day's average **emission** values and "half-hourly averages" of the Group's **waste-to-energy plants** (every half hour the online data are updated with the average value of the past 30 minutes). The data are automatically transmitted by the **detection systems, operational 24/7** in all the Group's plants, located in the provinces of Bologna, Ferrara, Forlì-Cesena, Modena, Ravenna, Rimini and Isernia.

As a further guarantee of **transparency**, Hera commits to:

- daily or weekly reporting of the half-hour and daily averages to the control agency (ARPA);
- yearly reporting on the plant's operations, by 30 April every year, to the competent authorities (Provinces) and control agency (ARPA);
- if the plant is EMAS registered, the control results are published upon formalization of the "Environmental Declaration";
- publishing annual data, compared to regulatory limits and authorized limits, in the Group's Sustainability Report.

Since 2015 the website also provides the data of the Padua and Trieste plants, in the same format (half hour average updated in real time).

Lastly, from 2018 on, average annual data on periodic self-checks on metals and organic micropollutants has also been available for all plants.

Increasing usage of telepresence

Telepresence is increasingly proving to be a facilitator to manage meetings, saving time, reducing risk and fatigue, significantly saving energy and, last but not least, helping to **reduce** the Group's **ecological footprint**.

In 2018, 95 offices were connected by telepresence (+35% compared to the previous year), for a total of 23,874 meetings (+19%) and about 30,785 hours of use (+24%).

The further increase in terms of both of sessions and of hours of use of Hera Group's telepresence rooms is due to an increase of the perimeter of the rooms, as well as to a more marked use of the clients installed on the company's PCs.

Urban and environmental renovation of the viale Berti Pichat area in Bologna

In December 2018, the **environmental and functional requalification works** of the Holding Company's Bologna office in Viale Carlo Berti Pichat (about 70,000 m² of total surface area) were **completed**, per the urban requalification agreement for the area signed on 3 May 2016 and the operational project for environmental remediation authorized by the Municipality of Bologna on 13 April 2016.

The environmental reclamation of the area has been carried out by excavating and removing the historical landfill and contaminated soil and, where applicable, by treating the soil and groundwater with ISCO methods. For all the phases of soil reclamation, ARPAE verified compliance with the objectives set by the project with reference to the work carried out and, as a result of these checks, it was possible to start the urban planning works for the construction of green areas, new roads and new internal parking lots. During the works, **monitoring of the air and water environmental media** for the site continued over the entire area, with the frequency agreed with the regulators. At the same time, in addition to the analyses currently performed by companies at the job-sites, the Quality, Safety and Environment Department continued monitoring, focusing on the impacts that the job-sites could have had on the health of workers at the corporate office.

The **environmental remediation of groundwater with ozone and ISCO** will continue until reaching effectiveness up until June 2019 and December 2019, respectively, although Hera is not responsible for the pollution of the area.

In 2018, **two meetings** were held (on 19 April and 25 July) with **workers' Safety Representatives (WSR)** to report and share the progress, the scheduling of the work, and the monitoring results. Hera has always worked in full and complete respect of the law, for the protection of workers and residents, and under the control of the supervisory bodies.

In 2018 we completed the major plan to **replace asbestos roofs** of buildings throughout our service area. Starting in 2016, more than 28 thousand m² of roof were replaced.

As part of this work, **three underground tanks** of different capacities no longer in use were **also removed**. The monitoring activities of the work completed in the area of the holding company's headquarters in Bologna will continue until the first half of 2022.

The **new LED lighting of the entire external area** of the holding company's headquarters was also installed, also involving the architectural lighting of the gasometer located inside the historic "Gas Workshop". Concerning the new lighting of the company's offices, in 2018 **a multi-year plan was launched to replace the external lighting fixtures** of all the group's main offices with LED fixtures. In particular, in addition to the Bologna office, the replacement of external LED lighting in the Modena office in Via Razzaboni and in the Ravenna office in Via Romea was also completed. In addition, projects started at the offices of: Bologna in Via del Frullo-Cristina Campo, Rimini in Via Terrapieno-Strada Consolare and Cesena in Via Spinelli where work is scheduled for 2019.

The new contract for the supply and installation of MFD equipment was launched as part of the **internal equipment** of the offices, in line with the CAM criteria defined by the Ministry, to achieve sustainability, energy efficiency and lower emissions of inkjet machines compared to laser printers, with obvious benefits both in terms of reduced consumption and lower emissions of particulate.

Bases and organisational levers

Governance and creation of value

Objectives and performance

What we said we would do	What we have done	Area*
• Value added to stakeholders: Euro 1,764 million as of 2021 (+19% compared to 2017).	• +4% compared to 2017, the value added to the stakeholders which in 2018 came to Euro 1,541 million	
• Achieve investments for Euro 2.3 billion in the period 2018-2021.	• Euro 462 million. Investment achieved in 2018 (+5% compared to 2017).	
• Dialogue with the local communities: continue the meetings of the HeraLabs active in the areas and define the Plan of the local initiatives in Ravenna and Ferrara. Extend the new HeraLAB model in three additional areas in 2019.	• 12 initiatives jointly planned by Hera and stakeholders in the Ferrara and Ravenna LABs, which will be achieved in the two-year period 2019-20. The new model will involve two new areas in 2019.	ER
• Implement the internal climate improvement actions defined on the basis of the results of the survey carried out in 2017.	• 23 improvement actions defined on the basis of the results of the survey carried out in 2017 and accomplished in 2018. The improvement plan will also continue in 2019.	ER T M

What we will do	Area
• Euro 1,684 million. Value added to stakeholders as at 2022 (+9.3% compared to 2018).	*
• Euro 2.4 billion. Investments completed in the period 2019-2022.	
• 2 HeraLAB active in two new areas in 2019 for dialogue with the local communities. Achieve the 12 local initiatives jointly planned in 2018 with the Ferrara and Ravenna LABs by the end of 2020.	ER
• 65/100 employee satisfaction index in the internal climate survey carried out in 2019. Complete the internal climate improvement actions defined on the basis of the 2017 survey.	ER T M
• 70/100 customer satisfaction index in the survey carried out in 2019.	ER T M
• Obtain certification of the anti-corruption management system according to the ISO 37001 standard for Hera S.p.A.	ER

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Sustainability and risk management

Corporate governance

Hera is a multi-utility company with public sector majority shareholders and a markedly diversified shareholder base. Regarding corporate governance, the Group has adopted statutory procedures, with specific attention to the implementation of the principles contained in the code of conduct prepared by Borsa Italiana.

The main governance bodies of Hera are the Board of Directors, the Executive Committee, the Board of Statutory Auditors, the internal committees and the Shareholders' Meeting. The Board of Directors is supported in its duties by two committees: The Remuneration Committee and the Control and Risks Committee. The Board of Directors has also established a Supervisory Body pursuant to Legislative Decree No. 231/2001, as well as an Ethics and Sustainability Committee to monitor the dissemination and implementation of the principles in Hera Group's Code of Ethics and the supervision of the sustainability aspects linked to the business activities.

The Board of Directors

The articles of association currently in force establish that the Board of Directors be comprised of 15 members elected on the basis of lists. Specifically, they provide that 11 members be selected from a majority list while the remaining 4 members be selected from a minority list. Composition by gender complies with the provisions of Italian Law 120/2011 whereby at least one third of the members must be women, for the renewals after the first renewal after entry into force of the law.

The new voting trust and share transfer rules agreement has been in force as from 1 July 2018 between 111 local authorities holding shares. It was entered into on 26 June 2018 and concerns the methods for exercising the right to vote and the transfer of the shareholdings held in Hera to those complying; this agreement, with a three-year duration until 30 June 2021 has, in particular, the aim of regulating the methods for the formation of the majority lists.

3 additional second level agreements are also in force, entered into between the public shareholders already subscribers of the voting trust and share transfer rules agreement mentioned above, as indicated below:

- **agreement between the Bologna area public shareholders**, in force as from 1 July 2018 between 32 local authorities holding shares, entered into on 26 June 2018 and concerning the discipline of the method for joint consultation and adoption of the decisions of those participating in relation to their investment in Hera; this agreement, with a three-year duration until 30 June 2021 has, in particular, the aim of regulating the methods for the presentation of the candidates in the majority list proposed by the Bologna public shareholders;
- **agreement between the Modena area public shareholders**, in force as from 1 July 2018 between 20 local authorities holding shares, entered into on 26 June 2018 and concerning the discipline of the method for joint consultation and adoption of the decisions of those participating in relation to their investment in Hera; this agreement, with a three-year duration until 30 June 2021 has, in particular, the aim of regulating the methods for the presentation of the candidates in the majority list proposed by the Modena public shareholders;
- **agreement between the Municipality of Padua and Municipality of Trieste public shareholders**, entered into and in force as from 26 June 2018 and concerning the establishment of a voting and consultation trust agreement instrument for implementing, amongst other aspects, the provisions on Hera's corporate governance; this agreement has a three-year duration until 26 June 2021.

According to the articles of association, the Board of Directors is to meet at least on a quarterly basis, or every time the Chairman deems it necessary or when requested by at least one third of its members or by the Board of Statutory Auditors. The articles of association also provide that the Board of Directors be endowed with broad and unrestricted powers for ordinary and extraordinary administration of the company. It is empowered to carry out all such actions as it deems necessary for and conducive to achieving the company purpose except for those expressly reserved to the Shareholders' Meeting by law or according to the articles of association.

The Board of Directors met 10 times in 2018.

The current Board of Directors, renewed on 27 April 2017, will remain in office until the Shareholders' Meeting for approval of the financial statements as at 31 December 2019.

Among the 15 members of the Board of Directors of Hera Spa, five directors are aged between 30 and 50, eight directors are aged between 50 and 60, and two directors are over 60 years of age.

As set forth in the Code of Conduct of Borsa Italiana, the annual report on corporate governance sets out the requisites for the non-executive, independent directors of Hera Spa. The remuneration paid to Hera Spa directors is illustrated in the remuneration report.

Board of Directors of Hera Spa				
Office	Name and Surname	Executive Director	Independent Director	Committees*
Chairman	Tomaso Tommasi di Vignano (1)	X		EXEC
Managing Director	Stefano Venier (1)	X		EXEC
Vice Chairman	Giovanni Basile (1)		X	EXEC, REM, CONT
Director	Francesca Fiore (2)	X		REM
	Giorgia Gagliardi (1)	X		
	Massimo Giusti (3)	X		REM, ET
	Sara Lorenzon (1)	X		CONT
	Stefano Manara (1)	X		REM
	Danilo Manfredi (1)	X		
	Alessandro Melcarne (1) **	X		EXEC
	Erwin P.W. Rauhe (2)	X		CONT
	Duccio Regoli (2)	X		CONT
	Federica Seganti (1) **	X		ET
	Marina Vignola (1)	X		
	Giovanni Xilo (1)	X		

* EXEC: Executive Committee; REM: Remuneration Committee; CONT: Control and Risks Committee; ET: Ethics and Sustainability Committee

** on 8 November 2018, further to the resignation as from the same date of Prof. Federica Seganti as member of the Executive committee, Hera's Board of Directors appointed Mr. Alessandro Melcarne as her replacement. As of the same date Prof. Federica Seganti was appointed as member of the Ethics and Sustainability Committee.

(1) Name taken from list presented by the majority shareholders

(2) Name taken from list presented by the minority shareholders which obtained the greatest number of votes

(3) Name taken from list presented by the minority shareholders which obtained the second greatest number of votes

The Board of Statutory Auditors

The Board of Statutory Auditors is the corporate body that monitors correct administration, especially insofar as the adequacy of the organisational, administrative and accounting structure adopted by the directors and its operation. The Board of Statutory Auditors, appointed by the Shareholders' Meeting held on 27 April 2017, will remain in office until the Shareholders' Meeting for approval of the financial statements for the year ended 31 December 2019.

The Articles of Association establish that the members of the Board of Statutory Auditors are appointed on the basis of the lists submitted by the shareholders in order to ensure that the minority appoints the Chairman and an alternate auditor, and that the majority appoints the remaining two permanent members and one alternate member. Members are appointed in compliance with the equal balance of gender required by current laws and regulations.

The Executive Committee

The Executive Committee has the duty to express to the Board of Directors an opinion prior to submission of the yearly definition of the Group's business plan and the proposed appointments of top level managers. Furthermore, it adopts resolutions concerning contracts and agreements related to the corporate purpose

by specific amount brackets. It also resolves on consultancy relationships with outside professional experts and on the company's membership in organisations, associations and other bodies, as well as on the settlement of disputes and releases of creditor claims. Further acts subject to resolution by the Board of Statutory Auditors regard those that amend or terminate contracts for credit lines and loans; acts that launch tenders and/or the stipulation, amendment and termination of investment contracts; and lastly, the quarterly review of the reports for the analysis and monitoring of financial risks.

The Executive Committee is composed of the Chairman, Vice Chairman and Managing Director, as well as a director appointed together by the Municipalities of Padua and Trieste: the Committee was appointed by the Board of Directors on 10 May 2017, pursuant to Article 23.3 of the articles of association, and up-dated with regard to its composition on 8 November 2018 further to the resignation of a member.

The Executive Committee met six times in 2018.

The Remuneration Committee

The task of this committee is to make proposals to the Board of Directors with regard to remuneration of the Chairman, the Managing Director and directors who cover specific roles; it also puts forward proposals to define the general remuneration criteria for senior management and managers.

The Committee is made up of four non-executive independent directors; upon invitation by the Committee Chairman, the Managing Director and the Chairman of the Board of Directors may participate in its meetings. It was appointed by the Board of Directors on 10 May 2017 and met four times in 2018.

The Ethics and Sustainability Committee

The Ethics and Sustainability Committee has the task of monitoring the dissemination and implementation of the code of ethics: it receives the reports on violations of the code and assesses whether to begin proceedings. Renewed by the Board of Directors of Hera Spa on 10 May 2017, the Ethics and Sustainability Committee, in accordance with the indications of the code, was composed of three members, an independent director of Hera Spa (Committee Chairman), and two experts with regard to corporate social responsibility and Italian Legislative Decree No. 231/01 (the Shared value and Sustainability Director) and an external member.

On 8 November 2018, Hera's Board of Directors - in accordance with the recommendations of the current Code of Conduct for listed companies of Borsa Italiana Spa - deemed it appropriate to assign the Ethics Committee the supervisory functions on the sustainability aspects associated with the performance of the business activities and the interaction dynamics with all the stakeholders; and in particular: i) monitor the implementation of the sustainability policies, ii) formulate, upon the request of the Board of Directors, an opinion on specific aspects regarding sustainability; iii) examine the company procedures of a social and environmental nature; and iv) examine the sustainability report in advance, to be submitted to the Board of Directors.

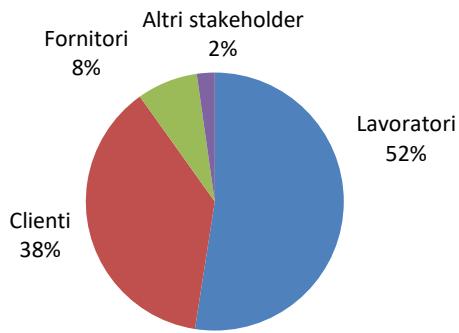
The Board of Directors has also changed the name of the Ethics Committee to the "Ethics and Sustainability Committee" and has extended the composition, taking the members from three to four, of which two Hera Spa Directors.

The Committee met eight times in 2018.

On 20 February 2019, the Ethics Committee submitted to the Board of Directors of Hera Spa the annual report on the activities carried out and reports received during 2018.

In 2018, the Ethics Committee examined overall **18 reports**. Ten reports were received from **employees**, 7 from **customers** and 1 from **suppliers**; the Ethics Committee has examined 223 reports since 2008.

The reports by stakeholder 2008-2018



The 10 reports of the **employees** concern the relationship between colleagues and between manager/workers, the collaboration between company departments and the communication to the employees, the valorisation of the human resources, the safeguarding of the individuals and equal opportunities and the work environments. With regard to seven reports, in the preliminary investigative phase, the Ethics and Sustainability Committee assessed the need to involve the Central Personnel and Organisation Department as well as the reference structures of the reporting party. In five cases, within the sphere of the preliminary investigation of the report, the Committee contacted/met the person making the report. Four reports as of 31 December 2018 were not yet concluded while for one the Ethics and Sustainability Committee resolved not to proceed with the opening of the preliminary investigative phase due to limits of the competence of the Committee (Art. 70). Consequent to one report, the Committee resolved to adopt a disciplinary measure vis-à-vis a worker who was responsible for seriously offensive conduct vis-à-vis the party making the report.

Customer reports regarded the commercial conduct of sales agencies and the response times and/or the time required to carry out the services (payment instalments, termination of supply, invoicing adjustments). With regard to one report, the Ethics Committee requested Hera Comm to include the failure to observe the principles of the Code of Ethics among the clauses for termination of the agency mandate. With regard to five reports, thanks to the collaboration of the structures involved, a positive response to the request of the customers was achieved. With regard to one report, the intervention of the Ethics and Sustainability Committee led to the formulation of a reply clarifying the position of the company.

The only report from **suppliers** did not lead to any preliminary investigation since, in agreement with the Procurement and Tenders Department, the firm in question was included in the 2018 suppliers audit plan, drawn up in accordance with the matters envisaged by the integrated management system.

Risk management

Hera has adopted an organisational structure suited to adequately manage the exposure to risk inherent in its business. It has defined an integrated approach aimed at maintaining management effectiveness and profitability along the entire value chain.

The corporate governance system for risk management implemented in Hera allows management strategies to be addressed consistently. In this system:

- the **Board of Directors** steers and evaluates the adequacy of the internal control and risk management system;
- the **Executive Chairman** and the **Managing Director** monitor, within their competence, the operation of the internal control and risk management system;

- the **Vice Chairman** monitors the coordination between the **Risk Committee** and the **Control and Risks Committee**;
- the **Control and Risks Committee** supports the Board of Directors in defining the guidelines of the internal control and risk management system;
- the **Risk Committee** is the main body that steers, monitors and reports the risk management strategies adopted. It defines the general guidelines for the Risk Management process, guarantees the mapping and monitoring of corporate risks, assures the definition of the Risk Policies and defines the protocols for reporting to the Control and Risks Committee, the Internal Auditing Department and the Board of Statutory Auditors.

In Hera, there is an appropriate separation between the role of risk control and management (entrusted to the risk owners in the various organisational units) and of evaluation of the appropriateness of the risk management processes. Specifically, the proper and effective operation of the **internal control and risk management system** is monitored at centralised level by the Internal Auditing Department, which reports directly to the Vice Chairman of the Board of Directors.

The two main corporate bodies in charge of supervising risks are described in greater detail below, according to their respective responsibilities.

Control and Risks Committee

The **Control and Risks Committee's** duty, in application of Principle 7 of the Code of Conduct, is to monitor the functioning of the internal control system, the efficiency of corporate operations, the reliability of financial information, as well as compliance with the law and regulations and the protection of corporate assets. This Committee also has the task of supporting, with adequate investigations, the Board of Directors in its evaluations and decisions regarding the risk management system. The Chairman of the Board of statutory auditors or an auditor appointed by Chairman attends the committee's meetings as well as the Managing Director and the Chairman of the Board of Directors, at the explicit request of the Chairman of the committee.

The Control and Risks Committee met 7 times in 2018.

The Risk Committee

The **Risk Committee** was appointed in April 2014 and is composed of the Executive Chairman, Vice Chairman and Managing Director of Hera Spa, the Administration, Finance and Control Director, the Market Central Director and the Enterprise Risk Manager. Furthermore, in relation to specific issues falling within their competence, the Legal and Corporate Central Director, the Corporate Services Central Director, the Innovation Central Director and the General Manager of Hera Trading S.r.l. may take part in the meetings.

The Risk Committee is the main body that steers, monitors and provides information about risk management strategies, and has the following tasks:

- defining general guidelines for the risk management process; ensuring corporate risk mapping and monitoring;
- ensuring the definition of risk policies and measurement parameters to be submitted for approval to the Board of Directors of Hera Spa;
- guaranteeing six-monthly reporting to the Board of Directors;
- defining and ensuring the submission of information protocols to the Control and Risks Committee, the Internal Auditing Department and the Board of Statutory Auditors.

The significant risks addressed within the Risk Committee refer to the following areas: strategic, energy, financial, credit, insurance, information and communication technology, safety and the environment, and business continuity.

The Risk Committee met 4 times in 2018.

The ERM approach of the Hera Group

In the overall design of the risk management process, Hera has adopted a structured approach, which is consistent with industry best practice, through the introduction of Enterprise Risk Management (ERM). The aim is to define a systematic approach that is consistent with risk control and management, by creating an effective model with steering, monitoring and representation functions, oriented towards the adequacy of the management processes and their compliance with top management's goals.

The approach is intended to provide the Board of Directors with useful elements for assessing the nature and level of business risk, especially over the medium to long term, so as to enable the definition of a risk profile that is consistent with the Group's strategic objectives. This definition is expressed through the approval of the group risk management policy and of the related risk limits by the Board of Directors.

In greater detail, the policy defines the Group's orientation towards risk issues and identifies the relevant risk management framework, comprising three fundamental elements:

- the **risk model**, which identifies the scope of reference for the risk management analysis carried out by the Group. It includes the identification of all risks, or rather the types of risk that the Group is potentially exposed to, which are periodically reviewed on the basis of any changes in the mission, strategic objectives and scope of the group's business, as well as the social and economic context;
- the Group's **risk appetite**, which defines the acceptable risk level in compliance with the risk management strategy by means of the identification of:
 - key risk dimensions, i.e. the most relevant risk factors in respect of which the Group intends to express its risk appetite;
 - risk metrics, necessary for measuring exposure arising from a specific risk factor;
 - limits associated with each key risk dimension, which express the related maximum risk level tolerated by the Group in pursuing its goals;
 - monitoring, escalation and updating processes, aimed at promptly identifying whether any defined risk limits have been exceeded, identifying and implementing corrective actions, correctly monitoring significant risk areas and aligning the limits to the group's risk appetite;
- **Risk Management** activities, divided into:
 - enterprise risk management, aimed at analysing the evolution of the Group's overall risk profile, the results of which are the tool used to support informed risk-taking and fix the strategic goals;
 - ongoing risk management, which for specific risks requires continuous sector-based management procedures entrusted to special risk specialists/risk owners, based upon specifically developed processes and methods and formally defined within the risk policies of reference.

The measurement metrics of the impact are of two types: **economic-financial** and **reputational**. The **economic-financial** metric identifies a monetary value deriving from the risk scenario, then placed on a scale of values from 1 to 4 whose monetary intervals are defined by Hera's Board of Directors. The **reputational** metric measures the entity of the impact on the basis of a scale of values from 1 to 4, structured in ambits divided up by each stakeholder potentially impacted, which refer to the seriousness of the impact (persistence and extension), also approved by Hera's Board of Directors. The two scales are gauged so as to guarantee comparability between the economic and reputational impact at equal level.

It is hereby disclosed that the 2018 ERM analysis **did not highlight risks in key areas** either for economic-financial or reputational impact. With regard to **significant risks**, by contrast mention is made of the risk with a reputational impact deriving from possible proceedings of supervisory/regulation/investigation

bodies despite the presence of conduct of the Hera Group compliant with the provisions of the law. This risk profile pertains to the degrees of discretionality for the launch of verification/investigation procedures within the sphere of regulations implementing the sector norms which are partially lacking or interpretative stances of the prescriptions which are absent and equivocal. With regard to significant risks, mention is also made of the economic-financial risk deriving from highly critical seismic events.

The described activities guarantee an effective control of all the main risks to which the Group is potentially exposed, as well as the management of the Group's overall exposure in keeping with the views expressed in the Group's risk appetite and with the Business Plan objectives.

During 2018, the ERM analysis carried out further method-related streamlining and analysis:

- the backtesting of the ERM analysis was carried out relating to the previous year, aimed at evaluating the coherence of the impacts effectively suffered with respect to those estimated and the observance of the limit of risk of variability of the profitability assigned, in the event of realisation of the scenario assessed in the analysis. The internalisation of the effects of these scenarios was also checked if they should lead to impacts within the plan duration;
- initiatives were carried out to improve the resilience of the Group in the face of risks which may compromise the continuity of the significant activities of the group, in particular:
 - within the sphere of waste collection and road sweeping services by means of the identification of operational continuity strategies in the presence of unavailability of vehicles;
 - within the remote heating sphere, launching specific vulnerability analyses on the main networks.

These activities will continue during 2019.

- in-depth analysis was carried out on the supply chain control system structured within the sphere of the certified management systems with a view to the ERM assessment and identification of significant risk scenarios. In collaboration with the Procurement and Tenders Department, the significant risk scenarios and factors inherent to the process were identified, the assignment of the impacts on the significant stakeholders was carried out, and the outstanding safeguards and the associated risk were assessed;
- activities were launched at the beginning of 2019 aimed at identifying the degree of resilience of the water distribution infrastructures in the presence of prolonged drought scenarios associated with climate change.

On 10 January 2019, the Board of Directors was presented with the fourth ERM report; the risk limits for 2019 were also approved, as well as the up-date of the Hera Group risk management policy Guidelines.

The nature of risks and their management

The risks related to the business in which Hera operates and manages from an Enterprise Risk Management perspective are related to the following risk areas, classified as internal, strategic and external, based upon the risk model adopted by the Hera Group.

1. Internal risks

Nature: risks related to various types of risks - such as operational, organisational and ICT risks - are specifically related to the management of services which employ human, technological and environmental resources, and which can cause service interruptions, delays in the construction of new facilities or in the delivery of services, fraud, intrusions, accidents and disasters.

Activity areas: the risks belonging to this driver cut across the Group and regard a wide range of activities that are controlled and managed by specialist teams. The Group gives special focus to workplace safety, to compliance of plant and site operation with environmental legislation and to ICT risk control, especially

risks that have an impact on the logical security of information, the security of information and communication networks, and the reliability of remote control, necessary to ensure adequate service levels to customers and operational safety to Hera's fluid and electricity distribution networks.

Management levers: approach structured on the basis of specific areas in which operational risks arise. In general, a significant role is played by prevention investments to reduce the frequency of adverse events and by mitigation actions to reduce their severity. The management approach for each type of risk is described below.

- **Risks related to legislation on environmental impacts:** the Group's activities are subject to several environmental statutes, laws and regulations, including those on CO₂ emissions, sewage, and hazardous and solid waste management. The Group is able to tackle environmental risks both through ongoing monitoring of potential pollution factors so as to ensure the transparency of measurements, and through major investments in purification and reclamation plants that guarantee better quality of water compared to the limits provided for by law. The waste collection system seeks to increase the percentage of waste treated at selection, recovery and composting plants, and reduce the use of landfills, in line with the provisions of national and European legislation. Environmental analysis of the sites has been improved to allow more effective data collection and determine the significance of environmental aspects in both normal and emergency conditions.
- **Risks associated with regulations on health and safety of workers:** the risk related to accidents has seen a steady reduction in accident rates thanks to the initiatives aimed at better monitoring and improving the protection and prevention processes intended to continually reduce the frequency and the severity of accidents, as evidenced by the lower number of accidents, the frequency rate and the lower number of days of absence due to injury.
- **Risks associated with logical and physical security:** the Group carries out constant monitoring of its IT security risk level, with targeted interventions to ensure the availability, integrity and confidentiality of information managed by the Group. In 2018, the execution of measures continued aimed at ensuring the integrity and availability of Hera systems, with significant value in terms of risk reduction.
- **Risks related to the interruption of services:** many risk factors may influence the regular supply of energy and water due to damages to the network, water shortage or possible contamination of water reserves, thus leading to interruption of the service or significant damages both of an environmental and economic or social nature. In order to tackle these risks, the Group makes important investments designed to guarantee the effectiveness and efficiency of the distribution system. It also carries out constant monitoring and maintenance of its networks in order to guarantee safety, quality and that services are supplied constantly even in the presence of temporary interruptions on one or several distribution lines. Furthermore, growing attention to the physical safety of plant sites reduces the likelihood of damage to them. Within this sphere, as from 2019 an in-depth look was launched at the resilience of the Group water supply and distribution system in terms of a medium/long-term perspective having taken into account the possible effects which the climate change process underway may produce also in the pertinent areas.

2. Strategic risks

Nature: these risks pertain to the formulation of long-term planning, to the implications regarding the Group's financial sustainability, to the decisions to take part in activities of strategic importance and to appropriate investment decisions.

Activity areas: strategic risks involve the Hera Group in its entirety. They affect the soundness of the strategic planning results envisaged for the various sectors and business units. Achievement of these results is conditioned by various internal and external risks that are appropriately simulated, measured and checked.

Management levers: In 2015, Hera developed a structured model of strategic risk analysis designed to measure the soundness of its business plan. Many adverse risk scenarios were considered, contributing to an integrated view of risks with an enterprise-wide logic. The system allows the performance of scenario analysis, stress testing, and possible ‘what if’ events (macroeconomic scenario, competitive environment, internal levers and this also allowing the analysis of relevant internal and external risks), carried out by formulating deterministic and stochastic scenarios through an adequate analysis of risk factors and variables associated to them, and appropriate assessment of the riskiness of the different business sectors. This also allows the evaluation and preparation of alternative strategies aimed at mitigating the adverse effects identified.

3. External risks

3 A. External risks: competitive-regulatory risks

Nature: risks related to regulatory interventions by sector authorities and the law (particularly on tariffs and market structure), to government incentives on renewable sources and sector-related laws, regulated businesses related to the concessions of local and national authorities, failure to obtain authorisations, permits and licences, as well as the impact expected from changes in the macroeconomic environment, the market structure and its liberalisation, the development in supply and demand in energy and environment sectors and possible impact on the group’s business.

Activity areas: with regard to the macroeconomic and market scenario, risks mainly affect the Market Department, which is exposed due to its sale of electricity and gas to the competitive dynamics and to the development of demand, and Herambiente, which is exposed to the variability of the economic cycle. With regard to the regulatory component, competitive-regulatory risks affect network business (water, gas and electricity distribution) and market business (sale of electricity and gas). They occur during the introduction or the modification of economic, organisational and IT requirements which Hera must comply with, as well as during possible changes in the market structure caused by them.

Management levers: approach structured on the basis of specific areas. The management approach for each type of risk is described below.

1. ***Liberalisation of the market:*** over the years, free-market business has become increasingly important in Hera Group’s portfolio, significantly contributing today to the Group’s financial results. On the one hand, it has reduced the importance of regulated business in the Group’s results, while on the other, it has exposed the Group to increasing competitive pressure due to the entry of new operators and to the development of organised markets. In Italy, especially for the electricity business, the Group competes with other national/international producers and traders that sell electricity on the Italian market to industrial, commercial and residential customers. Even as regards the methane business, the Group must tackle increasing competition both nationally and internationally which could lead to a drop in its sales margins. In order to mitigate this risk, the Group has addressed the challenge of liberalisation. On the one hand, it has innovated its commercial offer and improved the timeliness of its offers by increasing its presence and its customer base on the free market through cross-selling activities. On the other, it has gained an increasing proactive approach towards customer management and satisfied its expectations in terms of service quality, by completing the range of services offered to customers and strengthening loyalty. These activities have improved quality and post-sales management service costs for customers and at the same time have reduced new customer acquisition costs.
2. ***Risk connected to the macro-economic context:*** the Group operates mainly in Italy, where the economic scenario is still difficult featuring a slowdown in the consumption of energy and in the volumes of waste disposed of. The decline in energy demands leads to pressure on trading margins that, added to the greater competition on the free market, may impact the Group’s profitability. Furthermore, changes in the levels of retail energy consumption could require Hera to acquire or

sell additional energy at unfavourable conditions. To this end, in selling energy, the Group has maintained flexible supply sources of energy commodities. At the same time, it has developed hedging activities to minimise exposure to operational electricity generation risks (not included in the Group's core activities) and to long-term contractual gas supply formulas ("Take or Pay" clauses). Regarding waste disposal activities, some old plants were replaced with new generation plants provided with more efficient and top-performing technologies also in terms of environmental impact.

3. ***Changes in the legislative and regulatory framework and revision of tariffs in the regulated waste, water and energy sectors:*** the Group operates in regulated markets or regulated schemes in which there is a regulatory risk connected to the definition of the tariff criteria by the national Authority (Arera). A change in the legislative and regulatory framework, both at national and European level, could have a significant impact on the Group's business thus influencing the profitability of the sectors in which Hera carries out its business directly or through its subsidiaries. Furthermore, the regulated tariff regime and the Authority's regulatory interventions could establish, across several businesses, the application of tariffs to final customers and of remuneration mechanisms on the invested capital. This could affect the Group's operating performance and results negatively. In order to address this risk, the Group has adopted an organisational structure that manages its relations with national and local Authorities. The structure carries out extensive consultation activities with institutional stakeholders, taking active part in the work groups set up by the Authorities and adopting a transparent, collaborative and proactive approach towards any situations of instability in the regulatory framework.
4. ***Regulated business risks associated with the concessions of local and national authorities:*** the regulated activities pertaining to waste collection, gas and electricity distribution, integrated water and public lighting services are the result of existing concessions with local authorities (in the case of the integrated water service, gas distribution, waste management and public lighting) or national authorities (in the case of electricity distribution). The Group is subject to the risk that the concessions may not be renewed when they expire or, should they be renewed, that conditions at least comparable to those currently available are not maintained. This risk, however, is mitigated by the presence of a mechanism for reimbursement to be paid to the outgoing operator equal to the industrial residual value of the concession.
5. ***Risks connected to failure to obtain authorisations, permits and licences:*** the Group's ability to achieve its strategic objectives could be adversely affected if it is not able to maintain or obtain the required licences, authorisations or permits for the regular performance of its business. This risk is mitigated by constantly supervising the authorisation processes and taking part actively in working tables in order to achieve relevant permits, licences and authorisations.

3 B. External risks: risks related to weather and climate variability

Nature: risks related to the impact on the Group due to the variability in weather and climate conditions on the electricity and gas demand.

Activity areas: with regard to the meteorological component, risks mainly affect the Central Market Department, which is exposed due to its sale of electricity, gas and heat to the variability of demand arising from the various meteorological scenarios.

Management levers: the Group is provided with demand forecasting tools that optimise the use of available sources, and with adequate flexibility in the supply sources of energy commodities. It is also highlighted that within the context of the long-term trend of climate change, the Hera Group is committed to contributing to its mitigation by complying with energy efficiency goals set by the law, by continuing to constantly improve production and by encouraging virtuous and responsible consumption by customers to reduce CO₂ emissions and, in general, to minimise environmental impact. In this regard, Hera has created a special Esco (Energy Service Company) which has among its objectives the development of initiatives for

both business and domestic customers, aimed at promoting the use of efficient energy production with environmental benefits in terms of CO₂ reduction, and the use of efficient and energy-saving technologies designed to ensure optimal use of energy resources with significant advantages both for consumers and the environment. Lastly, the electricity requirements needed to operate the Group's production sites are met entirely by means of energy from renewable sources.

3 C. External risks: financial risks related to the energy market

Nature: risks relating to variations in the prices of energy, gas and other fuels.

Activity areas: the energy market risks are concentrated in the Central Market Department where the buying and selling of electricity and gas determine risk positions arising from the volatility of energy commodity prices.

Management levers: processes have been set up allowing efficient management of procurement and hedging activities, with specific focus on skills. The approach adopted by the Group involves a single interface for managing risk with regard to the market: Hera Trading, which provides hedging of the Group's risk positions through specific portfolios dedicated to fuel and electricity, allowing for unified management of risks in compliance with the policies assigned. The approach has many advantages, such as the achievement of higher hedging levels, optimisation of costs since resorting less to the market through the use of netting positions, greater structuring flexibility with regard to procurement and supply to customers. Even in 2018, the process proved to have adequate strength in terms of risk assessment and control, ensuring compliance with the limits assigned.

3 D. External risks: financial risks related to the debt market

Nature: risks related to variations in interest rates, liquidity, credit spread and exchange rates.

Activity areas: the Group's financial management is centralised in the Administration, Finance and Control Department which meets the financing needs and cash management for the Group.

Management levers: structuring and implementation of processes for the control and optimal management of financial risks, which makes use of close monitoring of the Group's significant financial indicators and of ongoing presence on the reference markets. The best opportunities are seized in order to minimise the impact of interest rate volatility and ensure an efficient debt service through the optimisation of its structure. The procedures for complying with the requirements under Italian Law 262/2005 to ensure that the accounting documents are drafted in a trustworthy manner, are adequately structured and implemented.

3 E. External risks: financial risks related to counterparties

Nature: risks relating to the counterparty's inability to fulfil the obligations undertaken, either in compliance with the economic conditions or in the execution of the contractual provisions (delivery of good/service).

Activity areas: the credit risk has an impact across the Group in the various areas where business is conducted: the sale of electricity, gas, heat, waste management recovery and disposal services, and telecommunications services.

Management levers: a structured origination process has been set up in Hera, which is used for specific procedures of credit risk management and allows adequate selection of counterparties through credit check and/or request for guarantees where appropriate. Positions with customers and counterparties are also monitored constantly and structured actions are planned which provide proactive management; where appropriate, the Group resorts to external transfer of risk through the optimised use of credit assignment.

The prevention of and the fight against corruption

The handling and prevention of fraud

During 2017, the Hera Group drew up Guidelines, in application as from 15 February 2018, for the purpose of facilitating the further development and co-ordination of the internal control system supporting the prevention and handling of fraud.

The Guidelines assign roles and responsibilities within the sphere of the prevention, detection and investigation of potential frauds and further conduct within the organisation consistent and in line with the principles expressed. They also provide indications with regard to the channels to be used, hardcopy post or dedicated e-mail addresses, to report any suspicion of fraud. All the Departments involved must ensure the confidentiality of the information received and handle it in a strictly confidential manner protecting the identity of the whistle-blower, without prejudice to the legal obligations.

A work group was set up, under the co-ordination of the Compliance Law No. 262/05 function, which developed method-based technical support, "self-assessment", for the company Departments and the Group companies, for the purpose of providing them with elements for self-assessment in the identification of the risks and the related prevention controls. This instrument becomes an integral part of the internal control system.

The "self-assessment" includes:

- the types of fraud;
- the fraud risks, or which type of action is implemented;
- the fraud schemes, or how the fraud is implemented.

The document includes, by way of example but not limited to, red flags and analytical controls.

The organisational model for prevention of crimes by the Company

Italian Legislative Decree No. 231/2001 introduced a regime of administrative liability into the Italian legal structure. These measures are applied to entities which commit crimes in their own interest or to their own advantage. These crimes may be committed by natural persons acting as representatives, directors or managers on behalf of the entities, or by natural persons acting under the supervision of such persons or subjected to supervision on their part.

The Board of Directors of Hera SpA and the main subsidiaries of the Group have adopted an organisation, management and control model (231 Model) to ensure conditions of correctness and transparency in conducting business and company activities. The model includes the principles of conduct formalised in the Code of Ethics.

The companies provided with a "231 Model" are: Hera SpA, Acantho, Asa, Frullo Energia Ambiente (Fea), Feronia, Hera Comm, Hera Luce, Hera Servizi Energia, Hera Trading, HERATech, Herambiente, Herambiente Servizi Industriali, Hestambiente, Inrete Distribuzione Energia, Uniflotte and Waste Recycling. Furthermore, AcegasApsAmga, Energia Base Triesta, Aliplast, Alimpet (these two companies until December 2018), AcegasApsAmga Servizi Energetici SpA and Marche Multiservizi are provided with their own "231 Model". All these 22 companies (76% of the total of the companies) include 98.2% of Group employees.

Following the mapping of sensitive company activities, at risk of the offences included in Italian Legislative Decree 231/2001, the Group companies defined specific protocols to be followed in carrying out certain activities, and made the consequent information flows available on a periodic basis. These protocols are circulated to the entire workforce through the corporate intranet. Their application is monitored during the audit phase. In 2018, the management and communication of the confidential, privileged and significant information and management of the laboratory activities protocols were up-dated.

The Internal Auditing Department ensures assistance to the various company units in drawing up and implementing necessary corrective action following the audits and, for the purpose of raising the

awareness of and training the beneficiaries of the 231 Model it held specific courses care of the subsidiary companies (Asa and Waste Recycling) which concerned aspects of general importance such as the 231 Model of the Hera Group, the Group Protocols, the Internal Control System and aspects focused on the activities of the same.

Furthermore in 2018, the process was launched for the definition of a management system for the prevention of corruption compliant with the ISO 37001 standard. It is envisaged that certification will be obtained for Hera SpA by the end of 2019.

Risk analysis for definition of the internal audit plan

The Internal Auditing Department's activities focused on the sectors with the highest risk levels in the Risk Assessment, a document that identifies and weighs - through assessment of the Group's business areas and of the infrastructure processes - any risk factors and critical points, including the risks of fraud, providing details on the level of risk determined for each segment. On the basis of the Audit Plan for the 2016-2018 period previously approved by the Board of Directors of Hera SpA, the consequent internal audit plan was brought to a close over the course of the year.

With reference to the specific risks related to the topics included within the scope of Italian Legislative Decree No. 231/2001, including the corruption-type risks, identified in the 231 Risk Assessment for the 2016-2018 period, the Supervisory Body in turn carried out the activities set out in the Audit Plan, drawn up on the basis of the risk assessments, coverage of new processes, regulatory developments and the extension of the scope of activities of the companies.

The Hera Group Internal Auditing Department in 2018, in relation to the Group processes, carried out the Risk Assessment with the aim of drawing up an Audit Plan proposal for the three-year period 2019-2022. These activities were carried out on the basis of the results of the previous assessments, on the outcomes and the key aspects of the audit activities performed, the ERM analysis presented to the Board of Directors of Hera S.p.A. in January 2018 and in relation to the sector risks deriving from benchmarks of other companies. The assessments, referring to the risk event, were guided and gauged in relation to the type of the processes or the business: the drivers which supported the assessments and the prioritization of the risk aspects took into account the peculiarities of the Group. The 231/01 risk offences have been identified by macro-processes, assessed *ad hoc* and included in the risk assessments within the sphere of the compliance risks.

Managing sustainability

In order to ensure that **social responsibility and sustainability** are an integral part of **corporate planning and management**, in May 2005, the Board of Directors of Hera SpA set up a Corporate Social Responsibility organisation unit, reporting to the Managing Director, which has been a Department since 2010. Hera has thus been one of the first companies in Italy to endow itself with a unit dedicated to corporate social responsibility. As from 1 March 2019, on a consistent basis with the development process undertaken in the last few years, the CSR Department was renamed the **Shared Value and Sustainability Department**. Management is responsible for proposing and defining the company guidelines on corporate social responsibility and on the creation of shared value as well as the policies concerning reporting and accountability of the shared value and on sustainability; it oversees the balanced scorecard system, drafts the reporting on sustainability and proposes initiatives within the CSR/CSV sphere; it works together on the stakeholder engagement initiatives and is responsible for the periodic up-date of the Group's Code of Ethics. The SVS director is a member of the Group's Ethics and Sustainability Committee.

The Corporate Social Responsibility (CSR) function is present in **AcegasApsAmga**; it reports to the Executive Director and ties in with the General Manager, and is responsible for co-ordinating, supplementing and applying - in the geographic and corporate context managed - the company guidelines relating to corporate social responsibility, as well as the policies regarding reporting and accountability on sustainability and

ensuring the drafting of specific reports and KPIs regarding sustainability and CSR, ensuring information for top management on the trend of the pertinent aspects.

The Code of Ethics

The Code of Ethics is the document that contains **the commitments and ethical responsibilities** to be implemented by the managers, the workforce and collaborators of the Group for the achievement of corporate objectives. The Code of Ethics guides the business management and the individual conduct towards the observance of the ethics values and the principles of the functioning of Hera which represent, together with the mission, the basis of the principles contained in the articles which make up the Code. **Supplier qualification is subject to acceptance of the Code** and the supply contracts drawn up by the Group include termination clauses linked to the failure by suppliers to comply with the principles of the Code of Ethics.

The Code of Ethics was approved by the Board of Directors in 2007 and is subject to **checking and updating on a three-yearly basis** by means of a participative process which see all the workers and the trade unions involved. The current version of the Code of Ethics (the fourth) was approved by the Board of Directors in February 2017; during 2019, the **fourth participated process** for the checking and possible updating of the same will be carried out.

All the new recruits and the new employees entering the Group further to corporate acquisitions are involved in a half-day training session on the contents of the Code of Ethics via the ethical game **AlfabEtico**. Furthermore, since 2013 the Hera Group has undertaken an intense programme for raising awareness on the Code of Ethics annually addressing **25-30 managers** (management white-collars, middle managers and executives) by means of the **Corporate Social Responsibility and Code of Ethics in current operations** seminars.

The SA8000 Quality, Safety, Environmental and Social Responsibility system

With regard to the Hera Group, 2018 was characterised by the changeover to a new certification body. In 2018 a European tender was called on conclusion of which Bureau Veritas Italia was awarded the certification services on all the schemes existing at the end of 2017 for the three-year period 2018-2020, for all the leading companies of the Hera Group.

Activities were launched in 2018 with the new body for the renewal and maintenance of the various certified schemes. All the certification activities concluded positively with the maintenance of the certification of the integrated quality, safety and environment, and energy system of Hera Spa and its direct subsidiaries including Inrete Distribuzione Energia, Uniflotte, Acantho and HERAtech, as well as the Herambiente, AcegasApsAmga and Hera Comm Groups.

In 2018 **Herambiente**, continuing with the process towards a circular economy, obtained the new certification of the biomethane produced and refined care of the Sant'Agata Bolognese (BO) plant. This certification, envisaged by Italian Ministerial Decree dated 23 January 2012 and compliant with the UNI/TS 11567 "National certification system for the sustainability of biofuel and bioliquids" standard is indispensable for being able to introduce the biomethane into the network as biofuel. It certifies that throughout the entire biomethane production chain, the criteria of sustainability have been satisfied for the purposes of the traceability and the mass balance.

With regard to **AcegasApsAmga** and its subsidiaries, in 2018 progressive interaction of the management systems of Hera Luce and AcegasApsAmga Servizi Energetici was carried out and will be completed in 2019 with the assignment to Bureau Veritas of all the certification services (9001-14001-18001-SA 8000-50001-11352 and F-Gas) for these companies as well.

Marche Multiservizi continued with the growth process of its integrated management system, confirming in 2018 all the quality, safety, environment and energy certifications with the current Body DNV-GL, and

also extending the field of application of the certificates to the public lighting and traffic light system service, acquired during the year. Mention is made of the up-date of the ISO 9001 certification in line with the new review of the standard (ISO 9001:2015) and the attainment of the UNI CEI 11352:2014 Management of energy for companies which provide energy services (ESCO) certification.

In 2018, the first Group review was completed in which for the first time the results of the various management systems on the main environmental and safety aspects were presented to the Senior Management of the Group. This review provided Senior Management with elements for identifying new opportunities for synergy regarding the system aspects so as to achieve increasingly challenging objectives in terms of standardisation and simplification.

On a consistent basis, periodic alignment encounters were also launched between the company structures which see to the environmental, safety, quality and energy management systems. These encounters, with a view to collaboration and discussion, encourage the exchange of information and the achievement of the standardisation and alignment objectives between the Group companies.

Hera's commitment to quality, safety, environment and social responsibility

Quality management systems establish the requirements that are necessary in an organisation to improve corporate processes in order to increase the satisfaction of final customers, who receive the end benefits of Hera's services. The high diffusion of the Group's certified management systems is shown in the following table.

Certificatio n	Hera		AegasApsAmga		Marche Multiservizi		Group	
	No. of companie s	% of employee s						
Iso 9001	15	99%	6	100%	2	100%	23	99%
Iso 14001	14	87%	5	100%	1	91%	19	91%
Ohsas 18001	12	82%	5	100%	1	91%	17	87%
Iso 50001	3	55%	4	100%	1	91%	8	68%
Sa 8000	1	45%	3	94%	0	0%	4	52%

Hera adopted a process during 2018 which concerns the entire **certification system** of the Group. Within this context, the possibility of obtaining the new UNI ISO 37001 certification for the prevention of corruption for Hera S.p.A. was assessed, the changeover from the OHSAS 18001 to the ISO 45001 was analysed and in conclusion a possible simplification of said certification was assessed.

The international **SA8000** standard, for example, has by now become a **consolidated company asset**, deep-rooted at every level in the various daily practices of Hera's activities. Certification of this kind for the Group also presents a number of aspects of **overlapping with other certifications** such as the OHSAS 18001 relating to health and safety. With regard to Hera S.p.A. and AegasApsAmga S.p.A. the decision was therefore made to archive the fulfilment of a formality abundantly outdated by the standards and the performances which the company automatically establishes, as also emphasised by the certifying bodies which have several times remarked on the efficiency of the control system on the suppliers, the careful management of the findings and an elevated supervision of the management system. SA8000 will by contrast be maintained for Hera Luce S.r.l. and AegasApsAmga Servizi Energetici S.p.A., in awareness of its importance for the purposes of participation in the tenders.

The rooting of the principles sanctioned by SA8000, therefore, is not in discussion and continues to be applied in all the Group companies by means of the corporate Code of Ethics whose principles already ensure a more ample coverage of the same SA8000.

In this context, can be highlighted two aspects:

- the path of defining a single policy for all the companies in the Group that will include the principles of social responsibility not only for workers but for all stakeholders, will continue;
- the responsibilities of the “**Ethics and Sustainability Committee**” have been extended for the precise purpose of encouraging and monitoring the Group’s commitment on sustainability, on a consistent basis with the approach which envisages its integration in the business activities and with particular reference to the objectives of creation of shared value.

The **continuity in the change** is guaranteed both in the **supply chain**, where attention to the work conditions will be maintained, since the activities for the control of these aspects are by now encoded in the corporate procedures, and in the **work conditions of the employees**: the survey on the internal climate will continue without any changes and the aspects dealt with by the Social Performance Team will fall within the various dialogue and discussion channels already active (for example, encounters with the trade union organisations and the safety round table with the H&SS Officers and the Workers’ Safety Representatives (WSR)).

The continuity is also guaranteed with regard to the reporting inherent to the work conditions and the aspects of sustainability which may be addressed to the “**Ethics and Sustainability Committee**”.

Economic value for the stakeholders

The production and allocation of value added

Value added, in this Sustainability Report, is understood as the difference between revenues and production costs not constituting corporate stakeholder remuneration and the purchase costs for goods and services useful for the production process. It is therefore the difference between the revenues and costs incurred for the purchase of the production factors from other businesses and thus represents the value that the production factors within the company, own capital and labour have added to the inputs acquired from outside. Value added is distinct from the value added strictly applying to accounting practices. Here, the methodology applied is that proposed in 2001 by the Gruppo di studio per il Bilancio Sociale (GBS). With respect to the GBS methodology, rentals for use of assets owned by shareholder municipalities and sponsorship costs are considered, as they are deemed significant for stakeholders. In addition, in contrast to the proposal of the GBS, the portion of value allocated to financial institutions was calculated considering the balance of financial income and charges, as deemed a better quantification of the relationships with this type of stakeholder, as opposed to the sole figure of financial charges. With this framework, the gross overall value added distributed is almost equal to the gross value added produced by normal operations.

There are two important reasons for using the indicator of value added. Firstly, it enables quantification of the wealth generated by the company, and accounts for how this wealth was generated and how it is allocated to stakeholders; it is therefore useful for comprehending the economic impacts the company produces. Secondly, through this report it connects the Sustainability Report with the Financial Statements. In this sense, production and allocation of value added provides an instrument by means of which we can reconsider the corporate Financial Statements from the vantage point of stakeholders.

Production of value added

in millions of Euro	2016	2017	2018
Revenues	5,131.3	5,612.1	6,118.9
Other operating and non-operating revenues	430.2	524.8	492.0
Grants received from public institutions	-35.1	-38.8	-40.3
Use of raw and other materials (net of changes to raw materials inventories and stocks)	-2,176.8	-2,606.8	-2,984.1
Costs for reclassified services	-1,799.6	-1,861.4	-1,955.1
Bad debt provisions	-85.1	-103.4	-89.3
Accruals to provisions for contingencies and other provisions	-28.5	-50.6	-46.4
Other reclassified operating costs	-50.7	-52.9	-28.5
Capitalised costs	27.8	43.0	43.2
Gross value added	1,413.5	1,466.0	1,525.9
Portion of profit (loss) pertaining to associated companies and joint ventures	13.8	14.7	14.9
Gross overall value added	1,427.3	1,480.7	1,540.8

The values of the consumption of raw materials and consumables, costs for services and other operating costs are indicated net of the costs considered as stakeholder remuneration.

Gross overall value added generated for stakeholders in 2018 came to Euro 1,540.8 million, an increase of Euro 60.1 million on the previous year (+4.1%).

Distribution of value added to stakeholders

in millions of Euro	2016	2017		2018	
Workforce	524.1	36.7%	551.6	37.3%	551.4
Shareholders	147.1	10.3%	156.9	10.6%	163.6
Company	419.3	29.4%	479.6	32.4%	518.3
Financial institutions/Banks	131.2	9.2%	116.2	7.8%	106.6
Public Administration	202.8	14.2%	173.9	11.7%	198.2
Local community	2.8	0.2%	2.5	0.2%	2.7
Gross overall value added	1,427.3	100%	1,480.7	100%	1,540.8

The portion of value added intended for the **workforce**. Personnel costs fell by Euro 0.2 million, down slightly with respect to last year. The remuneration increases envisaged by the national collective agreement were offset by minor resources following the changes in scope and by the reduction in the average presence of employees.

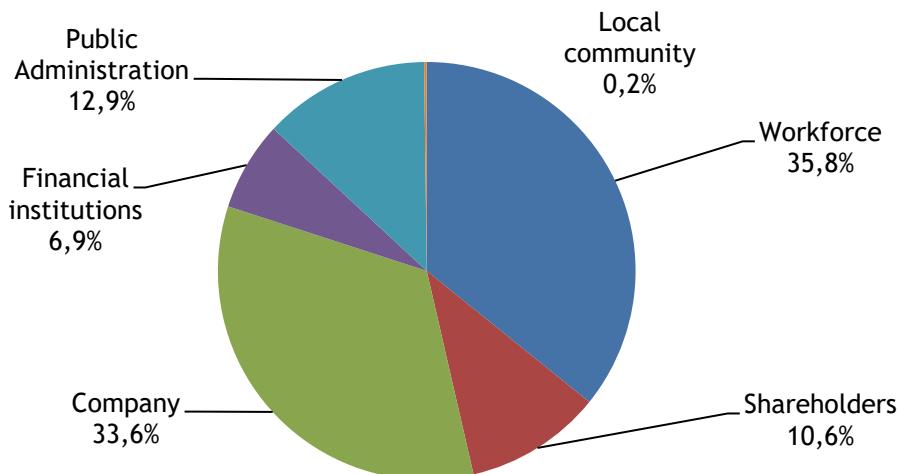
The portion allocated to the **shareholders** of Hera Spa and the minority shareholders of the subsidiaries rose by Euro 6.7 million (+4.3%) and equates to 10.6% of the total, similar to last year. Of this portion, Euro 148.9 million was allocated as dividends distributed to Hera Spa shareholders (up 5.2% compared to 2017, following the increase in the dividend from 9.5 Euro cents per share to 10), and Euro 14.7 million was allocated as the portion of earnings pertaining to the minority shareholders of the subsidiaries of Hera Spa.

A portion totalling 33.6% of the value added generated in 2018 was **re-invested in the company**. This portion increased with respect to 2017 (+8.1%) and includes the net profit for the year not allocated to shareholders (Euro 133.0 million, up Euro 23.1 million compared to 2017) and amortisation/depreciation of investments made (Euro 385.3 million, up Euro 15.6 million compared to 2017); the increase is due to new

investments in the regulated distribution activities and the change in scope of the sales companies Blu Ranton Srl and Sangroservizi Srl.

The portion of value added allocated to **financial institutions** in 2018 came to Euro 106.6 million (6.9% of the total, -8.3% compared to 2017). This share comprises Euro 203.5 million in financial charges (Euro 221.2 million in 2017), and Euro 96.9 million in financial income (Euro 105.0 million in 2017).

Distribution of value added to stakeholders (2018)



The portion distributed to **Public Administration** amounted to Euro 198.2 million, 12.9% of the total (+14% compared to 2017 mainly due to the increase in taxes and duties and the reduction in public grants received, only partly offset by the decrease in payments made to the Public Administration authorities).

Duties and taxes amounted to Euro 143.2 million (9.3% of the total value added distributed) up 29% compared with last year. Of the taxes and duties, Euro 99.1 million was allocated to the Government (Euro 76.1 million in 2017), Euro 32.3 million to the Regional authorities and Euro 11.8 million to the Provincial and Municipal authorities. Business taxation rose from Euro 92.6 million in 2017 to Euro 121.8 million in 2018.

The plants and installations used by the company are in part owned by shareholding municipalities, and **rental payments** are made for their use; the portion for Public Administration also includes environmental compensations paid to the municipalities regarding the waste treatment plants. In 2018, total payments for use of the assets of shareholder municipalities and environmental compensations came to Euro 90.4 million. There was also Euro 4.9 million relating to the running costs of the national (Aeegsi and Agcm) and local authorities. **Public grants** received in 2018 amounted to Euro 40.2 million, Euro 32.7 million of which allocated as operating grants and Euro 7.5 million as plant grants; this item, as already indicated, includes the former green certificates feed in premium contributions for a total of Euro 27.7 million. This amount was subtracted from the portion allocated to the Public Administration.

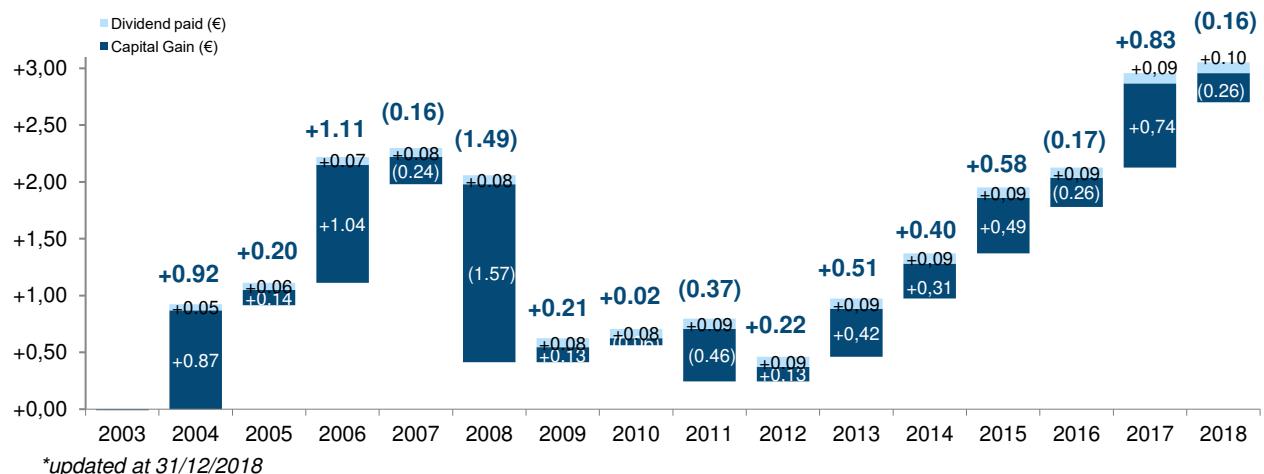
Lastly, Euro 2.7 million was allocated to **donations** (Euro 0.3 million) and **sponsorships** (Euro 2.4 million); details on these items can be found in the “Innovation and contribution to development” section (under “Economic development and social inclusion”).

Shareholders and financial institutions

Hera's commitment toward investors

Hera undertakes to **create value** by placing the quality and efficiency of the services managed and the growth by lines, both internal and external, at the centre of its strategic approach; at the same time, it pursues a balanced development of the strategic areas of its business portfolio. The stability of these strategic policies over time, the handling of a low propensity to risk and the sustainable approach have contributed towards producing economic-financial results constantly on the up over 16 consecutive years, also under adverse market conditions. The **overall share investment return** (total shareholder return), with respect to the IPO, came to +212.1% at the end of 2018: a value which has always remained positive, during a period characterised by considerable volatility on the financial markets.

Total shareholder return from the IPO



During the last quarter of 2018, the **performances of the financial markets** were influenced by the commercial tensions between the United States and China, by the global economic slowdown and in the specific case of the Italian market by the uncertainties regarding approval of the financial manoeuvre. The **Hera stock** ended 2018 with a performance of -8.7%, in any event better than the Italian stock market (-16.7%), reaching an official price of Euro 2.674, compared with a price of Euro 2.929 at the end of 2017 (level once again achieved in the first few weeks of 2019). **Capitalisation** came to around Euro 4.0 billion, confirming itself amongst the 40 highest capitalisations of the Italian share list. The positive performance of the Hera stock, compared with the trend of the Italian market, was supported by the appreciation of the investors for the business plan presented to the financial community in January 2018 and by the sound fundamentals emerging during the year at the time of the publication of the quarterly and annual results.

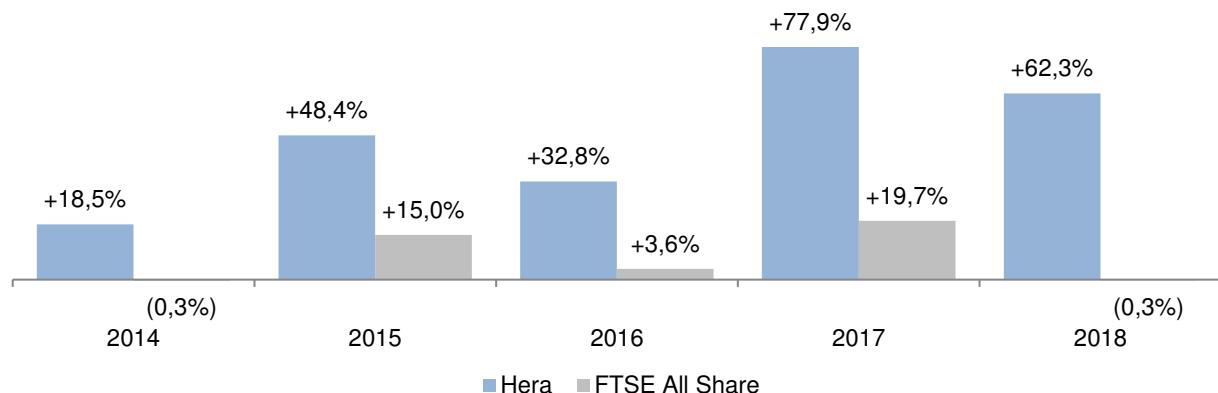
Official share price and average traded quantities in 2018

	QI	QII	QIII	QIV
Official price at close of period (Euro)	2.97	2.68	2.68	2.67
Average volume traded (thous.)	2,695	2,382	1,626	1,832
Average volume traded (in thousands of Euro)	7,812	6,780	4,522	4,627

The Hera official listed price at the end of 2018 disclosed an implicit valuation premium with respect to the local utilities sector. The multiple of the **business value on the gross operating margin** (EV/Ebitda) was in fact equal to 6.4 compared with a 6.0 peer average, and also the multiple of the **share value on the net**

profit (P/E), equal to 14.6, exceeded the 10.6 average. The greater valuation which the market acknowledged Hera with respect to the main listed local utility companies reflects: the persistent outperformance of the final results with respect to expectations, the future growth prospects of the business results, the low risk implicit in the mix of the strategic business areas, the stability of top management over time, the diversified composition of the shareholding structure and the time series of the results undergoing continual growth.

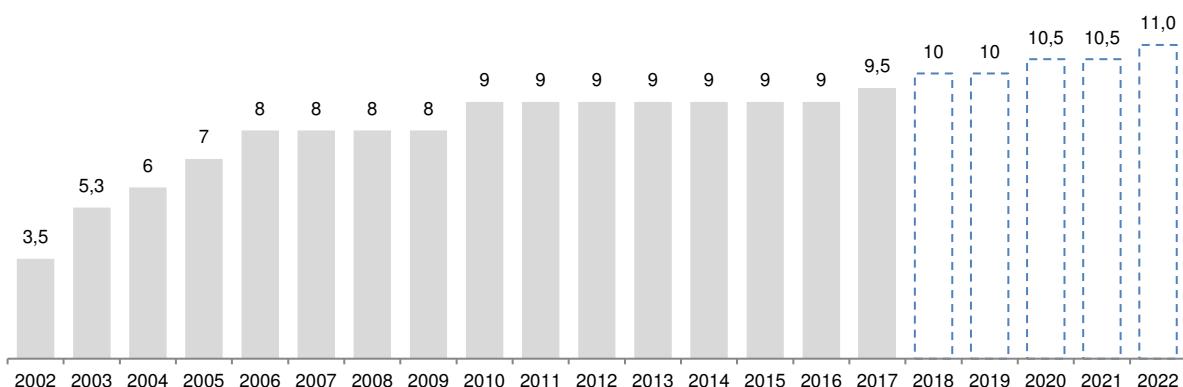
Performance of the Hera stock with respect to the market (accumulated performance)



The Hera stock disclosed a better performance than that of the Italian market in the five-year period 2014-2018, with listings up by 62.3% between 2013 and 2018 compared with a drop of 0.3% in the Ftse Italia All Share index.

The **dividend policy** has been identified as the most important component of the remuneration of the invested capital. Hera has ensured a **constant and rising flow of dividends** since listing: it has distributed Euro 1.51 billion in total since its establishment in 2002. The stock has thus been included in the Etif Spdr S&P Euro Dividend Aristocrats during 2016, a basket of 40 European securities (only four are Italian, including Hera) which distinguished themselves due to the uninterrupted distribution of stable or rising dividends in the last 10 years.

Dividend distributed (Euro cents per share)



In the five-year business plan, presented in the first few days of 2019, Hera increased the remuneration objectives for the shareholders envisaging a **minimum dividend rising** up to 11.0 cents per share at 2022, up +16% compared with the last dividend distributed. This policy permits the shareholders clear visibility on

the minimum future return of their investment with respect to the remuneration used by other companies in the sector, which conditions the dividends dependent on the forecast performance of the net profits (pay-out ratio).

The consensus of the financial analysts deems the Hera dividend policy to be sustainable: it is consistent with the expected cash generation which, after the payment of the dividends, will be capable of improving the equity solidity and financial stability further, already today among the best in the sector with a ratio between net financial payables and Gross Operating Margin of around 2.5 times.

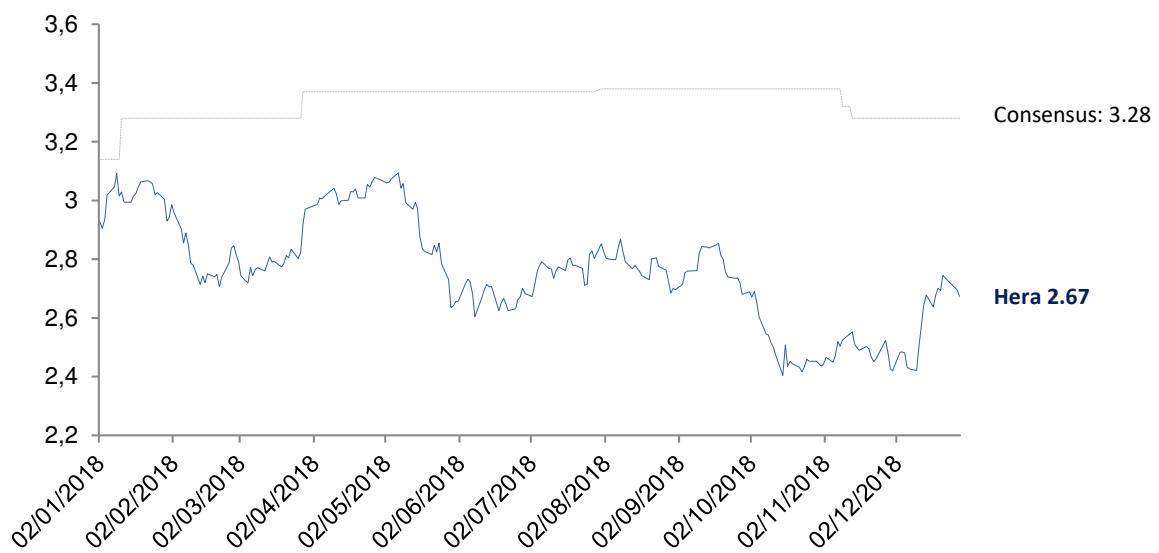
Complete transparency with the shareholders and the financial market on the creation of value

Hera provides the market with significant economic-financial information promptly facilitating the correct assessment of the same and the transfer of the value generated by operations to the listed shares.

In order to ensure the shareholders transparent disclosure, all the press releases which may influence the price of the stock are disclosed in real time. The communication is tailored and forwarded via various channels to all the categories of investors (institutional, SRI, private and retail, public institutions) and ensures accessibility to the main information both of an economic-financial and social and environmental nature.

Hera continues to make the greatest commitment so as to ensure a plurality of professional and independent appraisals on the company's value. At year end, a net predominance of brokers (seven out of eight) had a favourable opinion on Hera stock, while sales recommendations were absent. Supported by the economic results presented quarterly by the Group, the analysts expressed upwards assessments during the year, with the average target price which rose from Euro 3.14 to Euro 3.28 at the end of the period.

Hera share performance and average consensus compared



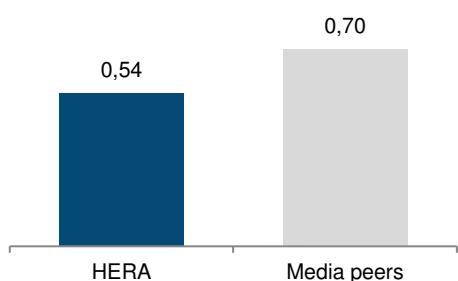
Appraisal and target price of the analysts which follow Hera stock

Company	2018	
Banca Akros	Buy	3.30
Banca IMI	Buy	3.60
Equita Sim	Buy	3.20
Fidentiis Equities	Buy	3.30
Intermonte	Outperform	3.20
Kepler Cheuvreux	Buy	3.40
MainFirst	Neutral	3.05
Mediobanca	Outperform	3.20
Average target price		3.28

The commitment to reduce the investment risk

Hera pays great attention to the monitoring of the risk components associated with the trend of the stock on the stock market, such as the volatility of the listed prices and the liquidity of the market trading.

Hera and peer 3-year Beta



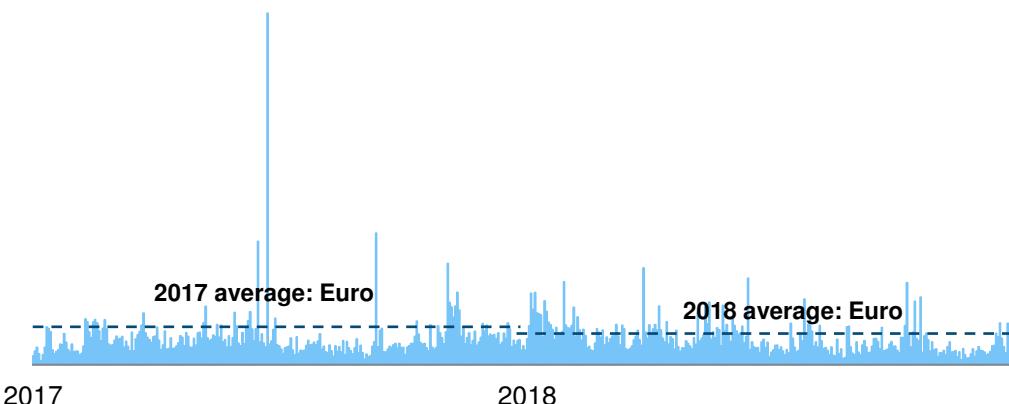
Source: Thomson Reuters. The peers considered in the analysis are Acea, A2A and Iren.

Once again in 2018, the stock disclosed a **volatility index of the listed prices** (Beta index) more conservative than the average of the shares in the sector. This characteristic is consistent with the strong resilience of the economic results, the low risk profile and the soundness of the governance.

The **daily average volumes** in 2018 came to 2.1 million shares traded (-5.4% compared with 2017), while the average equivalent value of the daily trading came to Euro 5.9 million (-2.0% compared with 2017). The average volumes traded were better with respect to that reported by the peers who by contrast disclosed a more pronounced decrease of -7.8%.

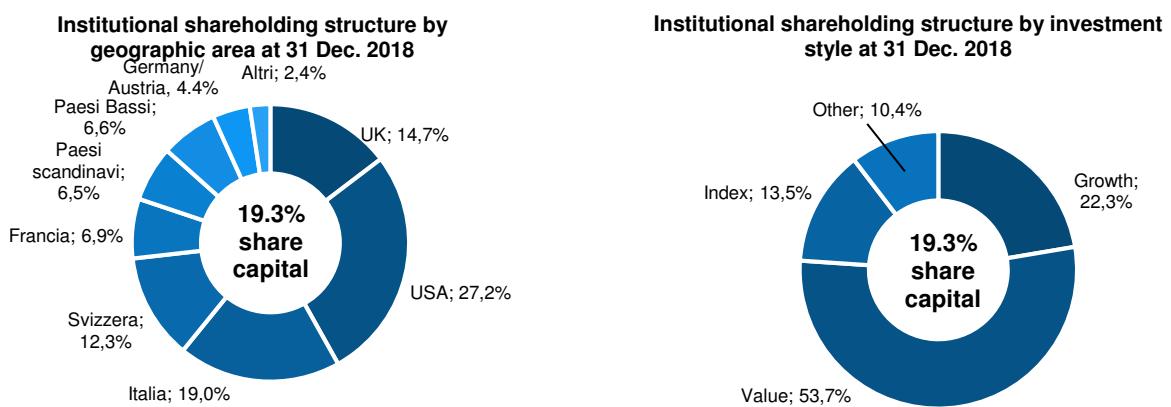
The greater liquidity of the daily trading with respect to the peers made it possible to draw the values of the sales orders closer to those of the purchase orders, revealing a lower spread (0.27%) with respect to the average of the other securities in the sector (0.28%). A more consistent comparison with the securities not included in the FTSE MIB index (such as for example Acea and Iren) discloses an even more favourable condition (0.27% with respect to 0.31%).

Value of the trading in 2018 and 2017 compared (in millions of Euro)



The **liquidity of the stock market trading** is also the result of intense dialogue with the financial market operators, with around 316 contacts and meetings in 2018, and the launch of new relations with professional investors which have an investment style consistent with the share profile of the Group.

The **diversification of the institutional investors** between the shareholders of the company is also an important factor for facilitating an on-going evolution of the shareholding structure and a balance of the listed prices of the stock over time. As the following diagrams show, Hera presents a balanced geographic and investment style diversification of the professional investors, benefiting the resilience and low volatility of the stock.



In the diagram on the right, the item Other contains: equity hedges, hedge funds, momentum specialty, yields. "Growth" investors are understood to be investors which select the securities on the basis of the expected growth rates; "Value" investors select the securities on the basis of the fundamentals; "Index" investors select the securities replicating the indexes or using algorithms.
Source: Thomson Reuters

The **growth in the Value investors** with respect to the previous year, reflects the solid fundamentals expressed by the Group at the time of the presentation of the quarterly results which were not fully reflected in the listing of the stock, as moreover highlighted by the increase in the gap (potentially rising) between the target price of the analysts and the price of the stock.

The Hera stock is included in the FTSE Mid Cap, FTSE All Share and FTSE Italia Servizi Pubblici of Borsa Italiana share indexes. During 2018, the stock was constantly included - in the four quarterly reviews - within the reserve list for inclusion in the FTSE Mib index, the basket which contains the leading forty companies in the country in terms of free float and liquidity of the trading.

Hera Stock simultaneously belongs to **six ethical indexes**: FTSE Environmental Opportunities All Share Index, TR top 100 global energy leader, CDP Climate, CDP Water, United Nations Global Compact 100, Thomson Reuters Diversity and Inclusion Index. The ethical indexes include securities of excellent companies from the standpoint of business sustainability in order to facilitate the investment choices of socially responsible funds (Sri). The organisation of these indexes considers that the companies with sustainable management, from an environmental standpoint, as well as with regard to the dealings with the stakeholders and the corporate governance, obtain significantly higher results than their competitors over the long-term.

Furthermore, the Bloomberg analysts have valued the Group's policies and strategies with regard to inclusion and have assigned a score of 77.85 points out of 100 to the same. The Group score was 4.61 points higher than the average of the companies included in the index and exceeded that obtained by the multi-utility companies in the basket by 3 points.

Hera stock joins the FTSE Mib index

Borsa Italiana has officialised the entry of Hera stock in the FTSE Mib index, the stock market index of the 40 leading companies in terms of capitalisation and liquidity. Hera has been able to achieve this prestigious goal, thanks to both the achievement of 27th position in the ranking of the capitalisations of the Italian companies and to the increase in the equivalent value of the trading (+52% in the first two months of 2019 compared with the average in 2018), further to the presentation of the new business plan.

Corporate Governance and safeguards for shareholders

Since its establishment, the Group has adopted a Corporate Governance system based on the traditional model, which envisages a Board of Directors made up of executive and independent directors, for ensuring in line with the company mission, the protection of the shareholders, the return on invested capital for shareholders and satisfying the stakeholder interests.

Hera's activities are handled by management in compliance with the Code of Ethics adopted by the Group, whose last review was approved by the Board of Directors on 15 February 2017, and aligned with the Code of Conduct promoted by Borsa Italiana S.p.A.

Hera's management body has always been heedful of aspects of good governance and protection of the interests of the shareholder: any change to its structure which meets these objectives is promptly adopted without delay.

With this intention, in 2015 the loyalty vote was established, an instrument which makes it possible to assign up to two votes for each share held by the same shareholder for a period of at least 24 months. Shareholders who demonstrate - with the stability of their investment - a greater sensitivity to the long-term growth of the Group and to the active participation in the appointment of the shareholders' representatives, are thus rewarded. In order to fully safeguard the interests of the minorities, the increased/loyalty vote was applied in a reduced version with respect to that envisaged by legislation: in fact, it has exclusive efficacy for the appointment and/or removal of the Board of Directors and the Board of Statutory Auditors, for the changing of the limit to share possession, and for the amendment of the same article which established the increased or loyalty vote.

During the same meeting which established the loyalty vote, the shareholders also approved the increase from three to four of the number of board directors appointed from the lists presented by the minorities: this innovation proposes to attract greater participation of private capital in the choice of the Group's

strategies. Furthermore, to encourage greater participation of the minority shareholders, the percentage of share capital required to present a list for the election of the Board of Statutory Auditors has been reduced from 3% to 1%, as already envisaged for the election of the Board of Directors.

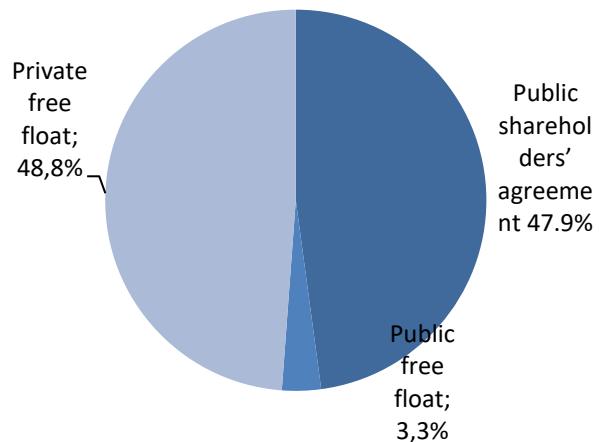
The breakdown of the shareholding structure

Hera's past features a peculiar aspect: the Group is considered to be one of the main interpreters of the sector consolidation process with a merger model which has involved more than 38 utility companies, including the establishment in 2002, and which has ensured more than 40% of the growth of the results in the last 16 years. The merger transactions have been financed mainly by the issue of new shares and have almost doubled the overall number of shares representing the share capital: from 789 million in 2002 they became 1,490 million at the end of 2018. These transactions led to the dilution of the equity investments of the shareholders, and corresponding average growth in earnings per share of +9.9%. The creation of value took place thanks also to the extraction of synergies and the increased economies of scale. The Group's capitalisation at the end of 2018 reached nearly Euro 4.0 billion (compared with Euro 1 billion in 2003).

The shareholders' meeting authorised the exercise of a plan for the repurchase of own shares for a maximum of 60 million shares (equal to 4% of the share capital) for the purpose of creating value for the shareholders and for use in the event of M&A transactions.

The expansion of the shareholding structure maintained a constant balance between the public and private component, and extended the diversification of the shareholders both in terms of number and geographic origin.

Shareholding structure as at 31 December 2018



ESG financial instruments

The Green Bond

In July 2014, the Hera Group - the first in Italy - launched a green bond, with the aim of financing the sustainability investments, so as to contribute via its activities to an improved environmental quality.

The bond issue, availing of the euro medium term notes programme, for a total of 500 million repayable in 10 years, was illustrated to the investors and analysts via a roadshow which was staged in the main European financial marketplaces. The instrument aims to finance or refinance projects linked to sustainability in four main spheres: the fight against climate change, reduction in emissions, quality in water treatment and the waste cycle.

The instrument envisages a coupon of 2.375% and a return on 2.436%. The orders received were mainly taken from investors resident outside Italy (75%) with France, Germany and the UK which reported the greatest percentages, and a predominance of asset managers. 69% of demand came from investors who have Environment, Social and Governance (ESG) among their investment criteria, so-called "sustainable" investors.

The Hera Group thus unveils, in Italy as well, a form of financing already used in Europe by other leading utilities, which places funding at the service of the environment, with resources which will then be specifically allocated to investments linked to improving the environmental performance in the area.

The list of the projects eligible for funding has been established by Hera on the basis of precise environmental criteria and subsequently confirmed by DNV GL to ensure the correct allocation of the funds. With regard to each sphere of the project, a set of indicators have been identified which reflect the environmental benefits associated with the individual initiatives. These indicators are shown within sections "Spreading renewable energy", "Transition to a circular economy", "Sustainable management of water resources" and "Air and soil protection" in this Sustainability Report.

Use of the funds received via the Green Bond

%	Total funds raised (in millions of Euro)	Number of projects
Increase in energy generation from non-fossil sources	57.1	10
Increase in energy efficiency	219.1	7
Increase in the use of waste-to-energy plants for the treatment of waste	173.2	4
Improvement of the purification plants	31.9	4
Increase in separate waste collection and reduction in the use of landfills	18.8	1
Total	500.0	26

Downstream from the fund raising, 26 projects were financed/refinanced, belonging to the categories indicated in the table presented above. Overall, projects financed reached Euro 500 million, covering the entire amount of the bond.

Green bonds are those which associate environmental-type investments and activities with the funds raised. The first financial instrument of this type was issued by the World Bank in 2008. Interest for green bonds has grown over time and 2018 was a new record year in terms of number of issuers; in fact, green bond issues in 2018 came to US\$ 167.3 billion, up 3% compared with last year.

In Italy, the Hera Group was the first to launch this new financial instrument (for an equivalent value of 500 million) and opened the way up for other operators in the utility sector or otherwise. The bond was very successful, with applications for an equivalent value of around three times the amount of the bond.

The first sustainable revolving credit facility in Italy

In May 2018 a new credit facility was taken out for Euro 200 million, entitled "ESG Linked RCF Facility", which introduces elements of sustainability by means of an incentive mechanism linked to the achievement of specific environmental, social and governance objectives. In the commitment undertaken with the banks, a number of sustainability performance indicators have been defined, by virtue of which the multiutility company may benefit over time by more favourable rates.

In the definition of the agreement, the Hera Group availed itself of the collaboration of Vigeo Eiris, which drew up an independent opinion with regard to the significance of the identified indicators and the level of ambition of the future improvement of said indicators, to which the margin of the transaction is linked.

The following supported Hera in the club deal: BBVA in the role of Sustainable Coordinator, BNP Paribas and UniCredit as Documentation Agents, and Crédit Agricole CIB as Facility Agent. All the financial institutions involved also operated as Mandated Lead Arrangers.

The spheres of the identified indicators coincide with two CSV drivers: smart use of energy and efficient use of resources. In particular, they concern the following areas of CSV impact: promotion of energy efficiency, reduction of greenhouse gas emissions and transition towards the circular economy. The identified indicators are among the GRI indicators of the Sustainability Report submitted for external audit.

Hera is classified fifth among the best companies listed according to the Integrated Governance Index, obtaining first place in the extraordinary survey into the links between business and responsible finance. One of the reasons which have contributed to the achievement of this success is precisely the launch of the first sustainable revolving credit facility in Italy. The Integrated Governance Index is the only model for the analysis of the degree of integration of the ESG factors in the business strategies and has been created on the basis of the answers which 47 among the leading 100 listed Italian companies provided to a questionnaire comprising around forty questions. The research confirms the growth of awareness regarding the need to integrate sustainability in the strategies of the companies and highlights an interest which increasingly concerns roles of the company other than the CSR manager, in particular in the finance area.

Dialogue with our stakeholders

Hera's stakeholders

For an industrial group with the characteristics of Hera, it is essential to take into account the needs and demands of all stakeholders which often may not be in agreement.

A management approach that encourages corporate social responsibility and sustainability entails taking into account all legitimate demands of the various categories of stakeholders, balancing these demands and integrating them into the company strategies.

From a survey of corporate stakeholders, a map of corporate stakeholders was defined and the following were identified for each category identified:

- composition and presence of objectives of particular interest;
- topics considered to be a priority;
- listening, dialogue and consultation activities carried out during the year.

Dialogue and consultation initiatives

Hera's significant commitment to involving stakeholders is by now part of the operational structure of the departments that deal with the relations with various stakeholders.

The continuation of the Local Advisory Boards (HeraLABs) and the start of 2 new HeraLABs in Ravenna and Modena according to the new model, the **improvement actions after the 2017 climate survey** and the **customer satisfaction surveys** on all types of customers, are actions and projects that have led to a solid, preferential communication channel with the local community and main stakeholders, and have become normal analysis methods that allow us to identify areas for improvement. The results of these activities are assessed by Top Management.

Activities to raise awareness and provide training on the Code of Ethics continued in 2018.

In the sections of the report, the approach used and the results of the main dialogue and consultation initiatives carried out in 2017 are set forth by stakeholder category.

Stakeholders	Main categories	Key issues	Key listening, dialogue and consultation initiatives
Workforce	- Employees - Non-employee workforce - Trade unions	Stability, internal climate, training, career advancement, bonuses, remuneration, life/work balance, equal opportunities, safety, internal communication	<ul style="list-style-type: none">- over 7,000 employees involved in the 19 yearly meetings that the Executive Chairman and Managing Director held between May and June in Hera Group's local areas to illustrate the business plan and development prospects- Code of Ethics training: in 2018, training on the Code of Ethics in day-to-day management continued, now in its sixth edition, involving 25 individuals- Herasolidale: the third edition was launched in 2018; all employees were involved in choosing 5 out of the 15 non-profit organisations selected- Heureka+: 3 new challenges and 39 ideas submitted by workers in 2018 for the project dedicated to Group employees' ideas for innovation
Customers	- Residential customers - Citizens residing in the areas served - Business	Service quality, tariffs, transparency, safety, service reliability, communication and	<ul style="list-style-type: none">- Yearly residential customer satisfaction survey: 6,500 interviews to Group customers- Conciliation (ADR - Alternative Dispute Resolution): over 227 requests for conciliation by customers- 855 cases managed through the direct contact channel

Stakeholders	Main categories	Key issues	Key listening, dialogue and consultation initiatives
	customers - Consumer groups and trade associations	information	with consumers' associations - 14 meetings in 2018 with the concerned associations , in the seven areas in which Hera operates.
Shareholders	- Public shareholders - Institutional investors - Private investors - Financial community - Ethical funds	Dividends, share performance, investor relations, corporate governance aligned with best practices	- Investor relations activities: meetings with 317 investors - Yearly publication of the calendar of corporate events - Interactive tools for analysing stock and business results through benchmarking with main peers available to analysts and investors on the website - High participation of shareholders (69% of share capital) in the meeting held on 26 April 2018
Financial institutions	- Banks - Bond market	Continuity of relations, long-term solidity of equity	
Suppliers	- Suppliers of goods, services and work - Qualified suppliers - Local suppliers	Continuity of relations, qualification, bargaining conditions, payment conditions	- Meetings continued with representatives of social cooperatives working in Emilia-Romagna for monitoring the employment of 816 persons facing hardship
Public Administration	- Local authorities of reference: Municipalities, provinces, regions, their associations and local bodies - Regulatory and control bodies - Universities and research institutes - State agencies	Transparent communication, concern over local issues, compliance with the law, correct management practices, innovation, partnerships	- The area managers organised 1,750 meetings with mayors and received 2,624 requests from the Municipalities of the local areas served
Local community	- Local associations - Trade associations - Media - Residents in the vicinity of production plants - Citizens' committees	Strengthening of dialogue with the local community, support for initiatives, local investment, transparent communication, socially responsible corporate management	- 15 meetings held in 2018 in the 6 active Labs: 69 representatives from the various stakeholder categories took part in them - 260 participants in the convention held in Bologna on 4 June 2018 to present the 2017 Sustainability Report - 205 guided tours in 2018 of Herambiente plants with over 4,546 visitors, 3,500 of which were students
Environment and future generations	- Environmental associations - Trade associations - Technicians and experts from other	Production of energy from renewable sources, energy and water saving, district heating, water	- Hera and AcegasApsAmga promoted a wide range of initiatives to promote energy and water savings, the use of mains water and separate waste collection

Stakeholders	Main categories	Key issues	Key listening, dialogue and consultation initiatives
	companies - Technicians and persons competent in environmental issues elected by the inspectorates	withdrawal, greenhouse gas emissions, atmospheric emissions, separate waste collection, waste management and disposal	

Customer satisfaction survey

Since 2005, the quality of our services has been assessed through annual customer satisfaction surveys aimed at defining improvement measures. Since 2014, as well as Hera's residential customers, the survey has included the customers of AcegasApsAmga (Padua and Trieste), Hera Comm Marche (Pesaro and Urbino) and Amga (Udine).

Assessment of overall satisfaction of residential customers

CSI (from 0 to 100)	2016	2017	2018
Service satisfaction index (Services CSI)	75	75	75
Overall satisfaction index (CSI)	70	70	71
Global satisfaction	73	73	74
Satisfaction with respect to expectations	69	69	70
Satisfaction with respect to the ideal	68	68	69

The satisfaction index increased in 2018: it rose by one point and settled at 71, exceeding the high satisfaction threshold. The satisfaction rating for the services provided remained stable at 75 points: again an excellent result. All services exceed the threshold of 70 points, which indicates a high level of satisfaction.

The contact channels show an excellent level of customer satisfaction and above all are consistently high: the ratings of branch offices, call centres and online services are above 78 points, which means that customers will always find competent operators and appropriate procedures, regardless of the contact channel. The "app" channel started to be monitored in 2017, reaching a satisfaction rating of 79 in 2018. Customer loyalty grew for the second year in a row, reaching an excellent rating of 80.

The methodology used for the customer satisfaction survey

The Customer Satisfaction survey is based on an internationally recognised methodology designed to assess the quality of services offered and customers' overall satisfaction with Hera. The number of telephone interviews rose by 5%, settling at over 6,500 replies. The survey was conducted by Computer Aided Telephone Interviews (CATI) with a survey population chosen so as to ensure that the sample is representative of the customers of all of the Group's services. Monitoring was carried out by interviewing the main contact for Hera within the household. The questionnaire, which lasts around 15 minutes, monitors satisfaction components and measures future behaviour (word-of-mouth, loyalty etc.) towards the company. The assessments of the results are expressed in numerical scales, divided into levels of satisfaction: under 50 points indicates insufficiency; up to 60, "minimal" satisfaction; between 60 and 70, a good level of satisfaction, and above 70, a high level of satisfaction.

From the second half of 2017, the call centres, branches, Online Services and app are monitored through daily interviews conducted the day after the contact has been made, in order to gain insight into the

customer's satisfaction while the experience is still fresh. Over 10,000 interviews/month are carried out using IVR (by telephone with pre-recorded questions) and CAWI (by email) methods. In 2018, immediate daily interviews became operational; since the calls are made straight after contact, the experience and opinions of customers are more accurate. Around 140 thousand interviews were carried out in 2018 to monitor the contact channels. The portal used for analysing customer evaluations allowed channel performance to continuously improve.

The survey was also carried out for business customers in order to monitor customer satisfaction levels both for the free market and protected market. In the case of companies, the contact for the services provided by Hera is interviewed. The results of the 2017 survey are reported since those regarding 2018 were being processed on the date of approval of this report.

Assessment of business customer satisfaction

CSI (from 0 to 100)	2015	2016	2017
Service satisfaction index (Services CSI)	74	73	73
Overall satisfaction index (CSI)	68	68	68
Global satisfaction	71	71	71
Satisfaction with respect to expectations	67	68	67
Satisfaction with respect to the ideal	66	65	64

Other dialogue initiatives with customers

Our **web portal for consumer groups** has been on line since 2011: the section of the Group's corporate website is entirely for representatives of the main associations in the areas Hera serves, who are key contacts for the company in its relations with final customers. For associations, this web channel is an important interface with Hera. They can use it to handle reports and procedures, prevent disputes and minimise the time needed to respond and solve problems. In 2018, **19,262** visitors accessed the web, for a total of **51,698** page views: these figures show a strong growth in traffic, with a 70% increase in page views compared to the previous year.

In addition to the portal, the contacts and operators of the associations can use dedicated email addresses, and phone and fax numbers that, together with the web section, make up a real communication channel reserved to consumer groups. In 2018, **855** cases were managed through this channel (797 in 2017), **77.4%** of which were solved successfully; average resolution time was **1.3** days.

Furthermore, in order to build positive relationships and create an increasingly open dialogue, Hera organised **meetings with consumer group representatives and contact persons**, again in 2018. A total of **14 meetings** were held on topics in which the associations showed particular interest or in relation to which they requested clarifications and further details: specifically, updates on the Water leak fund and on Integrated Water Service tariffs, the performance of the customer protection system (Joint Conciliation, Energy Service Conciliation, Consumer Branch Office) and focus on the quantity-based tariff regarding the Ferrara area only.

Internal climate survey and other dialogue initiatives

Following the 2017 climate survey, an extensive improvement plan was designed which involved the implementation of both general actions, which affected the entire company, and specific actions created by the various organisational areas. One of the commitments made by the various Group departments and companies was to set up a plan for the cascade dissemination of all relevant information regarding both group and specific topics.

Furthermore, in 2018, specific activities were carried out to analyse the company areas that in the 2017 survey had achieved results that were not in line with the Group score, in order to better address further improvement actions.

A new company climate survey will be carried out in 2019 according to the biennial survey programme that started in 2005.

Internal communication

Many communication activities and aggregation initiatives were implemented during the year to increase the dissemination and sharing of corporate projects and to stimulate the involvement of the entire workforce as part of the Hera community.

The growth process of the digital House Organ continued in 2018: thanks to no less than 340 articles published during the year, it is now considered, together with the company intranet, the leading tool for communication to Group employees. Smart working was one of the most covered topics, designed to reconsider collaborative and team working methods and to seize the opportunities that technology and space can offer to people, allowing them to find a greater balance between work and private life.

2018 was the year of the third edition of HeraSolidale, the Group's solidarity project that supports charity associations throughout the local area. The high level of participation by employees in this edition, which is still ongoing, has already made it possible to increase memberships, increase the social impact of the project and contribute to the 2030 UN Agenda priorities. A new, important aspect in 2018 was the extension of the project to customers, in order to achieve a common goal of solidarity of even greater significance.

Again with a view to contributing to the UN Agenda goals, an internal energy efficiency awareness campaign was carried out during the year to spread a culture in the workplace which is more aware of energy resources. Staff was involved with information and advice on how to save and help the environment, by paying attention to the use of air conditioning, lighting, multi-function printers and paper.

In order to spread an increasingly aware workplace health and safety culture, an internal campaign was launched to raise awareness and train on road safety and health driving styles. The campaign included the creation of various communication materials such as self-supporting posters located in the car parks of the main company offices, videos, screensavers and an online browsable learning magazine with practical information and interactive exercises to prevent home-work accidents.

Employee participation in the 19 Facciamo il punto (Let's take stock) meetings was high (over 7,000 employees). The meetings were held in 14 cities throughout the area served by the Group and allowed the Chairman and Managing Director to inform employees about strategies, results achieved and future goals. For the first time in 2018, one of the events was also held in Ospedaletto d'Istrana, in the province of Treviso, where the newly acquired company, Aliplast, is based.

After the success in 2017, the Percorsi nel cuore di Hera (Journey into the heart of Hera) continued. In 2018, staff was able to discover circular economy by visiting the plants of Waste Recycling and Aliplast. Over 260 Hera employees and their family members arrived from the Group's different areas to discover the technological secrets of our plants, to get to know the work of their colleagues better and to share professional opinions.

The recreational and sporting gatherings organised together with employee recreational associations continued to be greatly appreciated: the eleventh edition of Hera Ski Adventure, the long skiing weekend for employees and their families, counted over 500 participants with a rich programme of activities also for non-skiers, in a highly exciting and inclusive environment.

Even the benefits reserved to employees for access to exhibitions, performances and concerts in which Hera was involved as sponsor or partner attracted strong interest: over 1,362 people used these benefits and enjoyed cultural initiatives throughout the area served.

Recreational associations

Socialisation and interpersonal relations among Group workers are facilitated by the opportunity to take part in recreational activities which are promoted throughout the various areas by recreational associations. These associations organise cultural, sports, tourism and recreational activities, allowing workers to benefit from special commercial agreements and take part in the organisation of dinner parties, outings, Christmas and carnival events, competitive sports events, fishing competitions and ski excursions. These associations also provide members with theatre season tickets and book-lending services. Furthermore, the associations contribute a portion to book spending on the part of student workers and the children of employees. Other discounts are provided for sporting activities and from several businesses. The associations are run on the basis of budgets and yearly programmes: they are managed independently by a Management Board whose members are elected directly by association members. Hera contributes to the activities of the associations by guaranteeing the financial resources provided for by national collective labour agreements and locally stipulated agreements: the company also provides space for recreational activities or for management of these activities. The initiatives are promoted through internal communications instruments to ensure greater visibility.

Excluding AcegasApsAmga and Marche Multiservizi, 4,601 employees were members of the associations in 2018 and the activities of the associations were financed with contributions by the company (approximately Euro 310 thousand).

Relationship with the local community

Associations of which Hera is a member

The Hera Group is present at the highest levels of the organisations which represent the system of local public services, first and foremost Utilitalia. Hera participates actively in the association's activities and supports the institutional communication through the identification of its representative in the different roundtables opened with regulators by the Associations. At local level, Hera takes part actively in Confservizi Emilia Romagna, the regional Association for companies, firms and both public and private entities that manage local public Services in the area of reference. The Group is also a member of AIRU (the Italian association for Municipal Heating), CIG (Italian Gas Committee), FIRE (Italian Federation for the Rational Use of Energy) and CTI (Italian Thermotechnical Committee). It contributes to research activities regarding the public services sector performed by leading institutions, both as a client for specific research and by participating in the scientific debate proposed by them with contributions published under record (AREL - Research and Legislation Agency, AGICI Business Finance, REF Ricerche) as well as by directly participating in top level bodies (such as the IEFE board, Institute of energy and environment politics and economics at Bocconi University). Hera is also a member of the ASPHI (promotion and integration of the disabled via the use of Information and Communication Technology) association, Impronta Etica, (a business association to promote social responsibility), Associazione Aziende Modenesi per la Responsabilità Sociale (Association of Companies from Modena for Social Responsibility) and Confindustria Emilia, Romagna, Forlì-Cesena, Venezia and Rovigo. Hera is also a member of the Circular Economy Network (for supporting and promoting the development of the circular economy), CSR Manager Network (for sustainability issues) and the Global Compact Network Foundation (for encouraging the culture of corporate citizenship promoted and managed on a global scale by the United Nations).

Open innovation and listening to local communities with the new HeraLAB model

Short for Local Advisory Board, LABs are the tool that Hera provides to the areas in which it operates as structured channels for listening to and discussing with local communities. In 2018, the **new HeraLab model** was launched in the areas of Ravenna and Ferrara, and defined on the basis of the experience

started in 2013. The new model is simpler and focuses more on innovation in the services managed by Hera. Meetings are organised over one year instead of three and more space is given to listening to stakeholders. Made up of 12 local stakeholder representatives, the members of the new LABs appointed by the Hera Board of Directors in November 2017 met 5 times in each single area during 2018.

Considering the 6 LABs (of the previous and new edition) as at 31 December 2018, a total of 98 meetings were organised (equal to over 2,100 hours of listening) and 69 members planned and proposed to Hera 68 new projects, 44 of which have already been developed. Specifically, in 2018, 10 ordinary meetings were held and a visit was made to the waste selection, district heating and waste-to-energy plants in Ferrara.

In 2018, 12 projects were co-designed thanks to the new LABs in Ferrara and Ravenna, which will be developed during the following two years.

The 6 projects in **Ravenna**:

- **Partecipiamo a macchia d'olio (Spreading like an oil spill).** The aim of the project is to promote waste oil collection through an awareness-raising campaign that involves all local associations and awards a prize to communities based on the results achieved;
- **Piccoli robot nascono! (Small robots are born!)** The purpose is to find reusable goods in the reuse area at the Separate Waste Collection Centre of Ravenna Romeo Nord, thanks to the participation of the Angelo Pescarini "Arti e Mestieri" School and other non-profit organisations that will supervise their recovery and their use for social purposes;
- **Zero plastica in mare (Zero plastic in the sea).** The project intends to develop a virtuous circle through cooperation with fishermen's unions and other stakeholders, in order to promote the collection of plastic from the sea during fishing activities;
- **E scartoz.** This project belongs to the food waste prevention initiatives and regards the creation of a "green" restaurant network that promotes the practice of using doggy bags for leftovers;
- **Consuma bene e raccogli meglio! (Good consumption and better collection!)** The aim of the initiative is to integrate separate waste collection with drop-off points at shopping centres for the collection of quality plastic or other waste;
- **Dal rubinetto, please! (From the tap, please!)** The aim is to promote the consumption of mains water by shopkeepers and public services for their customers, in order to prevent and reduce the environmental impact resulting from bottled water consumption.

The 6 projects in **Ferrara**:

- **Educational campaigns and foreign language communication.** The project intends to use different forms of communication that are closer to citizens, especially students and foreigners, regarding the rules that must be observed to properly separate waste and at the same time keep the city clean and protect its integrity. This will all be achieved through simple, clear and multilingual communication actions and by involving local non-profit organisations;
- **10 in condotta (Conduct: top marks).** Communication project aimed at effectively explaining the complex nature of the water service also as regards network breakages: from the moment of breakage to when the problem is solved;
- **I numeri parlano chiaro (Numbers speak clearly).** Develop an information system that uses several tools - such as a flyer attached to the bill - to allow citizens to become aware of how the waste they separate at home is used;
- **Compost you!** The purpose of the project is to promote home composting among families and self-composting to target users (such as social vegetable gardens). A communication campaign will be launched to enhance biodegradable organic waste and to promote home composting, through which citizens can collect organic waste, especially green waste, and then use the compost they have produced in a circular economy perspective;
- **Differenziare: il valore del tuo/nostro impegno (Separating: the value of your/our commitment).** The aim of the project is to help citizens become more aware and informed of waste-related issues

- through the use of indicators inside the Separate Waste Collection Centres and at Hera's customer branches;
- **Sportello in centro (Branch office in the city centre).** This initiative regards the opening of a Hera branch office for customers in city centres, which will particularly help elderly people (implemented in February 2019).

As in the first edition, the new edition will also have a Euro 150 "attendance fee" for every member and for every meeting which will be used by the LAB to support local sustainability projects promoted by public and non-profit organisations. In the Ferrara area, LAB participants decided to donate Euro 7,200 to the Agire Sociale Association, while in Ravenna, Euro 3,600 were donated to the Letizia Non-profit Association and Euro 3,600 to the National Autism Parents Association.

The Bologna and Rimini LAB members were appointed in January 2019. Work started in March 2019 with the first meeting on the awareness of Hera and on defining the key local issues that will form the LAB's work areas.

Building the future together, a report on community engagement activities

The involvement and cooperation between companies, citizens, customers, organisations and associations are essential to create shared value. By regulating our daily behaviour, we can all become real drivers of change and help achieve key goals in terms of sustainability, efficiency and social inclusion.

Hera's new sustainability report "Building the future together", available at www.gruppohera.it/report, presents all the initiatives in which citizens, customers and organisations play an active role. Companies and communities meet new challenges, generating long-term relationships and a tangible environmental and/or social impact. Involvement is achieved through **collaboration** with local organisations and through the implementation of initiatives where the combination of different approaches produces benefits to society and the environment. In other cases Hera **enhances** customers and citizens by providing them with tools and knowledge which allow them to produce a positive impact on the environment and society and to acquire new awareness.

In cases where involvement is higher, Hera **involves** citizens and customers in initiatives that generate value for the local area. This category includes, for example, the HeraLABs or "Cambia il Finale" ("Change the ending") and "FarmacoAmico" ("MedicineFriend"), which with a gesture of solidarity allow over 800 tonnes of bulky waste still in good use and unexpired pharmaceuticals to be recovered every year and donated to non-profit organisations throughout the local area, amounting to a value of Euro 550,000.

Communication

Social and environmental communication

Hera Group's environmental communication in 2018 was based on a simple, direct language, which was close to citizens and tailored to the various communication campaigns, all designed to promote effective separate waste collection practices and to raise awareness on the importance of improving waste collection quality.

The citizens of Modena and Rimini were particularly involved in the **campaign to improve the quality of plastic collection**, one of the most complex collections due to the wide range of materials included in this type of waste. To eliminate any doubts, the campaign focused on clarifying the concept of what plastic is. The campaign was broadcast on the radio, in the local press, on digital channels and through awareness-raising actions with information points at leading local markets to reach a wide number of citizens.

The **quality of collected paper** was the experimental communication project implemented in the municipality of Fiorano Modenese. The campaign was organised following a survey involving the citizens of Modena which showed the difficulty in understanding how to dispose of dirty cardboard, especially dirty

pizza cartons. Several communication tools were used: panels applied to collection containers, the involvement of target users (pizza-chefs), window stickers for shops and mascots dressed up as pizza cartons who reinforced the message at markets by handing out flyers and meeting people. Furthermore, a separate waste collection guide was delivered to the households of Fiorano Modenese to remind them of correct material separation rules.

In 2018, Hera was also involved in a broad-ranging **water campaign**. The campaign was set up following a study on citizens in the area served. Its aim was to understand citizens' perception of the quality of tap water, the reasons why it is little used as "drinking water" and the most frequent doubts. It was launched on 22 March on the World Water Day, with information points in main town squares, and continued with publications in local newspapers and flyers attached to all citizens' bills. The highlight of the campaign was the theatrical performance "**Volo sull'acqua**" ("Flight over water"), written by entomologist and writer Gianumberto Accinelli, and interpreted together with Fabio Volo, to discover the value of water through the long chain that allows it to be collected, become drinkable and be supplied to homes. Seven cities (Bologna, Modena, Ravenna, Rimini, Cesena, Ferrara and Trieste) staged the performance, which light-heartedly and with a touch of laughter addressed the main topics of tap water. It debunked false beliefs and pointed out water's characteristics and the 5 good reasons to drink it: strict daily checks, the work of professionals who always make sure that tap water is safe and good to drink, not to mention that it is environmentally friendly, because it saves on plastic bottles, it is a local product since withdrawn from sources located in nearby areas, and is cheaper than bottled water.

Hera on the Internet

Hera is continually committed to ensuring effective web communication, which fully meets the transparency expectations of its stakeholders and is in line with the principles of environmental sustainability which has always been in the company's DNA. The Group website is an important communication tool between the company and citizens, offering a service that is constantly updated and renewed.

Website traffic in 2018 was basically in line with the values of the previous year: an increase in website visits (+2.5%) and single visitors (+0.5%) and a drop in page views (-1.8%). At technological level, the trends of recent years were confirmed with a new increase in traffic from mobile devices, currently at 43.6% (+10.5%).

Website access

Qty	2016	2017	2018
Customers section	129,189	167,697	168,785
Section on Corporate Social Responsibility, sustainability reporting and CSR initiatives	10,443	10,699	10,042
Suppliers section	9,035	9,712	10,000
Investor Relations Section	2,541	3,394	3,799
Other sections	55,896	60,627	65,823
Total average monthly visits	207,104	252,129	258,448
Total page views (monthly)	661,184	766,701	753,087
Total unique visitors (monthly)	130,014	151,485	152,241

Excluding AcegasApsAmga and Marche Multiservizi

What is Hera's presence on the web?

The Group's visibility on social media sharply increased in 2018 (+13%). Hera's presence on the web focuses on blogs, forums and social networks, platforms where the Group listens and responds to the needs of its users and monitors exchanges that are relevant for its reputation. The analysis of over 7,400 posts referring

to Hera showed that the global visibility index is growing on blogs and social networks, while it is lower on forums and YouTube; sentiment increased showing positive ratings.

Among the most frequently discussed topics in 2018: waste management services with the strengthening and reorganisation of the waste collection service, water network maintenance, initiatives and sponsorships, the Rifiutologo and My Hera apps, anti-freeze advice for meters, and the presentation of the Sustainability Report.

In 2018, Hera Group's Twitter account reached 4,762 followers (+105% compared to 2017), with an average of 112 tweets published each month (1,344 total). The tweets had an average 400 thousand monthly views (4,769,000 totals), and generated about 15 thousand shares (5,482 retweets and 9,030 likes).

As to LinkedIn, Hera Group's account followers increased in 2018 by 61% compared to 2017, reaching a total of 44,936. 401 posts were published on the profile during the year, reaching around 28 thousand shares (24,681 likes and 3,050 shares).

The Instagram page has 1,428 followers and publishes 3 posts per week, for a total 119 posts including single photos, videos, photo galleries and sponsorships.

Media relations

The press office manages Hera Group's communication on the local, regional and national news media. This work is accomplished by continuously drawing attention to the company's many initiatives and achievements and to the events that it organizes, both by publishing press releases and by organizing press conferences. This effort complements, in parallel, the promotion of the Group's activities with in-depth interviews with management on specific issues, and by providing, at the request of journalists, information, photographs and videos related to the services provided and to the company's many business areas. The press office also promptly answers letters from citizens, reacts to statements in the media of opinion leaders, public administrators and politicians, countering any critical positions against the company or its services, and provides a direct line, through the press, for local communities and customers. These activities are carried out in collaboration with all the company's structures and with all the Group's companies. Lastly, the office handles relations with the press offices of public and private institutions, associations or third parties to promote joint activities.

A quarterly qualitative and quantitative analysis has been set up to gauge this daily work. It is carried out by a specialised third party, which monitors national and local press. All the articles are weighted according to specific criteria, such as the circulation of the publication, the size of the article, the position on the page, the presence of photographs or lack thereof. The pieces are then grouped according to their tone: positive, neutral, or critical.

Hera-related news items (national press review)

%	2016	2017	2018
Favourable or highly favourable articles	90.3%	94.2%	94.3
Neutral articles	5.8%	4.6%	5.3
Critical or extremely critical articles	3.8%	1.2%	0.3
Total articles (No.)	388	456	448

Hera-related news items (local press review)

%	2016	2017	2018
Favourable or highly favourable articles	73.6%	76.8%	79.9%
Neutral articles	14.2%	11.8%	11.5%
Critical or extremely critical articles	12.3%	11.4%	8.5%
Total articles (No.)	6,825	6,933	6,032

Thanks to the work done, in 2018 Hera's positive visibility in the press (especially the national press) increased over the previous year, while the number of articles was practically stable: 448 out of around 6,500 articles published globally. The large number of articles published reveal the attention by the press and the Group's firm involvement in national and local dynamics, whether specific or general, and demonstrate the role of the company among the nation's leading players. From a qualitative standpoint, the positivity concerning Hera increased and settled at very high levels: 94% on national publications and 80% on local publications. Among the topics that contributed to this positive feedback: the business plan, the economic results, the good performance of the share and market confidence in Hera shares, the acquisitions, innovative projects such as the construction of the biomethane production plant in the Bologna area, the welfare and HR management corporate policies, the broad offer of educational activities for schools, sustainability reporting and related projects, the new waste collection services started in a number of areas, and sponsorships.

For years now, the trend of critical articles has settled at very low levels and continued to drop in 2018: below 1% for the national press and 8.5% for local press, quite a logical result if we consider the nature of the Group's activities and the sensitivity of the public opinion. Negativity in the local media regarded the protests for the expansion of the Imola, Baricella and Finale Emilia landfills, the inconveniences resulting from the reorganisation of waste collection services in Ferrara with introduction of the quantity-based tariff, especially during the first half of the year.

Pending legal proceedings

In addition to the disputes involving customers and suppliers which are discussed in the corresponding sections of this report, at the end of 2018, an additional 586 disputes were pending mainly concerning disconnections of gas supplies to late-paying final customers who, having signed contracts with salespeople for the redelivery points on the distribution network managed by Inrete, were subject to administrative termination as governed by Arera legislation (specifically the Consolidated Law on Gas Delinquency). The remaining disputes refer to different issues regarding claims for damages associated with the management of the services performed by Hera or Group companies. During 2018, 1,037 disputes were settled: 210 with customers, 21 with suppliers and 806 with other stakeholders.

With regard to the networks and plants managed by the Group, the following litigation proceedings brought by associations, citizens and/or other parties/bodies are reported.

With reference to the criminal proceedings pending before the **Forlì Court**, involving Herambiente as owner of the Forlì waste-to-energy plant, after the positive conclusion in July 2011 of the appeal to the Supreme Court of Cassation furthered by the Public Prosecutor related to the attachment of the plant requested since it was deemed hazardous, the proceedings continued during 2012 against a number of Herambiente

executives with regard to the alleged “technical problems” concerning the incineration plant or rather the aspects of potential pollution and suspected administrative violations. Twenty-seven civil parties had brought action in the proceedings, including private citizens, environmentalist associations and public Bodies. Furthermore, summons for the civil liability of Hera Spa and Herambiente Spa had been served. On 22 October 2012, Hera Spa and Herambiente Spa were excluded from the proceedings and consequently any liability. On 6 December 2012, the Judge acquitted all those charged with the offences respectively ascribed to them, on the grounds that there was no case to answer. In April 2013, the afore-mentioned acquittal sentence was challenged by the Public Prosecutor before the Bologna Appeals Court. In its ruling delivered on 3 May 2018, the Bologna Appeals Court confirmed the acquittal sentence of the Court of Forlì.

With reference to the **flood** which, on 24 June 2013, following a violent storm, submerged the street Via Santa Cristina S.P 69 in Rimini and caused the flooding of the Rimini prison and neighbouring dwellings (including that of an inhabitant who died on the same day due to illness), an employee of Hera Spa and 2 other parties were served a notice for a preliminary hearing in which they were accused of disaster and manslaughter. At the date of drafting of this report, the investigation phase is underway.

Worthy of mention is the notification in July 2017 of the decree that ordered the committal to trial of two Herambiente managers, with which the Public Prosecutor of Rimini questioned the **odorous and noisy emissions** from the recovery plant in Rimini which allegedly caused nuisance to the owners of nearby lands. At the first hearing scheduled for 28 November 2017, a local committee was set up as plaintiff for damages and the defence of the Herambiente managers filed an application to settle some of the charges with payment of a fine. At the date of drafting of this report, the investigation phase is underway.

By means of petition brought before the Regional Administrative Court of Emilia Romagna against ATO-BO, Atersir and vis-à-vis Hera Spa and the Ministry for the Environment, Land and the Sea, Federconsumatori Nazionale requested the cancellation, subject to suspension of the efficacy, of the resolution of the ATO-Bologna No. 16 dated 22 December 2011 which concerned the **“Integrated water service: new regulatory period 2011 - 2015 for the operator Hera Spa and 2012 tariff structure”** and of any other preordained, associated, alleged and/or consequential act.

The main reasons for censure concerned:

- the alleged violation of the repealing referendum effect concerning the matter of the adequacy of the remuneration of the invested capital.
- the application, by the challenged resolution, of the Regional Tariff Method which, according to the counterpart, would not be applicable given the alleged lack of legitimization of the Emilia-Romagna Regional Authority with regard to its approval.
- the arbitrary introduction, by the challenged resolution, of the item “Financial charges”, which is not even contemplated by the Regional Tariff Method.

Hera Spa appeared before the court disputing the aforementioned reasons for censure and, by means of Order filed on 8 June 2012 the Regional Administrative Court rejected the application for interim relief presented by the plaintiff. By Court Order, the Regional Administrative Court of the Emilia-Romagna Region declared the appeal expired.

In ruling 1602/2016, Section II of Regional Administrative Court of Tuscany upheld the appeal on additional grounds in case 143/2016 brought by environmental associations (WWF and Italia Nostra) and the appeal number 180/2016 brought by the Campi Bisenzio municipality and accordingly, ordered the annulment of the measure adopted on 23 November 2015 no. 4688 by the officer for Environmental quality of the Metropolitan City of Florence, of the minutes of the related service conferences of and subsequent pleadings for repossession. The object of the measure annulled by the Regional Administrative Court is the granting of an integrated authorisation and IEA for the **construction, management and operation of a waste incineration plant filed by Q.tHermo**. On this matter it should be noted that, in accordance with the provisions of the planning documents on waste, Quadrifoglio (the company that currently manages the integrated service for waste collection in the municipalities of the Florentine plain) called a dual tender to

select a private minority shareholder with which it was to form a NewCo that would handle the design, construction and management of a waste-to-energy plant in Tuscany. The tender was awarded to the temporary consortium formed by the companies Hera S.p.A. and Herambiente S.p.A. which, in compliance with the commitments made for the tender, formed a company called SAT S.r.l. to underwrite a share of the capital of the NewCo with Quadrifoglio, i.e. the Q.tHermo company. The aforesaid ruling of the Regional Administrative Court of Tuscany was opposed before the Council of State before which a hearing was held on 19 December 2017. A decision on the case was not taken. The Council of State filed its decision confirming the objections of the first instance Judge, with specific reference to the fact that the location of the waste-to-energy plant at Case Passerini was closely linked to the environmental redevelopment project and especially to the renaturalising works comprising the so-called "Boschi della Piana" which, instead, had not been built before the construction of the waste-to-energy plant. Q.tHermo started revocation proceedings of the aforementioned ruling in order to obtain its overturning. The Council of State has not yet scheduled a hearing as of the reporting date.

With an action brought before the Regional Administrative Court of Emilia-Romagna in 2017 by WWF, Panda Imola - Non-profit voluntary organisation and Legambiente Medicina against the Region of Emilia Romagna and against CONAMI. and Herambiente, the claimants challenged the decision of the Regional Council of Emilia Romagna dated 21 December 2016, no. 2262 entitled "provision for an Environmental Impact Assessment (EIA) regarding the project for the **expansion of the Tre Monti landfill**: volumetric recovery through raising of the 3rd lot in the municipality of Imola (BO) - Proposers CONAMI and Herambiente" published in the B.U.R.E.R. on 9 January 2017 and related annexes. By way of the aforementioned resolution, the Region issued the EIA ruling regarding the raising of the "Tre Monti" landfill and the claimants challenged its legitimacy, raising as main claim the fact that the Region, since not taking into account the negative opinion expressed by the Ministry of Cultural Heritage, did not set up the referral procedure to the Council of Ministers. Although this negative opinion was not necessary for the raising work, given that this area does not need to comply with any landscape protection obligations, the Regional Administrative Court, with ruling filed on 10 January 2018, upheld the complaint lodged by the applicants. Herambiente challenged the ruling before the Council of State before which a public hearing was held on 20 December 2018. At the date of drafting of this report, the company is waiting for the filing of the ruling.

With distinct appeals in 2015 before the Regional Administrative Court of Emilia-Romagna against Atersir, and against Hera Spa as other party, the Sassuolo municipality, on the one hand, and the Maranello, Fiorano and Formigine municipalities, on the other hand, have sought cancellation of Area Council Resolution 6/2015, issued on 10 June 2015, containing the "Economic and Financial Plan for 2015". The municipalities that are applicants include the Sassuolo municipality, which, in addition to the above resolution, appealed against the Local Council of Modena's decision 3/2015 of 13 April 2015 and every other prerequisite and consequential measure. The municipalities that filed the application complained, mainly, of the lack of discussion to agree on the Economic and Financial Plan, that the cost elements therein were expressed in an aggregated form instead showing the unit cost of services for each entry and the alleged unjustified increase of the costs of the service for municipal and similar-to-municipal waste. Hera Spa appeared before the court disputing what had been claimed in fact and law by the municipalities that filed the application. At the date of drafting of this report, the date of the trial hearing is yet to be scheduled. With further appeals notified in 2016, again before the Regional Administrative Court of Emilia-Romagna against Atersir, and against Hera Spa as the other party to the proceedings, the above municipalities sought the cancellation of Area Council Resolution 25/2016, published on 11 May 2016 on "Approval of economic/financial plans for the municipal waste management service for the year 2016". Hera Spa has appeared before the court and at the date of drafting of this report, the date of the trial hearing is yet to be scheduled.

With further appeals notified in 2017 before the Regional Administrative Court of Emilia Romagna against Atersir, and against Hera S.p.A as the other party to the proceedings, the Municipalities of Sassuolo, Maranello, Fiorano, Formigine, Predappio, Tredozio, Rocca San Casciano, Bertinoro, Forlimpopoli, Galeata, Premilcuore, Meldola, Savignano sul Rubicone, Borghi, Sogliano al Rubicone, San Mauro Pascoli, Longiano,

Gambettola, Roncofreddo, Santa Sofia, Castelnuovo Rangone, Castelvetro di Modena, Savignano sul Panaro, Spilamberto, Vignola, Guiglia, Marano sul Panaro and Zocca challenged, within their area of responsibility, resolution no. 27 of 24 March 2017 and resolution no. 17 of 15 March 2017 adopted by the Authority Council of Atersir and through which the Economic and Financial Plans for the 2017 municipal waste management service covering the local areas related to the above municipalities were approved. A hearing is yet to be scheduled as of the reporting date.

With further appeals notified in 2018 before the Regional Administrative Court of Emilia Romagna against Atersir, and against Hera S.p.A as the other party to the proceedings, the Municipalities of Sassuolo, Formigine, Castelvetro di Modena, Savignano sul Panaro, Spilamberto, Vignola, Zocca, Castel Guelfo, Maranello and Fiorano Modenese challenged resolution no. 9 of 19 February 2018 of the Authority Council and resolution no. 1 of 12 February 2018 of the Local Council, respectively, through which the Economic and Financial Plans for the 2018 municipal waste management service covering the local areas related to the above municipalities were approved. With a similar extraordinary appeal to the President of the Republic, then brought before the Regional Administrative Court of Emilia Romagna, the Municipality of Imola challenged Atersir resolution no. 19 of 19 March 2018 of the Area Council containing the Economic and Financial Plan for the 2018 municipal waste management service relating to the Municipality of Imola, as well as, to the extent concerned, Atersir resolution no. 3 of 8 March 2018 of the Local Council of Bologna. At the date of drafting of this report, the date of the trial hearing is yet to be scheduled.

Relationships with the Public Administration

Integrity in relationships with the Public Administration

Hera is committed to ensuring the highest levels of integrity and honesty in its relationships with the Public Administration. This is why the Group has adopted, and regularly updates, an organisation, management and control model designed to identify specific risks associated with the crimes identified in Legislative Decree 231/2001. This organisation model comprises protocols that strive to ensure transparency and a sense of ownership in internal and external relationships. For each “high risk” process, the protocols identify principles, roles, and responsibilities which should be followed in managing the activities and define the periodic information flows for control. Each protocol ensures the constant monitoring of risk activities for the Supervisory Body, including: relationship management with the Authorities, public loans, sponsorships, donations and gifts and procurement, protection of the environment and health and safety in the workplace.

The procedures adopted conform to the principles of the Code of Ethics and seek to guide Group management based on the values and principles defined in the Charter of Values.

Relations with Local Authorities

The Central Department for Relations with Local Authorities constantly and effectively supervises relations with partner Municipalities and with Local Authorities, with a view to giving proper attention to the areas served by the Group. Despite having a good part of its activities clearly “included” in these areas, the Group is gradually growing in both industrial and organisational terms. All Local Authorities served, therefore, can always and easily reach a contact to receive a response, in due time, to questions and problems on the services provided by the Group, being certain they are talking with the right people and will obtain the required feedback within a reasonable time.

Integration with Strategic Planning and Business Regulations also made it possible to enrich the information content made available to Area Managers, creating a constant, two-way flow of information between the Group and the area served.

During 2018, the Area Managers organised **1,750** meetings with the municipal administrations and handled **2,624** requests of many kinds. In numerical terms, the relations set up following requests and meetings focused mainly on issues regarding the integrated water service (35.4%) and waste management services (33.8%). Less common are issues relating to general business topics (8.9%), technical matters with clients (7.9%) and the market area (6.1%).

Following the work carried out in 2017 which introduced cross-cutting and more homogeneous working methods throughout the areas and which undoubtedly strengthened cooperation with operating lines to ensure more effective local relations, development was started in 2018 with the Group Information Systems for a new Customer Relationship Management (CRM) system, which will enter into operation at the beginning of 2019. This tool will make it possible to introduce customer experience logics into the relations with Local Authorities and to make interactions with them extremely quicker and more effective, while also ensuring a far more streamlined management of available historical data.

With a view to increasing cooperation at Group level, in 2018, monthly meetings between Relations staff and the Local Authorities of AcegasApsAmga were introduced and strengthened to discuss about the topics raised throughout Emilia Romagna. These discussions also led to full involvement in the development of the above-mentioned CRM, which will be used in 2019 by both organisational units.

Lastly, of note is the continuation of the close collaboration with the Shared Value and Sustainability Department concerning the promotion and coordination of the **HeraLABs**.

The relationship with the Area Authority for water and waste services

The Water and Waste Services Regulator for Emilia-Romagna (ATERSIR) was founded by Regional Law 23/2011 and has regional competence since it has incorporated the previous provincial Water and Waste Regulatory Authorities. It deals with the governance of the water service and the municipal waste management services, with functions of service and investment planning, governance and control of the management, and management of activities that are inherent to the award of the water and municipal waste services.

As regards the water service, ATERSIR operates with second level functions as a result of the transfer to the Italian Regularity Authority for Energy, Networks and the Environment (ARERA) of regulatory and supervisory functions which occurred at the end of 2011, with Legislative Decree 201/11.

Starting in 2018, ATERSIR operates with second level functions also for the waste service, following the establishment of ARERA.

ATERSIR is also in charge of determining the tariff for the disposal of non-separate municipal waste according to the tariff method provided for by regional legislation.

The relationship with the Italian regulatory and supervisory authorities

The Italian regulatory authorities that mainly affect the Group's activities are the Regulatory Authority for Energy, Networks and the Environment (Arera), and the Italian Antitrust Authority (Agcm).

The Arera proceedings that directly involved the Group in 2018, as part of the Authority enforcement activities, are reported below.

With reference to the preliminary investigation that was closed due to failure to comply with the obligations to replace the cast iron pipelines with hemp and lead joints (VIS 39/2011), after completing our commitment to rapidly replace them entirely in the Ferrara distribution system, we are going ahead with our commitment to inspect the entire hemp asbestos cement network that will involve the complete replacement thereof as per the timescales set by the Regulation of the Quality of the Gas Distribution Service (RQDG).

With regard to the procedure regarding unrequested electricity or gas contracts and publication of a list of so-called “unrequested sellers”, launched further to the publication of resolutions 153/2012/R/com and 244/2013/R/com, the final report has not yet been published.

Following the audit of July 2017 conducted at the offices of Hera spa and Inrete Distribuzione Energia regarding compliance with the requirements of the indemnification system in the event of customers in arrears (resolutions ARG/elt 191/09 and 219/10), by way of decisions DSAI/7/2018/EEL and DSAI/8/2018/EEL, Arera initiated a sanctioning procedure and imposed the following sanctions: Hera spa Euro 148,740 and Inrete Distribuzione Energia Euro 25,470; both sanctions were paid reduced by one third.

The proceedings initiated by way of resolution 344/2014/S/eel against Hera Comm to establish breaches in the separation of accounts with regard to the separate annual accounts submitted in 2009 and 2010, ended with the imposition of an administrative sanction on Hera Comm of Euro 90,000 (resolution 304/2018/S/EEL).

Lastly, in July 2018, following the results of the inspection of January 2018, by way of decision DSAI 47/2018/EEL, the Authority sanctioned AcegasApsAmga for breach of the Integrated Information System regulations with reference to electricity distribution activities. The administrative sanction, amounting to Euro 57,900 was paid reduced by one third.

Separation between the regulated activities and the deregulated activities in electricity and gas services

The legislation on functional unbundling plays a key role in the reform of the energy sector, since it aims to separate the management of regulated activities from free ones, promoting the development of competition.

In particular, the rules for functional unbundling, governed by the Italian Regulatory Authority for energy, networks and the environment (ARERA) by way of resolution 296/2015/R/com, set the requirements for vertically integrated companies that operate in the sectors of electricity and natural gas:

- the neutrality of the management of the infrastructures under concession;
- the non-discriminatory management of the commercially sensitive information, relevant for the correct development of competition;
- the absence of subsidies crossing over between activities, in particular between those subject to tariff regulation and those carried out on the basis of the free market.

In compliance with the regulations, Inrete Distribuzione Energia Spa, AcegasApsAmga Spa and Marche Multiservizi Spa, vertically integrated in the Hera Group, set up the respective Independent Operators for natural gas and electricity distribution activities.

Independent Operators are tasked with the actual implementation of the functional separation of the activities, which they implement and guarantee by means of the arrangement of a Programme of Fulfilments, containing the measures for pursuing legislative goals.

The Programme of Fulfilments is updated on an annual basis and submitted to the Authority within 30 June every year.

Pursuant to the current legislation, these companies also appointed their own Compliance Officer.

The Compliance Officer checks that the corporate measures and procedures adopted by the Independent Operator are appropriate, and draws up a yearly reports of measures, which is submitted to the Authority within 30 June every year.

Litigation

A number of litigation proceedings were brought against the Public Administration Authorities.

By means of an appeal filed in 2014 before the Regional Administrative Court of Emilia Romagna against the Emilia-Romagna Regional Authority and against Atersir, Herambiente requested the cancellation of Resolution 380 of the Regional Council of the Emilia-Romagna Regional authority dated 24 March 2014, containing "Amendments to the Regional Authority Resolution 135/13 - Provisions concerning the definition, and handling of the increase limit, of the fee for the disposal of municipal waste". Resolution 380/2014 was challenged with regard to the part where it has the effect of laying down the full deduction, from the waste disposal fee, of the revenues from incentives to generate electricity from renewable sources. At the date of drafting of this report, the date of the trial hearing is yet to be scheduled.

By means of an appeal filed in 2015 by Herambiente before the Regional Administrative Court of Emilia Romagna against the Emilia-Romagna Regional Authority and against Atersir, cancellation was requested of resolution 467 of the Regional Council of the Emilia-Romagna Regional authority dated 27 April 2015, concerning "the criteria to define the fee for the disposal of municipal waste and similar pursuant to art. 16(1) of Regional Law 23 of 2011. The appeal particularly objected to two aspects of resolution no. 467, considered illegitimate, i.e.:

- the erroneous inclusion of revenue from incentives for renewable electricity generation among the amounts to deduct from fees expected;
- the lack of specific mention of taxes among the costs incurred by Herambiente that the contested resolution does not recognise.

At the date of drafting of this report, the date of the trial hearing is yet to be scheduled.

With separate appeals, which were then united, Herambiente challenged the following acts before the Regional Administrative Court of Molise:

- challenge of Regional Government Decree no. 231 of 19 May 2015 which identifies as substantial variations the introduction of the CER code 19.12.12, the adjustment of the authorisation for saturation of the thermal load and the introduction of a shredder.
- challenge of EIA regarding the plant of Pozzilli and, for additional reasons, the Integrated Authorisation.
- challenge of Regional Council resolution no. 341 of 28 December 2015 regarding the "Regional plan for waste management". Italian Leg. Dec. 152/2006 Conclusion of the Strategic Environmental Assessment procedure. Adoption of Plan proposal."

The Regional Administrative Court of Molise did not uphold the appeals of Herambiente that on 23 October 2017, challenged the ruling before the Council of State. A hearing has not yet been set as of the reporting date.

Hera S.p.A., Inrete Distribuzione Energia S.p.A., AcegasApsAmga S.p.A. and Marche Multiservizi S.p.A., as well as the other leading operators, challenged before the Administrative Regional Court of Lazio, the ANAC Guidelines no. 11 containing indications for verifying the obligations required by art. 177 of the Tender Code (Italian Leg. Decree 50/2016). The Code lays down the obligation for public or private entities, holders of concessions for works, public services or supplies already in place on the date of entry into force of the Code, that were not awarded by a public tendering procedure, to award an 80% share of the contract for the works, services and supplies relating to concessions for an amount equal or exceeding Euro 150,000, through a public tendering procedure. The remaining part may be performed by in-house companies or by companies that are directly or indirectly controlled or affiliated. Separate complaints were filed for the waste management, district heating, gas distribution and electricity distribution services.

Quality, cost and safety of customer services

Objectives and performance

What we said we would do	What we have done	Area*
<ul style="list-style-type: none"> Continue to implement the installation plan for electronic gas meters: 30% electronic meters were installed by end 2018 and 57% in 2021. 	<ul style="list-style-type: none"> 34% of installed gas meters were electronic at end 2018 (were 22% at end 2017). 	ER T M
<ul style="list-style-type: none"> Improve compliance with commercial quality standards and other services subject to compensation to final customers in relation to gas, electricity, water and district heating services. 	<ul style="list-style-type: none"> 99.6% of cases are compliant with commercial quality standards in 2018. 	ER T M
<ul style="list-style-type: none"> Develop water safety plans using the Water Safety Plans methodology for the aqueduct networks of 2 areas (San Giovanni in Persiceto and Imola). 	<ul style="list-style-type: none"> 2 aqueduct networks with a water safety plan developed using the Water Safety Plans methodology (San Giovanni in Persiceto and Imola). 	ER T
<ul style="list-style-type: none"> Extend the satellite-based water network leak detection system (3,000 km more in 2018). 	<ul style="list-style-type: none"> In 2018 the satellite-based water network leak detection system was extended to 3,000 km (was 3,100 km in 2017). 	ER
<ul style="list-style-type: none"> Emergency gas services: maintain a much higher level than AEEGSI requirements for the percentage of calls answered within 120 seconds and arrival at call location within 60 minutes. 	<ul style="list-style-type: none"> The percentage of response within 120 seconds was 97.4% in 2018, while the percentage of arrival at the place of call within 60 minutes was 96.7% (against a 90% service obligation) 	ER T M
<ul style="list-style-type: none"> Ensure that call centre quality levels and average waiting times at branch offices are in line with those of 2017. Further reduce waiting times at branch offices of AcegasApsAmga. 	<ul style="list-style-type: none"> The average waiting time at the branch offices was 9.6 minutes, a further reduction in all areas and more markedly in those of AcegasApsAmga (from 15 minutes to 12). Average call centre waiting times are in line with previous years. 	ER T M

What we will do	Area
*	
<ul style="list-style-type: none"> 78% of installed gas meters were electronic at end 2022 (67% InRete, 100% AcegasApsAmga, 100% Marche Multiservizi); 43% at end 2019. 	ER T M
<ul style="list-style-type: none"> Update the electricity grid resilience plan implemented in 2018 and execute the interventions planned on primary/secondary substations to automate the network, improving the continuity and quality of service. 	
<ul style="list-style-type: none"> Emergency gas services: maintain a much higher level than ARERA requirements for the percentage of calls answered within 120 seconds and arrival at call location within 60 minutes. 	ER T M
<ul style="list-style-type: none"> Ensure that call centre quality levels and average waiting times at branch offices are in line with those of 2018. 	ER T M
<ul style="list-style-type: none"> Further improve compliance with commercial quality standards for gas, electricity, water and district heating services. Further reduce the compensation paid to customers for non-compliance with standards. 	ER T M

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Customers

Energy services customers

Thousands	2016	2017	2018
Gas customers	1,381.4	1,400.0	1,462.5
Electricity customers	880.1	981.3	1,068.7
District heating customers	11.9	12.2	12.2

Integrated water service customers

Thousands	2016	2017	2018
Total customers	1,453.9	1,458.6	1,463.5

Municipal waste management services

	2016	2017	2018
Municipalities served (qty)	188	187	174
Residents served (thousands)	3,311	3,313	3,136

In 2018, the Hera Group again recorded an increase in its total number of customers. This result confirms the effectiveness of the growth strategy it adopted, i.e. the combined action of effective commercial initiatives and targeted corporate acquisitions.

The increase of over 60,000 gas customers (+4.5%) was achieved thanks to a number of initiatives: commercial activity, the acquisition of successful businesses that apply the same values as the Hera Group uses in their approach to final customers, the enhancement of the experience in last resort markets (last resort supply and default service). As for the electricity service, the increase of over 85,000 customers (+8.9%) was achieved thanks to the excellent sales results for all customer segments. In 2018, two companies active in energy sales in the Marche and Abruzzo regions joined the Hera Group: Blu Ranton and Sangro Servizi. The reduction in the number of municipalities served and their inhabitants for municipal waste management is due to some municipalities of the Forlì area exiting the perimeter.

Commercial policies

Competitive commercial offerings across all customer segments and innovative solutions for energy efficiency were at the heart of 2018's **commercial policies**.

The organization of our **contact channels**, characterized by high service levels, is split among a widespread system of branches, target-based call centres and self-caring web channels. The development of digital technology is increasing over time, but without distracting energy and attention from traditional channels, because only by jointly leveraging all contact channels we will be able to put into practice the principle of **customer proximity** that has always guided the Group's initiatives. This is why the development of new stores in Livorno, Prato and Piacenza continued in 2018. As of 2018, considering the entire area served by Hera and its subsidiaries AcegasApsAmga, Marche Multiservizi and Estenergy, there were 116 branches. As far as the **digital channel** is concerned, in 2018 various "smart" payment methods, such as Amazon Pay or MasterPass, were enabled on the On Line Services and on the My Hera app. Using the app or the On-Line Services it is also possible to book an appointment at a branch office or ask to be contacted: the attention to digital channels has been appreciated by customers, as shown by the almost 100,000 downloads of the app in 2018.

Our **offer portfolio** for mass markets maintains its dual orientation, with fixed price and variable price offers and has been enriched with new rate plans (Hello Hera and Hera Bebè), and new tools to support energy efficiency. Customers can therefore choose among offers of a complete portfolio that responds to a range of needs:

- the **tranquillity of having a fixed price**, for a variable duration period chosen by the customer (from 12 to 30 months), protected from market fluctuations and with a 10% discount in the first year, thanks to the new “Hello Hera” rate plan;
- the certainty of a fixed price for 24 months and **insurance coverage for children** up to 3 years old in the family, thanks to the new “Hera Bebè”;
- the tranquillity of having a fixed price, for 12 months, with a “**welcome gift**”, thanks to the “Welcome Hera” rate plan;
- the opportunity to **access the wholesale energy market** as guaranteed by the “Prezzo Netto” rate plan;
- “Giorno Hera” offers **stability and expense planning** by setting a constant price per day, all year long;

Many solutions to support energy efficiency were launched in 2018:

- Hera No Problem, the **insurance against faults** in the home electrical and/or gas systems;
- Hera Caldaia Sicura, the **scheduled maintenance program for the boiler** of the house;
- Hera Eco Move, the **charging station for electric vehicles** addressed to business customers.

These new features are in addition to the intelligent thermostat, LED bulbs, the ContaWatt consumption monitor, consumption analysis and Hera Fast Check Up.

Hera Comm's Sales Network and Commercial Conduct

Hera Comm's commercial strategy for the sale of energy services to small and medium customers (households and companies) relies on **commercial partners that operate across various sales channels**.

In 2018, Hera Comm confirmed its fundamental guidelines, i.e.:

- the selection of agencies according to the principles and methods defined in the Group's quality system;
- having all partners sign the agency mandate, which includes the Group's Code of Ethics;
- specific training provided to agency managers and to their agents by Hera Comm staff;
- identification of door-to-door agents who must show their identity card to customers they visit;
- periodical mentoring at final customer premises by Hera Comm staff in order to assess the conduct of the sales network;
- final customer surveys to monitor the quality of the sales network's operations.

In addition, the monitoring of sales activities was also extended to branch offices and inbound call centres.

The extension of the commercial network continues as in 2017 and led to opening new points in Livorno, Prato and Piacenza. The commitment to remain close to customers is manifested not only by opening new stores but also by periodically checking the adequacy of the existing ones, in terms of location and size, in order to optimize the presence and coverage of the area in line with the growth in the number of customers and services offered.

At the end of 2018, the sales channel dedicated to **small business customers** had more than 120 business agents, active in 9 regions of Italy, with specialist training in energy markets and related offers.

The proximity to our customers and their protection remain the fundamental principles of Hera Comm's sales activity. In addition to measures to care for unwanted activations and contracts, as required by ARERA's resolution 153/2012/R/com as amended, Hera Group has added other safeguards to those already required by ARERA:

- sending a welcome letter to residential and non-residential gas customers also for contracts concluded in Hera Comm's offices;
- making withdrawal easier, by requiring an email, a normal letter or a fax (not just by registered letter).

For Hera, it is fundamental to acquire the customer's consent clearly, responsibly and unequivocally. To do so we have added even more specific quality controls, in line with what is required by the Consumer Code:

- for **contracts offered by phone**, a second call must be made to check that the customer has received the contract and actually wants to accept it, and to monitor, at the same time, the quality of the sale effort carried out by our teleselling channel. In addition, the customer can retrieve the telephone recording of their conversation via the web portal or automated phone system;
- for **contracts proposed following a visit to the customer's home**, besides the welcome letter that is sent to them, a phone call is made that assesses the quality of the sales channel and gives the customer a chance to exercise their right to change their mind.

The continuous improvement of **sales processes**, together with the constant monitoring of **sales channels**, led to significant results in 2018 in terms of complaints for unsolicited contracts. The number of complaints fell by 50% to 47 contracts, compared with over 310,000 contracts concluded outside business premises. All complaints for unsolicited contracts were accepted and 100% of the cases were subject to recovery measures.

Cost of services

Hera manages **service concessions and free market services**. For the service concessions (integrated water service, municipal waste, distribution of gas and electricity), the **tariffs** applied by Hera are **regulated by the regulatory authorities** (ARERA and the local municipal waste authorities), while for free market services (waste disposal, sales of gas and electricity), the tariffs are freely determined. On a quarterly basis, ARERA defines and updates the prices for the sales tariffs to customers that have not subscribed to a free market electricity service option and for residential gas customers that are under protective economic conditions.

The costs of Hera's services for an average customer (real consumption)

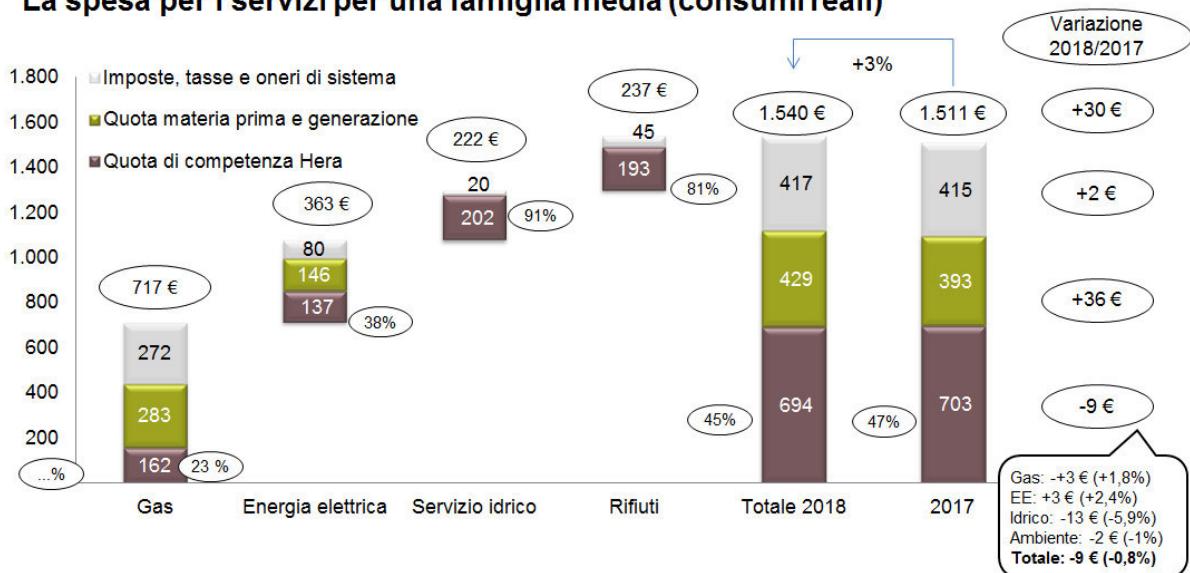
Euro	2017	2018	Ch. 2018/2017	Ch. % 2018/2017
Gas	680.38	717.31	36.93	5.4%
Electricity	351.90	362.54	10.64	3.0%
Water service	236.54	222.54	-14.00	-5.9%
Waste	241.78	237.87	-3.91	-1.6%
Total	1,510.60	1,540.26	29.66	2.0%
<i>of which attributed to Hera</i>	702.90	693.73	-9.16	-1.3%
<i>of which attributed to raw materials and generation</i>	392.53	429.32	36.79	9.4%
<i>of which duties, taxes, system charges and other charges</i>	415.18	417.21	2.04	0.5%

The following table shows the average household expenditure in 2018 compared to the previous year for the four services provided by Hera based on the average consumption of gas, electricity and water over the two years considered: 863 m³ for gas in 2018 (+0.7% compared to 2017), 1,803 kWh of electricity (-1.6%) and 108 m³ of water (-2.7%). For the waste service, a family of 3 members living in an 80 m² apartment was considered.

In 2018, the average family spent a total of Euro 1,540 on the services supplied by Hera, 2.0% more than in 2017, amounting to about Euro 30. In particular, the increase in gas and electricity bills was affected by the increase in the share of raw materials (up by Euro 37) compared with last year. There was a Euro 2 increase in taxes, duties and charges, particularly VAT, as a direct consequence of the increase in the share of raw materials, partly offset by the reduction in water and electricity consumption. Water services, on the other hand, decreased by Euro 14 compared with 2017, due to a decrease in the share attributable to Hera (down Euro 13) as a result of the adjustments applied in 2018, and to a reduction in taxes, duties and charges also linked to a reduction in the volumes of water consumed. Lastly, the decline in the waste bill is mainly due to the trend in the municipality of Ferrara as a result of the application of the quantity-based tariff method, which rewards virtuous households that properly separate their waste.

45% of overall spending, amounting to Euro 694 (47% in the previous year), is attributable to the components of bills pertaining to Hera. In 2018, this share decreased by around Euro 9, broken down as follows: Euro +3 for gas, Euro +3 for electricity, Euro -13 for water and Euro -2 for waste.

La spesa per i servizi per una famiglia media (consumi reali)



Based on an analysis considering equal volumes used by an average Hera customer, for 2018, the overall cost of services increased by 3.8%, amounting to about Euro 75, compared to 2017. This result is due to:

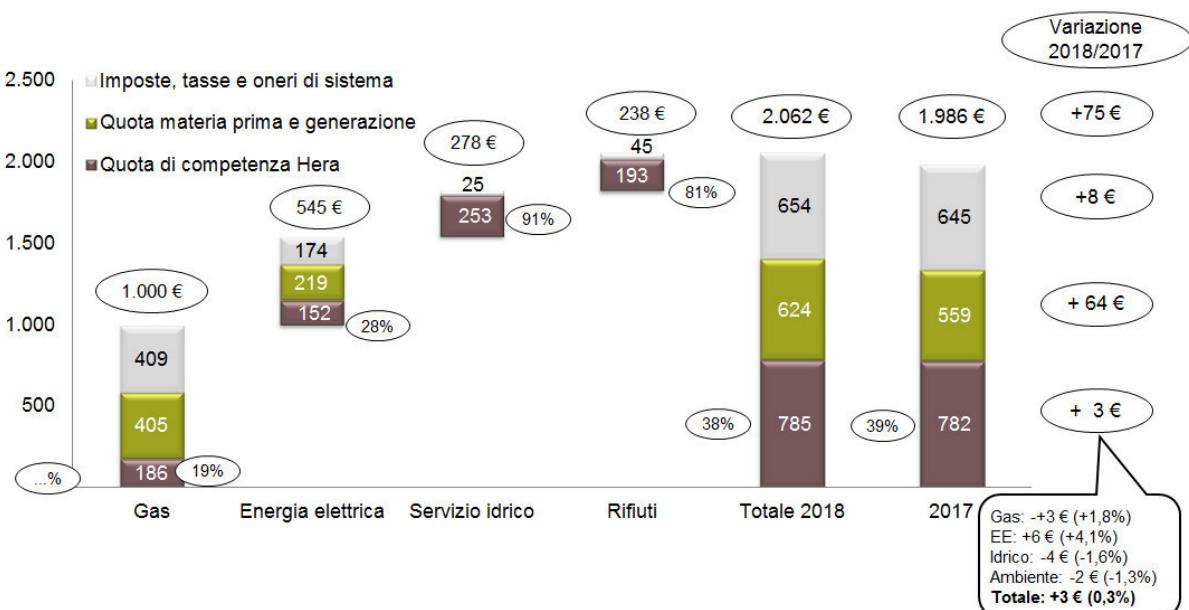
- an almost Euro 65 increase of the cost of raw materials and generation, directly related to fuel price trends;
- a Euro 2.5 increase of the bill components attributable to Hera. This increase is equal to 0.1% of the total amount of the bills considered: it is due to increases of Euro 6 for the electricity service, Euro 3 for the gas service and a decrease of Euro 4 for the water service and Euro 2.5 for the waste service for the reasons mentioned above;
- an increase of Euro 8 in taxes, duties, system charges and other charges not attributable to Hera as a result of the effects of the two previous points.

The costs of Hera's services for an average customer (constant consumption)

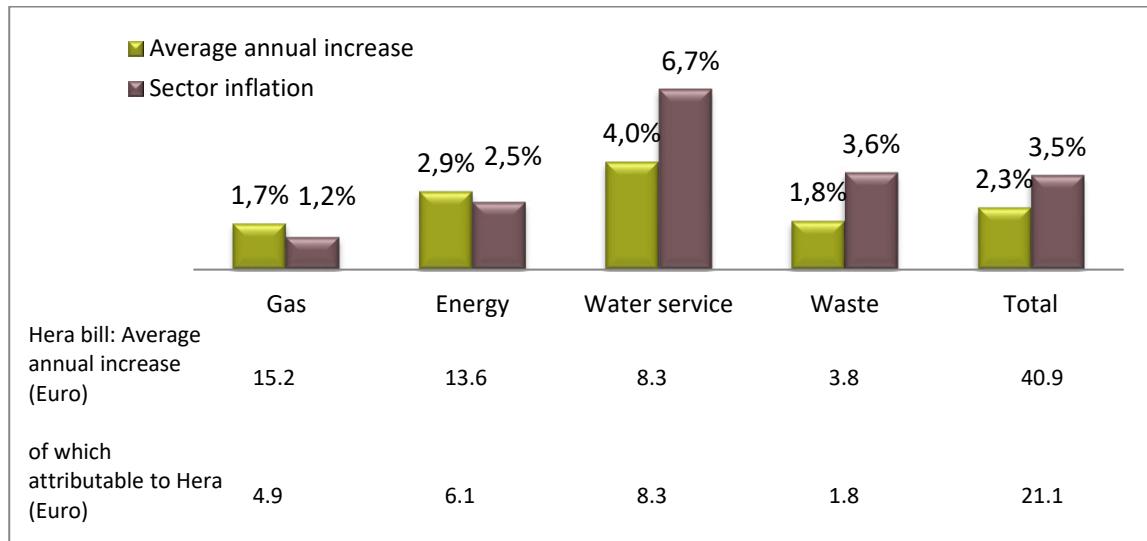
Euro	2017	2018	Ch. 2018/2017	Ch. % 2018/2017
Gas	946.59	1,000.84	54.25	5.7%
Electricity	515.41	545.10	29.69	5.8%
Water service	282.89	278.24	-4.65	-1.6%
Waste	241.78	237.87	-3.91	-1.6%
Total	1,986.67	2,062.05	75.38	3.8%
<i>of which attributed to Hera</i>	781.95	784.54	2.56	0.3%
<i>of which attributed to raw materials and generation</i>	559.29	623.98	64.69	11.6%
<i>of which duties, taxes, system charges and other charges</i>	645.40	653.53	8.13	1.3%

Bill of a residential customer with an annual consumption of 1,200 m³ of gas, 2,700 kWh of electricity, 130 m³ of water and for a family of 3 people in a house of 80 m² for waste disposal. For the other conditions considered, see the following pages.

The costs of Hera's services for an average customer (constant consumption)



Comparison between variation of bills from 2006 to 2018 and inflation (annual average increase, CAGR)



The long-term analysis shows that, between 2006 and 2018, the gas, electricity, water service and waste management bills in the Emilia-Romagna area served by Hera had an average compound annual increase below the Italian national average: +2.3% compared to +3.5% for the whole of Italy (Source: Istat). This gap is even more markedly in favour of Hera's water service and waste service customers. In the field of waste, Hera's share increased by 1% year over year (Euro 2 compared to the Euro 4 total expense increase).

The gas bill

Euro	2016	2017	2018
Raw material component	346.77	363.01	405.32
Retail sale quota	64.75	64.13	64.49
Distribution tariff	127.85	118.67	121.65
System charges	37.43	28.52	28.85
Consumption tax	198.14	198.02	198.02
Regional tax	31.40	30.60	30.61
VAT 10%/22%	136.71	143.63	153.16
Total	943.05	946.59	1,002.10

19% of the bill's total attributable to Hera

Bill of a residential customer with an annual consumption of 1,200 m³ of gas and with direct debit and electronic billing. A customer of the market with the highest protection was considered; based on the economic conditions set by the Regulatory Authorities: 40% of Hera's residential customers are in this category. Cities considered: Bologna, Ferrara, Forlì, Imola, Modena, Padua, Pesaro, Ravenna and Trieste (weighted average of inhabitants). The grey areas show tariff components that are not attributable to Hera. [The complete data on gas supply tariffs are available on the Group's website.](#)

For the same consumption, on average the 2018 gas bill of a Hera residential customer under market tariff protection conditions costs about Euro 55 more (+6%) than the previous year. The share of sales of raw materials increased by about Euro 42 as a result of the increase in gas prices during the year while the retail component remained substantially in line compared to the previous year (up Euro 0.4 due to the change in the variable sales quota). The distribution tariff increased by about Euro 3 and system charges remained substantially unchanged (up Euro 0.3). Consumption tax and the regional tax are unchanged, while VAT increased by Euro 9.5 as a result of the above variations.

Gas **distribution tariffs** are set annually by ARERA. Resolution 367/2014/R/GAS of July 2014 defined the regulation of the gas distribution and metering service tariffs for the 2014-2019 regulatory period. Tariffs are different for each of the country's six macro-regional areas, and are determined so as to ensure coverage at the macro-area level of the cost of capital and operating costs incurred by the distributors. The

Consolidated Law for the regulation of the quality and rates of gas distribution and metering services for regulatory period 2014-2019 (TUDG) establishes that, from 1 January 2015, the fixed rates of the obligatory distribution tariffs are structured by metering unit class (meter class) while the G4 metering class has been taken as the reference for an average family that lives in the municipalities served. Specifically, the obligatory tariff levels for the distribution services and natural gas metering for January-December 2018 were approved by resolution 859/2017/R/gas of December 2017.

The distribution tariff impacted on average 12% of the total bill in 2018. Part of the distribution charge includes components to cover general gas system costs (such as energy saving promotion costs) which the individual distributors treat as contra-items, paying the resulting revenue to the Cassa per i Servizi Energetici e Ambientali (Energy and Waste Management Services Fund). These bill components are included in the “system charges” item. In 2018, system costs remained substantially unchanged compared to 2017.

The **sales quota** relating to the economic conditions of the supply for the protected service, defined by ARERA, is governed by ARG/gas resolution 64/2009 (Consolidated act for the retail sale of gas). This resolution defines the protected service economic conditions for entitled customers. In 2011, AEEGSI started a reform of these conditions. Its implementation started with ARG/gas resolution 116/2012, which, by transposing the indications laid down in Decree Law 1/2012, changes the previous indexing mechanism (bound to a basket of oil products to which the purchase formulas of the long-term procurement contracts entered into by leading Italian importers refer) with gradually increasing indexing based upon the gas wholesale market. In 2016, raw material costs were indexed according to the gas price of the Dutch hub TTF, which reflects the costs of the European market. The tariff components that together make up the raw material purchase costs in 2018 account for 40% of the total bill. Resolution 916/2017/R/GAS updated the level of the retail sales component (QVD), recording a slight increase in the same, from January 2018 compared to 2017. In the event of payment of the amounts by direct debit and electronic billing, Resolution 610/2015/R/COM introduced, for the economic protection conditions, a bonus that is worth Euro 5.4 for the year 2018.

Lastly, in 2018, taxes account for 39% of the total, on average. These taxes are due to the State and regional government authorities (consumption tax, additional regional tax and VAT). Taxes are set by specific provisions by the Ministry of the Economy and Finance and the regional government authorities, and vary according to the use of the gas, whether for heating or only for cooking or industrial uses. Since January 2008, 10% VAT is applied for up to 480 m³ annually, and above that, VAT is set at 22% under Decree Law 76/2013.

The electricity bill

Euro	2016	2017	2018
Energy generation quota	133.83	161.42	188.73
Dispatching quota	40.08	34.86	29.93
Distribution and sales quota	120.53	146.44	152.42
System charges	131.19	104.21	102.68
Taxes	21.37	21.63	21.79
VAT (10%)	44.70	46.85	51.14
Total	491.71	515.42	545.10

Attributable to Hera: 27% of the bill's total

Bill for a residential customer with 3 kW contract, whose yearly consumption totals 2,700 kWh, with direct debit and electronic billing. A customer of the market with the highest protection was considered, based on the economic conditions set by the Regulatory Authorities: 20% of Hera's residential customers are in this category. Cities considered: Modena, Imola and Trieste (weighted average of inhabitants). The grey areas show tariff components that are not attributable to Hera.

Considering equal consumption, the electricity bill of a residential customer to which the service subject to the highest protection is applied increased by about 6% in 2018 compared to the previous year (Euro 29.68). The energy share increased by Euro 27.31, due to an increase in the cost of raw materials, partly offset by a decrease in dispatching charges of Euro 4.93 and an increase in the sales quota of Euro 6.7 due to an increase in the PPE (Energy Equalization Price) component; this component ensures that the total amounts paid each quarter by customers served under market tariff protection conditions with the generation and dispatching components match the purchase and dispatching costs actually incurred to supply them with energy, and of system costs, which have been structurally modified since January 2018 and which decreased by Euro 1.53. Only the distribution quota and part of the sales quota are paid to Hera for coverage of the management and maintenance costs of the power grid incurred by the distributor Hera SpA and of the costs for sales activities (invoicing, bill sending, etc.) which are incurred by the Hera Comm sales company. This portion accounts for 28% of the total bill.

The 2018 bill is calculated by using the twin rate tariff and the profile type defined by ARERA (one third of consumption in the peak period, from 8 am to 7 pm from Monday to Friday, and two-thirds during off-peak periods), which causes no difference between the twin rate and single rate prices.

The electricity bills include the following costs: sales costs, costs incurred to purchase energy and for the dispatching service, which ensures a balance between electricity supply and demand at all times, costs to cover the service for transporting electricity on the national transmission and local distribution grids through to the meter (transport, distribution and metering costs and system charges), and taxes;

In January 2016, implementing European Directive 2012/27/EU on energy efficiency, in resolution 582/2015/R/eel, ARERA defined a programmatic framework to implement the reform of network tariffs and tariff components to cover general system charges for residential customers. The Directive requires gradual adjustment of the tariff components to the costs of the service involved. The adjustment of the charging structure must be such as to stimulate virtuous behaviour by the residents and encourage achieving energy efficiency objectives. The Reform is designed to be carried out in several steps. The fees for network services (transmission, distribution and metering), were redefined starting 1 January 2016 to mitigate the effect of progressiveness on consumption (first step), while from 1 January 2017 (second step) the definitive non progressive tariff structure called "TD" was adopted, consisting of network services fees that are the same for all residential customers and that are compliant with the criterion of consistency of the tariffs with the costs of the underlying services. The fees for general system charges were redefined from 1 January 2017 to mitigate the effect of progressiveness on consumption and to limit the number of annual consumption brackets to two, and a fee expressed in Euro/year was introduced for non-resident residential customers only. The completion of the process (third step), initially scheduled for January 2018, was postponed by two years (initially by Resolution 867/2017/R/eel and then by Resolution 626/2018/R/eel) and sets 1 January 2020 for the reform to be operational, applying also to system charges a tariff structure that is not progressive but rather differentiated between resident customers (to whom they will be fully applied as energy-related charges) and non-resident customers (to whom they will be applied partly as a fixed quota and partly as an energy-related charge).

Among the **system charges**, the highest cost component for final customers (equal to 77.6% of overall system charges) promotes the production of energy from renewable and similar sources through an incentive system which ensures definite compensation for the energy produced and special conditions for connecting the plants to the networks. This component has constantly increased over the past years, following the increase in production from renewable sources and the costs for adapting the network to these sources.

For payments of electronic bills using direct debit, resolution 610/2015/R/COM introduced a bonus for customers entitled to protective economic conditions, worth Euro 6 in 2018.

Hera Comm also informs residential customers of the advantages of its free market rate plans by providing a comparative sheet with an estimate of what the customer is likely to pay according to the economic conditions of the tariff protection conditions service defined by ARERA. The comparative sheets are drafted

in accordance with the criteria established by the Authorities (ARG/com resolution 104/2010) and are available on Hera Comm's website.

The water service bill

Euro	201	2017	2018
Aqueduct	110.54	115.52	114.42
Sewage	32.57	34.05	33.25
Purification	82.47	86.35	84.59
Fixed quota	20.37	21.25	20.69
VAT (10%)	24.59	25.72	25.29
Total	270.54	282.89	278.24

Attributable to Hera:
91% of the bill's total

Bill of a residential customer (family of three) with a yearly consumption of 130 m³. Cities considered: Bologna, Ferrara, Forlì, Imola, Modena, Padua, Pesaro, Ravenna, Rimini and Trieste (weighted average of inhabitants). The grey areas show tariff components that are not attributable to Hera.

The average bill of a residential customer with consumption of 130 m³ per year went from Euro 282.89 in 2017 to Euro 278.24 in 2018: the decrease was 1.6% in the last year as a result of the application of the tariff adjustments of previous years that have resulted in some territories, particularly in that of Bologna, Imola, Forlì-Cesena and Modena, a decrease in the bill compared to last year.

Since 2012, ARERA has been responsible for the regulation of the water service. It first of all set up a provisional tariff method for the 2012-2013 period and subsequently a permanent tariff method for 2014-2015, later updated for 2016-2019. The 2018 tariffs have been approved by ARERA for each area it serves. The tariffs approved in the various years also include the balances from previous years, determined in compliance with the rules of the tariff method.

Average expenditure for the integrated water service varies among the areas Hera serves since it depends on the specific structure of the water supply sources of the various areas, due to the availability of water resources and to the distance from the withdrawal source.

The tariff mechanisms developed by ARERA since 2012 helped us continue to make considerable investments, particularly for those sectors with a higher environmental impact, such as reclamation from sewage-purification.

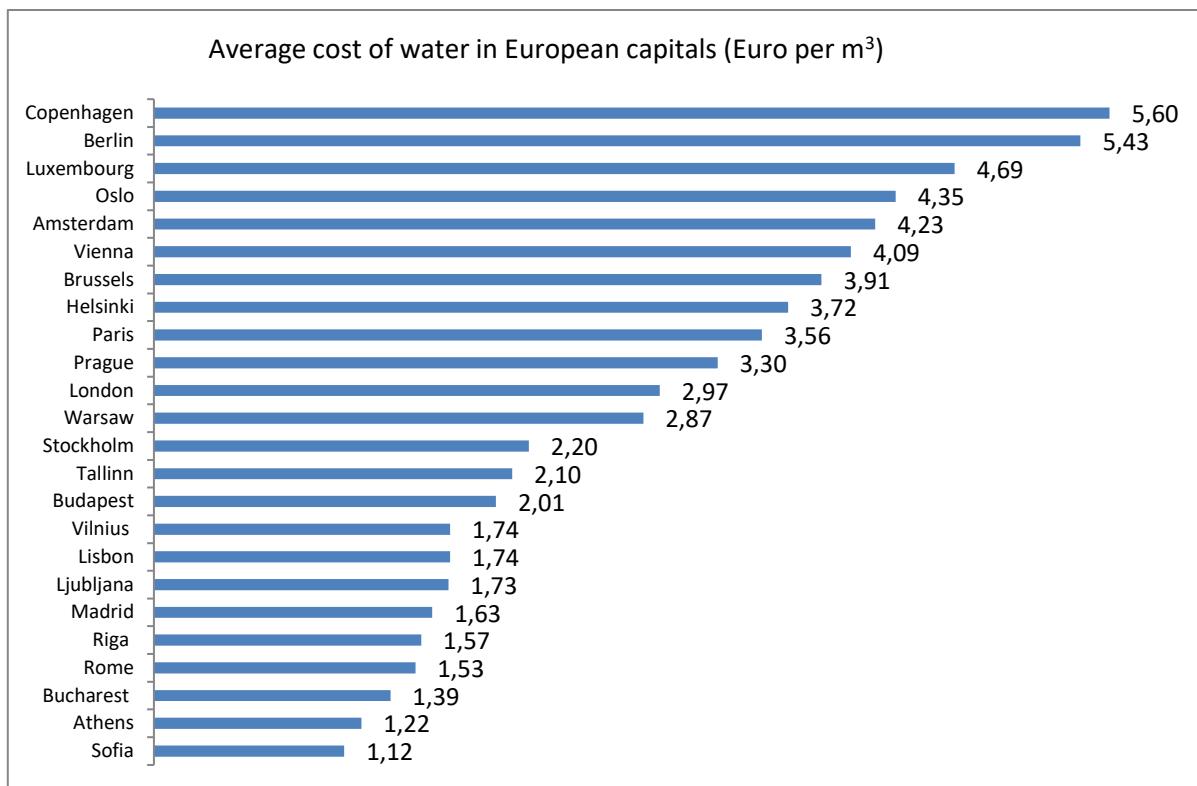
In 2017, the portion of the tariff allocated to cover the investments made and to repay capital invested was 28% of the tariff, while the remaining 72% went to cover operating, maintenance and emergency costs for grids and plants and the fees paid to municipalities and asset companies for the use of infrastructures.

How much water costs

As well as benefiting the environment, drinking tap water instead of mineral water also saves money: considering an average yearly consumption 1,000 litres for a household of three people and an average price in Italy of Euro 27 cents per litre for certain retailed mineral waters, yearly spending on mineral water comes to around Euro 270 a year. The cost for the same quantity of aqueduct water, meanwhile, would be Euro 2.14 a year (calculated as the 2018 average of the bills in the nine main cities served by Hera). Italy is third in the world for consumption of bottled water with 184 litres of water consumed per capita in 2017, after Mexico and Thailand (Source: Statista The Statistics Portal 2017).

The cost of water in Europe

In 2017, the International Water Association carried out research on the drinking water charges applied in 452 cities in 147 countries. In the 93 European cities, the cost of annual consumption of 180 m³/year ranges from a minimum of Euro 0.78 to a maximum of Euro 7.07 per m³. Italy has the lowest cost with Milan, and among the lowest costs with Naples, Rome, Venice, Palermo and Genoa.



Source: IWA 2017

Regulation of the water service

ARERA has been the Italian regulatory agency for water services since 2012. Its initial objective was to define a tariff method capable of supporting (efficient) coverage of costs, of increasing investments and also promoting quality of service-oriented mechanisms.

The measures that followed, from 2012 onwards, were all focused in this direction. In particular:

- from a tariff point of view, 2018 is part of the second regulatory period, when fully operational (2016-2019) which, in addition to confirming the criteria outlined above, initially with the 2012-2013 transitional tariff method and then with the first regulatory period (2014-2015), introduced the important new incentive of contractual quality, requiring minimum service levels but also forms of recognition of levels higher than the minimum required;
- in 2018 ARERA continued the measures taken in previous years. In particular, resolutions were passed on the regulation of water service tariff structures, which in the near future will be geared towards implementing the per capita tariff, recognizing a water bonus for disadvantaged users, and initiating technical quality monitoring by identifying minimum standards and the related reward/penalty mechanisms. These resolutions, adopted during 2018, will take effect from 2019.

The matter of arrears management is still open, and the final measure is expected from ARERA in early 2019.

Bill for waste collection and disposal

Euro	2016	2017	2018
Fixed quota	104.66	103.55	103.38
Variable quota	88.54	92.02	89.66
Fixed and variable quota not attributable to Hera	35.10	34.70	31.91
Additional provincial charges	11.41	11.52	12.92
Total	239.71	241.79	237.87

Attributable to Hera: 87% of the bill's total

Bill of a residential customer (family of 3 people in a house of 80 m²). Cities considered: Bologna, Ferrara, Cesena, Imola, Modena, Padua, Pesaro, Ravenna, Rimini and Trieste (weighted average of inhabitants). For Ferrara, which from 1 January 2018 introduced the Quantity-Based Tariffs, we also considered the respect of the limit of 52 disposals per year of 30 litres each of non-separate waste. The grey areas show tariff components that are not attributable to Hera.

A family of 3 people, living in an apartment of 80 m² paid approximately Euro 238 for waste collection and disposal, a decrease of about 4% (about Euro 4) compared to 2017. The decrease in the total bill is mainly due to the effect of the introduction of quantity-based tariffs in the municipality of Ferrara (approximately Euro 48 less compared to 2017). 13% of the amount of the bill is not attributable to Hera and is for additional provincial tax and other TARI tax items, mainly the coverage of uncollected amounts (unpaid portion).

A Waste Tax (TARI) was introduced in January 2014 in both the municipalities where the Environmental Hygiene Tariff (TIA) was applied and those where the Tax on Waste and Services (TARES) was applied. The new tax was added to ensure full coverage of costs relating to the waste management service, which includes sweeping and washing roads, rubbish collection and transportation, separate waste collection, waste treatment and disposal, and administrative costs. The Municipalities can entrust collection of the tax to the waste service operators. 36 municipalities have chosen to do so, for 2018. At the same time, the number of municipalities that have changed their collection charging method from TARI to the Quantity-Based Tariff method have now become 8, including a provincial capital: Ferrara.

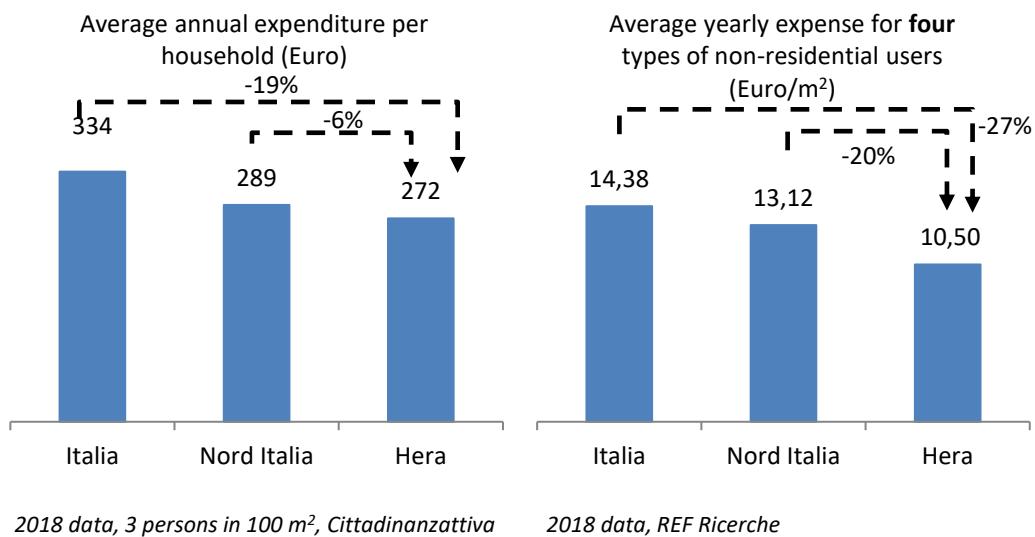
According to the national tariff method for defining municipal waste management service tariffs, the tariff must fully cover the costs of the service, including a fair return on the capital invested. In the municipalities served by the Group, 96% of the costs of the service were covered in 2017. This percentage is the ratio between the waste management service costs set out in the financial plans and the actual costs incurred during the year.

The cost of waste management services for residential and non-residential customers

In 2018, Hera charged its residential customers waste management service costs that were 19% below the Italian average and 6% lower than the Northern Italy average: these were the findings of the Cittadinanzattiva Price and Tariff Study (Osservatorio prezzi e tariffe), which covered 106 province capitals. The study based its findings on a standard customer consisting of a family of three living in a 100 m² apartment.

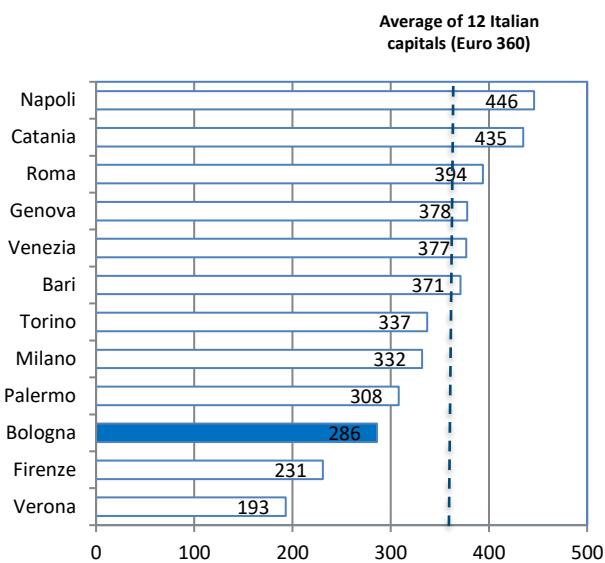
Also, a new REF Ricerche study on the cost of the TARI waste tax in 2018 considered four types of non-residential users in 102 provincial capitals. In Hera's service area, hotels spend 21% less than the Italian average, and the savings was 29% for restaurants, 36% for the food industry and 23% for supermarkets. For non-residential users of restaurants, supermarkets and food industry in Hera's service area, they are cheaper respectively by 25%, 15% and 9% compared to the average for northern Italy: for hotels Hera charges more than the average for northern Italy by 8%. The average of the four types of users considered by the research shows therefore that Hera's area is more competitive, with costs 27% below the Italian average and 20% below the average of northern Italy.

The cost of waste management services for residential and non-residential customers



Cittadinanzattiva's 2017 report also compares the 2017 cost for municipal waste service in the Italian province capitals. With regard to the 12 large-sized municipalities (over 250 thousand inhabitants), Bologna with a TARI waste tax of Euro 286 ranks among the cities with the lowest cost, together with Florence and Verona and a level 16% below the average of the 12 capital cities.

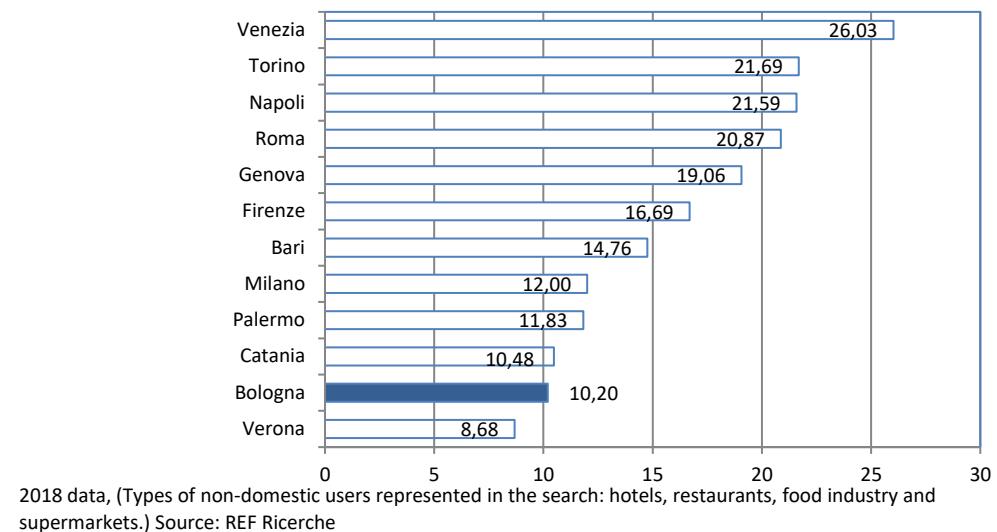
Total cost per user in cities with over 250,000 inhabitants (3 occupants, 100 m², Euro)



2018 data, 3 persons 100 m², Source: Cittadinanzattiva

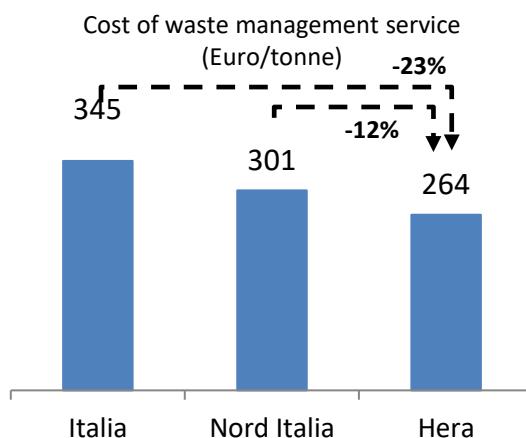
The 2018 REF Ricerche report also compares the cost of the municipal waste service for non-residential customers in Italian province capitals with over 250 thousand inhabitants. Among them, Bologna ranks as one of the cities with the lowest average costs for the 4 types of non-residential users considered by the study (restaurants, hotels, industry and supermarkets), with Euro 10.20 per m².

Waste management expenditure for non-residential users in cities with over 250 thousand inhabitants (Euro/m²)



The cost of the waste management service

Hera has lower costs than the rest of Italy, also considering the cost per tonne of waste treated: 23% less than of the Italian average and 12% less than that of northern Italy (Source: Ispra, 2018 Municipal Waste Report, 2017 data). This result is also due to the higher amount of the waste of non-residential customers being similar to municipal waste, which allows the fixed costs of the service to be spread over a higher quantity of waste.



Source: Ispra, 2018 Municipal Waste Report, 2017 data

The district heating bill

Euro	2016	2017	2018
Meter rental	26.64	26.64	26.64
Variable quota	958.14	961.99	1,017.35
VAT 10%/22%	98.48	98.86	104.40
Total	1,083.26	1,087.49	1,148.91

Bill for a residential customer with a natural gas consumption of 1,200 m² as measured by the meter and of 8,926 kWh of electricity under a residential monomial tariff (80% of Hera's customers falls within this tariff type and accounts for 20% of the residential volumes sold). Cities considered: Bologna, Cesena, Ferrara, Imola and Modena (weighted average on the basis of the volume served). The bill for Ferrara was calculated excluding the tax incentives recognized due to the prevalent use of geothermal sources. The grey areas show tariff components that are not attributable to Hera.

The average expense for a typical household in 2018 for district heating service is on average about 5.6% higher than in 2017, due to the increase in the wholesale cost of gas, which is a factor of the tariff. In 2016, the Hera Group launched a new rate plan for the district heating service, aimed at families with individual heat meters and with an annual consumption under 25,000 kWh. The new rate plan, called "Nuovo Teleriscaldamento Hera", offers a price for district heating that is fixed for 30 months, and a monthly fee for the meter rental (free for the first months of activation thanks to a special promotion when the plant was initially offered). This rate plan is designed to protect customers, with a price that does not change for 30 months, from possible increases in energy costs, while providing them with a simple and effective way to understand their consumption. Customers who chose the rate plan at the end of 2016 or in 2017 thus saw their expenditure "protected" both in 2017 and during 2018, a year in which energy prices rose. Households who chose this offer from the end of 2016 to the end of 2017, in many cases, benefitted from a lower cost than the residential monomial tariff. In the case of the average customer as identified above, with an annual consumption of 8,926 kWh, the versions of the offer sold in the period indicated involved a total expense for 2018 ranging from Euro 968.6 to Euro 1,033.24 per year: an estimated saving of between Euro 179.8 and Euro 115.1 per year compared to the monomial tariff, i.e. between 15.7% and about 10.0%. The offer also includes, free of charge, the innovative "consumption analysis" service that allows customers, by simply reading report sent by email, to understand their consumption habits better.

Service quality

Electricity and gas

The regulation of quality divides the standards to be met into "general" and "specific": failure to meet the latter due to causes attributable to the Distributor requires the payment of indemnities to customers or to the sales company requiring technical data from the distributor, which may vary depending on the type of supply (low or medium voltage for electricity, the meter category for gas), the delay in executing the service and the times required for compensation. Automatic compensation varies from Euro 30 to Euro 140 based on the type of supply, and can increase based on the delay in the provision of the service or the fulfilment times.

The specific quality standards for the distribution service include, in particular, the time limits for executing works, activating supply, and the failure to comply with the punctuality bracket for appointments scheduled with customers (resolution 574/2013/R/Gas and 646/2015/R/Eel).

Water and waste management

When managing the integrated water service and the municipal waste management service, the operator is committed to complying with specific minimum quality standards set forth in the Service Charter. This

document is drawn up on the basis of a template prepared by the Water and Waste Regulatory Authorities and annexed to the signed agreements.

ARERA's resolution 655/2015 has governed the contractual quality of the water service since 1 July 2016, defining minimum service levels that operators must respect for activities related to the requests of users, emergency services, invoicing, access to branch offices and to the call centre and the management of complaints. The resolution also introduced the payment of an automatic indemnity of Euro 30 to be paid if the operator fails to comply with the specific quality standards.

It also allowed operators to access incentives for their commitment to pursue quality levels that improve on the minimum levels required by said resolution 655/2015. Hera Spa achieved the incentive for the Bologna and Modena areas, applying the improved levels set by Atersir for 32 standards. The most significant standards include: the **execution time for contract transfers** (improved from 5 to 3 days), the **time to provide quotes for works involving inspections** (improved from 20 to 12 days) and the **time for meter checks** (improved from 10 to 7 days).

For the Ferrara, Ravenna, Forlì-Cesena and Rimini areas, pending access to the same incentives provided for Bologna and Modena, branch offices are already open to customers on Saturday mornings, as an added convenience for users. The requirements of the contractual quality objectives shall also be adequately monitored and reported to the national Regulator, to Atersir and to users by publishing them in the bills. The service charters were published with the update of resolution 655/2015.

The waste management Service Charter is in force in the Ferrara, Padua and Trieste areas.

District heating service

In 2008, and on a voluntary basis, Hera began monitoring the quality of the "key services" and automatically paid compensation to customers if it had not fulfilled the commitments set forth in its "District heating service quality charter" in force in Hera's service area. Automatic compensation ranges from Euro 35 to Euro 140 depending on the customer's system and is paid if standards are not met, such as the time required to activate and terminate the supply, and reactivate it after having been disconnected due to late payment.

Compliance with quality standards

%	2016	2017	2018	Number of services provided (2018)
Gas	99.9%	99.9%	99.7%	2,912,811
Electricity	98.6%	97.7%	98.6%	62,979
Integrated water service	98.9%	98.2%	97.7%	222,768
District heating	98.9%	97.8%	96.0%	1,344
Total	99.8%	99.7%	99.6%	3,199,902

Includes the services for which customers must be automatically compensated if the company does not comply with the standard. The data on sales quality standards do not include Estenergy and AcegasAps Service.

Overall, the figures are in line with 2017: in 2017, 99.6% of cases, the Group provided the service requested by the customer within the timeframes set by ARERA, the Italian Regulatory Authority for Energy, Networks and the Environment. This percentage has increased, on a like-for-like basis, from 95.8% in 2008 to 99.6% in 2018. Quality standards are close to full compliance (99.8%) for the gas services of Hera and Marche Multiservizi (99.9%).

Compliance with specific gas and electricity quality standards

%	2016	2017	2018	Number of services provided (2018)
Gas sales	97.4%	92.7%	99.1%	16,997
Gas distribution (final customers and sales companies)	99.9%	99.9%	98.5%	2,895,814
<i>Total gas</i>	<i>99.9%</i>	<i>99.9%</i>	<i>99.7%</i>	<i>2,912,811</i>
Electricity sales	97.6%	95.6%	99.0%	16,128
Electricity distribution (final customers and sales companies)	98.8%	98.2%	99.7%	46,851
<i>Total electricity</i>	<i>98.6%</i>	<i>97.7%</i>	<i>98.6%</i>	<i>62,979</i>
Total	99.8%	99.8%	99.7%	2,975,790
<i>Of which gas and electricity distribution</i>	<i>99.9%</i>	<i>99.9%</i>	<i>99.7%</i>	<i>2,942,665</i>

Includes the services for which customers must be automatically compensated if the company does not comply with the standard. The data relating to the sales quality standards do not include Estenergy and AcegasAps Service.

In almost all cases, the individual services consolidated their good results compared with the times recorded in 2017. In particular, this year there was a consolidation of the massive service relating to the frequency of collection of meter readings for invoicing, where the 99.9% of last year was confirmed while the activation of the supply for gas (from 99.8% to 99.9%) was confirmed as being of high quality. For the electricity supply service, the activation of the electricity supply improved (from 99.1% to 99.3%), and that for the deactivation of the supply (requested by the customer to its salesperson), which increased from 98.6% to 99.5% while the re-activation after late payment of electricity worsened slightly (from 98.4% to 98.3%). The standard measurement collection frequency also includes the new remotely-read meters of the gas service.

For the water service, the high standard of the service with the highest number of appointments is confirmed: the punctuality bands for appointments are confirmed at 99.5% (was 99.6% in 2017).

Initiatives for improving the quality of readings

As regards the **gas service**, ARERA's resolution 117/2015/R/gas changed the frequency of readings, including a reading every four months, and the concept of periods relevant for meter reading. In response to this resolution, the Hera Group has presented an improvement plan, approved by AEEGSI, to maintain the benefits added by the new regulation and, at the same time, optimize reading loads throughout the year. Starting 1 January 2016, this has made it possible to start a new reading plan that includes:

- four attempts per year to take a reading for all customers with annual consumption between 501 and 5,000 m³ instead of the two required for customers with annual consumption between 501 and 1,500 and the three required for customers with annual consumption between 1,501 and 5,000.
- two attempts per year to take a reading for all customers with annual consumption between 0 and 500 m³, instead of the single reading required.

By doing so, the reading plan has made it possible to increase the quantity of readings collected by the distributor, optimize the reading workloads and reduce the number of readings that are estimated.

This system of readings, although an improvement over the resolution, led in 2016 and 2017 to decoupling the gas meter-reading rounds due to the different frequencies required, and to the loss of the previous advantage of multi-business reading with other services, especially water.

In order to avoid this, after the pilot project started in 2017 on Modena and Ferrara, in 2018 the new system for scheduling the meter-reading rounds was extended to all areas, which resumed the maximum possible synergy of multi-service readings for each customer, in compliance with the constraints imposed on the reading frequencies.

As regards the **water service**, ARERA's resolution 218/2016/R/idr added new reading frequencies, and the concept of a minimum time between readings. In the face of this resolution, and thanks to Hera Group's orientation which already went in the direction of maximizing the collection of measurement data, the new reading plan, initiated on 1 July 2016 includes:

- twelve attempts per year to take a reading for all customers with annual consumption above 1,800 m³ instead of the two required for customers with annual consumption between 1,800 and 3,000 and the three required for customers with annual consumption above 3,000.
- four attempts per year to take a reading for all customers with annual consumption between 500 and 1,800 m³, instead of the two required;
- two attempts per year to take a reading for all customers with annual consumption between 0 and 500 m³, in line with the requirements of the resolution.

By doing so, the reading schedule has made it possible to increase the number of readings actually taken, making it easier to identify leaks, and improve the quality of the invoicing (a smaller percentage of consumption is estimated).

During 2018, the provisions of ARERA's Resolution 218/2016 were also followed up with regard to the advanced notification of a second pass to read meters for non-accessible water meters, when the first pass failed.

For those who have not opted for a specific notification system, the reading companies have implemented preventive notification with leaflet distribution using stickers, which also give users the opportunity to leave a self-meter reading if they expect to be absent.

Also in the field of **remote readings**, intense operational and control and monitoring activities were carried out during the year from the remote reading systems control room, which is also fundamental for optimizing maintenance activities in the field, thus ensuring excellent availability of reading data. An optimization introduced during the year was the systematization of the management of the electronic meters undergoing temporary maintenance, by means of a manual reading run, always with the aim of minimizing the use of estimated readings.

As of the end of 2018, the Hera Group achieved its targets for the year by installing almost 650,000 smart gas meters, amounting to 34% of the total (the target for the end of 2018 was 30%), 315,313 of which were installed in 2018. We plan to continue the installation plan for electronic gas meters, which in 2019 will include an improved meter with advanced security features designed and developed by Hera and which will become a standard component of the Group's equipment. In 2018, following the consolidation of the UNI/TR 11689 standard for remote management, the Italian Gas Committee completed its first phase of testing, a pilot project that also involved Inrete Distribuzione. In 2018, Hera Group successfully continued to develop an advanced version of the gas meter that incorporated specific safety functions. After the research phases, in 2017, the product was developed in 2018 and industrialization, metrology certification and field testing will take place in 2019. According to current plans, the first commercial installations will occur in the last months of this year. To this end, the Group has entered into a technological partnership with a multinational leader in high-tech technologies (Panasonic) and has identified Pietro Fiorentini S.p.A. as a leading assembler in the national manufacturing scenario of this specific sector.

As in 2017, also for 2018, investments in smart metering gas benefited from the "Industry 4.0" hyperamortization incentives for investments in the high-tech sector. During 2018, the operating tools used to manage equipment for mass-market remote meter reading (meter classes G4-G6) were further consolidated. The radio network used for remote meter reading has been extended to more towns and in 2019 it will cover almost all the major city centres served by the Group, and for the main cities, will to

extend into the neighbouring urban areas. Furthermore, work is continuing for recovery and communication of the equipment installed in the years in which the central communication and acquisition systems were not yet active.

Procurement and installation activities are now fully proceduralised and industrialized. Now the focus of the technical structures is on communication reliability and on the analysis of the factors that determine the yield of remote reading over specific timeframes (3 days, 7 days, etc..) in order to optimize the commercial performance of the system. At the same time, specific measures are being taken to optimize operating costs, with particular regard to communication costs, and activities were finalized to improve the commercial performance of the remote reading system, with particular regard to communication and rental costs for the facilities that house the concentrators.

Initiatives for improving invoicing quality

When invoicing energy services, Hera Comm uses the data received from the distribution companies (and soon from the Integrated Information System of ARERA) on the levels of consumption measured and the self-readings taken by customers and validated by the distribution companies.

For electricity, the almost total diffusion of electronic meters helps to provide accurate readings in line with the customer's real consumption levels. As for the measurement of gas consumption for most customers, the consumption estimates are still essential and it is in this context that Hera Comm is working to make these estimates match actual customer consumption as closely as possible.

In 2018, specific areas were examined in detail in order to maximize the use of the actual readings, to act properly on customers with estimated bills, and to facilitate final customers in reading their meters and sending the consumption data. In particular, a repeated check was carried out on the readings expected by the distributors and on the readings actually received, taking specific action on some specific distributors to encourage prompt delivery of reading data.

In addition, control processes were implemented to:

- minimize the use of estimates;
- increase the accuracy of estimates;
- create and use specific drawing curves;
- align the assumed annual consumption with the actual readings received in previous periods;
- redistribute invoicing periods for large customers so as to streamline the process from receipt of meter reading data to customer invoicing.

Quality of drinking water

In 2018, to ensure control of the quality of water supplied, the Group's laboratories in Emilia-Romagna, Triveneto and Marche performed **399,013 analyses on drinking water**, including all the analyses performed for the aqueduct process as a whole. This amounts to an average of almost 1,100 analyses per day. Of these, 63% were carried out on samples collected in the **distribution networks**. Substantial stability continues in the relationship between the analyses carried out on the distribution network and those carried out on the plants, aimed at effectively preventing non-conformities.

Quality checks on the water used to produce water for drinking and for human consumption are governed by Italian Legislative Decrees 152/2006 and 31/2001, respectively.

The checks are carried out by the water service operator and the Local Health Authorities at the source **sampling points**, at the water treatment and accumulation plants, and along the **intake and distribution networks**.

Hera has developed a Group Control Plan which describes the **sampling points** and the **analysis methods used** (parameters and frequencies of the analyses). The Control Plan is developed on the basis of guidelines that focus on the water's chemical, **physical** and **bacteriological** characteristics, so as to fully comply with legal requirements and ensure a top-quality product. In 2018, AcegasApsAmga revised its water quality monitoring programming to improve monitoring of the most critical parameters.

Water quality also means controlling the effectiveness of the **treatment processes**. For example, the water is checked for chlorites and trihalomethanes, which come from, respectively, the use of chlorine dioxide and sodium hypochlorite as disinfectants. The **concentration of chlorites and trihalomethanes** in the distribution network is kept under constant control in line with the **regulatory limits**.

Since 2008, the average data recorded for the **pH, total hardness, dry solids at 180 °C, chloride, fluoride, sodium, nitrate, nitrite and ammonium** has been published on the Group's website, listed by individual municipality, and updated every six months. Since 2012, this set of parameters has been extended to include four others: **calcium, magnesium, sulphates, and total alkalinity**. These 13 parameters are considered to be representative of the quality of the **drinking water distributed** and can be used to draw comparisons with the quality of bottled water on the market.

Starting from the second half of 2014, the set of parameters was further expanded with 6 additional parameters as required by ARERA: **conductivity, potassium, arsenic, bicarbonate, residual chlorine** and **manganese**. As such, 19 parameters are subject to publication, one more than the number determined by the Regulator.

Since 15 September 2012, the **tap water label** has been present in Hera's bills as well as on its website. Customers can find the data on the quality of the water distributed by Hera in their municipality (updated every 6 months), directly on their bill. The communication concerns 165 municipalities in Emilia-Romagna where Hera manages the water distribution service and includes the values of 19 water quality parameters, compared with the regulatory limits (alkalinity from bicarbonates, total alkalinity, ammonium, arsenic, calcium, free chlorine, chloride, conductivity, pH, hardness, fluoride, magnesium, manganese, nitrate, nitrite, potassium, dry residue at 180 °C, sodium, and sulphate). Alongside the data, a message reminds customers that tap water is good, safe and better for the environment, and allows them to save Euro 270 per year. The AcegasApsAmga website includes water quality data for the municipalities served in the Padua and Trieste areas, which are updated constantly.

Since January 2009, all drinking water production plants in Romagna have been operated by **Romagna Acque - Società delle Fonti**, the company set up for this purpose by the local regional administrations of Romagna. As a result, the water distributed in the Forlì-Cesena, Ravenna and Rimini areas is in large part purchased wholesale from that company, and Hera's involvement in quality is limited to **operating the networks and the supplementary disinfection stations** along the distribution networks.

The assessments of the quality of distributed drinking water, as compared to the quality of mineral water, are carried out based on the analytic parameters which are commonly surveyed at the representative sampling points of the aqueduct networks: pH, total hardness, dry residue at 180 °C, sodium, fluorides, nitrates, nitrite, chlorides, calcium, bicarbonate alkalinity, manganese, potassium, sulphate. The parameters chosen to measure the quality of distributed water refer primarily to the importance of distributing drinking water that contains a suitable amount of mineral salts.

Once again in 2018 the average values for Hera's water are comparable with those of commercial mineral waters and that no exemptions were granted from compliance with the limits set by Italian Legislative Decree 31/2001. The only average result found by Hera, higher than that found on the labels of 17 mineral waters on the market, is nitrates in the territories of Modena, Padua and Rimini; the average value found in 2018 in the water distributed by Hera is in these cases below the regulatory limit of 68-70%.

Quality comparison between water distributed by Hera and mineral waters on the market

	Mineral waters (min-max)	Tap water limits Leg. Dec. 31/2001	Bologna	Ferrara	Forli-Cesena	Modena	Padua	Pesaro-Urbino	Ravenna	Rimini	Trieste
pH	5.8-8.1	6.5-9.5	7.6	7.6	7.8	7.6	7.6	7.6	7.9	7.7	7.7
Hardness (°F)	0.9-88	50*	30	21	22	33	25	30	21	24	19
Dry solids at 180 °C (mg/l)	22-987	1.500*	407	319	309	542	315	416	331	367	261
Sodium (mg/l)	0.3-67	200	26	22	13	57	5	26	23	21	9
Fluorides (mg/l)	0,03-1	1.5	<0.10	<0.10	<0.10	<0.10	<0.10	0.24	<0.10	<0.10	<0.10
Nitrates (mg/l)	0.8-9	50	7	6	5	16	15	6	5	7	8
Chlorides (mg/l)	0.2-80	250	35	28	17	89	9	34	32	25	16

* Recommended value.

Comparison carried out with the data provided on the labels of 17 widely available mineral waters. The data on drinking water refer to the averages of the analyses carried out according to the frequency and withdrawal points on the distribution network set forth in the control and monitoring plan for the water cycle.

If even a single parameter is not compliant with regulatory limits, **Hera takes immediate action to restore compliance of the water** (by washing pipes, checking disinfection, etc.), also based on the instructions of the Local Health Authorities. For hygiene, health and public safety reasons, municipalities may issue orders declaring that the water is not fit for drinking for specific periods of time. In these cases, it may be prohibited to use water for cooking and drinking, or particular precautions will need to be adopted (e.g. boiling in case of microbiological non-compliance), while in general the water can continue to be used for all other purposes.

In 2018, 34 orders were issued, affecting a total of approximately 3,000 inhabitants:

- one order concerned an area of the Grizzana Morandi (Bologna) municipality and affected 37 inhabitants for 6 days;
- two orders concerned the municipalities of Talamello and San Leo, in Rimini, and affected 42 inhabitants for 5 days;
- 31 orders involved municipalities in the province of Pesaro-Urbino and affected about 3 thousand inhabitants for an average of 2 days.

In the area served by AcegasApsAmga, no orders were issued by mayors on the unsuitability of drinking water.

As to the presence of **cement-asbestos** pipes in the aqueduct network (see paragraph "Sustainable management of the water resources" for more data) note that asbestos was used in construction and other industrial sectors until the end of the 1980s, and was definitively banned in 1992. While it has been recognized that the inhalation of asbestos fibres causes serious respiratory illnesses, there is no evidence of toxicity linked to the ingestion of asbestos. In fact, current regulations on the quality of water for human consumption (Legislative Decree 31/2001) do not set limits for the presence of asbestos fibres. In particular, Ministerial Decree of 14 May 1996, annex 3, references a WHO (World Health Organization) document which states that "There is therefore no consistent, convincing evidence that ingested asbestos is hazardous to health". The WHO reiterated this stance in the 2011 update of its Guidelines on drinking water quality (fourth edition-World Health Organization 2011). European and Italian legislation is aligned with the position of the WHO and does not set limits for the eventual presence of asbestos in water destined for human consumption. In 2015, the Istituto Superiore di Sanità (Italian Higher Institute of Health) reiterated these positions once again in one of its statements in which, among other things, it

states that: "On the basis of our current knowledge and the conclusions of the international institutions of reference, the water situation must not be regarded as an imminent risk for public health either in terms of eventual fibres ingested or as regards concentrations potentially transferred from the water to the air".

In the same communication, the Italian Higher Institute of Health indicates, as the only reference limit, (not a parameter value) the one defined by the US EPA (Environmental Protection Agency) as 7 million fibres/litre for fibres longer than 10 µm.

In terms of monitoring, Hera carries out regular checks to determine if asbestos fibre is present in the water it distributes and the level of maintenance of the pipes. Every year since 2003, Hera has prepared and applied a specific Asbestos Control Plan which outlines the details of the sampling points that are most representative for the presence of asbestos cement, the frequencies and the analytical parameters to analyse. Over 257 inspections were carried out during 2018 and they confirm that most of the samples (over 95%) contain no asbestos fibres. In no case has the EPA limit of 7 million F/L been exceeded and even the highest value found in 2018 was 1,000 times lower than this limit. The water distributed by Hera has aggressiveness levels generally above 12 (non-aggressive with respect to the cement base).

For further details on the quality of tap water distributed by Hera, see the appointment with "In Buone Acque", the report entirely dedicated to the quality of tap water that Hera has been publishing annually since 2009 with the collaboration of local health authorities and Romagna Acque.

The new technical quality of the water service

ARERA introduced the Integrated Water Service Technical Quality Regulation (RQTI) with resolution 917/17. The resolution requires monitoring:

- **3 specific indicators** concerning interruptions of aqueduct services; exceeding the corresponding standard values will result in automatic compensation being paid to users;
- **6 macro-indicators** to which a bonus/penalty system is associated, of which 3 concern the aqueduct service, 1 the sewage service and 2 the purification service; for these indicators the initial class positions have been defined with reference to the 2016 data and, accordingly, the maintenance or improvement objectives to be achieved in the 2018-2019 two-year period.

The bonus/penalty system will be operational from 2020 and will be defined in detail in the next regulatory measures. For access to this system, Resolution 917 provides for the possession of prerequisites relating to: a drinking water quality control system, the absence of urban areas included in European infringement procedures, minimum quality levels of measurement data (process and user data).

As regards the achievement of the maintenance/improvement objectives, several actions have been defined, including:

- systematization of the methods for recording interruptions to aqueduct services and sewage flooding incidents;
- extraordinary interventions for the replacement of user meters;
- increase of the reclamation activities of the aqueduct networks;
- increase of the renewal activities of the aqueduct connections;
- detailed analysis of non-conformities and revision of the Analytical Control Plan (partial measures 2018 and further measures planned for 2019).

Application of the new Water Safety Plans

In 2018, the Water Safety Plans for four water supply zones for two aqueducts in the province of Bologna were completed: San Giovanni in Persiceto, industrial aqueduct of Imola, Imola e Dozza. In 2019, the approval process for these Security Plans is expected to start, and includes:

- transmission by computer (through access to the cloud portal) to the Italian Higher Institute of Health;

- investigation by the Italian Higher Institute of Health with possible requests for changes or additions;
- conclusion of the investigation with a positive outcome;
- final approval by the Ministry of Health.

Bearing in mind the date by which the Security Plans must be completed, presumably by 2025, and the large number of supply areas served by Hera (over 400), we must try to work to set up Security Plans by structure types assessing, at the same time, how to automate, as much as possible, the completion of check lists and risk matrices. In terms of priorities, we envisage gradually implementing the Plans for the most densely populated supply areas.

In 2018, for **AcegasApsAmga**, 224 check lists were collected on the entire aqueduct network of Trieste and Padua in order to assess the source of the risks that a dangerous event can generate and the related damage. The main hazard classes identified were: microbiological hazards, chemical hazards, physical hazards, radiological hazards and acceptability hazards.

To process the risk model, AcegasApsAmga prepared a business intelligence model that will support it in the processing the risk matrices. For the 2019-2020 two-year period AcegasApsAmga expects to:

- identify the hazards and dangerous events;
- implement the business intelligence model;
- risk assessment;
- identification of control and monitoring measures;
- risk reassessment and identification of the priorities of the Water Safety Plan.

Safety and continuity of the service

Safety and continuity of the electricity service

In 2018, the distribution grids operated by Inrete distributed approximately 2,246 GWh of electricity to around **259,000 users** in 24 municipalities of the provinces of Bologna, Modena and Ravenna in Emilia-Romagna. In addition, the **over 163,300 users** served by AcegasApsAmga, to whom about 833 GWh of electricity was distributed in the municipalities of Gorizia and Trieste.

The electricity grids operated by Inrete in Emilia-Romagna are 10,370 kilometres long, 73.2% of them carry low voltage, 26.5% medium voltage, and 0.3% high voltage. 41.6% of the lines are underground, and the rest are overhead lines. In the Triveneto region AcegasApsAmga operated 2,280 kilometres of network, 65.2% of them carry low voltage, 34.6% medium voltage, and 0.2% high voltage. 69% of the lines are underground.

The continuity of electricity distribution service is regulated by ARERA provisions on the service quality of distribution, measurement and sales of electricity for the 2016-2023 regulatory period, approved by resolution 646/2015/R/eel.

That resolution also identifies the indicators to use to measure power cuts, the monitoring systems and the reference standards.

The indicators related to power cuts originating in the medium and low voltage grids express:

- the total annual duration of long power cuts without advance notice for low voltage customers;
- the total annual number of long and short power cuts without advance notice for low voltage customers.

For the 2016-2023 regulatory period, **Inrete** and **AcegasApsAmga** have approved the reduction of power cuts originating from the medium and low voltage grids attributable to external causes. The above indicators, therefore, are calculated inclusive of external causes. Target levels and trend levels for these

indicators have been set for each area served by Inrete by ARERA's 702/2016/R/eel resolution, applicable to this regulatory period (2016-2023). The trend levels assigned by ARERA were respected in 2016.

In 2017, resolution 605/2018 awarded **Inrete** a total of around Euro 857 thousand as incentives related to continuity recoveries of the electricity distribution service and issued penalties for around Euro 55 thousand. By 30 November 2019, the Italian regulatory authority will publish the results achieved by the distribution companies in 2018 which, for Inrete Distribuzione Energia, are expected to amount to incentives of around Euro 380 thousand.

AcegasApsAmga also takes part in the incentive and penalty system for continuity recoveries related to the electricity distribution service, set forth in resolution ARG/elt646/15. In 2018, based on the quantity and duration of outages without advance notice in 2017 as reference, the entitlement to two incentives for the two areas for a total of about Euro 270 thousand was obtained.

Continuity of the electricity service

	2017	2018	2017-2018 average	2018 trend
Average number of power cuts per customer in high concentration areas	1.11	1.02	1.07	1.22
Duration of power cuts (minutes) per customer in high concentration areas	11.66	13.97	12.82	28.00
Average number of power cuts per customer in medium concentration areas	2.81	1.64	2.23	2.78
Duration of power cuts (minutes) per customer in medium concentration areas	38.03	18.76	28.40	45.00
Average number of power cuts per customer in low concentration areas	5.39	3.55	4.47	5.01
Duration of power cuts (minutes) per customer in low concentration areas	66.24	34.78	50.51	68.00

The average figure applies to power cuts of the low voltage service, without advance notice and due to causes for which the operator is responsible. The power-cut duration minutes refer to power cuts that last more than 3 minutes. The 2017 trend is the objective of the indicator for 2016-2017. The trend level for the number of power cuts in low concentration areas is 4.30 for Imola-Faenza and 5.19 for Modena compared to the final values of 2.50 and 6.15.

The 2018 figure confirms the good level of continuity of the electricity distribution service and, for all the reference indicators, is below the trend and/or target levels set by ARERA.

The number of requests for connection to the distribution network operated by Inrete in 2018 showed an overall slight increase compared to 2017 of about 5.5%, despite a decrease for medium voltage requests of 37%. Input power decreased by about 17% compared to 2017.

Gas distribution service safety and continuity

The Hera Group manages the gas distribution service with the objective of ensuring high safety and service continuity levels.

The network classified as having a high probability of dispersion is meant as the sum of:

- high pressure network;
- network made of non-compliant materials as required by ARERA's Resolution;
- network laid in areas subject to hydrogeological instability.

For this type of network, 100% of the network must be inspected annually.

The resolution mentioned above governs the quality of the gas distribution service, and has further increased the safety standards for the current regulatory period (2014-2019). This rise was substantially in

line with the previous standards observed by Hera and with the company's mid- and long-term goals. The changes to the regulations did not therefore have any particular impact on Hera or any significant negative impact on the continuity of its goals and activities. Specifically, the resolution added more stringent requirements on the inspection of networks, on odorizing and on incentives to upgrade the odorising systems.

Since 2010, gas distribution companies have been obliged to participate in a system of incentives for safety improvements in the service defined by ARERA, which assesses four aspects:

- compliance with **service obligations, absence of gas accidents** falling under the responsibility of the operator, **absence of breaches** in this area connected with ARERA's controls or inspections;
- the number of measurements of the **level of gas odorizing** compared to the required minimum;
- the number of conventional **leaks** reported by third parties compared to the objective set by ARERA for the period;
- the number of upgraded **odorizing plants** (flow-proportional, remote controlled injection-type odorizing plants).

For 2018, the Regulatory Authority has not yet approved the economic values of **bonuses and penalties** for Inrete. The balance between premiums and penalties for the gas distribution service for the provincial areas served in Emilia-Romagna is expected to amount to approximately Euro 1.4 million. In particular, positive results were obtained both for the component relating to odorization and for the component regarding leaks reported by third parties. In 2019 the Italian Regulatory Authority is expected to publish the measure that determines these values as well as the results obtained by the distribution companies in 2017. For AcegasApsAmga, in 2018, incentives for odorization are estimated at Euro 312 thousand, as well as incentives for dispersions for Euro 848 thousand, net of the penalties expected mainly for the plants in the province of Gorizia. Compared to the previous year, the Trieste plant benefited from the incentives as it complied with the obligations set out in point 35.4 of the RQDG (95% upgrading of unprotected steel pipelines).

Gas emergency service

	2016	2017	2018
Average arrival time at the call location (min)	34.9	37.4	36.5
Calls with arrival time at the call location within 60 minutes (%) (service obligation 90%)	97.5%	96.2%	96.7%

Resolution ARERA 574/2013 "Consolidated Law for the regulation of the quality and rates of gas distribution and metering services for regulatory period 2014-2019" (TUDG) establishes that the distribution company must comply with the minimum annual percentage service obligation of 90% of calls with arrival time at the place of call for emergency services within the maximum time of 60 minutes.

Final data on emergency response activities in 2018 show an increase in calls to toll-free numbers, especially for the Bologna (linked to the massive replacement of gas meters) and Ravenna (linked to the introduction of a new odorizer that has generated a greater perception of gas odour even for small dispersions) areas. Overall, this increase led to a decrease in the percentage of calls with intervention within 60 minutes. Despite this, an increase in the number of calls received, the positive levels of the security and continuity indicators however confirm that the Group is firmly above the levels set by ARERA: compared to the minimum service obligation required by ARERA of 90%, in 2018 the Group intervened **within 60 minutes for 96.7% of the over 22 thousand calls** received. AcegasApsAmga recorded 99.7% for this indicator while Marche Multiservizi recorded 96.3%.

Inspections and leaks in the gas network

	2016	2017	2018
Percentage of total high and medium pressure network inspected (service obligation 100% in 3 years)	56.3%	58.0%	60.5%
Percentage of total low pressure network inspected (service obligation 100% in 4 years)	78.1%	74.7%	78.9%
Number of leaks on distribution network located upon inspection per kilometre of network	0.065	0.059	0.114
Number of leaks on distribution network located upon notification by third parties, per kilometre of network	0.041	0.037	0.035

In 2018, the percentage of **the grid that was inspected was significantly above the minimum standard** required by ARERA (100% for the high and medium pressure grid in 3 years and 100% of the low pressure grid in 4 years). In fact, at Group level, the high and medium pressure grid inspected was over 60% and the low pressure grid was 79%.

In 2018 the scheduled inspections of the network, network elements and gas metering units were performed by internal staff, ensuring the highest quality of service and compliance with ARERA's regulations and with the Group's guidelines.

In addition to applying the criteria and rationale contained in the Group's operating instructions, the data obtained from a prediction algorithm of the predisposition to pipeline failure, empirically applied and adapted to the planned gas dispersion research activity, were also taken into consideration. In 2018, as part of the data analysis and application of the algorithm, we decided to start another project consisting in the development of a dynamic optimization workframe for scheduled gas leak detection work on gas networks, which will be available from January 2019.

2018 is the **second year of the second three-year period of application of the regulatory period** in accordance with ARERA Resolution 574/2013. The results achieved in 2018 must therefore be considered in relation to future performance in 2019 and past performance in 2017 and to the standards set in Resolution 574/2013.

In 2018, in the Group's entire gas distribution network, **35 leaks were reported by third parties**, per thousand kilometres of network, compared to 37 in 2018. On the other hand, **in 2018, 114** leaks were identified by means of inspections on the Group's distribution network per thousand kilometres of network, compared to 59 in 2017. The number of third-party leakages on buried networks following notification decreased compared to 2018, while the number of planned inspections for leaks has increased, proving that the plan for planned inspections of leaks on high-risk and obsolescent networks is effective.

The **network with high probability of leakage that was inspected** was consistent with the network inspected in 2017. In 2018, the criteria for planning and carrying out gas network inspections, as set out in the Group's operating instructions, were applied, with the objective of increasing the inspection effectiveness pursuant to ARERA's Resolution 574/2013. Furthermore, in 2018, gas network inspections were carried out completely by internal staff thus ensuring a high quality service. In addition, in 2018, Hera's distribution company, Inrete, continued to plan and execute a series of inspection campaigns for underground and above-ground connections.

Scheduled searches for gas leaks continued throughout 2018, applied also to above-ground system components, in particular:

- the **systematic check for the absence of leaks** on network elements (valves, vents, crossings, etc.) is carried out during scheduled periodic operating/maintenance activities;

- concurrent with routine operations on meters, (e.g. activations, closures, checks on metering assemblies), a **check using instruments is carried out to verify the absence of leaks on the above-ground connection and meter.**

The technical call centre

Receiving and diagnosing the telephone calls made to the toll-free emergency service numbers is of key importance, since the calls can be used as actual reports of irregularity in the service provided.

The technical call centre service has toll-free numbers for each service (gas, integrated water service and district heating), and area (Emilia-Romagna and Triveneto) in addition to a joint toll-free number for the entire Group for public bodies (fire service, municipalities, provincial administrations, prefectures, police stations, AUSL local health authorities, ARPA environmental protection agency, law enforcement agencies, port authorities, etc.).

Percentage of calls received by the technical call centre answered (within or after 120 seconds) or abandoned within 120 seconds

	2016	2017	2018
Gas	98.8%	98.8%	98.7%
<i>of which for the gas emergency service (minimum percentage required by ARERA is 90%)</i>	97.2%	97.5%	97.4%
Water service	98.0%	96.9%	98.1%
<i>of which for water emergency service (general level 90%)</i>	94.3%	93.1%	94.7%

Excluding Marche Multiservizi. The percentage of emergency gas and water calls is calculated according to criteria defined by ARERA, considering the calls received, answered or abandoned within 120 seconds.

Average technical call centre waiting times

s	2017	2018
Gas	49.4	54.5
Water service	67.8	60.2
Number of calls	354,424	339,361
<i>of which for the gas emergency service</i>	98,942	104,579
<i>of which for the integrated water emergency service</i>	255,482	234,782

Excluding Marche Multiservizi.

In 2018, the technical call centre in Forlì received about 339 thousand calls, slightly down compared to 2017. The percentage of calls answered by the technical call centre within 120 seconds for the water service improved from 96.9% to 98.1%.

With a view to continuous improvement of the service, an **automatic customer satisfaction feedback** tool has been implemented at the end of the call of the conversations with the operator. The results showed that 7% of the customers who contacted the call centre were satisfied on a monthly basis, with a very high level of satisfaction for 85% of the participants in the telephone survey.

As regards the management of **adverse climatic events** (such as frost, floods, droughts, etc.), in addition to the projects started in 2017, the 2018 results were positively influenced by the implementation of the **outsourcing** project, which made it possible to channel excess calls at peak times, maximizing performance, and the **extraordinary management of frost events with deferred recording project**, which made it possible to direct calls to a virtual operator (except for critical user types) for subsequent management in the back office (for the frost emergency).

Safety downstream of the meter

As a result of ARERA Resolution 40/2014/R/gas, when a request is made to activate a gas supply and in some cases to reactivate a gas supply, the safety of the gas system is checked. The scope of application of the inspection regards only user systems with non-technological use of gas (e.g. home use, boilers for heating etc.).

In 2018, a total of 4,587 safety inspections were carried out for **Inrete**, of which 3,594 were for new systems and 993 were inspections on modified or transformed systems. Of the 4,587 inspections, 4,326 passed and 261 did not pass. In addition to the activities of the assessment structure, 161 cases were also found to not be subject to assessment (e.g. Tariff T1 - Production) and were cancelled by the reference seller.

When activating gas supplies, Inrete carries out another key safety check: the inspection of the actual integrity of the user system (downstream of the meter) to ensure that there are no gas leaks from the customer's system, before activation of the gas supply. Also, if a fault occurs downstream of the meter, and Inrete's emergency service locates a gas leak in a final customer's system, it immediately cuts off the supply in order to eliminate the dangerous situation. The supply is then reactivated only after a qualified installer fixes the system so that it no longer leaks and issues the resulting technical documentation that proves the integrity of the user's system.

As of 1 January 2017, the new enhanced insurance policy for final customers is in force in the event of accidents caused by the use of natural gas and LPG supplied through the network. The new policy lasts for four years (from 2017 to 2020) and has higher limits for fires and accidents. The changes were introduced by ARERA's resolution 223/2016/R/gas. In particular, under the policy, anyone using combustible gas (natural gas or LPG) provided by urban distribution or transport networks, automatically receives an insurance coverage against accidents that is valid throughout Italy. Final customers other than residential or condominium customers using meters above G25 class and users of automotive methane are not covered. Coverage is provided for civil liability toward third parties, fires and accidents that originate in the systems and/or devices downstream of the meter. The insurance policy is stipulated by Comitato Italiano Gas [Italian Gas Committee].

Continuity of the water service

The water network control activity index is expressed as a percentage of the network inspected for leaks.

On the whole, in 2018 over 9,610 kilometres of network were inspected by the Group, amounting to 27.7% of the total network. In Emilia-Romagna the organization of the leak search activity was based on a criticality analysis in terms of network losses, breakage indexes of the pipes and possible issues concerning the availability of water resources (in particular during the summer).

Continuity of the water service

	2016	2017	2018
Percentage of network subject to active searches for leaks	18.5%	26.8%	27.7%

Customer relations

The call centre

The increase of informative and commercial contacts confirms our customers' appreciation for this channel, which they use to resolve their needs practically and effectively. The growing number of customers that call the call centre from a mobile phone testifies to the success of the company's decision in 2016 to make this method free of charge.

Residential call centre quality

	2016	2017	2018
Average waiting time at the call centre for residential customers (s)	40	34	36
Calls with satisfactory outcomes for residential customers (%)	94.0%	95.7%	95.6%
Number of residential customer contacts at the call centre (thous.)	3,052	4,268	4,496

The average waiting time, based on a telephone call by a customer that wishes to speak to an operator, is the time between the moment a request is made to talk with an operator and the beginning of the conversation. It does not take into account the initial information provided by the automatic answering system. The data refer to the call centres of Hera Comm, AcegasApsAmga, EstEnergy and Marche Multiservizi.

For the **residential call centre for the household market**, 2018 saw a substantial confirmation of the technical indicators despite the 5% increase in calls handled by call centre operators, compared to 2017. The service level reached 95.6% for residential customers, improving compared to 2016 by almost two percentage points, while the average waiting time confirmed an excellent waiting time of 36 seconds.

For **Hera Comm's** call centre, an important result was achieved on qualitative indicators where there was an increase of more than 2 points (+2.3) in the customer satisfaction index in just one year from 84.5/100 to 86.8/100 and a simultaneous drop of almost 2% of dissatisfied customers.

Business call centre quality

	2016	2017	2018
Average waiting time at the call centre for business customers (s)	36	38	31
Calls with satisfactory outcomes for business customers (%)	94.8%	94.7%	95.5%
Number of business customer contacts at the call centre (thousands)	375	393	379

The average waiting time, based on a telephone call by a customer that wishes to speak to an operator, is the time between the moment a request is made to talk with an operator and the beginning of the conversation. It does not take into account the initial information provided by the automatic answering system. The data applies to the call centre of Hera Comm.

For the **business call centre** the level of service improved compared to the previous year in terms of both average waiting times and calls answered.

In 2018, the contribution of the call centre in the **commercial area** increased significantly, both in terms of the acquisition of new contracts and presenting the campaigns launched during the year that involved various areas (proposal of offers, collection of customer data such as: mobile phone number, data privacy consent and email). In 2019, the objective is to maintain the trend of gradual growth in the results achieved.

The **business call centre** continued to innovate its service offering for business customers. Innovations in the ways critical cases are handled have improved problem solving, prevented many complaints and improved customer relations.

In the **AcegasApsAmga** area, close monitoring of services and analysis of the timely Customer Satisfaction Index (In Touch) continued throughout 2018 to identify critical areas and correct them with targeted training. Corrective measures were therefore applied for critical customers and processes were simplified where necessary, and more extensive training sessions were held to explain the bill and the invoicing process.

As regards Hera Group's commercial call centre, calls are handled by the staff of specialized Italian companies who have their operations located exclusively in Italy and in particular in the provinces of Bologna, Padua and Venice.

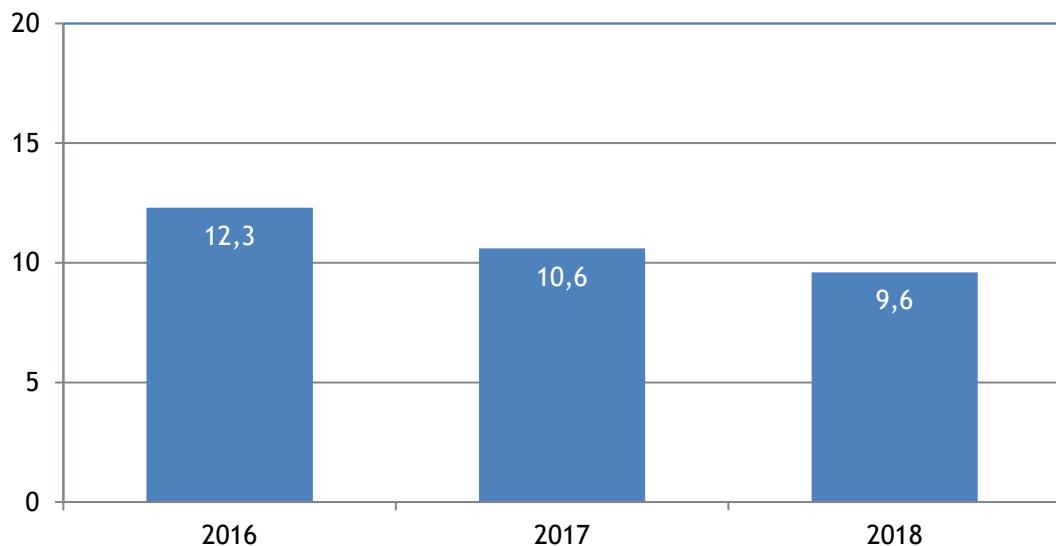
The trade promotion activity is carried out by Italian-based and Italian-owned sales agencies, that rely on operating units both in Italy (predominantly) and abroad. Their staff is employed directly by these sales organizations, who have signed with Hera Comm a standard agency mandate.

Considering also the management of the emergency service call centre for gas, water and district heating, which is always active in the event of failures and emergencies and manned mainly by dedicated staff from within the company (only for some minimal operations of the integrated water service, the service is outsourced) and located at Forlì, during 2018, 99.8% of the calls was handled from Italy.

The branch offices

The average waiting time at branches has improved compared to 2017 both at Group level and in each individual company.

Average waiting times at branch offices



Average waiting times at branch offices

	min	2016	2017	2018
Hera		10.4	9.7	8.2
AcegasApsAmga		21.8	16.0	12.3
Amga Energia&Servizi		9.3	7.7	-
Marche Multiservizi		14.6	12.5	9.4
Weighted average on contacts		12.3	10.6	9.6
Number of contacts		747,964	764,640	915,921

The performance of the Group's branches improved throughout its service area, also with respect to the improvement objectives we had set. The higher number of customers compared to 2017, throughout our service area, did not have a negative impact on the results obtained.

Throughout the various territorial areas the excellent performance achieved in 2018 was positively influenced by the following activities and projects:

- **Emilia-Romagna Area:** introduction of biometric digital signing, implementation of the POS payment system and the expansion of the self-service booking project for the contact points within time slots that allows customers to book in advance their visit to the branch office by choosing the day and time among those available;
- **Triveneto Area:** a communication methods innovation process has been initiated to develop a *new language* that focuses on the simplicity and immediacy of the relationship, to ensure maximum understanding and clarity in the relationship with our customers. In 2019 the booking slots will be extended (through call centres, online services and reception) to tickets for the Trieste and Padua branch offices so as to allow easier access for customers who request it;
- **Marche area:** total renewal of all 12 branch offices and waiting times at main branch offices are monitored by an electronic queue management system, supervised by staff dedicated to the commercial reception.

The results achieved by Hera Comm, which manages the majority of the branches (75 out of 116), have improved on forecasts both in terms of average waiting time (8.2 minutes) and in terms of satisfaction among final customers, which was stable at 88.1 points (+3.7 points compared to 2017). Considering only Hera Comm, 3.8% of customers waited at branch offices for over 40 minutes (was 3.4% in 2017). The number of branch offices managed by Hera Comm in 2018 increased by 3 compared to 2017 (72 in 2017) as a result of closing the Forlimpopoli and San Pietro in Vincoli offices, on the one hand, and the addition of 5 branches of Amga Energia&Servizi on the other.

In total, considering the entire service area of Hera and its subsidiaries AcegasApsAmga, Marche Multiservizi and Estenergy, there are 116 branches. Adding those outside the area, brings the total to 144 branches throughout the country.

Complaint management

In 2018, there was an increase compared to the previous year: about 6,088 more complaints, about 12% more than in 2017. The increases, however, vary by type of service: waste management (+24%) water (+12%), electricity (+11%) and gas (+1%).

Despite the complexity of the situations of the grievances, the time taken to manage the procedures improved significantly compared to 2017: **the average response times decreased to around 14 calendar days** compared to the 18 in 2017 and the **percentage of complaints handled within the standard time increased by almost 5 percentage points**, reaching 98.9%.

Complaints received

	2016	2017	2018
Average complaint response time (days)	19.1	18.3	13.7
Percentage of complaints that were dealt with within the standard timeframe (%)	87.8%	94.1%	98.9%
<i>of which electricity and gas complaints relating to sales</i>	87.4%	89.6%	95.3%
Number of complaints received	41,050	50,773	56,861

Excluding AcegasApsAmga and Marche Multiservizi. The complaint response time is indicated in calendar days, with a reference standard of 40 days. There were 30,359 complaints relating to gas and electricity sales in 2017.

Excluding AcegasApsAmga and Marche Multiservizi, in 2018 the volume of complaints increased to almost 57,000 cases, +12% compared to 2017. Despite the increase, the complaints rate (the ratio of complaints to contracts managed) remained almost constant, rising from 1.5% in 2017 to 1.6% in 2018. The average response times improved further with respect to 2017, dropping from an average of 18 calendar days, to 14 in 2018. Handling times were very similar for all four services: gas, electricity, water and waste.

In 2018, activities to improve the communication style towards end customers continued, thanks to the implementation of the **new language project** for both handling written requests and customer contact (call centre and branch office). Moreover, for almost all of 2018 ARERA promoted a survey on energy-related complaints to verify the quality and validity of the responses provided to customers.

For **AcegasApsAmga**, the average response time to grievances was 18 days (27 in 2016), substantially in line with last year and 99.8% of complaints were answered within the standard time (was 99.9% in 2017). In **Marche Multiservizi**, the average response time to complaints was 9 calendar days (8 in 2017) and the percentage of complaints answered within the standard was 99.4%.

Dispute Resolution

Alternative Dispute Resolution (ADR) is increasingly used to solve problems without resorting to ordinary courts. This method is not costly for clients, who can participate in the resolution of disputes either in person or by delegating a representative. Most of the meetings take place by computer on IT platforms, thus avoiding the need to travel. The high percentage of positive outcomes proves the success of this method, which is becoming increasingly popular every year.

Since January 2017, the sector's regulations make it compulsory for the gas and electricity sectors to attempt to resolve disputes. The attempt is a prerequisite for the admissibility of any subsequent legal action. The arbitration bodies must have the requisites set out in the Code of Commerce and be registered in the Register kept by ARERA. Since July 2018, arbitration has been extended to the integrated water service, even if in a non-compulsory form (until June 2019); in July 2018 the Hera Group joined the experimental phase, during which there is no constraint on the mandatory nature of the attempt, which will instead start in July 2019. A sharp increase in requests for arbitration for water services is expected in 2019.

In 2018, we received a total of 227 arbitration requests, 90 of which were for the gas service, 91 for electricity, 21 for both sectors and 25 for the water service. Of the 210 arbitration requests concluded during the year, 170 (81% of the total) concluded with a settlement, 34 (16%) without a settlement, 4 were terminated due to inadmissibility, 1 for a waiver of the request and 1 for non-participation.

Litigation with customers

At the close of 2018, there were 483 disputes pending with customers (204 of which initiated during the year) mainly on application of the tariffs applied to the services provided and the recovery of payments. Of these 204 disputes, 154 concern the gas, electricity and district heating service, 32 the water service and 17 the waste management service. The remainder of the dispute is pending against a customer in relation to the supply of energy associated with the management and modernization of a co-generation plant. The disputes with customers mainly concern the energy sector, and in particular objections to the protective system to which customers are assigned by the competent distributor, to invoicing, and complaints requesting reactivation of electricity or gas supplies that had been disconnected due to the customer paying late. In the water sector, instead, disputes mainly regards customers objecting to injunctions.

During 2018, 210 disputes were settled.

The security of information and protection of personal data

The synergy in managing Personal Data and Logical Security was strengthened, with a view to sharing analyses on information security and personal data protection, conducted with a unified methodological approach within the Group.

Requests for consultancy and specific legal support were managed by processing specific in-depth analyses of regulations and of the documentation required to ensure the regulatory compliance of Group processes in terms of privacy, also for service contracts.

The Group's compliance with GDPR 679/2016 was addressed through an interdisciplinary project that involved the structure and a timely review of the Group's entire documentation system, in order to document compliance with the requirements of the law in protecting personal data, from the conception and design phase of the processing, deciding the methods, safeguards and limits.

The standardization within the Group consisted in particular in monitoring and making known the development of data privacy regulations, designing and implementing a Common Privacy Management System for the Group, defining Group's criteria to appoint data processors, preparing Document Templates for the Group's main formal fulfilments.

Specific training was designed and implemented to update on the main new regulations, and to focus on the role of the Heads of the organizational units, responsible for processing, which involved the entire Group.

A single Data Protection Officer (DPO) was appointed for the Hera Group, in accordance with legal requirements.

Case study

In Good Water: why drink tap water

In 2018, for the tenth consecutive year, Hera published the "In buone acque" (In Good Water) report, dedicated to telling users about the quality and transparency of the process that brings tap water into our homes every day. The report is still the first and only Italian report published on the subject of tap water and the benefits of drinking it instead of bottled water, in both environmental and economic terms.

On the basis of the new data for 2017, it has once again shown that the mains water in Hera's service area is a good, convenient, widespread, safe and inexpensive resource, as well as being rich in trace elements and low in sodium, comparable in quality to the leading bottled waters on the market. Reassuring results, guaranteed by **2,800 analyses per day** (including those done by the Local Healthcare Authorities) on tap water (carried out by Hera, by ASL - the local health authorities, and by Romagna Acque) proven by the fact that **99.9% of the checks carried out** showed the water is compliant with the water quality standards set by law.

The report also contains, area by area, the data of the analyses of all the **29 parameters**. The analyses also concern pesticides and parameters not required by law, such as emerging pollutants and asbestos fibre: again, the results confirmed the quality and safety of the mains water distributed by Hera.

The report, with extended contents in its online version, shows that besides being a safe choice for health and sustainable for the environment, drinking tap water is also good for our customers' wallets. In fact, tap water in Hera's service area makes it possible to avoid the production, transport and disposal of almost **250 million plastic bottles** that would fill over **3 million bins** and to save on average up to Euro 300 per year, for a family of 3 people.

To ensure maximum transparency and reliability of the data reported, the report was examined and certified by DNV GL.

The extended contents of the report are available at [www.gruppohera.it\report](http://www.gruppohera.it/report).

Plan for the resilience of electricity grids

The work Plan for increasing the resilience of the Inrete electrical system was developed in accordance with the ARERA Guidelines annexed to DIEU no. 2 of 7 March 2017 and with Resolution 668/2018/R/eel of 18 December 2018.

The Plan takes into account only the risk factor arising from the formation of ice and snow sleeves; the corresponding mechanical stress on the conductors of overhead power lines have been calculated in accordance with the provisions of the standards EN 50341-1 and EN 50341-13.

The scope of the Plan was defined on the basis of the mechanical stress and the mechanical characteristics of the conductors, the geometric characteristics of the lines and their geographical and altimetric location. It includes the municipalities of Fanano, Fiumalbo, Guiglia, Lama Mocogno, Montecreto, Montese, Pavullo nel Frignano, Pievepelago, Polinago, Riolunato, Sestola and Zocca.

The Secondary Cabins included in the scope of the Plan have been identified as those that supply the most critical low-voltage users, for whom measures are necessary to reduce the risk of disruption to acceptable levels by upgrading the power supply lines.

The type of measures adopted to address such critical issues consists in replacing the sections of bare overhead conductors whose sections are not suitable to withstand the stresses considered, with overhead cables with spiral reinforcements of an appropriate section, initially expected to follow the same route of the existing lines.

We analysed the medium-voltage distribution network to identify the measures, considering the best power supply route for the most critical stations, along which all the sections of overhead conductors with an unsuitable section were identified and which must therefore be replaced with overhead cables with spiral reinforcements.

The Plan involves the refurbishment of 8 lines, covering the period 2018-2023.

At Hera we drink tap water

The Hera₂O project, launched in 2008, encourages Hera's employees to drink tap water. By drinking over 506 thousand litres of tap water in 2018 from the 118 dispensers installed in Hera's canteens and offices, workers avoided the production of more than 16 tonnes of plastic, equivalent to around 510 bins, and over 780 plastic bottles (0.5 litre bottles were considered for canteens and individual use, and 1.5 litre bottles for offices and meeting rooms). This virtuous behaviour generated an energy savings of approximately 52 tonnes of oil equivalent and reduced greenhouse gas emissions by 146 tonnes.

Urban Springs

Residents can also have good and checked drinking water by obtaining it from the Urban Springs, public dispensers of drinking water, located throughout Hera Group's service area. The water they provide is identical to that in the taps of homes but is cooler (refrigerated) and sparkling water is also dispensed. In 2018, there were 69 "Urban Springs" in the area served by Hera Group while there were 5 dispensers in the area served by AcegasApsAmga; the number of "Urban Springs" set up jointly with Marche Multiservizi increased to a total of 15.

We would like to mention the considerable environmental benefits deriving from the decision to drink tap water, which is good, safe and scrupulously checked by the Hera Group. For example, in 2018 the Group's "Urban Springs" supplied a total of more than 20.7 million litres of water, 30% of which was sparkling water, determining a remarkable saving in terms of plastic, as that amounts to over 13.8 million bottles, and in turn means around 17,200 fewer bins to empty (bins with an average capacity of 800 1.5 litre PET bottles), thus reducing CO₂ emissions by over 2,500 tonnes. The savings for families, of the average expense to purchase mineral water, is around Euro 3.8 million.

People

Objectives and performance

What we said we would do	What we have done	Area *
<ul style="list-style-type: none"> • Involve workers in the new edition of HeraSolidale for the benefit of non-profit organisations chosen for their reputation and level of accountability, contribution to achieving the 2030 UN Agenda, level of accountability and relevance to Hera services (accessory criterion) 	<ul style="list-style-type: none"> • Euro 57.4 thousand donated in 2018 (91% of the result achieved in the previous edition in two years) by Group workers to the 5 non-profit organisations involved in the HeraSolidale 2018-19 edition. 	ER T
<ul style="list-style-type: none"> • Enter into specific trade-union agreements to: <ul style="list-style-type: none"> - promoting solidarity systems among employees, through the free transfer of leaves and holidays - promoting the reconciliation of work and private life. 	<ul style="list-style-type: none"> • 2 trade-union agreements entered into in 2018 for: <ul style="list-style-type: none"> - promote solidarity systems among employees, through the free transfer of leaves and holidays - promoting the reconciliation of work and private life. 	ER T M
<ul style="list-style-type: none"> • Digitization and smart working: <ul style="list-style-type: none"> - implement the change management plan defined on the basis of the Her@futura survey carried out in 2017; 	<ul style="list-style-type: none"> • Digitization and smart working: <ul style="list-style-type: none"> - implemented the change management plan defined on the basis of the Her@futura survey carried out in 2017; 	ER T M
<ul style="list-style-type: none"> • Digitization and smart working: <ul style="list-style-type: none"> - evaluate the results of the 6 smartworking projects launched in 2017 and plan their possible extension. 	<ul style="list-style-type: none"> • Digitization and smart working: <ul style="list-style-type: none"> - the results of the 6 smartworking projects launched in 2017 were evaluated and extension to further 1,500 workers was launched in January 2019. 	ER T M
<ul style="list-style-type: none"> • Continue to implement coaching activities for workers returning to work after leave and carry out initiatives for raising disability awareness in the company. 	<ul style="list-style-type: none"> • Coaching activities for workers returning to work after leave were continued in 2018, and an initiative for raising disability awareness was organised, attended by over 250 people. 	ER
<ul style="list-style-type: none"> • Continue to promote Hextra, Hera Group's welfare system and promote the possibility of allocating a share of the performance bonus to the corporate welfare system. Increase the "welfare share" by 7%. 	<ul style="list-style-type: none"> • 7% increase in the share available to employees in Hextra in 2018, reaching Euro 385 to be used in 5 welfare areas. 	ER T M
<ul style="list-style-type: none"> • Continue the HerAcademy training activities: provide an average of 25 training hours per capita in 2018 	<ul style="list-style-type: none"> • In 2018, an average of 29.8 training hours per capita were delivered. 	ER T M
<ul style="list-style-type: none"> • Accident prevention: 17.9 frequency index in 2018 (-2% compared to the average of 2015/2017) Carry out specific awareness-raising initiatives on safe driving. 	<ul style="list-style-type: none"> • The accident frequency index was 15.7 in 2018 (-16% compared to the average of the three-year period 2015-2017). The project "Guido come vivo" was launched, aimed at safe driving awareness and training. 	ER T M

What we will do	Area		
	*		
• Continue to promote the third edition of HeraSolidale in 2019 and support the pursuit of the objectives of the 5 non-profit organisations partners through donations from employees and customers.	ER	T	M
• Continue to promote Hextra, the Hera Group welfare system, by enhancing related opportunities in terms of knowledge, dissemination and usability of the services offered, with a view to increased support to employees when choosing how to use allocated shares (e.g. flexible share, instruction shares, performance bonus share, etc.).	ER	T	M
• 24.4 training hours per capita in 2019 for HerAcademy.	ER	T	M
• -3% reduction in the accident frequency index in 2019 (18.2) compared to the average for 2014-2018. Increase the culture of health and safety for workers at all levels of the company through initiatives such as "Guido come vivo" and "Hera cardioprotetta".	ER	T	M
• Involve all workers in the fourth updating of the Group's Code of Ethics.	ER	T	

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Planning of roles and skills, selection and onboarding

Strategic planning of sought-after and future skills and roles

The five strategic levers of the Business Plan steer the action of the Central Personnel and Organisation Department towards building a corporate environment supporting business strategy.

The rapid changes in the competitive context, in technology and in the regulatory framework require that organisations adapt and respond in an ever faster way. The diffusion of **agility** is a goal shared by several areas of intervention and also extends to relations with the ecosystem.

The current and constantly evolving market scenario, therefore, also leads the Hera Group to adopt systemic intervention models that are able to support the implementation of the strategies of individual businesses and to identify the offer and demand for both current and future roles and abilities.

In this context, as part of the 2018 business planning cycle, a **new approach to the workforce planning process** was launched. Drawing on greater integration between the business strategy and the strategy for roles and skills, the approach examines HR numbers and costs, and steers the development of the personnel management strategy in the long term, supporting Group strategy implementation. This is achieved by analysing workforce dynamics both from an internal and external viewpoint. The goal of strategic workforce planning is to identify and bridge the gap between the current and future situation by finding the best solutions in terms of quality, quantity, timing and location of the workforce, through an integrated action plan.

Within the context of this approach, reflection and analysis involve 5 main aspects:

- **Dimension** - is workload rising or falling? Will there be roles that will no longer be necessary or will be able to be replaced by automation? Will there be emerging roles that will be included in the organisation?
- **Cost** – will cost change in line with the increase in results?
- **Geographical location** – are the various professional families located where they are really needed? How does the external context influence the current geographical location of resources?
- **Skills:** Do we have the right skills to implement key processes in the future? Are there any obsolete skills? Do we need to develop new skills?

- **Configuration:** Is distribution by seniority and position consistent with the organisation's demands? Is the demographic structure appropriate? Is the balance between operational/management positions consistent with future challenges?

Hera Group's workforce

2018 confirmed the consolidation of the Group's organisational and corporate structure, both through expansion of the scope of reference and through ongoing attention towards simplifying the operating mechanisms.

More specifically, the companies Blu Ranton (6 workers) and Megas Net (19 workers), operating in the market area, were added to the scope of the Group during the year. At the same time, the following companies left the Group's scope: Medea (21 workers), operating in the market area, and the waste management services branch of Hera Spa to Alea Ambiente.

As at **31 December 2018**, the total workers with **open-ended contracts** in Group companies amounted to **8,622**, while workers with **fixed-term contracts** amounted to **155**.

Staff figures at year end

qty	2016	2017	2018
Managers	151	154	149
Middle managers	524	537	536
White-collar workers	4,514	4,612	4,648
Blue-collar workers	3,185	3,380	3,289
<i>Open-ended contract employees</i>	<i>8,374</i>	<i>8,683</i>	<i>8,622</i>
Fixed-term contract workers	101	137	129
Job training and entrance contracts, apprenticeships	12	2	0
<i>Fixed-term contract employees</i>	<i>113</i>	<i>139</i>	<i>129</i>
Staff leasing contracts	15	25	26
Total	8,502	8,847	8,777

Data as at 31 December.

The decrease in managers (5 units) is due to 1 recruitment, 5 moves from the role of middle manager to manager, and the exit of 11 managers during 2018. The number of middle managers dropped by 1 unit, which is the result of 2 new entries, 25 promotions to middle manager, 7 moves from the role of middle manager to manager, and 23 exits. The increase in white-collar workers is due to the entry of 238 new workers (21 of whom as a result of changes in scope) and 5 level changes, offset by 207 exits. The number of blue-collar workers increased by 9 units since 2018 due to the entry of 222 blue-collar workers (4 of whom as a result of changes in scope) and to the exit of 283 blue-collar workers and 61 moves from the role of blue-collar worker to white-collar worker. The reduction of 61 open-ended contract workers is therefore the result of changes in both scope and turnover.

Workforce by function

qty	2016	2017	2018
Grid services	2,848	2,793	2,661
Waste management services	2,431	2,805	2,726
Other services	751	800	832
Commercial	782	848	891
Coordination activities	1,562	1,601	1,667
Total	8,374	8,847	8,777

Data as at 31 December. The 2016 figure refers to workers with open-ended contracts.

Of the workforce, 30% operated in grid services (gas, electricity, water service and district heating) and 31% operate in the waste management sector. 10% of the workforce were employed in the commercial structure and a further 9% in other services (information technology systems, fleet management, laboratories, public lighting):

Workforce by type of contract and gender (2018)

qty	Men	Women	Total
Open-ended contract	6,498	2,124	8,622
Fixed term contract and other	106	49	155
Total	6,604	2,173	8,777

Data as at 31 December

Workforce by type of contract and geographical breakdown (2018)

qty	Italy	Abroad	Total
Open-ended contract	8,477	145	8,622
Fixed term contract and other	147	8	155
Total	8,624	153	8,777

Data as at 31 December

The 153 foreign workers refer to Aresgas, which distributes methane gas in Bulgaria, and 3 companies that run plastic selection plants in France, Poland and Spain (Aliplast France Recyclage, Aliplast Polska and Aliplast Iberia).

Workforce by workplace

qty	2016	2017	2018	% 2018
Emilia Romagna	5,667	5,733	5,686	65%
Triveneto	1,800	1,805	1,780	20%
Marche	569	576	511	6%
Other	338	733	800	9%
Total	8,374	8,847	8,777	100%

Data as at 31 December. The 2016 figure refers to workers with open-ended contracts.

Open-ended contract employees by educational qualification and position (2018)

qty	Managers	Middle managers	White-collar workers	Blue-collar workers	Total
Primary education	0	0	7	36	43
Junior secondary education	1	6	632	1,842	2,481
High school diploma	17	177	2,647	1,443	4,284
University degree	131	357	1,451	30	1,969
Total	149	540	4,737	3,351	8,777

Data as at 31 December

The overall percentage of employees holding high school diplomas and university degrees is equal to 71%, two percentage points higher compared to 2017.

Workforce by gender and type of contract (2018)

qty	Men	Women	Total
Full-time	6,561	1,849	8,410
Part-time	47	320	367
Total	6,608	2,169	8,777

Data as at 31 December

Average age and average seniority of total employees by role (2018)

Years	Age	Years of service
Managers	52.3	17.6
Middle managers	50.3	19.0
White-collar workers	47.2	18.5
Blue-collar workers	49.3	18.2
Total	48.3	18.2

Data as at 31 December

The average age of employees with open-ended contracts is 48.3 (basically in line with 2017 which recorded an age of 48.4). Average seniority is 18.2 years.

Hours of absence and hours worked per capita for employees with open-ended contracts (by type)

Hours	2016	2017	2018
Illness	62.7	62.4	65.0
Maternity/paternity and parental leave	13.1	13.2	11.3
Accidents	5.1	4.9	5.4
Strikes	1.7	1.7	1.0
Union meetings	1.0	0.8	0.3
Union leave	6.8	6.6	5.3
Other	32.6	36.3	33.4
Total absences (h)	122.9	125.9	121.6
Regular hours worked	1,537.8	1,546.2	1,534.8
Overtime hours worked	39.7	38.3	31.9
Total hours worked	1,577.4	1,584.5	1,566.7

The data apply to the following companies: Hera Spa, Acantho, AcegasApsAmga, Fea, Herambiente, Herambiente Servizi Industriali, HERATech, Hestambiente, Hera Comm, Hera Luce, Hera Trading, Inrete Distribuzione Energia, Marche Multiservizi, AcegasApsAmga Servizi Energetici, Uniflotte, Waste Recycling. The hours worked are calculated net of overtime hours for recovery.

The **hours of absence per capita** are substantially in line with the last three years. Even in 2018 overtime hours continued to represent a small percentage of the total hours worked and the per capita average continued to decline. The “other” item in the table mainly refers to leave requested to assist family members with disabilities or illness, leave for medical check-ups and therapy, and leave for academic purposes.

The selection and onboarding process

Changes in business models, technological development and socio-demographic and economic factors are altering the employment scenario with consequences that are not always predictable, but that a company is forced to handle. This is why, over the next years, we expect new jobs to be created, others to disappear, the skills required in existing jobs to evolve and, more generally, a new way of working.

To be effective when selecting the best talents available on the market, two distinct yet strongly interlaced aspects need to be considered: **the attractiveness of the Hera brand** and **the quality of the selection process**. From this point of view, the effectiveness and efficiency required to cover personnel needs must include a good experience offered to candidates by the individuals in charge of selection.

The levers to strengthen both these aspects are: digitalisation, simplification, agility and people analytics. A first important result in 2018 was the implementation of the new job application management system. On the one hand, the system standardised the process, making it uniform and improving its effectiveness and relevant monitoring; on the other, it made it easier to apply for a job, thanks above all to its easy access (even from a smartphone) and its ability to automatically import data from applicants' CV or LinkedIn profile. The new system was started in July 2018 and over **8,500 applications** were registered in just a few months. The independent analysis by **Potentialpark** - a market-leading research company that publishes an annual ranking of companies that, through their online communication, are more attractive for job seekers - was launched in September 2018. The result was **first place in the "Applicant Tracking System" category** and **second place in the "Mobile" category**.

The **Her@futura** survey, already used for mapping the digital propensity of the entire corporate workforce, was made available to applicants. The goal is to make a tool available to all persons interested in getting to know Hera better. This tool increases individual awareness of the level of readiness to use new digital working methods in an environment that runs the risk of creating a gap that is difficult to bridge between individuals who already have specific skills and individuals who have not yet embarked on their digital transformation journey. In just two months, over **700 applicants took part in the questionnaire** and have already received personal feedback. Furthermore, several studies show that the duration of acquired skills wears away at an increasing pace over time and that, in order to continue to be effective in the business world, it is ever more crucial to possess and develop learning agility. For this reason, all of our candidates have the opportunity to take an aptitude test that examines relational aspects, the ability to work in a team, result orientation, the propensity for innovation and critical thinking, as well as specific aspects linked to learning agility.

The professional roles sought after are highly varied and balanced, with specialisations both with regard to staff functions (e.g. procurement and contract regulatory experts, legal and personnel management controllers and experts) and to marketing, sales and customer management (area managers, key account managers, back office employees), operations (process engineers, plant managers and technical operators) and information systems (functional analysts and systems engineers).

Briefly, the **effects of the selection process** contribute to the generational change (average age of 34 years for new hires compared to 48 years of the Group) of the company workforce, to the increase in the number of women (**51% of hiring excluding blue-collar workers regarded women**) and the percentage of graduates (75% excluding operating profiles).

With respect to the channels used, **90%** of selections are covered using **internal tools** with an average selection process time of around **40 working days**.

Effective selection must inevitably be accompanied by an equally effective and well-structured entry programme. The aim is to support new hires entering the company through specifically dedicated actions seeking to integrate them in the company environment and help them fully perform their role. The main benefits are undoubtedly: better performance, strengthening employees' sense of belonging and so a greater **ability to retain talent**. For this reason, the **programme for the entry of new hires in the company** was revised in 2018. New support tools were introduced: a handbook; a welcome letter from top management and a welcome kit; structured listening and feedback with the respective manager to stimulate dialogue, giving new hires the opportunity to play an active part in their growth in the company; and the introduction of a "buddy", a colleague who supports new hires in taking their first steps in the

company. Furthermore, to demonstrate the ongoing attention to digital technology, virtual plant visits were planned using special virtual reality viewers.

Management of the skills and training

The **Group's value proposition relating to Group learning** is applied using a process that starts by understanding the context of reference and interest trends (global macro-trends, Business Plan, personnel management strategy) and takes shape by reviewing the main features resulting from company management's listening activities and by subsequently achieving strategic training goals for the current year.

Training initiatives

With regard to **institutional and management training**, of note are the initiatives linked to the **Leadership Model**, to institutional training for middle managers and managers, and to the implementation of **Smart Working**.

Initiatives relating to **information systems** include training sessions on **Geocall** (the system developed to support network operation and maintenance activities) dedicated to resources operating in the General Operations Department, District Heating Department and AcegasApsAmga, and aimed at learning about the operation of the new system to support on-field emergency response activities.

With regard to **technical-professional training**, of special note are all the **initiatives** planned and implemented within the **professional Academies**: training sessions regarding **regulatory updates on the Tender Code** with internal teaching by the Procurement and Tenders Department and implemented through "joint planning" by Academy-Procurement and Tenders and Academy-Engineering; training sessions on new dynamic, interdisciplinary and shared tools and methods for engineering design and development; training sessions for technical and regulatory updating in tax and accounting matters within the Administration, Finance and Control Academy.

In the **quality, safety and environmental** area, of note is the start of the initiative **Guido come vivo** (e-learning), aimed at broadening aware driving culture.

Total training hours per area of intervention

hours	2016	2017	2018
Sales and market	15,542	15,728	14,874
Managerial	35,308	30,320	32,338
SA 8000 quality, safety, environment and social responsibility	72,257	66,741	67,612
Information systems	30,827	13,044	23,937
Technical-operational	73,602	87,168	88,388
Ethical values and corporate culture	18,048	24,587	23,907
Total	245,583	237,588	251,055

The indicator does not include the following companies: Aliplast and Aresgas. The workers of these companies account for 4.7% of the total.

Within the **HER@futura** programme, the overall change management plan was started. Specifically, the following were provided: training pills for the development of basic digital skills, using different approaches depending on company staff's digital propensity, and specific training initiatives for Middle managers and Managers («Digital Envisioning» session for Directors, start-up and consolidation of the 2 «Digital Labs»).

In the field of **institutional and management training**, of note are the Leadership Model training activities, the organisation of the HerAcademy Workshop «Climate change: the global scenario and the strategic plans

of ecosystems and companies», especially aimed at steering considerations and dialogue, through scientific research prospects and long-term trends, on the impact of climate change, and the development of change management activities associated with the implementation of Smart working.

With regard to **ethical values and corporate culture**, the Corporate Social Responsibility and Code of Ethics in day-to-day management seminar continued in 2018, now in its fourth edition, involving 25 individuals with the aim of explaining the importance of the ethical aspects in the day-to-day activities establishing an increasingly larger group of experts «informed» on the Code. The initiative focused on the discussion of the cases of “ethical dilemmas” developing considerations with the colleagues of the various Companies and Group units which cover roles of responsibility and co-ordination. Group colleagues involved in previous editions took on the role of facilitators and brought their experience within the 4 teams that discussed how the dilemmas dealt with are specifically transferred into everyday life. A new aspect of the fifth and sixth edition was the use of evidence from outside of Hera which, through different experiences and perspectives, allowed the same issues to be viewed in a new way, thus generating value. Two days of training were organised and the satisfaction level of the sessions was appraised, reaching a very positive score: 4.6 out of 5.

Training hours (average, per capita)

Hours	2016	2017	2018
Managers	59.2	61.4	50.4
Middle managers	53.3	46.6	63.3
White-collar workers	28.2	27.5	28.4
Blue-collar workers	25.4	25.1	26.2
Average	29.3	28.6	29.8

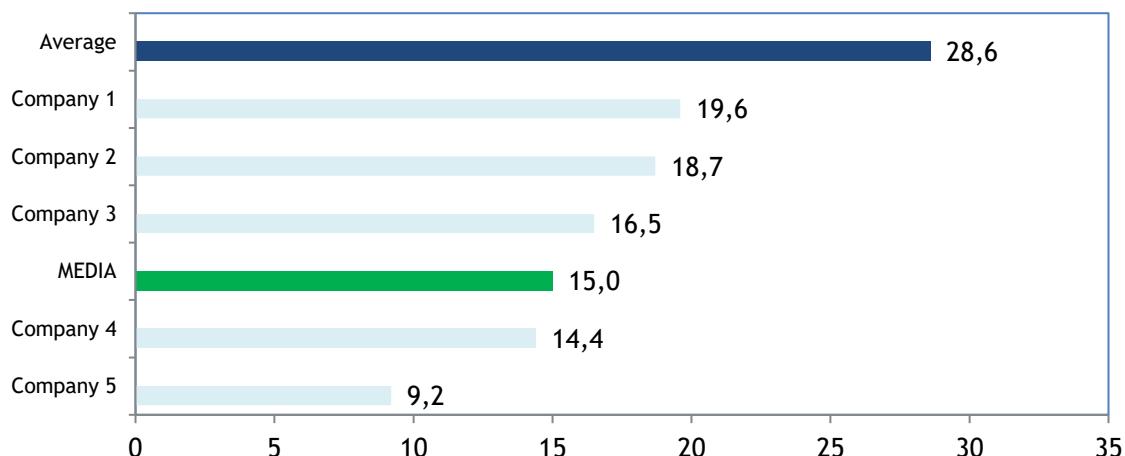
The indicator does not include the following companies: Aliplast and Aresgas. The workers of these companies account for 4.7% of the total.

There were 29.8 training hours per capita in 2018, with not significant differences between men and women.

Professional training in the main Italian utility companies

Hera is in first place among the 6 leading Italian multi-utilities considered in the comparative analysis between the main Italian utility companies carried out by Utilitatis in terms of training hours per capita delivered to workers. In 2018, Utilitalia published its first sustainability report which summarises the environmental performance of 127 Italian utility companies: Hera's 2017 result (28.6) is 90% higher than the average of the utilities considered (equal to 15).

Professional training hours per capita in the main utility companies (2017)



Source: Utilitatis, Sustainability Benchmarking 2018; Utilitalia – 2017 Sustainability Report

Percentage of workforce attending at least one training course

%	2016	2017	2018
Managers	100.0%	100.0%	100.0%
Middle managers	100.0%	100.0%	100.0%
White-collar workers	99.4%	99.4%	99.6%
Blue-collar workers	95.9%	95.1%	98.5%
Total	98.1%	97.9%	99.4%

The indicator does not include the following companies: Aliplast and Aresgas. The workers of these companies account for 4.7% of the total.

99.4% of workers were involved in at least one training event: the reason for this was the development of widespread initiatives, including the extraordinary training activities mentioned above.

Assessment of training

%	2016	2017	2018
Degree of satisfaction of trainees (quality perceived on a scale from 1 to 5)	4.43	4.43	4.36
Outcomes (correspondence with needs) (% of replies with assessment score of 4 or 5)	75%	75%	73%

Excluding AcegasApsAmga and Marche Multiservizi.

Training, including hands-on training, is planned based upon a needs analysis in accordance with the Group's roles and competences model. This analysis is followed by detailed planning which includes cost forecasts. The activities are monitored and assessed during the year and after training.

Hera uses a training assessment system that considers the degree of satisfaction expressed by the workforce attending the courses, alongside the assessments of the department managers with respect to the impact of training actions on the skill profile development of co-workers and their application in the performance of the working activities.

The degree of satisfaction is generated by assessments conducted by trainees once the course is over, on a scale of 1 to 5. The above table shows the overall average assessment measured: the degree of satisfaction is in line with 2016. The outcomes are the result of the assessments carried out by managers in terms of

collective impact of the training provided for each role. The reported percentage values indicate scores of 4 or 5 (1 - 5 scale).

Total training cost per area of intervention

Thousands of Euro	2016	2017	2018
Sales and market	52	44	81
Managerial	589	606	552
Quality, safety, environment	541	448	580
Information systems	60	28	46
Technical-operational	361	499	486
Ethical values and corporate culture	15	3	25
Other	135	189	80
Total	1,753	1,817	1,849

The indicator does not include the following companies: Aliplast and Aresgas. The workers of these companies account for 4.7% of the total.

The financial investment made by the Group in 2018 was Euro 1.8 million, net of costs for personnel undergoing training and internal teachers.

Scuola dei Mestieri and knowledge management system

The Scuola dei Mestieri is a consolidated system that for over ten years has developed, strengthened and enhanced the technical and operational skills of the Hera Group, also with a view to knowledge management. The purpose is to raise the level of awareness of professional conduct and of know-how transfer within the company.

Since its creation, the Hera Group has felt the need to arrange the distinctive skills of the various operational trades which are typical of the company (for example workers dealing with network services and workers dealing with remote control and management) in **notebooks**. Seventeen notebooks have been created to share and preserve the Group's distinctive know-how over time: in 2015, they became available in digital format and are updated continually. During 2018, the Group notebook "Regulated Services Tenders" was created.

Furthermore, in 2018, the Professional Academies in the field of **Administration, Finance and Control, Water and Energy Distribution** were added to the active **Engineering and the Procurement and Tenders** Professional Academies.

HerAcademy: Hera Group's corporate university

The process continued for consolidating **HerAcademy** as a University Stakeholder, capable of interacting with all partners of the national education system in order to set up Public Private Partnership projects and to define projects seeking to support innovation processes within the ecosystem of reference.

Specifically, in 2018, the **workshop «Climate change: the global scenario and the strategic plans of ecosystems and companies»** was organised in Bologna. The workshop aimed at steering considerations and dialogue, through scientific research prospects and long-term trends, on the impacts of climate change. During the workshop, the results of the study "*From unlimited development to the new limits of development*" produced by Harvard Business Review Italia and The Ruling Companies were presented.

Furthermore, the seventh edition of the **university orientation** initiative for the children of employees approaching university enrolment was carried out at the University of Bologna with the participation of academic guests and some Group directors.

The fifth edition of the **job orientation initiative** was also organised to support the children of employees approaching the employment market.

During 2018, the Hera Group participated in the Industry 4.0 Competence Center coordinated by the University of Bologna and aimed at carrying out research, development and technology transfer projects through a partnership between public and private entities, as well as the development of orientation and training activities on innovation. The project led to establishing the BI-REX Consortium which brings together 57 parties including universities, research centres and companies and which relies on ministerial funding and funding by private partners to pursue their goals.

Also as the part of HerAcademy, a memorandum of understanding was signed with H-Farm, the largest European innovation centre, designed to develop a partnership for implementing innovation, digital and circular economy projects especially for students, employees and employees' children.

Agreements with universities, business schools and research centres

The Hera Group - through its Corporate University HerAcademy - has entered into several framework agreements over the past years with leading universities in the Emilia-Romagna area, such as the University of Bologna, the University of Modena and Reggio Emilia, and the University of Ferrara, which include the assignment of six-monthly scholarships for final year students and for recent graduates. The Group also works actively with various business schools including the Bologna Business School (BBS), the Consorzio MIB School of Management in Trieste, ISTAO (Adriano Olivetti Institute), the MIP-Polytechnic in Milan and the SAFE Study and Research Centre; it is also a member of the Assoknowledge-Confindustria scientific committee - Innovative and Technological Services.

Furthermore, scientific cooperation with the University of Milan – Bicocca and CRISP (Inter-university Research Centre for Public Utility Services) continued, with the general aim of supporting the development and implementation of activities within HerAcademy. During 2018, the Group also took part in the Industry 4.0 Competence Center coordinated by the University of Bologna and aimed at carrying out research, development and technology transfer projects through a partnership between public and private entities, as well as the development of orientation and training activities on innovation. Finally, also as the part of HerAcademy, a memorandum of understanding was signed with H-Farm, the largest European innovation centre, designed to develop a partnership for implementing innovation, digital and circular economy projects especially for students, employees and employees' children.

Development of the individuals

The development process

People are the true asset to achieve differentiation and competitive advantage: the quality and efficiency of both internal processes and results depend on people. Effective personnel management and human capital enhancement is therefore of strategic importance for the Group.

The development process is based on the evaluation of performance and managerial skills. It is applied consistently throughout the company: it involves over **5,000 people** including employees, management employees, middle managers and managers. A distinguishing aspect is the **dialogue on performance**: a "two-way" exchange between manager and employee, where the duty to provide clarity and effectiveness by managers is accompanied by the commitment of each individual to use the feedback as an ongoing learning tool. This increasingly positive experience has led to a growing ability to assess oneself and others, while also showing the desire for reciprocal listening and the request for feedback for individual and professional growth.

In 2018, **5,078** workers were assessed.

Within the development process, the definition of individual development actions is of key importance. Starting from dialogue between managers and their workers, they are defined on the basis of a portfolio of carefully planned and developed initiatives which are subsequently monitored and updated.

Career progress and internal mobility

Career progress during the year (breakdown by position for workers with open-ended contract)

Qty	2016	2017	2018
Managers	9	8	7
Middle managers	14	21	27
White-collar workers	377	403	279
Blue-collar workers	188	196	176
Total	588	628	489

In 2018 there were 489 career progress. **Career progress** involved 129 **female personnel**, totalling 26% of all cases. Excluding blue-collar workers, where women are around 3%, career progress involving female personnel represented 41% of the total. 38% of the new middle managers and managers are women, and the same incidence applies to the parent company.

Working in the Hera Group means being able to access a wide range of professional opportunities; the variety of our activities allows us to enhance our professional expertise in different sectors and areas.

In the course of 2018, there were a total of **75 intragroup transfers** between different companies or business units, mainly in the General Operations Department, Herambiente and the Central Market Department. Since 2008, the corporate intranet has included a section dedicated to internal mobility, so employees can view announcements for open positions within the Group and apply for those positions, allowing them to be **actively involved in their growth process** and to directly promote their change. Since its creation, the dedicated page has received over 1 million visits, and there have been 362 announcements published and 204 positions filled; only in 2018, 103,322 visits were posted for the page, and there were 32 announcements published and 25 positions filled.

The leadership model

Since **2011**, the Group has been provided with a **leadership model**: a compass that steers our behaviour and describes the skills we need to develop our mission and values and to achieve strategic results.

In **2016**, a shared and participatory process was launched involving over 700 employees, to review the model as a result of the new challenges. The new model has inherited exemplary leadership from its predecessor, in terms of style, and has included agility as its approach. It follows two lines, a temporal today-tomorrow line and another line involving I-us, thus defining 4 areas of objectives each containing 2 skills.

The process for getting to know and disseminating the new contents of the model continued in **2018**. The process involved more than **600 people** including managers and middle managers for about **4,000 training hours**. Multimedia contents (articles, videos, e-learning courses, slides, tests) were made available to the entire **workforce** (over 5,000 employees, middle managers and managers) through the specific e-learning platform. Of particular note are the leadership development initiatives which continued in line with the UN Agenda targets: in 2018, classroom activities led to the creation of the "Casette del sorriso": small cardboard buildings designed and decorated directly by employees and donated to the paediatric wards of hospitals in the areas in which the Group operates.

Hera, therefore, continued to promote the knowledge and daily implementation by all employees of the conduct defined in the model.

Other development initiatives

In a context that requires agility, interconnection, speed and ability to achieve innovation both at the system level and at the individual level, the 2018 also saw the launch of the **Virtual Factory** project, multi-

functional teams focused on realizing innovative and effective solutions in a short time. Participation in the team represents a development opportunity for people and allows the spread of technological knowledge and raising awareness of innovation. Overall, 4 projects have been launched with the participation of 18 employees in the following areas:

- **"Second level dashboard"**: Development of the "second level" of the company dashboard system for the 6 "areas" already included in the first level dashboard (Herambiente, AcegasApsAmga, Heracomm, Water, Environmental Services, Inrete);
- **Hera LE(a)D**: Planning and implementation of the transition to LED lighting systems in two company sites and development of a model for the extension to the other sites;
- **Idea Management**: Review of the "Hera model" for the management of the Idea Management process, aimed at promoting greater employee involvement in the generation and implementation of innovative ideas;
- **Virtual Training**: Design and implementation of a training module to be delivered through the use of augmented reality, on issues related to operations.

Remuneration and incentives

The Hera Group defines and applies a remuneration policy aimed at attracting, motivating and retaining resources having the professional qualities requested to achieve the Group's objectives.

The policy is defined so as to align the interest of various stakeholders and to achieve the priority objective of creating value in the medium-long period and increasing the shared value generated, through consolidation of the connection between remuneration and performance, both individual and Group-related.

All Group employees are hired through national collective labour agreements.

With reference to the labour agreements that govern the employment relationships of all Group workers, the table illustrates the gaps between gross monthly remunerations (net of accrued 13th and 14th monthly pay and of performance bonus) and those specified by the labour agreement. Comparison between the minimum pay/salary conditions of all the national collective labour agreements applied in the company and the minimum ones applied in the company was conducted by considering the minimum classification conditions for the three employment classes.

Ratio between minimum monthly pay and salary conditions according to labour agreements and Hera monthly pay and salary levels (2018)

Euro	Minimum monthly salary according to labour agr.	Minimum monthly Hera salary	Average monthly Hera salary
Middle managers	3,028	3,130	4,787
White-collar workers	1,488	1,611	2,840
Blue-collar workers	1,229	1,284	2,357

The data apply to the following companies: Hera Spa, Acantho, Fea, Hera Comm, Hera Luce, Hera Trading, Herambiente, Herambiente Servizi industriali, HERATech, Inrete Distribuzione Energia, Uniflotte, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hestambiente, Marche Multiservizi and Waste Recycling where 93% of Group employees work.

The average salary applied is higher than the minimum labour agreement conditions for all three classes: +58% for middle managers, +91% for white-collar workers and +92% for blue-collar workers. Even the minimum salary applied is 3% higher than that envisaged by the labour agreement for middle managers, 8% higher for white-collar workers and 4% for blue-collar workers.

These differences are directly related to the average age level of the corporate population and to seniority, and are connected to the policies aimed at favouring internal professional growth.

Ratio between senior management monthly salaries according to labour agreements and Hera monthly salaries (Utilitalia contract)

Euro	2018
Monthly minimum according to labour agr.	5,077
Monthly minimum Hera Group	5,385
Average monthly Hera Group salary	9,826
Average monthly market salary for managers	10,524

The table illustrates the gaps between average gross monthly salary levels in Hera (net of the accrued 13th monthly pay and variable remuneration) and those envisaged by the national collective labour agreement. The contract of reference for this qualification is the Utilitalia contract. The minimum salary applied by Hera is 6% higher than the Utilitalia agreement, while the average salary of Hera managers is 93% higher than the minimum salary stipulated in the contract, yet 7% lower than the average market salaries for managers, as reported in the Hay Compensation Report – Total Cash Italia 2017.

For this position also, the differences between the salaries applied and labour agreement references are the result of the application of previous economic schemes, also with regard to age (on average 52.2 years) and of years of stay in the Group (on average 17.9 years) for the category of managers.

Average salaries by gender (2018)

Euro	Men	Women
Managers	10,174	8,534
Middle managers	4,833	4,695
White-collar workers	2,920	2,715
Blue-collar workers	2,358	2,305

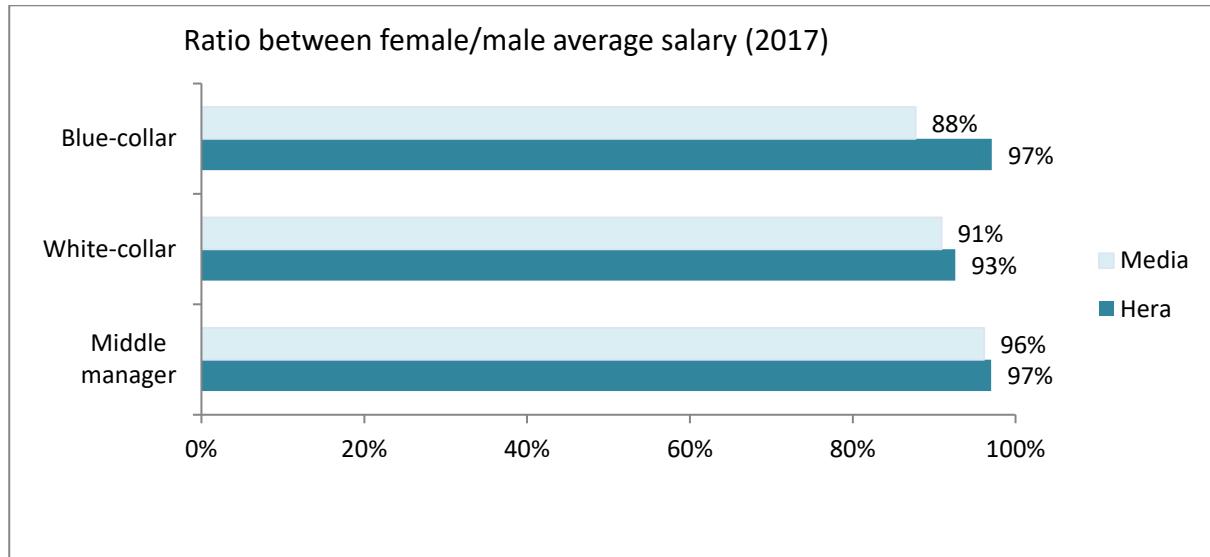
The data apply to the following companies: Hera Spa, Acantho, Fea, Hera Comm, Hera Luce, Hera Trading, Herambiente, Herambiente Servizi industriali, HERAtech, Inrete Distribuzione Energia, Uniflotte, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hestambiente, Marche Multiservizi and Waste Recycling where 90% of Group employees work.

The **salary gap between men and women** within the management class is significant (Euro 1,640): this figure is influenced by the number of female directors (5 out of 37). Much lower salary gap for middle-managers, white-collar workers and blue-collar workers. The salary gap between men and women is due to the fact that 66% of management employees are male. Regarding managers, white-collar workers and blue-collar workers, the ratio of the remuneration of women to that of men is equal to 97%, 93% and 98%, and is higher than the national average of the energy, water and waste management sectors - 92% in 2014 (Source: Eurostat 2014, most recent figure available). The gap is obviously influenced by the level of seniority as well as - as regards the role of the blue-collar and white-collar workers - by the level of classification.

The Group's remuneration policy system is based on the ability to recognise the most appropriate remuneration package depending on the individual performance achieved, skills put into practice, organisational position held and specific comparison on the market. Any remuneration gap between individuals can be attributed exclusively to these factors and is in no way influenced, except as provided for by the relevant NCLA, by other elements (age, gender, culture...).

Ratio between average salary by gender in main Italian utility companies

Utilitalia published its first sustainability report in 2018, which summarises the environmental performance of 127 Italian utility companies and also analysed the ratio between the average salary of female workers and the average gross salary of male workers by different company classification levels. Hera's female/male salary gap is better compared to average.



In 2018, the ratio in the Hera Group between the gross annual salary (excluding performance bonuses and variable remuneration) of the person with the highest salary and the median value of workers was equal to 10.4. The remuneration of the person with the highest salary did not vary compared to the previous year.

Gross performance bonus (per capita)

Euro	2016	2017	2018
Middle managers	2,054	2,015	2,137
White-collar workers	1,780	1,743	1,851
Blue-collar workers	1,642	1,602	1,699
Weighted average on workers	1,747	1,706	1,812

The figures refer to the following companies: Hera SpA, Fea, Hera Comm, Hera Luce, Hera Trading, Herambiente, Herambiente Servizi Industriali, HERATECH, Hestambiente, Inrete distribuzione energia, Uniflotte, AcegasApsAmga, and Marche Multiservizi

The performance bonus of middle-managers, white-collar workers and blue-collar workers is defined within the Group supplementary collective labour agreement and is based on profitability, productivity, sustainability and sector-specific indicators.

Starting from 2018, as required by current legislation, employees have the opportunity, on a voluntary basis, to convert their performance bonus into corporate welfare services for a maximum value of 50% of the yearly bonus, with significant tax advantages for workers.

Bonus system related to short-term variable remuneration

Starting from 2006, the incentive system of the Hera Group has been linked to the balanced scorecard system: according to this system, the variable annual component of each manager and middle manager is calculated as a percentage value of gross annual salaries and is defined on the basis of results obtained relative to the objectives defined at the start of the year. The balanced individual scorecard is structured in three parts:

- the first consists of specific **project-objectives** deriving from translation in operating terms of the objectives contained in the Group's strategic map;
- the second contains the **economic objectives** defined in the budget for the year;
- the third involves an assessment on the behaviours set forth in the Group leadership model.

The structure of the balanced individual scorecard, or the weights assigned to the three areas, vary according to the seniority of the employee and the department he/she belongs to.

The final assignment of the bonus is weighted, furthermore, according to the results reached insofar as certain Group parameters: financial-economic business results and customer satisfaction index for residential customers.

The assignment of the objectives to employees and the assessment of their achievement take place through a clearly defined process which is based on the decision of top management for the individual balanced scorecards of the directors and managers and of the directors for the individual balanced scorecards of the middle managers. The activity takes place with the coordination of the Balanced Scorecard System Management function of the Shared Value and Sustainability Department.

In 2018, 51% of the variable remuneration of Hera Group managers was linked to the completion of the project-objectives planned in the balanced scorecard system: 32% was linked to the achievement of the economic and financial budget objectives and the remaining 17% to compliance with the behaviours set forth in the leadership model. The balanced scorecard system involves 98.5% of Group middle managers and managers.

For managers, 70% of variable remuneration was linked to the completion of the project-objectives planned in the balanced scorecard system and/or achievement of the economic and financial budget objectives, while the remaining 30% to compliance with the behaviours set forth in the leadership model.

In 2018, application of the **incentive policy for the Hera Group sales staff** continued, to enhance the effectiveness of the offer for customers. The purpose of these dedicated tools is to ensure a competitive commercial incentive offer and to steer sales staff towards working more by goals.

Pension funds

The number of employees participating in the pension funds as at December 2018 is 4,826, or 60% of total Group employees. The main contractual pension funds are: Pegaso for employees under the gas-water and electricity national collective labour agreements; Previambiente for employees under the Federambiente national collective labour agreement; and Previndai for managers.

Yield of the main pension funds (balanced sub-fund)

%	2016	2017	2018
Pegaso	3.46%	2.81%	-2.00%
Previambiente	3.15%	2.31%	-0.75%
Previndai	0.33%	6.50%	-5.28%

Welfare, diversity and inclusion

Welfare

Hextra is a jointly shared and participated programme that was launched in 2016 to fully develop the welfare plan. The programme bears witness to the Group's constant attention towards its workers as a key factor to achieve its corporate goals and places the Hera Group among the main national companies in the

field of corporate welfare and well-being. Welfare has thus become a real lever for the organisation, acting on the work-life balance of the people who work in the Group.

The HEXTRA experience continued in 2018, Hera Group's welfare system offering a wide range of initiatives and services tailored to meet workers' needs and to increase individual and family well-being in economic and social terms. A flexible welfare share of Euro 385 was assigned to each employee, to be used for the HEXTRA offer.

This positive experience counted on **8,578 members** in 2018, equal to **98.5%** of the potential population, with over **Euro 4.2 million** used by employees. This result was achieved thanks to clear information and presentation of the services, to the usefulness attributed to each of them and to the positive impact on work-life balance. In fact, following the signature of the renewal of the Group's collective agreement, all employees were offered the option to **convert part of their 2017 performance bonus** paid in 2018 into a further welfare quota. This option is convenient also from a tax viewpoint: the entire performance bonus portion converted into welfare (maximum 50%) is not subject to any tax burden, resulting in significant advantages in terms of increased purchasing power for each employee.

Increased purchasing power, easy to use and quick service: a winning combination for a fully comprehensive welfare experience. This can all be achieved **digitally**, with low environmental impact, both from the office or comfortably from home.

The main HEXTRA initiatives in 2018 included: the second edition of university **scholarships** offering 40 scholarships worth Euro 750 each; the second edition of the language study courses **A summer in the world with interculturalism**, which in addition to 10 scholarships worth Euro 2,000 each for summer programmes, also included 2 scholarships worth Euro 7,500 each for an entire school year abroad. The management of the V edition of the summer camps and, in line with the previous year, the allocation of an instruction quota for employees who have school-age children for a total investment of over **Euro 536,000**. In detail, among all the projects set up to support the education of employee's children, 3,550 applications were received. Of these, 213 shares were used by employees for **crèche services**. Ten applications for attending crèches with which the Group has agreements (in Bologna, Cesena and Imola) must be added, for a total of 223 children.

Awareness-raising events promoting **healthy diets** continued: My Junior Chef, which involved parents and children in amusing labs to learn through play the principles of the food pyramid and prepare a traditional Italian dish together, and the creation of the HEXTRA health education section. An "information desk" providing good advice on nutrition and good eating habits for healthy lifestyles. Lastly, healthy living is possible by making small everyday changes that can have a big impact down the line.

Also in the area of personal services, a **flu vaccination campaign** was set up for Group employees, which is part of the 2017-19 National Vaccine Prevention Plan of the Ministry of Health. All employees were able to book their flu vaccine free of charge and, in collaboration with the company doctors, it was also possible to offer them a flu jab service. Furthermore, as part of the activities managed by mobility management, reimbursement of the expenses incurred by all employees or their family members who travel using the regional or interregional public transport service, was included in HEXTRA.

Lastly, once again in 2018, with 'In Hera energy is Worth More' users can have access to a promotion for the **supply of free market gas and electricity** and can benefit directly from the value that all employees, day after day with their jobs, help create with a view to reaching an increasingly shared and participated welfare. A call to action for all employees which also has repercussions on the creation of the **Welfare Voucher service**. This new product complies with tax legislation and provides all employees with a local map, allowing them to identify with which partner they can carry out their welfare activity among those available: sports, wellness, culture and leisure, and medical check-ups. With just a few clicks and no waiting time, employees can request vouchers and use them at the centre they have chosen. This service was highly appreciated and was undoubtedly one of the HEXTRA services most used by employees.

The development of our welfare plan places us among the leading national welfare and corporate well-being companies, as witnessed by the **Top Employers** Italy 2019 certification, achieved by the Group for the tenth consecutive year with an overall second place ranking (first place among Italian owned companies). The Group confirms its place as a leading company in terms of working conditions and best practices focused on the development and well-being of its people. Its commitment and constant focus on the ongoing improvement of its strategies in the field of human resources is also recognised.

Diversity and inclusion

Work-life balance, commitment to guaranteeing **equal opportunities** and to **enhancing diversity, focus on sustainability** and the **generation of shared value**, as confirmed by the participation in the network of companies involved in the “**Together for Work**” project, stemming from cooperation between the Metropolitan City, the Municipality and the Archdiocese of Bologna. The Hera Group implemented horizontal cooperation, training and mentoring activities for people in need or scarcely self-sufficient and seeking employment. Because by recognising the value of people we can ensure that customers receive increasingly innovative services that are closer to their needs. Specifically, participation in these initiatives actively involved us in the following areas:

- defining job placement needs;
- co-planning job training and orientation activities;
- accompanying self-employment and social economy projects;
- providing companies with highly interesting projects (start-up, training courses...);
- implementing relationships with the schooling system;
- taking part in the co-planning of public tenders.

Hera is part of the **board of inclusive companies**, the network of virtuous companies that contribute to the well-being of the community, aiming to transform employment difficulties into an opportunity for local cohesion between companies and citizens, and enhancing people's and citizens' potential and the positive impact that companies can generate throughout the local area.

Hera Group's commitment in the area of inclusion policies and protection of diversity started way back and was strengthened in 2009 with the signing of the **Charter for equal opportunities** and equality at work, with which the company committed itself, together with other public and private parties, in the fight against workplace discrimination. Furthermore, the introduction in 2011 of the **Diversity Manager** was essential, aimed at further encouraging processes for developing inclusion and diversity enhancement policies. A working group was also set up in 2011 composed of Group company employees of different ages, roles, professions and training. The Group is coordinated by the Diversity Manager and works on projects, activities and initiatives regarding diversity and inclusion.

Workshops were planned and organised across the Group's offices with top-level spokespersons on topics of interest such as: “From CV to happiness”, to support the professional development of women who tackle the difficulties of the labour world on a daily basis. In 2017, the meetings focused on the topic “Beyond gender culture, what kind of culture”, regarding gender stereotypes; the meetings had great success, especially the satirical monologue by Alessandra Faiella “Barbie's Version”.

Furthermore, in 2018, the “**Sconfinate Energie**” (Boundless Energy) event was organised to promote the culture of disability and inclusion in the Group, with the participation of the dancer Simona Atzori, the band Rulli Frulli and the storyteller Max Bortolotti who told the stories of some Group colleagues.

Women staff (breakdown by position)

%	2016	2017	2018
Managers	19.9%	18.8%	19.5%
Middle managers	30.3%	30.7%	32.4%
<i>Total managers and middle managers</i>	<i>28.0%</i>	<i>28.0%</i>	<i>29.6%</i>
Management employees	32.3%	32.9%	33.6%
<i>Total managers, middle managers and management employees</i>	<i>30.9%</i>	<i>31.3%</i>	<i>32.3%</i>
Non-management employees	40.7%	42.0%	41.9%
<i>Total employees</i>	<i>38.1%</i>	<i>39.2%</i>	<i>39.4%</i>
Blue-collar workers	3.5%	3.2%	2.9%
Total	24.2%	24.3%	24.7%

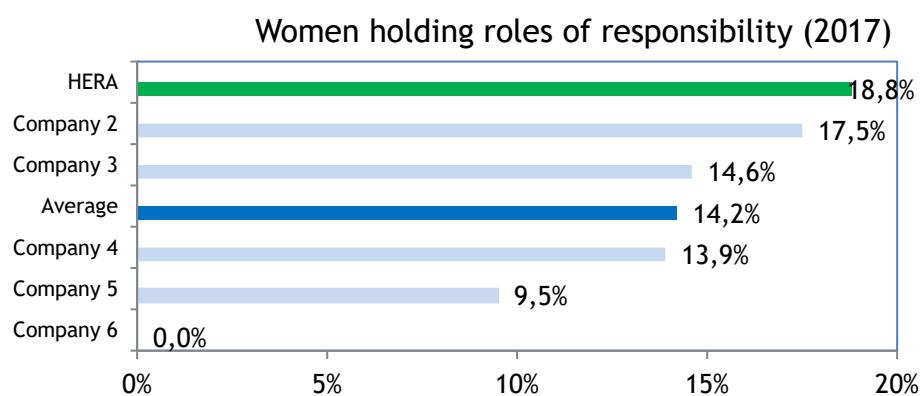
Data as at 31 December. The figures for 2016 refer to workers with open-ended contracts.

Women staff levels among open-ended contract workers reached 24.7% in 2018, compared to a national average in the energy-water-waste management sector of 15.9% (Eurostat 2014, most recent data available).

The impact of female personnel among managers and middle managers settled at 29.6%, improving compared to 2018. Considering all contractual qualifications that provide for a managerial role (managers, middle managers and management employees), women comprise 33.6%. To complete the picture regarding roles of responsibility, 38% of women were involved in career advancements (middle managers and managers) in 2018 and 41% in the career advancements of managers, middle managers and employees. Finally, with regard to the composition of the Board of Directors, members are appointed in full compliance with the equal balance of gender required by law 120/2011: the share reserved to women is 1/3 of the Board of Directors in office.

Women holding roles of responsibility in the main Italian utilities

In a comparative analysis between the main Italian utilities, Utilitatis compared the percentages of female managers: Hera ranks first among the 6 multi-utilities taken into consideration. In 2018, Utilitalia published its first sustainability report which summarises the environmental performance of 127 Italian utility companies: Hera's 2017 result (18.8%) is 32% higher than the average of the utilities considered (equal to 14.2%).



Source: Utilitatis, Sustainability Benchmarking 2018; Utilitalia – 2017 Sustainability Report

Personnel by age group

%	2016	2017	2018
Under 30 years of age	2.7%	4.0%	4.2%
between 30 and 50 years of age	48.8%	47.6%	44.5%
between 50 and 60 years of age	43.6%	43.4%	46.1%
over 60	4.9%	5.0%	5.1%
Total	100%	100%	100%

Data as at 31 December. The figures for 2016 and 2017 refer to workers with open-ended contracts.

There are 4,501 workers who are over 50 years of age: 451 of these are over 60 years of age. The portion of over 50-year olds increased compared to 2017 (+5%), confirming the ongoing upward trend of the last 3 years.

Part-time contracts

Qty	2016	2017	2018
Men	44	39	47
Women	298	308	320
Total	342	347	367

Data as at 31 December.

Workforce by gender and type of contract (2018)

qty	Men	Women	Total
Full-time	6,561	1,849	8,410
Part-time	47	320	367
Total	6,608	2,169	8,777

Data as at 31 December

Part-time arrangements, as regulated by current labour agreements, are considered a valid tool for responding to **labour flexibility** needs both in terms of organisational and employee needs. They are characterised by the voluntariness, reversibility and compatibility with the technical, organisational and productive needs of the company and the needs of workers. Family and health needs, the need to help others with disabilities, and cases of serious illness (duly certified as such) are our priority considerations in assessing applications. The persons to whom staff members report must consider how viable the contracts the applicants seek are in terms of corporate needs: if it is concluded that the contract is viable, the changes will be made.

In 2018, 71 requests for part-time arrangements were submitted; all were accepted. Preference towards part-time work among female workers continued to be strong.

Maternity, paternity and parental leave

	2016	2017	2018
Maternity leave taken (no.)	43	35	142
Paternity leave taken (no.)	252	257	259

The number of mandatory maternity and paternity leaves taken in the Group amounted to 142. The number of paternity leaves taken amounted to 259 and the average duration per capita was 12 days for men and 34 days for women.

Health and safety

Ever since its establishment, prevention and safety at work have been among Hera's founding principles; improving conduct and strengthening corporate awareness at all organisational levels towards health and safety is an ongoing target for the Group.

Preventing and minimising health and safety risks is one of the commitments of the Hera Group's Policy that is inspired by the values for sustainable development expressed in the 2030 UN Agenda.

Working to make the workplace safer and healthier is essential to **improve quality and working conditions**, but also to promote the Group's competitiveness.

Throughout these years, various occupational health and safety projects have been implemented, especially with regard to the culture of safety and to risk awareness. These initiatives - together with ongoing training and coaching of staff, specific actions for the improvement of vehicles and equipment, and timely analysis and investigation of accidents and near misses - have allowed us to achieve important results. The specific indicators, reported below and illustrated, are a tangible sign of the improvements attained by the Group in this important field.

Accident indices

	2016	2017	2018
Frequency index	17.8	17.1	15.7
<i>of which for ongoing accidents</i>	4.0	3.3	4.1
Severity index	0.56	1.04	0.52
Rate index	2.9	2.8	2.6
Average accident duration (days)	31.0	62.2	32.9
Number of accidents	226	240	223
<i>of which for ongoing accidents</i>	51	48	58

The frequency index is the number of accidents per million hours worked. The severity index is the number of days of absence per accident divided by thousands of hours worked. The rate index is obtained by dividing the number of accidents by the number of workers, multiplied by 100. The data referring to accidents reported to INAIL which lasted more than three days were considered.

The 2016 figures do not include the following companies: Acantho, Hera Trading, Hera Servizi Energia, Hera Comm Marche, Amga Energia & Servizi, Aliplast, Hestambiente, Herambiente Servizi Industriali, ASA, Sinergie, Amga Calore & Impianti, Aresgas.

The accident frequency index at Group level further improved compared to the previous years (-8.2% compared to the previous year). The positive result obtained by the AcegasApsAmga Group (frequency index of 11.9 in 2018, down 42% compared to the previous year) improved the Group's overall figure. If we consider accidents lasting less than 3 days (39 in 2018), the frequency index drops to 18.4 (-4.7% compared to the previous year, on a like-for-like basis).

The overall number of accidents for the Hera Group declined further (-12% compared to 2017). The number of days of absence due to accidents in 2018 was 1% lower than 2017 (net of the 2017 fatal accident). Accidents suffered by women in the Group perimeter amount to around 15%. This result is better compared to the percentage of female employees in the company and is partly due to the fact that the majority of blue-collar jobs are carried out by men.

The number of ongoing accidents (while travelling to/from work) accounted for 26% of the total, dropping in absolute terms and as a percentage compared to the figure of the previous year. In 2018, the number of days of absence due to accidents attributable to ongoing accidents (while travelling to/from work) accounts for 21% of the total days of absence. The perimeters most affected are Herambiente (33.3% of the total) and Hera (30% of the total); in Marche Multiservizi they account for 12.9% while the percentage is marginal for the AcegasApsAmga perimeter: 5.8%.

If we analyse the single accidents that occurred during 2018, there were no critical situations as regards how they occurred or their consequences. The only relevant case in Hera SpA was an accident that occurred to a blue-collar worker in the Water Department who was hit by a car while working in the middle of the road. Slipping and ongoing accidents are the two main causes of accidents.

With regard to the mortal accident that occurred at the incinerator of Bologna in December 2010, following the request for committal to trial of a Hera SpA employee, a Frullo Energia Ambiente employee and a Herambiente employee notified in January 2014, the judge acquitted all three defendants of the crime charged by way of judgement of 24 October 2014 "since the fact does not constitute an offence". In October 2015, the public prosecutor challenged the decision: the hearing has not yet been set.

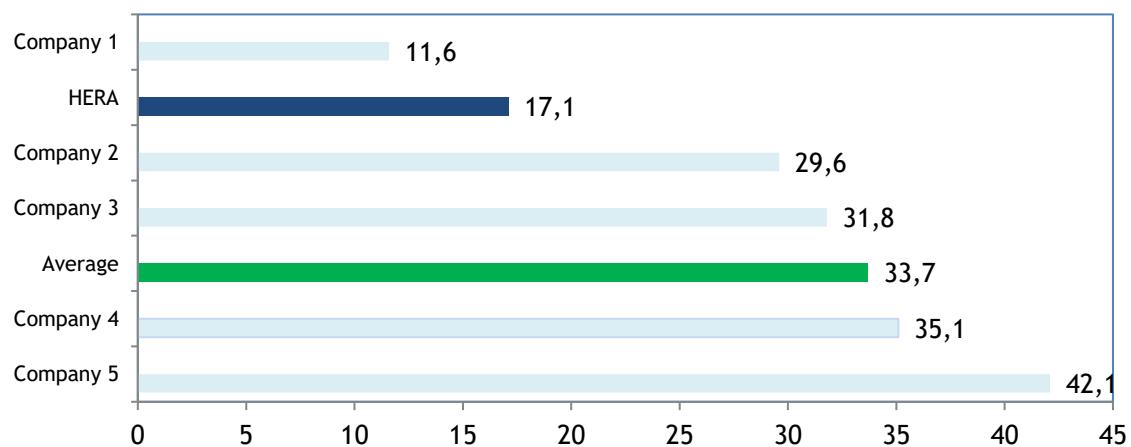
With regard to the mortal accident in 2009 that occurred at the waste-to-energy plant of Forlì, following the committal to trial of three Hera SpA employees and one Herambiente employee, the preliminary hearing was held on 3 April 2014. At the hearings of 13 May and 30 May 2016, the witnesses and experts were examined. On 31 March 2017, the judge ordered the conviction of the defendants granting suspension of the sentence. On 28 June 2017, the convicted employees filed an appeal against the first instance ruling. The date of the hearing is yet to be scheduled.

Italian legislation (Italian Leg. Decree 81/2008) requires that workers be represented by Workers' Safety Representatives. There are 72 Workers' Safety Representatives in the Hera Group, covering 98% of the Group's total employees. The Workers' Safety Representatives (WSR) are individuals chosen by the employees of a company according to the procedures established by law, who are required to monitor compliance with the rules on workers' safety. Their task is to liaison with the employer, in order to report any non-compliance with the rules on health and safety and potential risks. With regard to suppliers, periodic checks on health and safety at work are carried out as set out in internal procedures.

Occupational safety in the main Italian utility companies

In a comparative analysis between the main Italian utilities, Utilitatis considered frequency index of accidents lasting more than three days: Hera ranks second among the 6 multi-utilities taken into consideration. In 2018, Utilitalia published its first sustainability report which summarises the environmental performance of 127 Italian utility companies: Hera's 2017 result (17.1) is 49% lower than the average of the utilities considered (equal to 33.7).

**Occupational safety in the main multi-utility companies,
frequency index (2017)**



Source: Utilitatis, Sustainability Benchmarking 2018; Utilitalia – 2017 Sustainability Report

Accident frequency index (by blue-collar workers)

	2016	2017	2018
Total	34.9	38.2	29.2
Of which grid services	22.2	26.1	26.4
Of which waste management services	50.9	55.1	43.3

Data refer to Hera Spa, AcegasApsAmga and Marche Multiservizi.

Accident indices are higher for workers, since they are more at risk of accidents occurring given the nature of the activities they perform. With regard to blue-collar workers, waste management services show a higher frequency index compared to other services (43.3) but have dropped compared to 2017 (-21.3%).

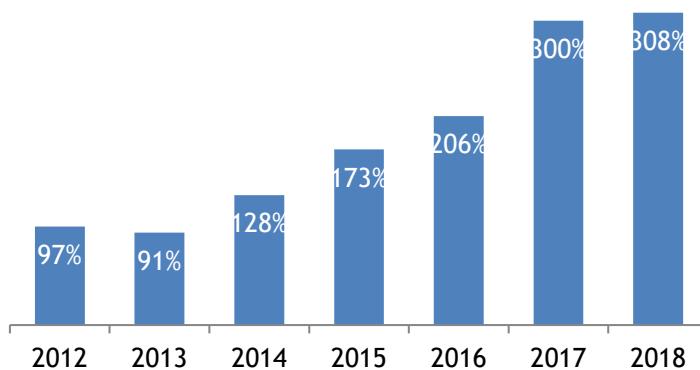
Accident indexes of some subsidiaries (2018)

	AcegasApsAmga Group	Herambiente Group	Marche Multiservizi	Hera Comm	Uniflotte
Frequency index	11.9	20.3	34.4	10.0	30.3
Severity index	0.54	0.60	1.00	0.15	1.17
Rate index	2.0	3.4	5.1	1.5	4.9
Workforce	1,704	1,366	571	739	122

Regarding accidents in Hera Group companies included in the scope of consolidation, some improvements may be seen in the accident frequency indices for companies such as AcegasApsAmga Spa (from 24.8 to 12.8) and Herambiente (from 22.3 to 20.3).

A key topic for the purpose of preventing accidents and improving workplace health and safety conditions is the ability to report, collect and analyse accidents and near misses. Near misses are accidental events that could have potentially generated an accident. Their correct analysis and examination prevents the occurrence of accidents. The Hera Group places great emphasis on correctly reporting, analysing and examining near misses. The trend of near misses is monitored on a monthly basis to check compliance with the specific objectives assigned to the various departments and business units.

Ratio between near misses and accidents



The data apply to the following companies: Hera Spa, AcegasApsAmga, Fea, Hera Comm, Hera Luce, Herambiente, Inrete Distribuzione, HERAtech, Marche Multiservizi, AcegasApsAmga Servizi Energetici, Uniflotte and Waste Recycling.

In 2018, the ratio between near misses reported and accidents that occurred for Hera Group's scope of reporting was 308%. The indicator shows a constant rise. Of note in the Group's overall result are the results achieved by Hera SpA (204%), AcegasApsAmga (465%) and Herambiente (811%). The level of accidents reported in Marche Multiservizi reached 74%.

The main types of near misses analysed by the prevention and protection service regarded road accidents, falling or slipping to the ground, collisions and crushing. In 30% of cases, the analysis of the events allowed specific corrective actions to be implemented aimed at eliminating the causes that generated the event.

During 2018, **training and safety information activities** (in compliance with the State-Regions agreement) directed towards the entire workforce continued. Several hands-on training activities were carried out for Hera personnel at the dedicated structure set up in Imola (hands-on training on access and work in confined spaces, fire-fighting, work at height and work in the presence of moving vehicles). More specifically, 54 training activities were organised at the **training site** in 2018, involving around 900 Hera Group workers for a total of 5,239 hours.

Again during 2018, the new training procedure for Hera SpA safety supervisors, which had been planned and tested during 2015, was further developed. The new training module which involved around 350 supervisors provided important experience-based knowledge aimed at strengthening occupational safety culture and awareness, and enhancing safety communication and leadership skills.

A communication, awareness-raising and training initiative was launched in 2018 on **road safety** issues (Guido come Vivo, involving around 1,600 individuals). This project will be further implemented over the following years. A new road risk assessment strategy was also set up on the basis of the European project PRAISE of the European Transport Safety Council. The Project involved the Risk management and insurance department of Hera SpA (for sharing the purposes and events database) and of Uniflotte (for corporate vehicle management).

The **new organisational model** adopted for managing emergencies in corporate sites (e.g. fire safety, first aid) was **consolidated** during 2018. The project optimised the entire operational flow (Emergency Plan preparation, emergency management simulation) and also ensured a smooth approach in all areas managed. All the emergency drills were carried out as scheduled.

During 2018, a tender was also planned and completed to entrust the health surveillance process to a single Group supplier.

The "**Healthy lifestyles**" project, which was launched for promoting healthy behaviour by Hera Group employees, identified the area of action: promotion of healthy diets and fight against smoking. The **healthy diet** project was launched in 2014 by awarding the tender for the company canteen and organising a number of meetings with the canteen provider aimed at planning and gathering information on the dietary lifestyles of Hera's workforce. This was achieved through a survey on the company workforce's eating habits and lifestyles. Specific information activities regarding healthy diets for employees were started over the following years. A nutritionist was available on the company premises on certain days and upon appointment. The installation of information banner stands and monitors in the canteens continued. Furthermore, a specific information section was included in the corporate portal and made available to all workers. This section allows workers to view the weekly menus, ask for personalised diets (in case of ascertained food allergies or intolerances), set up personalised nutrition counselling and receive health advice. Following the feasibility study and design of a specific initiative for the entire workforce, regarding the **fight against smoking**, implementation was postponed based on the priorities of the improvement projects in progress.

For future years, in compliance with the indications set out in the Group's Business Plan and with the health and safety improvement actions both implemented and scheduled, a further reduction in the accident indices and an increase in the near misses reported by the employees are envisaged.

It should be noted that dialogue is underway in the Hera Group among the Group's Prevention and Protection Services; the aim is to stabilise accident analysis scopes, to make accident analysis activities uniform, to share significant event analyses and to identify common prevention and protection strategies based on the Risk Assessment and accident analysis results.

Industrial relations

A Memorandum of Understanding was signed on 23 April 2018 between Company Management and the National, Regional and Local Trade Unions and the Single Trade Union Representation on **work/life balance** for all the personnel of the Hera Group operating in Emilia Romagna, Friuli Venezia Giulia, Marches and Veneto. This agreement was signed pursuant to the Interministerial Decree of 12 September 2017 and allows additional tools to be implemented to promote work-life balance methods combining Group employees' business needs with their personal and family needs.

The most significant new features included in the Agreement were:

- the **free transfer of holidays/leave/reduced working hours** ("solidarity hours") by every worker to fellow employees hired by the same employer to allow them to assist their underage children and/or spouse who, due to disability and/or serious illness (which must be certified and documented), require constant care;
- the experimentation of the **smart - remote working** mode was extended to cover all of 2018 (for the same organisational structures already involved) and will be extended to other organisational structures by way of a subsequent agreement;
- the services and agreements set up in Hera Group's **Welfare Plan** to promote work/life balance were indicated.

Group agreements were also entered into on 23 April 2018 between Company Management and the National, Regional and Local Trade Unions and the Single Trade Union Representation regarding the **reporting of the performance bonus profitability and productivity indicators** for 2017 and the definition of the profitability and productivity indicators for 2018, in compliance with the provisions of the Supplementary Labour Agreement of 25 March 2017.

Again at Group level, a Memorandum of Understanding was signed in June with National Trade Unions regarding the **2018 Financed Training Plan** and the 2018 Training Plan was presented to them, as provided for by the Industrial Relations Protocol.

A Memorandum of Understanding was signed between Company Management and National Trade Unions on 20 July 2018 regarding the introduction of the **WFM system** in a number of Group companies (Hera S.p.A., Inrete Distribuzione Energia, HERAtech, Marche Multiservizi, AcegasApsAmga and Hera Luce). This system aims to improve the company's operating processes in terms of effectiveness and efficiency. It involves all running, maintenance, emergency response and user management activities, and is used by means of the devices installed on the vehicles and those supplied to the operating and technical personnel such as palmtops, tablets and smartphones. The system implements new mobile technologies on the above devices allowing real-time assignment and electronic reporting of on-field activities. These devices incorporate GPS navigation and satellite tracking systems that improve intervention coordination and effectiveness.

A Memorandum of Understanding was signed on 26 July 2018, after lengthy discussions with trade unions, between Company Management and National, Regional and Local Trade Unions and the Regional Coordination of the Single Trade Union Representation of Emilia Romagna, Friuli and Veneto, regarding the implementation of the "**leaving home for the worksite**" mode of operation for all Group personnel tasked with planned technical/operational and supporting activities in the waste management services, networks and plants areas. The company had already started using this mode of operation in April 2017. After many

months, with the subsequent and above-mentioned trade union agreement, an implementing regulation was defined and shared with the trade unions.

On 21 November 2018, an agreement for the extension of the **integrated Hera Group Welfare system** was signed together with National, Regional and Local Trade Unions and with the Single Trade Union Representation. Specifically, the Parties confirmed a “Flexible Welfare Package” for the two-year period 2019 - 2020 for an overall amount of Euro 385/year. The aim was to align the Welfare Plan to the renewal of the Group’s Supplementary Labour Agreement.

Again in November, a Meeting Report was signed between Company Management and National, Regional and Local Trade Unions and the Single Trade Union Representation on **Smart-Remote Working**. Having acknowledged the overall positive response of this operating mode, both by the company and by workers, in terms of organisational efficiency, productivity, and work-life balance, the Parties agreed on its implementation to all professional families within the Group. Specifically, personnel meeting the requirements prescribed for remote working were involved, on a voluntary basis.

In the Emilia Romagna Area, the Regional Fp Cgil, Fit Cisl, Uiltrasporti Uil and Fiadel Trade Unions and the Single Trade Union Representation of Hera S.p.A. National Collective Labour Agreement for Waste Management Services entered into a Memorandum of Understanding, on 9 February 2018, to **supersede the on-call system** within Hera S.p.A. - Waste Management Department.

On the same date (9 February 2018), a Memorandum of Understanding was entered into between the Regional Fp Cgil, Fit Cisl, Uiltrasporti Uil and Fiadel Trade Unions and the Single Trade Union Representation of Uniflotte S.r.l. National Collective Labour Agreement for Waste Management Services, to introduce the **new on-call system** within Uniflotte S.r.l - Vehicles and Bins Management Emilia and Romagna in the areas of Bologna, Ferrara, Forlì-Cesena, Modena, Ravenna and Rimini. This new model allowed emergency calls made outside working hours to be handled more effectively.

On 19 March 2018, a Meeting Report was signed with the Single Trade Union Representation - National Collective Labour Agreement for the Electrical Sector of the Imola Area, which defines a **new work schedule**, meeting the company's needs, for the staff of the Cogeneration Plant working on a H24 shift.

On 26 March 2018, a Meeting Report was signed with the Local Trade Unions of Modena - National Collective Labour Agreement for Waste Management Services, which defines a **new afternoon work schedule**, meeting the company's needs, for staff using the sweepers in the Modena area.

On 16 April 2018, a Meeting Report was signed with the Local Trade Unions of Modena - National Collective Labour Agreement for Waste Management Services regarding **application of the multi-period work schedule** within Hera S.p.A - Waste Management Services Department - Modena area- Mountain Area. Specifically, without prejudice to the period-based division defined with a previous agreement, a change was introduced to the weekly work schedule of drivers, attendants and technicians in order to improve organisational management.

On 1 June 2018, the Regional Trade Unions - Waste Management Division and the Single Trade Union Representation of Hera S.p.A. - National Collective Labour Agreement for Waste Management Services entered into a Memorandum of Understanding for the **installation of a GPS tracking system** (called “Hergo Ambiente”) applied to the areas of Ravenna and Cesena of the Hera S.p.A. - Waste Management Services Department. This agreement was necessary to respond to the requests of the ATERSIR Technical Regulations regarding the assignment for the management of municipal and similar-to-municipal waste in Ravenna and Cesena. Specifically, the main new aspect requested by ATERSIR, and not set out in the previous agreements entered into with the trade unions, regarded the possibility to continuously view the position of the vehicle whenever requested by the operator.

On 11 June 2018, the Local Trade Unions of Bologna - Energy Division and the Single Trade Union Representation - National Collective Labour Agreement for Water and Gas of the Bologna area entered into a Memorandum of Understanding on the **access control system to be installed at the unsupervised**

sewage-purification plants, located in the Bologna area. The system was introduced to monitor access to these sites following the ever-increasing need to acquire and produce - in the event of verification/objection to any anomalies by the control bodies - certain and undeniable information regarding access to the plants for their correct management/maintenance.

On 11 June 2018, the Local Trade Unions of Ferrara - Waste Management Division and the Single Trade Union Representation of Hera S.p.A. - National Collective Labour Agreement for Waste Management Services signed a Meeting Report regarding the **variation to working hours** for the personnel of Hera S.p.A.'s Waste Management Services Department in the Ferrara Area. This change was necessary as a result of the company's new technical, production and organisational requirements.

On 14 June 2018, Inrete Distribuzione Energia S.p.A, the Local Trade Unions of Modena - Energy Division and the Single Trade Union Representation - National Collective Labour Agreement for the Electrical Sector of the Modena Area signed a Meeting Report to supersede the Electricity Emergency Response H16 shift. Together with the superseding of the H16 shift Emergency Response service, instead of introducing a daily schedule from Monday to Friday, the organisational on-call model was also reviewed. This re-organisation ensured overall greater technical and organisational efficiency.

During 2018, the shared examination procedures, provided for by law, were carried out with regard to:

- the transfer from HERAtech Srl, to Inrete Distribuzione Energia SpA, of the company branch dealing with the electricity distribution inspection, quoting, design and work development activities. This transaction made it possible to concentrate in a single corporate structure all the electricity distribution quoting, design and construction activities in order to achieve greater overall effectiveness and higher operating efficiency with regard to on-field activities and on-call management.
- the merger by incorporation of Amga Energia & Servizi S.r.l. into Hera Comm S.r.l.. This transaction, which is part of a broader project for the aggregation of sales companies throughout the country, allowed the marketing of Gas and Electricity to be incorporated in a single legal entity.
- the partial and proportional demerger by incorporation of C.M.V. Energia&Impianti S.r.l. into Hera Comm S.r.l. involving the business branch relating to the sale of electricity and natural gas, including all electricity and gas customers. This transaction also allowed the above activities to be incorporated into a single legal entity, as well as to achieve both economies of scale and operational synergies. As part of this transaction, the application of remuneration consistent with second-level bargaining in effect in the Hera Group was also defined for the personnel of C.M.V. Energia&Impianti S.r.l..

On 3 April 2018 and on 18 July 2018, following the acquisition of the majority of the shares of Aliplast S.p.A. and Alimpet S.r.l. by the HERA Group, Trade Union Agreements regarding the **definition of the Performance Bonus** for 2018 and 2019, as well as recognition of the Hera Group Flexible Welfare Package, were entered into with Local Trade Unions and the Single Trade Union Representation.

During 2018, with the aim of integrating Acantho S.p.A. into the Group's Trade Union Relations at the end of the two-year period 2018-2019, agreements were entered into between Acantho S.p.A. itself, the Local Trade Unions of Imola and Modena - Telecommunications Division, and the Single Trade Union Representation of Acantho S.p.A., regarding the **renewal of the Performance Bonus**, work/life balance and the implementation of the Smart-Remote Working operational mode.

On 10 October 2018, Hera Servizi Energia S.r.l and the Single Trade Union Representation entered into a Memorandum of Understanding concerning the installation of GPS navigation and satellite tracking on individual devices, already used by workers (smartphone, smartwatch, company computers), for exclusively organisational and safety reasons. Installing these systems made it possible to promptly detect any dangerous situations for the operators and subsequently organise response operations in the event of emergency situations.

On 17 October 2018, the Regional Fp Cgil, Fit Cisl, Uiltrasporti Uil and Fiadel Trade Unions and the Single Trade Union Representation of Uniflotte S.r.l - National Collective Labour Agreement for Waste Management Services entered into a Memorandum of Understanding regarding the **variation to working hours** for the personnel of Uniflotte S.r.l - Vehicles and Bins Management Emilia, assigned to the Bologna, Ferrara and Modena workshops. This operation ensured greater technical and organisational efficiency.

On 14 November 2018, the Local Trade Unions of Rimini and the Single Trade Union Representation - National Collective Labour Agreement for Water and Gas of the Rimini area signed a Meeting Report regarding introduction of a **new on-call model**, meeting the company's organisational needs, within the Romagna Aqueduct - Rimini Area.

On 22 November 2018, in the Rimini area, the Local Trade Unions - Waste Management Division and the Single Trade Union Representation of Hera S.p.A. - National Collective Labour Agreement for Waste Management Services entered into a Memorandum of Understanding regarding a **new multi-period work schedule** for the personnel of Hera S.p.A.'s Waste Management Services Department working as Collection and Sweeping Assistant. This new schedule complies with the provisions of the National Collective Labour Agreement for Waste Management Services and allowed work organisation productivity to improve.

With regard to Herambiente S.p.A, on 11 June 2018, the Regional Fp Cgil, Fit Cisl, Uiltrasporti Uil and Fiadel Trade Unions and the Single Trade Union Representation signed a Meeting Report regarding the **definition of new working hours**, meeting the needs of personnel dealing with the management of the Chemical and Physical plants of Bologna, Modena and Lugo (Ravenna). In June and September, again with regard to working hours, the Local Trade Unions of Bologna - Waste Management and Chemical Divisions and the Single Trade Union Representation entered into three Memorandums of Understanding regarding a new work schedule for personnel dealing with the management of the Digestor in S. Agata Bolognese (Bologna). Specifically, in order to constantly monitor the plant start-up phase, the plant was temporarily manned on a continual basis, with H24 shifts, and an on-call service was implemented.

With regard to Waste Recycling S.p.A., on 13 December 2018, with a view to gradually standardising the salaries and regulatory conditions applied to all Waste Recycling S.p.A. personnel, the Local Fp Cgil Trade Union of Pisa and the Single Trade Union Representation of Waste Recycling S.p.A. entered into a Memorandum of Understanding regarding application of the UTILITALIA National Collective Labour Agreement - Waste Management Services to Waste Recycling S.p.A. personnel whose employment relationship is now regulated by the National Collective Labour Agreement for Road Haulage - Industry. In particular, when switching to the new National Collective Labour Agreement, for drivers transporting extra-municipal waste, given the specific nature of the tasks performed and in implementation of the derogation of the Shared Declaration of 18 June 2018 pursuant to art. 17 of the UTILITALIA National Collective Labour Agreement - Waste Management Services, the Parties agreed upon the following working hours:

- limit for ordinary working hours: 47 hours/week;
- maximum duration of a working week cannot exceed 58 hours, extended to 61 hours only if over a period of 6 months the average working hours do not exceed 58 hours/week;
- all hours worked beyond the limit indicated under previous letter a) will be regarded as overtime;
- the total number of overtime hours per capita is increased to 250 hours.

On the basis of the Hera Group Supplementary Labour Agreement of 25 May 2017, regarding the experimental establishment of a participatory system, the projects for the 2018 working groups were defined and relevant training was delivered, aimed at sharing the meaning of participation, between the representatives of Hera Group's Company Management and the members of the Single Trade Union Representation.

The Hera Group continued to cooperate with employers' associations by taking part in commissions and delegations to prepare the Electricity, Gas/Water and Waste Management Services National Collective Labour Agreements.

In the Marches Area, on 18 January 2018, an agreement was signed regarding “**2018 closing of facilities**”. It was agreed that the facilities would close for 4 days during 2018 in order to recover untaken holidays.

On 15 February 2018, a report was signed for the completion of the joint examination procedure required by art. 47 of Italian Law no. 428 of 29 December 1990, relating to the plan for the merger by incorporation of Megas Net Spa into Marche Multiservizi Spa.

On 1 June 2018, the “Training - Team Building Project” agreement was signed, involving 85 managers. The aim of the training project is to: stimulate participants to work in teams by making their skills available and helping them learn to identify and eliminate whatever is superfluous, to perceive the environment in all its complexity, to communicate, to cooperate, to choose and to influence, in order to reach the heart of things, actions and results.

On 8 November 2018, the “Training - Team Building Project” agreement was signed, involving 60 white-collar workers. The training project aims to merge and mix seemingly distant resources, materials and ideas: challenge, organisation, roles, communication and unexpected events management.

Open-ended contract workers that are members of unions (breakdown by trade union)

Qty	2016	2017	2018
CGIL	2,398	2,331	2,265
CISL	775	727	700
UIL	697	595	600
CISAL Federenergia	40	42	28
FIADEL	241	232	206
RDB	5	1	0
ADL	8	0	14
UGL	23	8	18
USB	10	12	3
FESICA CONFSAL	9	2	2
FEDERMANAGER	14	13	10
CIU MIDDLE MANAGERS	1	1	0
SNALV	6	8	6
CONFIAL	1	1	1
Basic confederation	1	1	1
Basic trade union	13	12	11
Total	4,242	4,007	3,865
Percentage of workforce as at 31/12	50%	48%	45%

Figures refer to 31 December and to Hera Spa, Hera Comm, Acantho, Asa, Hera Comm Marche, HERAtech, Inrete Distribuzione Energia, Fea, Herambiente, Waste Recycling, Aliplast Group, Hera Servizi Energia, Hera Trading, HASI, Uniflotte, Blu Ranton, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hera Luce and Marche Multiservizi.

45% of the Group’s open-ended contract workers are members of a union: the percentage value is around three points less than in 2017. In relation to the worker’s role, the rate of union membership of blue-collar workers (-5 percentage points), of white-collar workers (-4 percentage points) and of middle-managers (-2 percentage points) decreases.

Open-ended contract workers that are members of unions (breakdown by position)

%	2016	2017	2018
Middle managers	21%	22%	20%
White-collar workers	47%	45%	41%
Blue-collar workers	60%	61%	56%
Total	50%	48%	45%

Figures refer to 31 December and to Hera Spa, Hera Comm, Acantho, Asa, Hera Comm Marche, HERATech, Inrete Distribuzione Energia, Fea, Herambiente, Waste Recycling, Aliplast Group, Hera Servizi Energia, Hera Trading, HASI, Uniflotte, Blu Ranton, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hera Luce and Marche Multiservizi.

Strikes (hours)

Hours	2016	2017	2018
Total time on strike (hours)	13,682	14,204	8,324
Time on strike (per capita)	1.7	1.7	1.0

The data, at 31 December, apply to the following companies: Hera Spa, Acantho, AcegasApsAmga, Fea, Herambiente, Herambiente Servizi Industriali, HERATECH, Hestambiente, Hera Comm, Hera Luce, Hera Trading, Inrete Distribuzione Energia, Marche Multiservizi, AcegasApsAmga Servizi Energetici, Uniflotte, Waste Recycling. The hours worked are calculated net of overtime hours for recovery.

An 8-hour national strike was announced in 2018 by Filctem - Cgil, Femca, Flaei - Cisl, and Uiltec - Uil following the application of article 177, paragraph 1, of the so-called Tender Code, as well as in respect of the integrated water service reform and reactivation of the Geothermal Production incentives.

An 8-hour strike was also announced by the Local CGIL of Modena for the mobilisation of various topics: pension, work and welfare.

Further two strikes were announced by national independent trade unions, for overall 16 hours, regarding political, economic and social issues.

Litigation with the workforce

Qty	2016	2017	2018
Litigation pending at the close of the year	34	32	30

As at 31 December 2018, 30 cases of litigation were pending. In 2017, 15 cases were initiated.

In 2018, 238 disciplinary measures were taken against Group employees, in compliance with applicable national labour agreements: they involved oral or written reprimands (83 cases), withholdings on salary and temporary suspensions from work (67 cases). In 15 cases, it was necessary to resort to termination, 1 with notice and 14 without notice.

Case study

Smart working project

The Smart Working pilot project continued to be developed in 2018. The project was launched in 2017 within the Group, bringing together 4 different aspects: culture and processes, technologies and systems, time and performance, and space.

Around 2,000 training hours were delivered, aimed at further spreading an agile culture within the Group and promoting the dissemination of a common language on this topic. With regard to "technologies and systems", we focused on raising awareness and knowledge about available technologies and main

cooperation and planning tools. Remote working, i.e. working for one day a week from a place other than the assigned location (including from home), was the main project carried out within the time and performance area. It was further developed and disseminated in 2018. Furthermore, as part of the projects regarding "space", smart points were set up in a number of buildings on an experimental basis: these multi-purpose spaces respond more effectively to the need to find a place to cooperate and exchange views (with internal or external colleagues), or the need to have more reserved areas to better concentrate.

In 2018, completely satisfactory results were achieved both in terms of improving productivity and improving satisfaction. This is also why the project will be extended to further 1,500 people in 2019. Consequently, we will continue to invest in communication towards all employees and in specific training on the new process and on specific skills to make smart working more effective. The aim will be to continue measuring both collective and individual benefits, enhancing new opportunities and creating conditions to jointly increase productivity and well-being.

As part of this process, **company management** is required to further develop **resource management skills** in a context where **performance grows in importance** compared to the time and physical place of work. The Group's **Leadership model** plays a leading and **decisive** role in ensuring **effective application**.

Sustainability in the management bonus system and in the performance bonus

Aspects that refer to sustainability are present in the bonus system for managers and middle managers and the systems for the determination of the performance bonus used by the Group. The performance bonus is influenced by indicators that are associated with quality, with work and service safety and with the environment, while the incentive system, which is connected to the balanced scorecard, provides (ever since 2006, when the Balanced scorecard system was introduced in the Group with the coordination of the Shared Value and Sustainability Department) for a part of the incentive to be connected to the achievement of sustainability targets.

In 2018, 30% of the variable remuneration of Group managers and middle managers was linked to sustainability target projects (improvement of quality, environmental impact, image, personnel involvement, professional development and involvement of stakeholders), with sustainability target projects aimed at creating shared value accounting for 17% (target projects associated with the "smart use of energy", "efficient use of resources", "innovation and contribution to development" CSV drivers).

Up to 25% of the performance bonus for middle managers, white-collar workers and blue-collar workers is related to shared objectives related to quality, environment and occupational safety.

Sustainability was also included in the deferred incentive plan for management retention redefined by the Board of Directors in the meeting of 19 December 2018, on the proposal of the Remuneration Committee. The Plan is reserved to a small number of managers selected by taking into account the weight of the organisational position, the evaluation of the performances achieved in the development process and the "market risk". The development introduced for the three-year period 2019-2021 includes "shared value" EBITDA among the three indicators used to quantify the bonus to be paid in 2022. The target to be achieved is set out in the Business Plan for 2021.

Thanks to HeraSolidale, we were able to collect almost Euro 145,000 for 5 Non-Profit Organisations

HeraSolidale was created to promote support among Hera workers for voluntary associations.

The third edition of the project started in 2018 and will last until December 2019. The third edition of the project involved Group employees who voted for 5 out of the 15 non-profit organisations chosen by the company, according to the following criteria: reputation and transparency of activities, contribution to one or more goals of the 2030 UN Agenda, and intervention areas of relevance to Hera services (accessory criterion).

The 5 winning non-profit organisations are listed below, each with their own specific project:

- **ANT Italia Non-Profit Foundation:** solidarity rhymes with sustainability for the purchase of a hybrid car for home care services
- **Save the Children:** The Za'atari camp in Jordan, working together to help the war refugees in Syria
- **Donne in Rete contro la violenza:** (Network of Women against violence): support through scholarships to women who are victims of violence
- **Butterfly Non-Profit Organisation:** donates water by rehabilitating 3 wells in Ethiopia
- **AISM - Italian Multiple Sclerosis Association:** funds research towards serious forms of multiple sclerosis.

820 workers joined the project, accepting to donate Euro 1, 3, or 5 (or another amount) every month which was withheld directly from their payslip.

An important new aspect of this last edition was the involvement of an external stakeholder: Hera's new customers may donate Euro 1 to one of the 5 non-profit organisations when signing a contract with Hera.

But there is more; the company, as usual, wishes to play its part: HeraComm and HeraComm Marche will donate Euro 1 to every new customer during the two years of the project.

At the end of 2018, approximately Euro 145 thousand were collected: over Euro 57,400 donated by employees through withdrawal from their payroll and Hextra (91% of the amount donated by workers in the previous edition, but in 2 years), the integrated corporate welfare system, over Euro 87,400 donated by Hera Comm and Hera Comm Marche.

Diversity and inclusion index: Hera in the top 100 world ranking

The Hera Group has been confirmed as one of the most interesting companies, in Italy and worldwide, for investors who sustain companies committed to promoting diversity and inclusion. Hera, with a score of 73.5 points, proved to be the second company in Italy and the 22nd across the world in the Thomson Reuters Diversity and Inclusion Index. Moreover, its position within its own sector was outstanding, coming in first worldwide among multi-utilties.

The Group continues its work in developing internal and personalised career paths, an approach that allowed the company to reach an amount of women in roles with responsibility coming to around 32% in 2018. Rising overall, the percentage of female personnel furthermore ranked above the sector average (24.7%, as compared to 15.9%). These figures are accompanied by a percentage of employees with disabilities that reaches 4.5% of the company's total workforce and also includes roles in management.

From all these points of view, the contribution coming from training is significant, with particularly important initiatives such as leadership and smart working courses favouring the development of human resources, based on factors including the diverse characteristics of each resource (gender, age, training, ability, inclination and skills), and undoubtedly from the corporate welfare plan, which sustains employees and their families in many different forms. Not by chance, encouraging results continue to emerge from the company climate survey, with further confirmation coming from a complete lack of disputes involving diversity and inclusion.

Lastly, many initiatives make plurality management concrete, including a range of work-life balance programmes and arrangements set up for parental leave, available not only for mums and dads but also for those who provide assistance to relatives or the elderly.

Suppliers

Objectives and performance

What we said we would do	What we have done	Area
• SA8000 certification: collect an additional 90 assessment questionnaires and perform 19 audits care of the suppliers (headquarters and sites) in 2018.	• 20 SA8000 audits were carried out care of the headquarters and sites of the suppliers and 90 SA8000 assessment questionnaires were collected in 2018	ER
• New supplier portal: simplify the qualification process, the up-dating of the data and the usability of the information.	• The new supplier qualification portal was inaugurated in September 2018, with the purpose of simplifying the qualification process, the up-dating of the data and the usability of the information.	ER T M
• Continue to assign a relevant score to the environmental and social sustainability aspects in the tenders held with the most economically advantageous bid.	• 32/100 average score reserved for sustainability aspects in the tenders held with the most economically advantageous bid approach in 2018.	ER T M
• Workplace health and safety: Monitor accidents for 70% of the value of supplies of services and work and make the suppliers aware of safety in the workplace.	• 75% the value of supplies of services and work from suppliers with monitoring of accident rates in 2018.	ER T
• Continue with the development of the quality, safety, environmental and social responsibility management systems and corporate responsibility in the choice of the suppliers.	• Valorisation of the management systems certified in 2018 continued. 87% of the value of supplies from ISO 9001 suppliers, 66% Emas/ISO 14001, 57% OHSAS 18001, 33% SA 8000.	ER T M

What we will do	Area
• Monitoring of the corporate social responsibility of the suppliers vis-à-vis their workers: collect an additional 90 assessment questionnaires and perform 20 audits care of the suppliers (headquarters and sites) in 2019.	ER T M
• Continue to assign a relevant score to the environmental and social sustainability aspects in the tenders held with the most economically advantageous bid.	ER T M
• 75% the value of supplies of services and work in 2019 with the monitoring of accidents in the workplace.	ER T
• Continue with the development of the quality, safety, environmental and social responsibility management systems and corporate responsibility in the choice of the suppliers.	ER T M

* Geographic scope of the improvement objectives ER: Emilia-Romagna T: Triveneto M: Marche.

Suppliers

At the end of 2018, the companies supplying goods, services, professional activities and work to the Hera Group included in the pool numbered 5,110. The presence of a single list of qualified suppliers for the entire Group is an opportunity for suppliers to expand business for all goods/services categories associated

with them. It is hereby specified that most suppliers are included in the pool of suppliers in several goods/services categories.

The data provided in this section, unless otherwise indicated, refers to the companies Hera Spa, AcegasApsAmga, AcegasApsAmga Servizi Energetici, Hera Luce, Herambiente, Fea, Herambiente Servizi Industriali, Hestambiente, Hera Comm, Inrete Distribuzione Energia, HERATech and Uniflotte; intercompany purchases are excluded.

With regard to Marche Multiservizi, a process for complete compliance with the Group procurement policy is underway and will conclude during 2019. Accordingly, certain information does not include Marche Multiservizi.

Pool of suppliers

Qty	2016	2017	2018
Goods	2,532	2,331	2,431
Services	3,599	3,359	3,662
Job orders	879	819	890
Total	5,139	4,765	5,110
of which suppliers who received at least one order during the year	3,076	2,935	3,250

The table provides a breakdown of suppliers by goods/service class. Some suppliers may belong to more than one class and, consequently, the sum of the individual items does not tally with the total number of suppliers. Excluding Marche Multiservizi.

More than 60% of the total suppliers on the list are qualified for the supply of services and work, while more than 63% (around 3,250 suppliers) had at least one contract active in 2018.

The main activities outsourced by the Hera Group within the sphere of waste management services concern the refuse collection services using rear-loading or small-load compactors, the door-to-door refuse collection service, street cleaning and washing (manual and mechanised), the cleaning of street refuse skips and the management of the Separate waste collection centres. With regard to the grid services, the company mainly resorts to outside suppliers for the activities concerning highly specialised maintenance, plant engineering activities and meter services (readings, closures, initialisations, etc.). Furthermore, facility management (global service), call centre, commercial and contact activities are outsourced.

In terms of economic value, in 2018 Hera commissioned purchases for Euro 911.8 million, of which over Euro 12 million for purchases in other European nations outside Italy.

The impacts generated by the supply chain of the Hera Group mainly concern the observance of the health and safety in the workplace standards, the social sustainability aspects and the environmental impacts of the outsourced activities.

Raw material supplies

In 2018, **natural gas** sold by the Group sales companies controlled by Hera Comm in 2018 was purchased for around 14% from Eni Gas & Power, approximately 39% was purchased from Edison, around 3% from Enel Trade, 3% from Other suppliers and 41% via Hera Trading (which, in turn, purchased spot gas on the main European hubs and at the virtual exchange point).

With regard to the **electricity market**, 45% of sales to final customers on the eligible and protected market were covered by bilateral purchases from other operators, with 55% sourced on the electricity market. The methods for trading electricity, both via sourcing on the electricity exchange and, more generally through bilateral agreements, do not allow for the tracing of the sources of energy in order to be able to certify the type of production upstream.

The composition of the **energy mix** used for the generation of electricity sold by Hera Comm in 2017 is calculated according to the matters established by the decree of the Ministry for Economic Development dated 31 July 2009, and involves a portion from renewable sources equal to 9% (from the 19% of the previous year) for the customers of the free market and 3% (from the 16% of the previous year) for customers of the non-eligible market. The decrease in this percentage depends on the reduction in the Italian complementary mix, which for the renewable sources passed from 16% in 2016 to 2.7% in 2017.

Qualification, selection and assessment of suppliers

Supplier qualification and assessment system makes it possible to check the technical, economic, and organisational quality requirements, as well as the compliance with environmental and safety regulations and corporate social responsibility requisites, and the acceptance of the Group Code of Ethics.

The Vendor Management system

Since 2012 the **vendor management system** has represented the model for the self-registration and qualification of the suppliers and addresses all the companies interested in spontaneously proposing themselves in the Hera Group suppliers list, for **any commodities category**. Via the portal, the Group's suppliers can avail themselves of a number of tangible benefits in terms of transparency, opportunity, competitiveness and integrity of the data.

Within the qualification area of the supplier portal, the companies can access the procurement product categories, making it possible to use the following **services**:

- independently update the profiles of interest, putting oneself forward for any new commodity groups within the accredited suppliers system;
- keep ones details up-to-date independently, as well as the schedule of the supplier qualification documents;
- check one's qualification and periodic assessment status;
- gain the possibility of being called more frequently to present bids;
- gain the possibility of receiving information relating to the awarding of a contract;
- being updated on the Group's initiatives of economic interest.

Inclusion in the Hera supplier qualification system is handled on-line by means of the **e-procurement platform**, which also represents a useful communication instrument between the Group and the suppliers. This platform envisages an annual membership fee in keeping with the number of commodity sub-categories of good groups which the supplier shows interest in, which varies from Euro 50 to 250. Having extended this instrument to public tenders as well as from 2011, the Hera Group confirms it as a best practice at Italian level in the use of evolved tools in the e-commerce sphere.

During 2018, Hera traded over 99% of the total volumes on the e-procurement platform. When using this platform, the suppliers are supported by a dedicated help desk service. In 2018, there were 13,304 requests for information received, all sorted out in the timescales envisaged by company procedures.

Another important aspect of the Vendor Management system is the **monitoring of the companies** who jointly take part in the performance of the contracts for the Hera Group in the role of **sub-contractors, consortium executors or principals in temporary joint ventures**. By means of the reporting generated by the monitoring activities, it is possible to improve the governance of the purchases, as well as extend the mechanisms for valuation and control envisaged by the Group procedures to all the companies involved in the execution of the tender, overseeing the entire chain of the economic parties involved in the service for various reasons.

A process for the up-dating of the qualification documentation of all the suppliers continued during 2017 and the first half of 2018, further to the publication of the **New Tender Code** (Italian Legislative Decree No. 50/2016) and the subsequent **adaptations introduced by Italian Legislative Decree No. 56/2017**.

In **September 2018**, within the sphere of the process innovation projects, **the new supplier qualification portal was inaugurated**, with the purpose of simplifying the qualification process, the up-dating of the data and the usability of the information, guiding the uploading of the data to be input in the system. The new portal, permitting direct access for the supplier to each of the individual questions of the qualification document, considerably reduces both the data input timescales for initial qualification and the timescales for updating the data in the event of changes. The response to the supplier pool was positive: **at the end of December 2018 already 35%** of the supplier pool **requalified themselves via the new portal**.

During 2018, **Marche Multiservizi** continued the process for the adoption of the platform for the qualification, selection and assessment of the Group suppliers, which will conclude in 2019. Furthermore, in November 2018 it managed the first tender using the Group e-procurement platform.

As from the last few months of 2017, an **automatic and traceable system** was introduced **for the alternation of the invitations to the suppliers to participate in private tenders** which, basing itself on a series of parameters including the number of invitations received, their distribution over time and the Vendor Rating score, further guarantees the supplier selection process and the rotation of the same, with the utmost transparency and on a consistent basis with the Hera Group Guidelines. In the same way, this system permits greater communication between the suppliers and the company and absolute exactitude in the documental management.

For the purpose of increasing the rate of participation of the suppliers in the tenders, the rotation system will be integrated, during 2019, with the new supplier qualification portal so as to assimilate within the rotation also the desire of the suppliers to operate solely in specific geographic areas, as specified by said suppliers in the qualification document. By means of this integration, it can be avoided that the automatic rotation system selects by means of invitation in a specific geographic area suppliers who do not desire to work in the same.

The supplier qualification procedure

Supplier **qualification** and **assessment** is regulated by the checking of the technical, economic, and organisational quality requirements, compliance with environmental and safety regulations and corporate social responsibility requisites, as well as acceptance of the Group Code of Ethics. Furthermore, the supply contracts drawn up by the Group include termination clauses linked to the failure of suppliers to comply with the principles of the Code of Ethics. Therefore, **all the qualified suppliers are subject to this assessment system**.

The Hera Group's supplier qualification process has been formalised within a specific procedure, by means of the establishment of a single **list of reliable economic operators**, handled by the Procurement and Tenders Department of Hera S.p.A. As and when necessary, **the suppliers to be invited** for the performance of the negotiated procedures are **selected** from this list. Therefore, the suppliers are selected for all the Group companies on the basis of **qualification requirements** divided up into:

- standard requirements: identical for any commodity category;
- specific requirements: linked to a specific commodity category.

Among the various **criteria** identified by the Group for the qualification and selection of the new suppliers, of particular importance are those of an **environmental and social** nature, for example:

- declaration of acknowledgement and acceptance of: the **Code of Ethics**; General Quality-Safety-Environment Regulations for contractors and/or autonomous workers operating for Hera; Quality, safety and environment policy; Personal data protection policy; Social responsibility policy SA 8000 and Energy policy;
- fulfilment of the **safety** obligations envisaged by Italian law;
- observance of the current legislation referring to the **right of the disabled to work**;
- presence of **employees facing social hardship** within the company workforce with respect to the total;
- enrolment in the Regional Register of **Social cooperatives**;

- declaration of full knowledge of the SA 8000 standard and Hera's Social responsibility policy, and of commitment to comply with the principles and requirements included in the same and with the participation in monitoring and audit activities envisaged by the Hera Group, as well as the assessment of any corrective measures required;
- possession of the following **system certifications**: ISO 9001; ISO 14001; OHSAS 18001; SA 8000; ISO 50001;
- possession of the certificate of enrolment in the **National register of environmental operators**, pertinent to the precise activities of the commodity group;
- possession of enrolment with current validity, care of the pertinent Prefecture for the sectors of interest identified by the Prime Minister's Decree dated 18 April 2013, in the list of the suppliers not subject to mafia infiltration attempts (so-called **white list**), otherwise presentation of a formal commitment to request the same.

Furthermore, for the purpose of ensuring the business operations and only in **exceptional cases**, the Group foresees the possibility of making **exceptions**, in the following cases:

- **casual** suppliers: in the event of needs motivated by reasons of experimentation, it is possible to issue just one purchase document vis-à-vis an uncertified supplier. These "casual" suppliers, in order to be able to receive additional purchase orders, will have to obtain qualification in observance of the Hera Group;
- **exclusive** suppliers: in the event of indispensable needs, it is possible to issue purchase documents vis-à-vis a qualified supplier, on an exclusive basis;
- procedure for **purchases using order vouchers**: purchase of goods on a case by case basis for a modest economic value, issuing order vouchers on suppliers with which there are specific agreements or even lacking specific agreement;
- procedure for **other purchases which**, having considered their nature (for example: legal, notarial, courier or translations costs) **do not require the prior qualification** of the suppliers. Otherwise the purchase must be appropriately registered in accordance with the rules established by the Group.

Suppliers: breakdown by type of certification

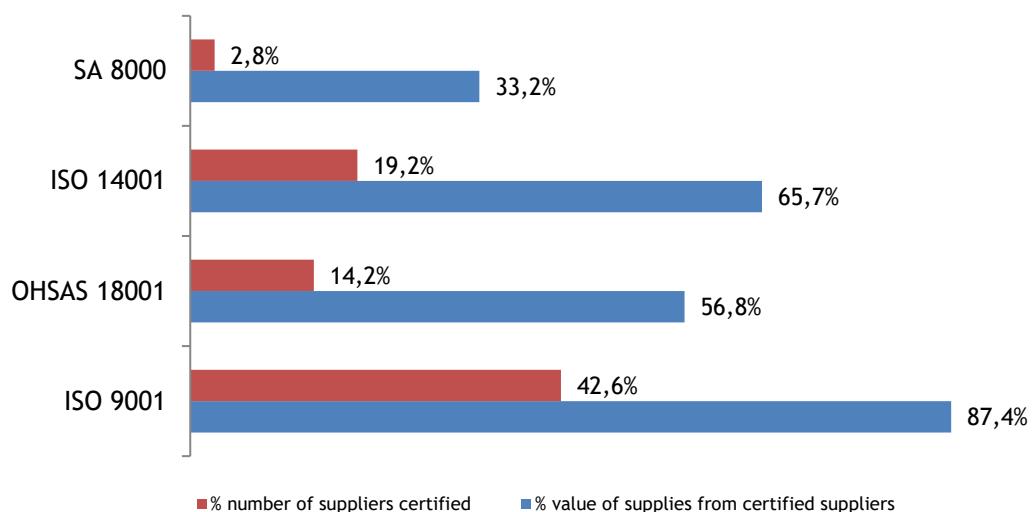
The portion of purchases from SA 8000, ISO 14001 and OHSAS 18001 **certified suppliers** reported an **increase** with respect to 2017, while the volume purchased from ISO 9001 certified suppliers was stable with respect to the previous years. This result is the consequence of both direct action taken by the Group companies, which systematically include indication of the possession of certification in the calls for tenders or in the supplier qualification stage as a requirement for participation and/or incentive for the tender, and of the **greater sensitivity acquired by the companies** in considering the certification as a component of greater competitiveness.

Procurement from suppliers - value breakdown by type of certification (% of total supplies)

%	2016	2017	2018
Quality certification (ISO 9001)	87.1%	88.9%	87.4%
Environmental certification (ISO 14001-Emas)	58.0%	60.6%	65.7%
Occupational safety (OHSAS 18001)	49.5%	51.8%	56.8%
Social certification (SA 8000)	25.8%	24.1%	33.2%
<i>Total supplies (in millions of Euro)</i>	<i>815.7</i>	<i>888.6</i>	<i>911.8</i>

The value of the tenders awarded to certified suppliers is always greater than the percentage of suppliers present in the register and in possession of certification. Again this result is the consequence of the systematic request for possession of certification in the supplier qualification and selection stage.

Quotas of supplies with respect to the number of suppliers on the list (2018)



Supplier assessment and checking

In 2018, for the purpose of facilitating the supplier monitoring and management activities, an **automated system** was introduced, care of the competent One-stop Social Security Point, **for checking the INPS/INAIL and Cassa Edile contribution payment regularity** of all the suppliers active and present in the Hera Group list. Specifically, using the coding and record file traceability of the parties grouped together in temporary joint ventures (representative and principals), consortiums and specific executing companies, subcontractors and the like relating to the individual service purchase document (order and/or contract), it was possible to carry out the control of the correct payment of the supplies and services only in the presence of complete regularity of the payments of the social security contributions.

The periodic assessment makes it possible for the active supplier to receive an up-date of their **scoring** for each individual qualified commodity in the **vendor rating system**, with an increase in the event of total absence of anomalies, or with a decrease in relation to the seriousness of the anomalies detected. The assessment can always be consulted autonomously by the supplier in their specific area of the supplier portal.

The scores have been divided up into **three categories** which contribute towards **channelling the rotation, selection and invitation** - by the individual buyers - of the qualified suppliers by specific commodity class affected by the private tenders carried out by the Hera Group. The score assigned to each supplier via the rating system influences the list of the firms invited to participate in tenders. Problematic suppliers are excluded from the under-threshold invitations unless they fall within the qualified brackets, via suitable corrective action and/or accurate improvement plans.

Area type	Scoring interval	Level of reliability
GREEN area	= 75 pts. and ≤ 100 pts.	from averagely reliable to very reliable
YELLOW area	= 60 pts. and ≤ 74 pts.	from sufficiently reliable to averagely reliable
RED area	≤ 59 pt.	critical

The supplier **assessment management and monitoring model** continues to ensure, via the maintenance of the reporting active since 2011, the quarterly frequency for the concession of the **bonuses**. By contrast, the methods for the calculation of the decreases takes place by means of the closure of the analysis of the **anomalies** and the definition of specific corrective actions. By means of the formalities introduced it is

therefore possible to divide up the decrease in the score over the supplier firms responsible for the anomaly, who can be inferred from the field monitoring documentation (check list) compiled by the contact Individual or their appointee. This allows the Company contact individual/Director of works to check the contractual performances of the suppliers in the fundamental areas of quality, safety and the environment with the addition of a fourth concerning corporate social responsibility. In the event of **serious or very serious non-compliance** of the supplier, there is also the possibility of temporary suspension from new invitations to private tenders for a period which ranges **from three to six months**. In 2018, suspension was activated for 12 suppliers due to very serious non-compliances. In 9 of the cases, the suspension was for six months; for the remaining cases the months of suspension were three.

The **control of the suppliers** takes place by means of the checks carried out by the company contact individuals (in turn subject to internal audits on the observance of the procedures) and via inspection visits care of the premises of the companies carried out by a certified third party so as to check the observance of the requirements of the SA8000 standard. This monitoring by the company contact personnel takes place for the **deliveries of goods** on receipt, while for the **services** and **work** it takes place during the progressive execution of the service, for each related quarter. Specifically, the check is carried out by means of compiling and signing specific monitoring check lists, compiled and signed also in relation to checks carried out on sub-contractors, if present.

During 2018, **another 7 check lists** of services were **standardised**, for the purpose of ensuring an increasingly greater coherence and equity of the assessments. Steps were taken to **review the 15 check lists already in force**. Once streamlined, agreed on and standardised, the check lists were made available on the company information portal to the contract managers, together with the specific instructions for use and the standardisation of the various anomalies (specific non-compliances).

The policies and activities described make it possible to ensure increasingly **greater coherence and equity** in the assessments made at Group level.

The **number of checks** on services and work is defined on the basis of the contractual amount, the duration of the contract, and the impact on quality, safety, the environment and on the corporate social responsibility of the services monitored.

The classification of the "**quality warnings**", sent to the supplier, as a consequence of the detection, also makes it possible to ensure the prompt and correct periodic evaluation of the qualified suppliers. The four categories identified essentially reflect the main certifications present in the Hera Group: ISO 9001, ISO 14001, OHSAS 18001 and SA 8000.

In 2018, the joint **internal audits** of the Quality, Safety and Environment Department and the Procurement and Tender Contracts Department of Hera SpA continued, for checking the procedures adopted care of several contract contact individuals: these audits were 12 and, on the basis of the problematic elements detected, a new training plan was developed for the company contacts. The plan illustrated and reconfirmed - to more than 400 individuals - the innovations introduced in the accurate monitoring of the suppliers (including sub-contractors) and within the sphere of the data loading in the company information system.

In 2018, furthermore, **inspections** continued within the SA 8000 standard certification sphere in the facilities of suppliers: in some cases partially non-compliant conduct was noted which was promptly highlighted, with consequent launch of corrective action and prompt verification of the same. The inspections were 8 in total, of which 1 carried out directly on site, care of the Hera worksites, rather than care of the premises of the supplier.

Findings (2018)

Type	2017	2018
Observation	74	113
Fairly unserious	198	115
NC		
Serious NC	345	338
Very Serious NC	200	211
Total	817	777

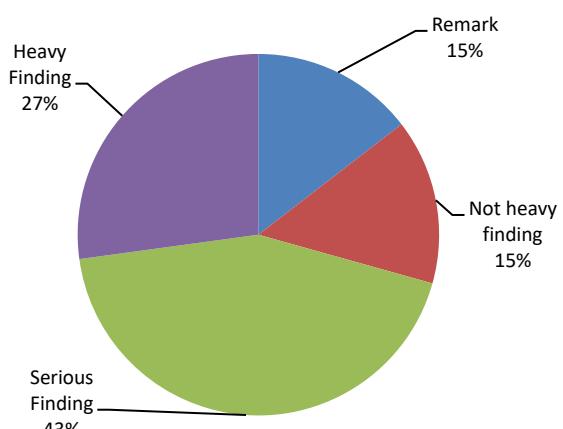
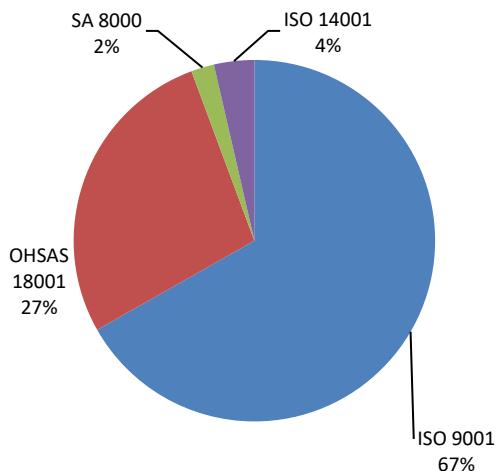
Excluding Marche Multiservizi

Type	2017	2018
ISO 9001	470	519
OHSAS 18001	306	214
SA 8000	25	16
ISO 14001	16	28
Total	817	777

Excluding Marche Multiservizi

At Group level (excluding Marche Multiservizi) during 2018, 777 cases of non-compliance were detected (-5% with respect to 2017), with an increase of 10% compared to those classified as very serious. Of the total, 659 were closed as at 31 December 2018. The non-compliances relating to the observance of safety legislation numbered 214, those relating to respect for the environment were 33 and those concerning the social commitment were 16.

Findings (2018)



Excluding Marche Multiservizi

Tenders for contracts awarded on the basis of the most economically advantageous bid approach

The **Hera Group Guidelines on procurement**, since 2008, favour the economically most advantageous bid method as the approach for assessing bids, using sustainability criteria consistent with the principles of the Code of Ethics.

In the specific areas identified by the Guidelines, and in detail “respect for the environment”, “social commitment”, “quality of services” and “economic value”, sustainability criteria have been defined on the basis of the experience acquired in managing calls for tenders according to the most economically advantageous bid method, of doctrine, of regulations on the matter and in line with Hera Group objectives.

A **minimum number of sustainability criteria** for choosing suppliers were established for each area, based on the amount and importance of the tender (if it is a tender with a significant impact on the environment, occupational safety, the quality of services provided to customers, the term or amount of the contract). Among the **main criteria**, mention is made of: the management of atmospheric emissions and sound, prevention, reuse and recyclability of waste; energy efficiency; reduction of the hazardous nature of substances used and reduction of water consumption (for the environmental protection criterion), supplier's adoption of their own Code of Ethics; hiring of persons with disabilities and persons facing hardship; accident prevention and safety training (the social commitment criterion); quality of materials, equipment and instruments; professional qualifications and skills and technical services and performance.

The Procurement and Tenders functions are responsible for **selecting the sustainability criteria** in agreement with the company contacts concerned. They chose the criteria to be used for the type of tender, the importance of the sustainability criterion in relation to said tender, and assessments of previous tenders assigned and their results. The Procurement and Tenders functions can also use the technical support of the Shared Value and Sustainability Department and the Quality, Safety and Environment Department for the choice of the criteria and the assessment of bids in the tender phase.

The **New Tender Code**, published by means of Italian Legislative Decree No. 50/2016 and which came into force as from April 2016, assimilating the EU directives issued on the subject and establishing the new regulations to be applied to tenders and public contracts, as subsequently amended by means of Italian Legislative Decree No. 56/2017, envisaged the publication of around 50 measures including general guidelines proposed by ANAC and ministerial decrees implementing the new rules introduced. The main innovations of the New Code include the provision of the **awarding method according to the economically most advantageous bid approach as mandatory and exclusive in certain cases** (Art. 95) such as for example services with a high intensity of manpower (such as cleaning services or scholastic services), or in engineering, architecture services or those of another technical or intellectual nature for amounts greater than Euro 40 thousand.

The Hera Group Procurement guidelines in fact anticipated these virtuous practices in the selection of the suppliers by around 10 years.

Public tenders for contracts adopting the economically most advantageous bid method

	2016	2017	2018
No. of public invitations for tenders published	37	65	55
No. of public invitations for tenders published with economically advantageous bid	31	54	47
Value of the public invitations for tenders published (in millions of Euro)	201.9	260.7	183.5
Value of the public invitations for tenders published with economically advantageous bid	195.2	238.9	171.5
% of tenders with economically advantageous bid out of total (value of the calls)	96.7%	91.6%	93.5%
Average score assigned to aspects relating to sustainability of public tenders awarded during the year	27.6	27.2	32.1

In the three-year period considered, the incidence of the economically most advantageous bid criterion was on average 94% of the total value of the public tender invitations issued by the Group.

In particular, during 2018, a total of 55 public invitations for tenders were announced, for a total starting price of more than Euro 183.5 million: of these 171.5 million, or 93.5% of the total value of the invitations issued in 2018, envisaged the awarding method according to the most economically advantageous bid criterion. The **average score assigned to the sustainability aspects** came to **32.1** (+18% compared with 2017).

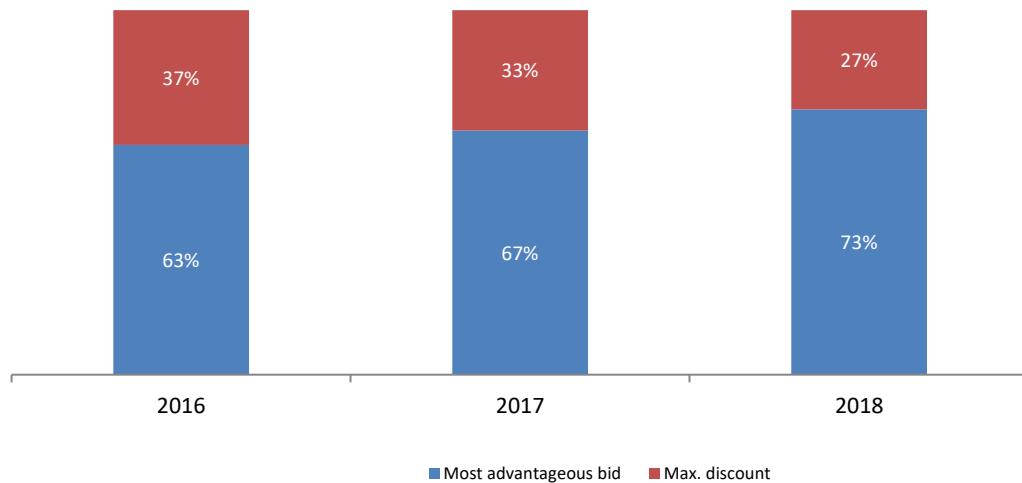
In 2018, 8 public tender invitations were issued with awarding to the largest discount for around Euro 12 million, equal to approximately 6.5% of the total value of the public tender invitations issued in the year. Furthermore, 4 public tenders for qualification systems were held, which were not included in the total: the legislation in fact requires that the tender amount and the award method be defined as and when in the subsequent negotiation procedures.

Total awards adopting the economically most advantageous bid method

	2016	2017	2018
Value of the total awards to which the economically most advantageous bid award method is applicable (in millions of Euro)	488.1	541.0	788.4
% of the value of the awards adopting the economically most advantageous bid method	63.0%	67.4%	72.8%
% of the value of the awards adopting the economically most advantageous bid method with environmental and/or social criteria	95.4%	94.2%	95.4%
Average score assigned to the sustainability aspects in the adjudications adopting the economically most advantageous bid method	26.2	25.3	31.8

The economically most advantageous bid award method is applicable (if the tender procedures permit recourse to this method) to the entire purchasing cycle, with a clear predominance for purchases of services and work, given the already high standardisation of the technical specifications with regard to the sphere of materials supplies and in some cases of work. We would like to point out that 77.4% of the value of contracts managed by the Hera Spa Procurement and Tenders Department, excluding AcegasApsAmga and Marche Multiservizi, to which the most economically advantageous bid criterion is applicable took place according to this method, in place of the largest discount. At Group level, by contrast, this figure was **72.8%** (+5 percentage points with respect to 2017). In AcegasApsAmga the figure reached 64.1% in 2018, almost 18 percentage points more than in 2017, while in Marche Multiservizi during 2018, 30.2% of the value of the adjudications took place according to the economically most advantageous bid method, down slightly with respect to 2017.

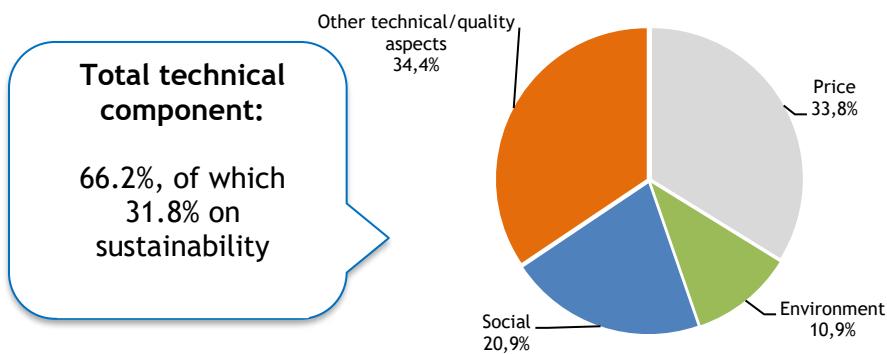
Total adjudications with economically advantageous bid



95.4% of the value of the contracts awarded using the economically most advantageous bid was carried out using the **environmental and/or social assessment criteria**.

With regard to orders/contracts awarded during 2018 via the economically most advantageous bid award method, the average score assigned to the technical component was 66 points out of 100, of which **31.8 relating to sustainability criteria (10.9 pertaining to environmental aspects and 20.9 to social aspects)**. Excluding AcegasApsAmga and Marche Multiservizi the average score assigned to the sustainability aspects came to 31.9. In the Triveneto area this value was 26.1 points, while in the Marches region the value was 22.5 (up sharply with respect to the 3.5 points in 2017 as a consequence of the different type of tender held).

Total awards adopting the economically most advantageous bid method: scores assigned to the various components (weighted average on the amounts) (2018)



The Group sets itself the objective of continuing to show preference, in place of the largest discount, for the economically most advantageous bid and to assign a **relevant score to the environmental and social sustainability** aspects in the tenders held with this method.

Within the **ISO 50001** certification process for Hera SpA a clause was envisaged in the standard specifications which obliges the technical contact individual - if they detect that the subject matter of the purchase has a significant impact on the energy consumption of the Group - to proceed with the assessment of the energy efficiency requirements on the basis of an Energy Management document useful for the assessment of the energy impact.

In the **private tenders** the Hera Group, excluding Marche Multiservizi, invited an average of 21 suppliers for each set of negotiations (weighted average on purchase volumes) confirming the approach of the Group based on an open and transparent competition between the suppliers on a consistent basis with the guidelines of current legislation.

With regard to the importance and significance assigned to sustainability criteria when assessing the bids, the following tenders awarded in 2018 are indicated:

Type	Description	Area	Amount (Euro mln)	Duration (years)	Technical component (%)	Sustainability score
Public tender	Maintenance and management of real estate plant engineering assets	ER, T	85.0	4	70 	Environmental (34%): ISO 14001, ISO 50001 Social (10%): OHSAS 18001, SA 8000, legality rating and induction of workers with weaknesses Other technical aspects (26%)
Public tender	Emergency response and scheduled maintenance work, network redevelopment, connections and accessory services in water and sewage mains	ER	77.0	2	70 	Environmental (8%): enrolment in the national register of environmental operators, environmental impact of the vehicles used and ISO 14001 Social (38%): health and safety training measures, OHSAS18001, SA8000 and legality rating Other technical aspects (24%)
Public tender	Emergency response and scheduled maintenance work, network extension, connections and accessory services on gas and remote heating networks	ER	34.7	2	70 	Environmental (8%): enrolment in the national register of environmental operators, environmental impact of the vehicles used and ISO 14001 Social (38%): health and safety training measures, OHSAS18001, SA8000 and legality rating Other technical aspects (24%)

Type	Description	Area	Amount (Euro mln)	Duration (years)	Technical component (%)	Sustainability score
Public qualification system	Specialist maintenance work on integrated water service installations	ER	30.7	4	70 	Environmental (5%): ISO 14001 Social (47%): health and safety training measures, OHSAS18001 and SA8000 Other technical aspects (18%)
Public tender	Call centre service for customers	ER	29.0	2	80 	Social (14%): trade union agreement on incentive plans, handling of registration of telephone calls and working hours flexibility, company welfare schemes OHSAS 18001 and ISO 9001 Other technical aspects (66%)
Public qualification system	Emergency response and scheduled maintenance work, network redevelopment, connections and accessory services in water and sewage mains	T	24.0	-	70 	Environmental (3%): ISO 14001 Social (29%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (38%)
Public tender	Ordinary and extraordinary maintenance on waste-to-energy plants and other waste treatment plants	ER	21.7	2	60 	Environmental (2%): ISO 14001 Social (23%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (35%)
Public qualification system	Specialist maintenance work on integrated water service installations	ER	17.8	4	70 	Environmental (5%): ISO 14001 Social (47%): health and safety training measures, OHSAS18001 and SA8000 Other technical aspects (18%)
Public qualification system	Plan for replacement of gas pipelines in cast iron and extraordinary maintenance of water and electricity mains	T	17.2	-	70 	Environmental (7%): environmental impact of the vehicles used and ISO 14001 Social (15%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (48%)
Public qualification system	Ancillary activities on gas, water, electricity and heat meters	ER	17.0	4	70 	Environmental (12%): environmental impact of the vehicles used and ISO 14001 Social (22%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (36%)
Public qualification system	Specialist maintenance work on electricity installations	ER	15.0	4	70 	Environmental (5%): ISO 14001 Social (39%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (26%)

Type	Description	Area	Amount (Euro mln)	Duration (years)	Technical component (%)	Sustainability score
Public tender	Rental of integrated photocopying and printing systems	ER, T	9.0	6	70 	Environmental (14%): ISO 14001 Social (2%): OHSAS18001 Other technical aspects (54%)
Public tender	Adaptation and enhancement of the Pesaro purification plant	M	7.4	-	70 	Environmental (23%) Social (2%) Other technical aspects (55%)
Public tender	Electrical and electro-instrumental industrial maintenance on waste-to-energy plants and other waste treatment plants	ER	7.0	2	80 	Environmental (6%): ISO 14001 and ISO 50001 Social (49%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (15%)
Public tender	Work supporting emergency response and extraordinary maintenance services for integrated water service networks and plants	M	6.6	-	80 	Environmental (24%) Social (2%) Other technical aspects (54%)
Public qualification system	Emergency response and scheduled maintenance work and accessory services on gas mains	T	6.0	-	70 	Environmental (2%): ISO14001 Social (22%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (46%)
Private tender	Construction of sewage collector of South Rimini Backbone	ER	5.5	-	70 	Environmental (5%): ISO 14001 Social (31%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (34%)
Private tender	Work for restoring the road surface pertaining to the maintenance work, scheduled work and extensions for the network services	ER	5.0	2	70 	Environmental (5%): ISO 14001 Social (53%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (12%)
Public tender	Valorisation of waste by means of selection and sorting and mechanical handling	ER	4.0	2	70 	Environmental (6%): environmental training and ISO 14001 Social (40%): audit regarding safety of the service performed, OHSAS18001 and SA8000 Other technical aspects (24%)

Type	Description	Area	Amount (Euro mln)	Duration (years)	Technical component (%)	Sustainability score
Public tender	Supply, installation and commissioning of a pre and post-mechanical treatment plant care of the Sant'Agata Bolognese plant	ER	3.5	-	70 	Environmental (44%): energy consumption pre/post-treatment section, ISO 14001 and ISO50001 Social (4%): OHSAS18001 Other technical aspects (22%)
Public qualification system	Creation of connections, limited extensions, enhancements and/or small movements of networks and plants	T	3.1	-	60 	Environmental (2%): ISO 14001 Social (14%): health and safety training measures, OHSAS 18001 and SA8000 Other technical aspects (44%)
Private tender	Running and pneumatic maintenance of the methane gas reduction apparatus	ER	2.8	3	70 	Environmental (10%): enrolment in the national register of environmental operators and ISO 14001 Social (19%): OHSAS 18001 and SA 8000 Other technical aspects (41%)
Public qualification system	Technical, administrative and operational running of purification and sewage plants	T	2.7	-	60 	Environmental (27%): environmental impact of the vehicles used, reduction of the energy consumption, the sludge to be disposed of and the quantities of outgoing nitrogen and phosphorous Social (3%): OHSAS18001 Other technical aspects (30%)
Public tender	Operating activities for the handling, screening and processing of waste aimed at anaerobic digestion, composting and stabilisation	ER	2.5	2	70 	Environmental (15%): ISO 14001 Social (42%): audit regarding safety of the service performed, OHSAS18001 and SA8000 Other technical aspects (13%)
Public tender	Door-to-door collection service and related transportation of separate municipal waste to be carried out in artisan, industrial and forensic areas in the municipality of Ferrara	ER	2.4	-	70 	Environmental (15%): environmental impact of the vehicles used Social (20%): OHSAS 18001 and SA 8000 Other technical aspects (35%)
Public qualification system	Disposal and collection, transportation and delivery to destination of sludge produced in the treatment plants	T	2.1	-	70 	Environmental (42%): ISO 14001 and ISO 50001 Social (6%): OHSAS 18001 and SA 8000 Other technical aspects (22%)
Public tender	Transportation of municipal waste stored care of the waste transfer stations and equipped drop-off points	ER	2.0	-	70 	Environmental (25%): environmental impact of the vehicles used and ISO 14001 Social (25%): OHSAS 18001 and SA 8000 Other technical aspects (20%)

Type	Description	Area	Amount (Euro mln)	Duration (years)	Technical component (%)	Sustainability score
Public tender	Gas, water and GPL meter reading services and ancillary measurement activities	M	1.9	-	80 	Environmental (6%) Social (10%) Other technical aspects (64%)
Private tender	Industrial waste logistics, brokerage of special waste, back office, reception and protocol	ER	1.8	2	70 	Environmental (12%): environmental legislation training measures and ISO 14001 Social (41%): health and safety training measures, induction of individuals facing social hardship and commitment for their contractual stabilisation, OHSAS 18001 and SA 8000 Other technical aspects (17%)
Public tender	Long-term lease of two new compactors for the industrial waste and special municipal waste landfill	M	1.8	-	70 	Environmental (10%) Other technical aspects (60%)
Public tender	Service for the recovery of biodegradable waste conferred directly by means of collection vehicles by the operator of the public service	ER	1.7	-	70 	Environmental (38%): percentage of launch for waste recovery and traceability of the same, ISO 14001 and ISO 50001 Social (6%): OHSAS 18001 and ISO 9001 Other technical aspects (26%)
Public tender	Execution of works and supplies for legislative adaptation and safety work for the public lighting plant in Pesaro	M	1.5	-	70 	Environmental (35%) Social (3%) Other technical aspects (32%)

The pie chart in the table shows the points assigned to the price in grey, those assigned to environmental sustainability in green, those to social sustainability in blue and those to other technical aspects forming part of the technical components in orange.

Contract management

The **guidelines with regard to procurement**, in accordance with the Group's Code of Ethics and the organisational model pursuant to Italian Legislative Decree No. 231/2001 and the related "**procurement**" **protocol** determine the underlying principles of the Group's procurement activities in the event of acquisition of goods, services and work necessary for the performance of activities carried out under free market conditions and subject to public works contracts (Code of the public contracts Italian Legislative Decree No. 50/2016, as amended by the corrective decree No. 56/2017).

The use of sub-contracts

With regard to sub-contracting, the **procedure** introduced was further **up-dated and consolidated in 2018**, with full compliance of AcegasApsAmga as well.

The **authorisation to sub-contract** makes the works directors and the company contacts responsible for documental check activities, and Vendor Rating and Hera Assurance responsible for the validation of the process, the checking of the social security contribution regularity, the control of the list of qualified suppliers and their rating, the search of the Anac electronic records and, if necessary, the request for

prefectural anti-mafia information, as well as the request of the Criminal Records Office. All the documentation regarding the request, check and authorisation has been further standardised at Group level and reviewed for up-dates with the reference legislation, by the Group Regulations and Tender function. All the documentation is made available in the documental area of the supplier portal, to the companies and via the Company Information Portal, to all the employees.

The fulfilments necessary for **monitoring the activities of the sub-contractor companies at the worksite** have been further consolidated (supplier monitoring check list), together with the obligations for permitting facilitated, correct and accurate monthly administrative reporting, inclusive of the accurate checking of the payments to employees used in the execution of the sub-contracting.

The **Group standard specifications**, on a consistent basis with the reference legislation, envisage that the contractor pays the sub-contractors and that the former provides the works director with suitable proof within 20 days after payment by the Hera Group of each Progress Report (SAL) and/or Performance Certification Form (MAP). In the absence of proof, the works director/company contact informs the competent administration function of the suspension of the payment of the subsequent SALs/MAPs until payments are up-to-date. This method is alternative to the direct payment of the sub-contractors which can be activated during the course of the work.

In 2018 approximately Euro 36 million was sub-contracted out, equal to 5.7% of the amount of work and services outsourced by the Group (excluding Marche Multiservizi), while the amounts disclosed for the sub-contracting handled came to Euro 14 million.

Times of payment as per contract

The contractual average payment times of the supplies **decreased progressively** standing at the end of 2018 at 79 days (excluding Marche Multiservizi), further to the contractual standardisation which defines average payment times of 60 days for the Hera Group.

The monitoring of work accidents at suppliers

So as to have a complete picture of the accident/injury impact relating to the activities carried out directly and indirectly, as from 2009 Hera has set itself the objective of monitoring the accident and injury indexes for the main suppliers of work and services. Their specifications and tender contracts envisage the forwarding of the "Annual summary of the accidents or injuries occurring care of the contracting companies during the performance of activities on behalf of Hera" form, via which each supplier is required to communicate its accident/injury indexes annually or at the end of the contractual period. As from 2015, this phase for the collation and analysis of the data was computerised using the SAP SRM platform.

Monitoring of supplier accidents

	2016	2017	2018
Value of supplies of services and work (in millions of Euro)	634.6	727.5	745.2
Value ordered from suppliers under monitoring (in millions of Euro)	634.6	637.1	482.6
Value ordered from suppliers under monitoring (%)	100%	88%	88%
Value commissioned from suppliers who have forwarded the monitoring	450.6	467.7	491.5
Value ordered from suppliers who have forwarded the monitoring on the value commissioned from suppliers involved in the monitoring (%)	71%	73%	75%

Excluding Marche Multiservizi

With respect to the previous years, a selection of suppliers was made with commodities groups relating to activities with little significance from the standpoint of safety, the related amounts were excluded from that consumed and therefore from the calculation base for the objective fixed at 70%. The contractual obligation for the forwarding of the accident data does not lapse for these suppliers.

833 suppliers answered the survey in 2018 (696 in 2017) for a total of Euro 492 million in terms of value of contracts (Euro 468 million in 2017). **75% of suppliers involved** in the monitoring **were monitored** in 2018.

Overall, **336 accidents were monitored**, the calculation of the data identified an average frequency index of 24.05 and a severity index of 0.58, up with respect to the previous year (the 2017 values were 15.2 and 0.42 respectively).

Analysing the commodity groups of two **significant commodities from an accident standpoint** (work of the “general works” and environmental services categories), it can be observed that the values of the frequency index are equal to 19.6 and 45.9 respectively, while the severity index stands at 0.66 and 1.07.

Supplier relations

During 2018, Hera participated in a number of **meetings with the main trade associations**, such as for example “Romagna Business Matching” organised by Confindustria Romagna and Confindustria Forlì-Cesena. This meeting was an important occasion for discussion and reflection with regard to the changed legislative scenario with the introduction of the new tender code and subsequent corrective decree and the ANAC guidelines, with policies and interpretative levels still in the adjustment phase. With a view to this, the desire of Hera to build a **solid relationship** with its suppliers was further reaffirmed, marked by the utmost **transparency**, making information the mainstay of the relationship with the Vendors. The new IT model for the alternation of suppliers was also illustrated at this juncture (see section “Qualification, selection and assessment of suppliers”).

In conclusion, as usual, at the end of the year the customary **meetings were held with representatives of social cooperatives** working in the areas served by the Hera Group, to discuss the 2018 results. On the basis of the analysis of the data collected, the work group active in the meetings confirmed the validity of the procedures defined for monitoring. The encounters also pertained to the ways to promote employment projects, illustrated in the section “Economic development and social inclusion”.

Litigation with suppliers

The number of disputes fell: at the end of 2018, there were 36 disputes pending with the suppliers, compared with 40 at the end of 2017. The proceedings activated in 2018 came to 22 and mainly concerned tender aspects.

Case study

The supplier monitoring plan with a focus on social responsibility

During 2018, an additional **90 questionnaires for SA 8000 assessment** were received from suppliers deemed as critical in terms of activities and contractual amounts. The documents were examined and steps were taken to request clarification and additions for incomplete or missing parts. Furthermore, 197 disclosure measures on the legislation were reported on, by the companies, vis-à-vis their workers.

Furthermore, during 2018 **8 SA8000 audits** were carried out of which 7 care of the headquarters of the suppliers and one directly on site: in several cases, it became necessary to carry out additional checks to control the effective launch of the improvement process agreed on and the activation of the corrective actions. **12 additional audits** were carried out directly at the Hera **Group worksites**, jointly with the QSE Department. The audits at the premises of suppliers were carried out by certified external personnel with

references, selected by means of appropriate negotiation, so as to ensure a transparent and independent process adopted by the Group.

These monitoring activities supplement the periodic checks of the company contract contact individuals.

Focus on shared value, area by area

Bologna

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 15% of customers with energy efficiency services. The quantity is 87,000. 8 partnerships with local companies for projects to reduce consumption Emissions avoided 37 thousand tonnes of CO ₂ avoided thanks to 75 energy efficiency measures in the area (Hera and other companies) from 2007 to date	Recycling 62% separate waste collection, of which 88% recycled* 0% of municipal waste in landfills Reuse Euro 331 thousand of medicines that have not yet expired and 111 tonnes of bulky waste collected and reused Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 65% of urban areas <2,000 pe (100% by 2021)	Digitalization 40% of the gas meters are already electronic Employment 2,482 employees in the Bologna area and 143 hires in 2018 Social inclusion Euro 23 million value of bills paid in instalments, 20 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	
From waste to biomethane, a circular revolution In S. Agata Bolognese we built a plant, without additional consumption of land and with an investment of Euro 37 million, to produce 7.5 million m ³ /year of biomethane and 20,000 tonnes of compost for agriculture from 135 thousand tonnes of organic material and green/pruning material waste, avoiding 14 thousand tonnes/year of CO ₂ .	An agreement to re-use water An agreement was signed to re-use water from the treatment plant in Bologna to the benefit of the balance of local water bodies in the event of drought. In 2018 about 500 thousand m ³ of water were used for that purpose.	Separate waste collection in Bologna's city centre reached 62% In four years separate waste collection doubled (from 28% in 2014 to 62% in 2018) thanks to 109 mini-drop-off points underground islands and 14 drop-off points above ground. The quality of the sorting is high, with conforming materials at around 90%.

The bases and the organisational levers

Economic value distributed to the Bologna area, of which: Euro 336 million 156 million workers 33 million shareholders 19 million PA 128 million suppliers 1,144 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Bologna area: 72/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -14% compared to Italian average 286 Euro in Bologna, Italian average is 334 Average yearly expense for waste management for non-residential users** -29% compared to Italian average (Source: Ref Ricerche) 10.20 Euro/m ² for Bologna, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Ferrara

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 13% of customers with energy efficiency services. The quantity is 17,000	Recycling 87% separate waste collection, of which 90% is recycled* 0% of municipal waste in landfills	Digitalization 16% of the gas meters installed are electronic
Renewable energy 84% sources of energy that are renewable and from recovery for district heating (12,600 toe avoided, equivalent to the consumption of 13,000 households)	Reuse 30 tonnes of bulky waste collected and re-used	Employment 469 employees in the Ferrara area and 20 hires in 2018
Emissions avoided 5 thousand tonnes of CO ₂ avoided thanks to 75 energy efficiency measures in the area since 2007	Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 61% of urban areas <2,000 pe (100% by 2021)	Social inclusion Euro 9 million value of bills paid in instalments, 8 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	
More geothermal for district heating In Ferrara, we are in the process of acquiring operation of geothermal wells and we plan to increase their use also for production activities that use energy at low temperatures (e.g. greenhouses). The expected increase of volume served by 2022 is 16%.	Ferrara, a leader for separate waste collection Quantity-based tariff has bound bills to behaviour. Separate waste collection increased to 87% and the expense for a well-behaving household decreased by about Euro 50. According to the latest report by Legambiente Urban Ecosystem, Ferrara, with its 2018 results, would pass Trento, first in Italy in 2017 with 82%.	6 initiatives for the area with HeraLAB The new HeraLab model was launched in Ferrara, revised on the basis of the experience started in 2013, with a simpler and more innovation-oriented approach. Made up of 12 representatives of the many local stakeholders, the LAB has designed 6 initiatives jointly with Hera to improve their sustainability profile. The initiatives will be implemented in the 2019-2020 two-year period.

The bases and the organisational levers

Economic value distributed to the Ferrara area, of which: Euro 92 million 30 million workers 3 million shareholders 10 million PA 49 million suppliers 443 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Ferrara area: 71/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -26% compared to Italian average 246 Euro in Ferrara, Italian average is 334 Average yearly expense for waste management for non-residential customers ** -21% compared to Italian average (Source: Ref Ricerche) 11.32 Euro/m ² for Ferrara, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Forlì-Cesena

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 14% of customers with energy efficiency services. The quantity is 29,000 12% customers under the Pacchetto Natura rate plan use energy 100% from renewable sources Emissions avoided 16 thousand tonnes of CO ₂ avoided thanks to 31 energy efficiency measures in the area (Hera and other companies) from 2007 to date	Recycling 57% separate waste collection, of which 91% is recycled* 2% of municipal waste in landfills Reuse 108 tonnes of bulky waste collected and re-used Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 63% of urban areas <2,000 pe (100% by 2021)	Digitalization 75% of the gas meters are already electronic Employment 578 employees in the Forlì-Cesena and 24 hires in 2018 Social inclusion Euro 13 million value of bills paid in instalments, 12 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	
District heating for Universities We have completed the district heating network that connects the centre of Forlì to the university campus, powered by a trigeneration plant, which simultaneously produces heat, cooling and electricity. The development of district heating in Forlì will avoid 7,277 tonnes of CO ₂ equivalent to about 73 thousand trees.	WEEE for social purposes There are 2 work training projects for prisoners in the Forlì prison: "Manolibera" is an artisan paper factory that produces high quality paper objects; under "WEEE in prison" detainees disassemble electronic waste and prepare it for recovery, a sector of the circular economy.	Energy saving measures with LEDs In 2018, work started for the renovation of public lighting in Forlì. 11,000 light points (about 50% of the total) will be replaced, achieving an energy saving of 2,000 MWh (-47% compared to previous consumption), equal to 837 tonnes of greenhouse gasses not emitted into the atmosphere.

The bases and the organisational levers

Economic value distributed to the Forlì-Cesena area, of which: Euro 121 million workers 7 million shareholders 16 million PA 62 million suppliers 552 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Forlì-Cesena area: 71/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -19% compared to Italian average 269 Euro in Cesena, Italian average is 334 Average yearly expense for waste management for non-residential customers ** -52% compared to Italian average (Source: Ref Ricerche) 6.94 Euro/m ² for Cesena, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Modena

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for businesses and PA -18% the reduction of consumption expected in public buildings in the Municipality of Modena 38% LED light points	Recycling 67% separate waste collection, of which 81% recycled* 0% of municipal waste in landfills Reuse Euro 48 thousand of medicines that have not yet expired and 193 tonnes of bulky waste collected and reused	Digitalization 37% of the gas meters are already electronic Employment 960 employees in the Modena area and 39 hires in 2018
Energy efficiency for households and businesses 17% of customers with energy efficiency services. The quantity is 62,000	 Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 43% of urban areas <2,000 pe (100% by 2021)	 Social inclusion Euro 16 million value of bills paid in instalments, 14 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	
More resilient electricity grids Measures have been defined to improve the resilience, continuity and quality of electricity grids and optimization of the maintenance operations. The project involves a total of 223 km of the network, 94.5 km of which are being upgraded to serve over 8,000 customers.	More recycling and more trees for Modena The "More trees in town" project encourages the disposal of separate waste in drop-off points and will plant 150 new trees in Modena, in addition to the 500 already planted in the province under the bill digitalization initiative "Give a tree to your city".	Towards electric transportation with Hera The Hera Group has launched an experimental project in favour of sustainable mobility with Enel Distribuzione, installing 23 public recharging stations in its served area, of which 11 in Modena and 2 in Castelnuovo Rangone. Further installations are planned, to reach 40 stations

The bases and the organisational levers

Economic value distributed to the Modena area, of which: Euro 151 million 60 million workers 15 million shareholders 9 million PA 67 million suppliers 594 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Modena area: 69/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -12% compared to Italian average 293 Euro in Modena, Italian average is 334 Average yearly expense for waste management for non-residential customers ** -32% compared to Italian average (Source: Ref Ricerche) 9.72 Euro/m ² for Modena, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Padua

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 1,074 toe saved due to internal and external energy efficiency measures since 2015 (equal to the consumption of 2,127 households) 12% customers under the Pacchetto Natura rate plan use energy 100% from renewable sources Emissions avoided 2 thousand tonnes of CO ₂ avoided thanks to energy efficiency measures in the area (AegasApsAmga, ASE, Hera Luce and other companies) from 2015 to date	Recycling 59% separate waste collection, of which 91% is recycled* 0% of municipal waste in landfills Reuse 10 editions of the "Ecological Saturdays" to fight abandonment of bulky waste and promote the culture of reuse (43 tonnes of bulky waste collected) Wastewater Treatment 100% urban areas >2,000 pe achieved compliance	Digitalization 37% of the gas meters are already electronic Employment 687 employees in the Padua area and 28 hires in 2018 Social inclusion Euro 0.7 million value of bills paid in instalments, 1,000 households involved

* Excluding green waste

CSV Investments	CSV Case Study	
Enhancement of the Ca' Nordio treatment plant Work on the first line of the Ca' Nordio treatment plant in Padua was completed, in 2017 on the Bio semi-line and in May 2018 on the Zip line. The project defines an innovative purification system and meets Veneto Regional Government's criteria for its Water Protection Plan, with an investment of about Euro 22 million to increase service to 230 thousand population equivalents (from the current 197 thousand), and further improve water and sludge treatment.	A smart system for sustainable waste management services 2018 was the first year of full operation for Hergo Ambiente, the new tool for "industrial and intelligent" waste management services. The system ensures full control of the services with a detailed georeferencing and makes it possible to develop increasingly customized functions.	The Arcella shines bright with Hera's LEDs The replacement of the light points with new LED lamps in Padua's Arcella district started in 2018. This measure will replace 3 thousand lamps, hundreds of poles, and lay more than 8 kilometres of new power lines. This will benefit the environment, urban décor and safety.

The bases and the organisational levers

Economic value distributed to the Padua area, of which: Euro 89 million 44 million workers 5 million shareholders 2 million PA 38 million suppliers 338 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Padua area: 70/100 74/100 for the services of AcegasApsAmga Servizi Energetici Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -36% compared to Italian average 214 Euro in Padua, Italian average is 334 Average yearly expense for waste management for non-residential customers** -35% compared to Italian average (Source: Ref Ricerche) 9.35 Euro/m ² for Padua, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Pesaro-Urbino

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 12% of customers with energy efficiency services. The quantity is 15,000 63% LED light points Emissions avoided 3 thousand tonnes of CO ₂ avoided thanks to 35 energy efficiency measures in the area (Marche Multiservizi) since 2007	Recycling 69% separate waste collection, of which 87% recycled* 28% of municipal waste in landfills 81 thousand accesses in the 15 separate waste collection centres Wastewater Treatment 75% of urban areas >2,000 pe have achieved compliance (100% by 2021)	Digitalization 19% of the gas meters installed are electronic, Employment 511 employees in the Pesaro-Urbino area and 35 hires in 2018 Social inclusion Euro 2 million value of bills paid in instalments, 1,000 households involved

* Excluding green waste

CSV Investments		CSV Case Study
Expansion of the Pesaro treatment plant We signed the contract to award upgrade works for the Borgheria treatment plant. The work calls for an investment of more than Euro 8 million. The measure will be completed by 2021 and will increase treatment effectiveness, ensuring full compliance and responding to the EC infringement proceedings.	New measures to deal with drought risk The reconstruction work on the so-called "wellhead" of the Burano well, in the municipality of Cagli, a fundamental strategic reserve, has been completed. Drilling is underway in the municipality of Fossombrone to find new supply sources. Overall investment: more than Euro 3 million.	Festival of Reuse and Recycling at Pesaro The sixth edition of the reuse and recycling festival took place in June. The event was part of the National Sustainable Development Festival 2018, one of the main Italian contributions to the "European Week of Sustainable Development", which drew attention to the 17 objectives of the 2030 Agenda.

The bases and the organisational levers

Economic value distributed to the Pesaro-Urbino area, of which: Euro 77 million 42 million workers 5 million shareholders 6 million PA 24 million suppliers 210 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Pesaro-Urbino area: 70/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -21% compared to Italian average 263 Euro in Pesaro, Italian average is 334 Average yearly expense for waste management for non-residential customers** -48% compared to Italian average (Source: Ref Ricerche) 7.54 Euro/m ² for Pesaro, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Ravenna

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 13% of customers with energy efficiency services. The quantity is 31,000	Recycling 56% separate waste collection, of which 85% recycled* 14% of municipal waste in landfills	Digitalization 17% of the gas meters installed are electronic
12% customers under the Pacchetto Natura rate plan use energy 100% from renewable sources	Reuse Euro 171 thousand of medicines that have not yet expired and 56 tonnes of bulky waste collected and reused	Employment 670 employees in the Ravenna area and 32 hires in 2018
Emissions avoided 19 thousand tonnes of CO ₂ avoided thanks to 30 energy efficiency measures in the area (Hera and other companies) from 2007 to date	Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 50% of urban areas <2,000 pe (100% by 2021)	Social inclusion Euro 12 million value of bills paid in instalments, 10 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	6 initiatives for the area with HeraLAB
Environmentally-friendly public lighting system at Cervia Hera Luce, has signed a contract with the Municipality of Cervia for the management and energy requalification of public lighting for the next 20 years. The project foresees the replacement of over 11,860 lighting points with new latest-generation LED lamps and the reduction of energy consumption by 73%.	With Riciclandino we help the environment and schools This scholastic project is dedicated to children and families. The more separate waste collection is done, and the more waste is sent to drop-off points, the more points are obtained, enabling the local school to receive financial incentives. Started in 2010 at Ravenna, it involves 18 municipalities.	6 initiatives for the area with HeraLAB The new HeraLab model was launched in Ravenna, revised on the basis of the experience started in 2013, with a simpler and more innovation-oriented approach. Made up of 12 representatives of the many local stakeholders, the LAB has designed 6 initiatives jointly with Hera to improve their sustainability profile. The initiatives will be implemented in the 2019-2020 two-year period.

The bases and the organisational levers

Economic value distributed to the Ravenna area, of which: Euro 145 million 32 million workers 9 million shareholders 8 million PA 96 million suppliers 863 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Ravenna area: 71/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -26% compared to Italian average 247 Euro in Ravenna, Italian average is 334	Average yearly expense for waste management for non-residential customers ** -20% compared to Italian average (Source: Ref Ricerche) 11.47 Euro/m ² for Ravenna, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Rimini

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 19% of customers with energy efficiency services 13% customers under the Pacchetto Natura rate plan use energy 100% from renewable sources Emissions avoided 5 thousand tonnes of CO ₂ avoided thanks to 16 energy efficiency measures in the area since 2007	Recycling 67% separate waste collection, of which 82% recycled* 1% of municipal waste in landfills Reuse 69 tonnes of bulky waste collected and re-used Wastewater Treatment 100% of urban areas >2,000 pe have achieved compliance 58% of urban areas <2,000 pe (100% by 2021)	Digitalization 3,800 photo-reporting from citizens to improve urban décor with the Rifiutologo app Employment 545 employees in the Rimini area and 19 hires in 2018 Social inclusion Euro 3 million value of bills paid in instalments, 2 thousand households involved

* Excluding green waste

CSV Investments	CSV Case Study	
Rimini Seawater Protection Plan Created in 2014 to eliminate swimming bans and reduce by 90% the polluting impact of rainwater discharged into the sea, and supplemented by 3 measures to ensure flood safety, the Plan includes 14 measures, 7 of which were completed by the end of 2018. We freed over 3 km of beach from swimming bans, set to increase to 4 at end of 2019	More separate waste collection with quantity-based tariff; In Cattolica, Coriano and Misano Adriatico, in order to start applying the quantity-based tariff that measures the quantities of waste disposed of, new systems have been introduced for collection of street waste bins, which can be accessed with a special card or door-to-door with containers or bags equipped with tags. Over 50 thousand residents are involved (16% of the total)	Over 3,000 people for recovery of cooking oil The campaign to increase the collection of used cooking oil, for which 50 additional road containers were added, involved more than 3,000 people in 14 public meetings. Thanks to an agreement between Hera and Eni, the oil is transformed into biofuel and will power part of our company's fleet.

The bases and the organisational levers

Economic value distributed to the Rimini area, of which: Euro 106 million 34 million workers 6 million shareholders 13 million PA 53 million suppliers 471 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Rimini area: 68/100 Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -14% compared to Italian average 287 Euro in Rimini, Italian average is 334 Average yearly expense for waste management for non-residential customers ** -6% compared to Italian average (Source: Ref Ricerche) 13.57 Euro/m ² for Rimini, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Trieste, Udine, Gorizia

The key numbers of shared value

Smart use of energy	Efficient use of resources	Innovation and contribution to development
Energy efficiency for households and businesses 23% of customers with energy efficiency services. The quantity is 22,000 1,241 toe saved due to internal and external energy efficiency measures since 2015 (equal to the consumption of 2,458 households)	Recycling 42% separate waste collection, of which 91% is recycled* 0% of municipal waste in landfills Reuse 12 editions of the "Ecological Saturdays" to fight abandonment of bulky waste and promote the culture of reuse (91 tonnes of bulky waste collected)	Digitalization 28% of the gas meters installed are electronic Employment 1,026 employees in the area and 27 hires in 2018 Social inclusion Euro 2 million value of bills paid in instalments, 3 thousand households involved
Emissions avoided 2 thousand tonnes of CO ₂ avoided thanks to energy efficiency measures in the area (AegasApsAmga, ASE, Hera Luce and other companies) from 2015 to date	Wastewater Treatment 3 urban areas >2,000 pe of 4 that have achieved compliance (measures for achieving compliance in Trieste have been completed)	

* Excluding green waste

CSV Investments	CSV Case Study	
Upgrade work at Trieste's Servola wastewater treatment plant The innovative purification plant, which was released from EU infringement proceedings in 2014 and declared compliant, has been fully operational since 23 June 2018. All the functions of the plant have become fully operational and the concentrations of phosphorus and nitrogen in the wastewater have already been halved. About Euro 50 million spent. The concentrations of phosphorus and nitrogen in the waste water are already halved.	Barcolana 50: Those who love the sea love the Earth For the 50th anniversary of the regata, our objective was to drastically reduce the amount of plastic used, to prevent dispersing it into the sea and avoid the resulting environmental impact. We used almost only biodegradable plates and utensils, increased separate waste collection and created "recycling ambassadors" with children on joint school-work experience courses to support: 500,000 attendees, 16 days and 1,500 services, 45 tonnes of waste collected, of which 63% was separated.	The area was given back to the community We removed over 5 km of overhead power cables and 40 old poles, recovering considerable quantities of copper from the wires. We restored value to more than 11 thousand m ² of karst landscape near Trieste by strengthening the medium voltage electricity grid and using new underground power lines. Environmental improvements: greater safety, continuity of service and reduction of electromagnetic fields.

The bases and the organisational levers

Economic value distributed to the Friuli Venezia Giulia area, of which: Euro 131 million 69 million workers 11 million shareholders 10 million PA 41 million suppliers 370 jobs created (lead-on employment)	A high-quality service... at a lower price. customer satisfaction index in the Trieste area: 69/100 77/100 for the services of AegasApsAmga Servizi Energetici Average yearly expense for waste management for a household* (Source: Cittadinanzattiva) -13% compared to Italian average 292 Euro in Trieste, Italian average is 334 Average yearly expense for waste management for non-residential customers** -21% compared to Italian average (Source: Ref Ricerche) 11.34 Euro/m ² for Trieste, 14.38 Euro/m ² for Italy
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* 3 persons in 100 m²

** Hotels, restaurants, supermarkets and food industry

Methodological guide to the Report

This document represents Hera Group's **Consolidated non-financial reporting** (CNFR). It reports – to the extent necessary to ensure understanding of Hera's business activity – on its performance, its results and the impact it has on the issues considered relevant and referred to in Art. 3 and 4 of Italian Leg. Decree No. 254/16 with reference to financial year 2018. In order to define the aspects relevant to the Group and its stakeholders, a structured **materiality analysis** process was carried out which is described in the paragraph "Definition of contents" of this methodological guide to the Report.

As established by Art. 5 of Italian Leg. Decree 254/16, this document forms a separate report and is marked with specific wording in order to connect it to the Non-Financial reporting required by law.

Hera Group considers its **sustainability report** as a primary tool for managing and reporting its activities and results in the **economic, environmental and social fields**, as well as a fundamental tool for **providing information to and dialoguing** with its stakeholders.

The Sustainability Report has been drawn up and published yearly since 2002. Since 2007, it has been **approved by the Board of Directors of Hera S.p.A.** when the annual and consolidated financial statements are approved and has been submitted to the Shareholders' Meeting. This edition was approved by the Board of Directors of Hera S.p.A. on 27 March 2019. This aspect demonstrates the central role of sustainability and corporate social responsibility in Hera Group's planning and control system, which anticipated the obligations introduced by the European directive on non-financial reporting by more than 10 years.

The document is widely disseminated to all of the Group's internal and external stakeholders through publication on the company's website and presentation to all Group workers.

In addition to the **performances and goals achieved**, the sustainability report provides the principles which guide Hera Group's actions, the future objectives, the results of its **dialogue with stakeholders** and its existing **initiatives**. Special focus was given to case studies: projects that demonstrate the Group's commitment towards social responsibility and the creation of shared value and the results achieved in these spheres.

The structure of the sustainability report is the direct consequence of the **strategic approach to shared value** that Hera Group has adopted since 2016 to respond more effectively to the challenges of sustainable economic development at global and local level, and to make the value generated through the local area more tangible.

The **glossary** in the appendix explains the technical terms used, while the **analytical list** of contents makes it easier to read the document.

Reporting scope and period

The scope of the **economic and financial** data and information is the same as Hera Group's consolidated financial statements as at 31 December 2018. The scope of the **social and environmental** data and information includes all the companies consolidated using the line-by-line method in the Group's consolidated financial statements, as reported below.

Companies included in the scope of reporting

 HERA	 HERAcomm	 HERAmbiente	 AcegasApsAmga	 marche multiservizi
<ul style="list-style-type: none"> • Hera S.p.A. • Hera Trading S.r.l. • HERATech S.r.l. • Acantho S.p.A. • Inrete Distribuzione Energia S.p.A. • Uniflotte S.r.l. 	<ul style="list-style-type: none"> • Hera Comm S.r.l. • Hera Comm Marche S.r.l. • Blu Ranton S.r.l. • Hera Servizi Energia S.r.l. • Energia Base trieste S.r.l. • Sangroservizi S.r.l. 	<ul style="list-style-type: none"> • Herambiente S.p.A. • Aliplast S.p.A. and 7 subsidiaries (Alimpet S.r.l., Aliplast France, Aliplast Iberia, Aliplast Polska, Cerplast S.r.l., Umbro Plast S.r.l., Variplast S.r.l.) • ASA Scpa • Feronia S.r.l. • Frullo Energia Ambiente S.r.l. • Herambiente Servizi Industriali S.r.l. • Hestambiente S.r.l. • Waste Recycling S.p.A. 	<ul style="list-style-type: none"> • AcegasApsAmga S.p.A. • Aresgas EAD • Aresenergy Eood • Black Sea Gas Company eood • AcegasApsAmga Servizi Energetici S.p.A. • Tri-Generazione Scarl • Hera Luce S.r.l. 	<ul style="list-style-type: none"> • Marche Multiservizi S.p.A. • Marche Multiservizi i Falconara S.r.l.

Any changes to the scope indicated above are appropriately reported in the document and, where present, do not compromise the proper representation of the business activity.

Furthermore, only with regard to the areas indicated below, information about the following companies is reported, although not included in the scope of consolidation:

- Enomondo (50% invested in by Herambiente S.p.A.) that manages a biomass plant, with regard to the aspects involving atmospheric emissions, energy production and waste disposal;
- EstEnergy (51% invested in by Hera Comm S.r.l.) that manages the sale of electricity and gas in the North-East, with regard to customer relations aspects.

In order to compare data over time and to assess the performance of the Group's activities, the comparative data relating to the two previous years has been included, if available. Furthermore, to ensure that the Group's performance is correctly represented and that the figures are reliable, estimates have been used as little as possible. When using estimates, they are based on the best available and appropriately reported methodologies.

The reporting standards

This sustainability report has been drawn up in compliance with the **"Global Reporting Initiative Sustainability Reporting Standards"** defined by the Global Reporting Initiative (GRI) according to the **"In accordance"** – Core option.

With reference to the **up-dates** of the 303 (Water) and 403 (Health and safety in the workplace) standards published in 2018, the Hera Group has launched a process for the analysis of the content and the matters requested (information and specific requests of the indicators) with the aim of bringing forward their application with respect to the obligation fixed for 2021.

For the definition of value added and its distribution to stakeholders the “**Standard GBS 2013 - Principles for drawing up sustainability reports**” defined by Gruppo di studio per il Bilancio Sociale (GBS) was also used.

Furthermore, as a result of the commitments undertaken by the Group in relation to the **Global Compact**, the report represents the yearly Communication on Progress that is submitted to this institution.



Structure of the document

The Hera Group adopts a strategic approach to corporate social responsibility and sustainability based on the theory of **Shared Value** (CSV, “Creating Shared Value”), which highlights how a company can enhance its business while generating at the same time a positive impact on society.

The sustainability report reflects this approach also in the **very layout of the contents**.

In addition to quantifying **shared value EBITDA**, introduced for the first time for the purpose of drafting the 2016 sustainability report, this report also focuses on the activities, results, case studies and **investments** related to shared value creation.

The CSV approach was defined starting from the **analysis of the global and local scenario**, which led to identifying **3 drivers and 9 impact areas** of interest for the Hera Group. Each driver was associated with the main **Sustainable Development Goals**, defined by the 2030 Agenda of the United Nations, which the Group intends responding to.

The report is divided into **3 main sections**: Sustainability, strategy and shared value; the shared value; The bases and the organisational levers

The “**Sustainability, Strategy and Shared Value**” section contains the letter to the stakeholders, the introduction (About us) and references with regard to sustainability management and shared value (Sustainability for the Hera Group; Shared value).

The “**Shared value**” section contains for each defined impact area, the present and future scenario (status indicators, policies and targets) and the Group’s responses: improvement objectives, performance indicators and case studies.

The “**Bases and the organisational levers**” section contains all relevant corporate social responsibility aspects which were not included in the shared value section (Governance and creation of value - Quality, cost and safety of customer services - People - Suppliers). These must be considered as the basis for generating shared value and, at the same time, as organisational levers through which value can be increased over time.

The reporting process

In addition to the previously listed guidelines, the report was drawn up in compliance with a specific Group **internal procedure** issued in 2012, already updated in 2015 and currently being further updated. This procedure describes the activities required for planning, achieving, approving, disclosing and presenting the report, the associated roles and responsibilities.

The **social and environmental sustainability objectives** set out in this report were defined with reference to the planning and control instruments used by the Group: 2018-2022 Business Plan, 2019 budget and 2019 balanced scorecard. These interconnected instruments contain sustainability objectives which have an impact on stakeholders. In particular, the Business Plan includes sustainability-related indicators for which quantitative targets have been defined.

The **collation** and the **consolidation** of the information and data presented in the report took place, for the first year, by means of the use of dedicated software: the data and the information for 2018 were directly input via the software by the contact individuals and were subsequently validated by the designated managers in the internal procedure.

Any **changes in calculations** compared to previous years are suitably indicated in a note accompanying the tables.

Definition of contents

Sustainability reporting is preceded annually by the **analysis** and **identification** of **relevant topics** for the stakeholders and for the Hera Group.

The process for defining the material topics is based on the **analysis of internal and external documents** which brings to light the most relevant topics related to the shared value and sustainability, which the reporting must focus on.

The external context pertaining to the three drivers identified for the creation of the shared value was first of all analysed. For each driver, global, European, national and local policies were analysed in-depth to define the priorities for change towards sustainability; this involved 63 policies, including the 2030 UN Agenda, in relation to which the commitments and the most significant quantitative targets for Hera's activities were considered.

Then the Business Plan was considered, the analysis of the risk, the measures for involving the stakeholders (the work of 2 HeraLABs carried out during the year in the areas of Ferrara and Ravenna), the annual customer satisfaction survey, the biennial internal climate survey, feedbacks from the meetings with the Auditors carried out by the Area Managers), the press review and the presence on social media, together with the main legislative innovations.

HeraLABs have the task of proposing initiatives to involve stakeholders and improve the sustainability of the services offered in the local areas, while verifying their efficacy periodically. In the first meeting of each LAB, the topics of relevance for the local area are identified by using a specific method. In the following meetings, the participants in the LAB propose and discuss initiatives for improving the impacts on those significant aspects identified in the first meeting. The topics that had a high relevance assessment (defined in terms of interest and conflict) by the 2 HeraLABs were:

- quality and consumption of the mains water;
- water: savings and reuse;
- the investments in the water service;
- the handling of waste serving the circular economy;
- quantity-based tariff;
- support of users in need;
- service quality;
- diffusion of innovation and digitalisation;
- value for the local area;
- spreading renewable energy;
- sustainability of the coastal area.

Regarding the **press review**, the presence of information regarding the Hera Group was analysed in the leading local and national newspapers by highlighting the topics that showed greater visibility (whether

positive or negative) in more than one area (overall negative visibility index above 1,000 points or positive visibility index above 5,000 points). Regarding the study of blogs and social networks, the posts published on forums, blogs and social networks were analysed, in this case by highlighting visibility (weighted positive or negative visibility index above 10,000 points). The topics identified were:

- introduction of quantity-based tariff and projects for extension of the separate waste collection service;
- the Rimini seawater protection plan and water mains maintenance activities;
- energy requalification of public lighting systems;
- innovative projects;
- economic repercussions on the local area;
- social repercussions of the supplies;
- environmental impacts of the landfills.

The **annual customer satisfaction survey** assesses the quality of services offered and customers' satisfaction with the Group. The survey also highlights the topics that are of particular importance in determining customers' overall satisfaction. These topics are:

- the presence and level of branch services;
- the online services;
- the safety and the trustworthiness of the gas service.

The **biennial employee satisfaction survey** also draws attention, at Group level, to matters of major importance in determining employees' overall satisfaction. The analysis conducted in 2017 highlighted the following important topics:

- remuneration;
- internal communication;
- relations with colleagues;
- coherence with the values.

The following table summarises the aspects regarded as material by the overall analysis, the reason for their inclusion, the stakeholders on which they have an impact and Hera involvement (direct or indirect).

Material aspects of the Hera Group

Material aspect	Why it is material *	Who it is material for	Scope of the impact	Type of impact
Transition towards a circular economy	The Group manages waste management services and waste selection and recovery plants	Press review HeraLAB Risk analysis Business Plan CSV Scenario Legislative innovations	Group companies which manage waste management services and waste treatment plants Citizens residing in the areas served	Direct Indirect
Sustainable management of water resources	The Group manages water services	Press review HeraLAB Business Plan CSV Scenario	Group	Direct
Promotion of energy efficiency and spreading renewable energy	The Group manages energy services, owns energy production plants and some Group companies operate in the energy efficiency sector	Press review HeraLAB Risk analysis Business Plan CSV Scenario	Group Customers of the energy services	Direct Indirect

Material aspect	Why it is material *	Who it is material for	Scope of the impact	Type of impact
Digitalisation innovation, data analytics, artificial intelligence	The Group, by means of the Innovation Department, develops innovative projects within the digitalisation, data analytics and business intelligence sphere.	Press review HeraLAB Business Plan CSV Scenario	Group Customers Industrial partners	Direct Indirect
Safety and continuity of the service provided to customers	This topic was considered relevant by customers, especially as regards safety of the gas service	HeraLAB Risk analysis Business Plan Legislative innovations	Group	Direct
Local development and indirect economic impacts	The activities managed by the Group (water, environmental and energy) generate significant indirect impacts. Furthermore, the Group has a widespread presence throughout the area.	Press review HeraLAB Business Plan	Group Suppliers	Direct Indirect
Reduction of greenhouse gas emissions (climate change)	The topic is transversal to all the businesses managed	Risk analysis Business Plan CSV Scenario	Group Customers, suppliers	Direct Indirect
Compliance with environmental and social regulations	The Group manages waste management, water and energy services and owns waste disposal plants. Furthermore, the Group companies employ thousands of workers and some activities are outsourced	Risk analysis Legislative innovations	Group	Direct
Quality, costs of waste collection and city integrity service	The Hera Group manages municipal hygiene services	Press review HeraLAB	Group	Direct
Quality and consumption of the mains water	The Group manages water services and has purification and drinking water plants	HeraLAB Risk analysis Legislative innovations	Group Customers	Direct Indirect
Air and soil quality	The Group manages plants for the production of energy and waste-to-energy plants and has thousands of vehicles. It also uses the ground for constructing plants and other infrastructures	HeraLAB CSV Scenario	Group Local community	Direct Indirect
Occupational Health and Safety	The topic is transversal to all the businesses managed	HeraLAB Risk analysis	Group employees	Direct
Economic value for the stakeholders	Economic sustainability is essential for performing present and future activities	HeraLAB Business Plan	Group	Direct
Training and professional development, remuneration and incentives	The topic is transversal to all the businesses managed	HeraLAB Business Plan	Group	Direct
Environmental impact of waste treatment plants (NIMBY syndrome)	The Group manages waste treatment plants also close to urban contexts	Press review	Group companies which run waste treatment plants	Direct Indirect
Diversity	The topic is transversal to all the businesses managed This topic was considered relevant because Group companies employ over 8,700 workers	Legislative innovations	Group	Direct

Material aspect	Why it is material *	Who it is material for	Scope of the impact	Type of impact
<i>Anti-corruption activities</i>	The topic is transversal to all the businesses managed The presence of calls for tender, contracts and significant supply contracts is associated with anti-corruption issues	Legislation	Group	Direct
<i>Integration of sustainability in the risk analysis</i>	The topic is transversal to all the businesses managed The Group annually up-dates the ERM which as from this year has been structured also on the basis of risks associated with sustainability	Legislation	Group	Direct
<i>Commercial relations with customers through branches, the call centre and the web</i>	The topic is transversal to all the businesses managed	HeraLAB	Group	Direct

* Main link to the businesses managed to certain specific aspects of said businesses

With respect to the issues in the 2017 sustainability report, **there were no significant changes**, but some integrations and combinations were made. Specifically, the following issues were added: Digitalisation innovation, data analytics, artificial intelligence; Quality and consumption of the mains water; Air and soil protection; Integration of sustainability in the risk analysis.

It is hereby disclosed that the issue of the **respect for human rights** is not regarded as material because the Group's operational offices are located mainly in Italy or in countries in which a significant risk from this point of view has not been noted. This evaluation also takes into account the information reported in the Suppliers chapter where the provenance of foreign supplies is detailed. It should be pointed out that in 2018 four Group companies (Hera SpA, Hera Luce S.r.l., AcegasApsAmga Servizi Energetici S.p.A. and AcegasAspAmga S.p.A.) were SA8000 certified, a voluntary standard that lists the requirements for ethically correct conduct towards workers and that focuses on the respect for human rights, especially the principles of dignified work on the basis of ILO conventions.

Breakdown of the information required by Italian Legislative Decree No. 254/2016

Spheres of It. Leg. Decree No. 254/16	Material aspects	GRI	Reference documents*
Corporate management model	-	CNFR ONLINE CNFR CNFR	Organizational model for corporate crime prevention (It. Leg. Decree No. 231/2001) SA 8000 management system Ethics and Sustainability Committee ISO 14001, ISO 9001, ISO 50001, OHSAS 18001 certification
Policies	-	ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	Quality, environment, safety and energy policy SA 8000 policy Code of Ethics Data protection policy Charter for equal opportunities and equality in the workplace Remuneration policy
Risk management model	<i>Integration of sustainability in the risk analysis</i>	102-30 103-1 103-2 205-1 CNFR	The ERM approach of the Hera Group Risks related to legislation on environmental impact Risks related to the interruption of services Risks associated with logical and physical security The areas at risk from corruption Risks associated with regulations on health and safety of workers Risks related to weather and climate variability
Aspects regarding HR management <i>Article 3.2, section c) d)</i>	<i>Occupational Health and Safety</i> <i>Diversity</i> <i>Training and professional development, remuneration and incentives</i>	103-1 103-2 103-3 403-1 403-2 102-8 103-1 103-2 103-3 401-1 405-1 405-2 102-8 103-1 103-2 103-3 404-1 404-2 404-3 CNFR CNFR CNFR	Health and safety Monitoring of work accidents at suppliers Welfare, diversity and inclusion Industrial relations Development of occupation and new skills Planning of roles and skills, selection and onboarding Management of the skills and training Development of the individuals
Environmental aspects <i>Article 3.2, section a, b, c)</i>	<i>Sustainable management of water resources</i> <i>Transition towards a circular economy</i>	103-1 103-2 103-3 303-1 103-1 103-2 103-3 306-2 CNFR CNFR	Sustainable management of water resources Transition towards a circular economy

**Spheres of It. Leg.
Decree No. 254/16**

	Material aspects	GRI	Reference documents*
	<p><i>Promotion of energy efficiency and spreading renewable energy</i></p> <p><i>Compliance with environmental and social regulations</i></p> <p><i>Reduction of greenhouse gas emissions (climate change)</i></p> <p><i>Environmental impact of waste treatment plants (NIMBY syndrome)</i></p> <p><i>Air and soil quality</i></p>	103-1 103-2 103-3 302-1 302-3 302-4 103-1 103-2 103-3 307-1 419-1 103-1 103-2 103-3 305-1 305-2 305-3 305-4 103-1 103-2 103-3 305-7 103-1 103-2 103-3 305-7	Promotion of energy efficiency Spreading of renewable energy The relationship with the Italian regulatory and supervisory authorities Reduction of greenhouse gas emissions Atmospheric emissions of waste to energy plants District heating emissions Atmospheric emissions of waste to energy plants District heating emissions
	<p><i>Local development and indirect economic impacts</i></p> <p><i>Safety and continuity of the service provided to customers</i></p> <p><i>Quality, costs of waste collection and city integrity service</i></p> <p><i>Commercial relations with customers through branches, the call centre and the web</i></p> <p><i>Economic value for the stakeholders</i></p> <p><i>Quality and consumption of the mains water</i></p>	103-1 103-2 103-3 201-1 203-2 401-1 103-1 103-2 103-3 416-1 103-1 103-2 103-3 417-1 103-1 103-2 103-3 201-1 103-1 103-2 103-3 416-1 103-1 103-2 103-3 416-2 417-1	The economic value for the local area Hera's contribution to the development of employment Hera's contribution to social inclusion Safety and continuity of the service Cost of services Service quality Customer relations The economic value for the local area Quality of drinking water
Social aspects <i>Article 3.2, section d)</i>	<i>Non-material - Respect for human rights</i>	-	CNFR Definition of contents
Fight against corruption <i>Article 3.2, section f)</i>	<i>Anti-corruption activities</i>	103-1 103-2 103-3 205-1 205-3	CNFR The prevention of and the fight against corruption

*ONLINE: documents present on the Hera Group's website - CNFR: sections/sub-sections of the CNFR (and related case studies)

The Management Review Committee and the work group

This sustainability report was drawn up by the Shared Value and Sustainability Department of Hera S.p.A., with the participation of numerous contacts, both in terms of data collection and for the descriptions and comments. The preparation and supervision of the work, as well as the approval of the improvement objectives and of the document to be submitted to the Board of Directors was carried out by the Management Review Committee, composed of 18 Group directors.

Management Review Committee: Tomaso Tommasi di Vignano, Stefano Venier, Roberto Barilli, Luca Moroni, Salvatore Molè, Mila Fabbri, Cristian Fabbri, Giancarlo Campri, Massimo Vai, Giuseppe Gagliano, Marcello Guerrini, Andrea Ramonda, Mauro Tiviroli, Alessandro Baroncini, Roberto Gasparetto, Franco Fogacci, Antonio Dondi, Susanna Zucchelli.

Shared Value and Sustainability Department – Shared Value and Sustainability Reporting: (bs@gruppohera.it): Filippo Bocchi, Benny Buozzi, Gianluca Principato, Gaëlle Ridolfi, Erika Vignoli.

Thanks to all the 238 persons involved in the preparation of this Sustainability Report.

Auditing

This Consolidated non-financial reporting is subject to a limited audit (“Limited assurance engagement” in accordance with the criteria indicated by the ISAE standard 3000, Revised version) by Audirevi S.p.A.; these activities concluded with the issue of the “Independent auditors’ report” presented at the end of this document.

It should be noted that the quantitative information provided in the Consolidated non-financial reporting, which is not referable to the indicators present in the “GRI contents reference table” and to the data included in the Group’s Consolidated Financial Statements, was not specifically examined by Audirevi S.p.A.. This information was presented on a voluntary basis, also with reference to the materiality analysis, in addition to the matters required by Italian Legislative Decree No. 254/16 and by the reporting standards adopted by the Hera Group.

GRI contents reference table

GRI STANDARD		SECTION	PAGE	OMISSIONS
GRI 102: General Disclosures 2016				
Organization profile				
102-1	Name of the organization	About us	5	
102-2	Activities, brands, products, and services	About us	5	
102-3	Location of headquarters		Headquarter of the parent company Hera S.p.A.: Viale C. Berti Pichat 2/4 - 40127 Bologna, Italy	
102-4	Location of operations	About us	5	
102-5	Ownership and legal form	The composition of the shareholding structure Reporting scope and period	196 310	
102-6	Markets served	About us	5	
102-7	Scale of the organization	Workers of the Hera Group in 2018 Services provided Production of value added Hera's commitment toward investors	252 8 188 190	
102-8	Information on employees and other workers	Workers of the Hera Group	252	
102-9	Supply chain	Suppliers	282	
102-10	Significant changes to the organisation and its supply chain	Reporting scope and period	310	
102-11	Explanation of the application of the prudential approach	Risk management	Regulations are respected and Environmental Impact Assessments are carried out for new plants. 175	
102-12	Adoption of externally developed sustainability principles or initiatives	The standards and the guidelines used The SA 8000 Quality, Safety, Environmental and Social Responsibility system	311 185	
102-13	Membership of associations	Associations of which Hera is a member	204	
Strategy				
102-14	Statement from the Managing Director and Chairman on the relevance of sustainability to the organization and its strategy	Letter to stakeholders	5	
Ethics and integrity				
102-16	Values, principles, standards, and norms of behaviour	Mission and values The Code of Ethics	10 185	
102-17	Mechanisms for advice and concerns about ethics	The Ethics and Sustainability Committee The prevention of and the fight against corruption	174 183	
Governance				
102-18	Governance structure	Corporate governance Risk management	171 175	

GRI STANDARD	SECTION	PAGE	OMISSIONS
102-20 Executive-level responsibility for economic, environmental, and social topics	The Executive Committee Managing sustainability	173 184	
102-21 Consulting stakeholders on economic, environmental, and social topics	Dialogue with our stakeholders	199	
102-22 Composition of the highest governance body and its committees	The Board of Directors Managing sustainability <u>Responsibilities in the social and environmental sphere</u>	172 184	
102-23 Indication of whether the Chairman of the highest governance body is also the Managing Director	2017 Remuneration Report (draft consolidated and separate financial statements at 31 December 2017)	95-98	
102-24 Nominating and selecting the highest governance body	2017 Remuneration Report (draft consolidated and separate financial statements at 31 December 2017)	90-91	
102-26 Role of highest governance body in setting purpose, values, and strategy	Corporate governance Managing sustainability Hera's approach to sustainability	171 184 11	
102-30 Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	Risk management	175	
102-32 Highest governance body's role in sustainability reporting	Methodological guide to the Report	310	
102-33 Communicating critical concerns	Risk management The Ethics and Sustainability Committee	175 174	
102-34 Nature and total number of critical concerns	The Ethics and Sustainability Committee	174	
102-37 How stakeholders' views are sought and taken into account regarding remuneration	Remuneration and incentives 2017 Remuneration Report. Draft consolidated and separate financial statements at 31 December 2017	262 340-348	
Stakeholder engagement			
102-40 List of stakeholder groups with which the organisation has engagement activities	Dialogue and consultation initiatives	199	
102-41 Percentage of employees covered by collective labour agreements	Remuneration and incentives	262	
102-42 Identifying and selecting the main stakeholders	Dialogue and consultation initiatives	199	
102-43 Approach to stakeholder engagement	Dialogue and consultation initiatives	199	

GRI STANDARD	SECTION	PAGE	OMISSIONS
102-44 Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those concerns, including through reference to what is stated in the report	Dialogue and consultation initiatives Relationship with the local community Relationships with the Public Administration	199	
Report profile			
102-45 Entities included in the consolidated financial statements	Reporting scope and period	310	
102-46 Defining report content and topic Boundaries	Definition of contents	313	
102-47 List of material topics	Material aspects of the Hera Group	314	
102-48 Restatements of information	The reporting process	314	
102-49 Significant changes compared with the previous financial statements with regard to material issues and the scope of consolidation	Definition of contents	313	
102-50 Reporting period		From 1-1-2018 to 31-12-2018	
102-51 Date of most recent report		The most recent report was published in April 2017.	
102-52 Reporting cycle		Annual	
102-53 Contact point for questions regarding the report		Shared Value and Sustainability Department (bs@gruppohera.it):	
102-54 Claims of reporting in accordance with the GRI Standards	The standards and the guidelines used	311	
102-55 GRI content index	GRI contents reference table	320	
102-56 External assurance	Auditing	319	
GRI 103: Management Approach 2016			
103-1 Explanation of the material aspects	Material aspects of the Hera Group	314	
103-2 The management approach	Sustainability and risk management The SA 8000 Quality, Safety, Environmental and Social Responsibility system	171 185	
103-3 Evaluation of the management approach	Sustainability and risk management The SA 8000 Quality, Safety, Environmental and Social Responsibility system	171 185	
ECONOMIC PERFORMANCE			
GRI 201: Economic performance 2016 – The management approach [103-1; 103-2; 103-3]			
201-1 Direct economic value generated and distributed	The economic value for the local area	122	
201-4 Funding received from Government and subsidies received	The production and allocation of value added	187	
GRI 203: Indirect economic impacts 2016 – The management approach [103-1; 103-2; 103-3]			
203-1 Infrastructure investments and services supported	The investments Shared value investments	129	

GRI STANDARD	SECTION	PAGE	OMISSIONS
203-2 Significant indirect economic impacts	Impact on areas served Placement under supply contracts with social cooperatives	124 134	
GRI 204: Procurement practices 2016 – The management approach [103-1; 103-2; 103-3]			
204-1 Proportion of spending on local suppliers	Impact on areas served	124	
GRI 205: Anti-corruption 2016 – The management approach [103-1; 103-2; 103-3]			
205-1 Operations assessed for risks related to corruption	The organizational model for corporate crime prevention	The risks linked to corruption have been analysed during the risk assessment for the development of the 231 Model.	
ENVIRONMENTAL PERFORMANCE			
GRI 302: Energy 2016 – The management approach [103-1; 103-2; 103-3]			
302-1 Energy consumption within the organization	Energy consumption	26	
302-3 Energy intensity index	Primary energy consumption of the Hera Group (table: Intensity of primary energy consumption)	27	
302-4 Reduction of energy consumption	Energy efficiency in the Hera Group	28	
GRI 303: Water 2016 – The management approach [103-1; 103-2; 103-3]			
303-1 (2016) Water withdrawal by source	Water supply sources Internal consumptions	84 88	
GRI 305: Emissions 2016 – The management approach [103-1; 103-2; 103-3]			
305-1 Direct (Scope 1) GHG emissions	The commitment to reduce our greenhouse gas emissions	42	
305-2 Energy indirect (Scope 2) GHG emissions	The commitment to reduce our greenhouse gas emissions	42	
305-3 Other indirect (Scope 3) GHG emissions	The commitment to reduce our greenhouse gas emissions	44	
305-4 GHG emissions intensity	The commitment to reduce our greenhouse gas emissions	42	
305-7 Emissions of ozone-depleting substances (ODS)	Atmospheric emissions generated by waste-to-energy plants District heating: an answer to protect air quality	144 149	
GRI 306: Waste 2016 – The management approach [103-1; 103-2; 103-3]			
306-2 Waste by type and disposal method	Waste produced by the company	82	
GRI 307: Observance of environmental legislation 2016 – The management approach [103-1; 103-2; 103-3]			
307-1 Non-compliance with environmental laws and regulations	The relationship with the Italian regulatory and supervisory authorities	213	
SOCIAL PERFORMANCE			
GRI 401: Employment – The management approach [103-1; 103-2; 103-3]			
401-1 New recruits and turnover of the employees	Employment in the Hera Group	136	
GRI 403: Workplace health and safety 2016 – The management approach [103-1; 103-2; 103-3]			

GRI STANDARD	SECTION	PAGE	OMISSIONS
403-1 Workers representation in formal joint management-worker health and safety committees	Health and safety	Company-worker committees for health and safety have been set up, in which 98% of employees are represented. 270	
403-2 Accidents in the workplace, occupational diseases, absenteeism and deaths associated with employment	Health and safety The monitoring of work accidents at suppliers	270 298	
GRI 404: Training and education 2016 – The management approach [103-1; 103-2; 103-3]			
404-1 Average hours of training per year per employee	Training initiatives	257	
404-2 Programs for upgrading employee skills and transition assistance programs	Training initiatives “Scuola dei Mestieri” and knowledge management systems HerAcademy: Hera Group’s corporate university	256 259 259	
404-3 Percentage of employees who regularly receive assessments of the performances and career development	The development process	260	
GRI 405: Diversity and Equal Opportunities 2016 – The management approach [103-1; 103-2; 103-3]			
405-1 Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	Workers of the Hera Group Board of directors	252 172	
405-2 Ratio of the basic salary and the remuneration of women with respect to men	Remuneration and incentives	262	
GRI 413: Local Communities 2016 – The management approach [103-1; 103-2; 103-3]			
413-1 Operations with local community engagement, impact assessments, and development programs	Open innovation and listening to local communities with the new HeraLAB model	The HeraLab stakeholder consultation committee is present in 6 of the 15 provinces (40%) where the Group operates, in which 54% of total citizens are served. 204	
GRI 416: Customer Health and Safety 2016 – The management approach [103-1; 103-2; 103-3]			
416-1 Assessment of the health and safety impacts of product and service categories	Quality of drinking water Safety and continuity of the service	Health and safety impact assessments are carried out for the integrated water service and the gas distribution service. These assessments are reported on pages: 234 <i>et seq.</i>	
416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	Quality of drinking water	The topic of non-compliance with voluntary regulations and codes regarding the impacts on health and safety of services during their life cycle is applicable to the integrated water service only.	
GRI 417: Marketing and Labelling 2016 – The management approach [103-1; 103-2; 103-3]			

GRI STANDARD	SECTION	PAGE	OMISSIONS
417-1 Type of product and service information required by the organization's procedures for product and service information and labelling, and percentage of significant product and service categories subject to such information requirements	Quality of drinking water The gas bill The electricity bill	Information on the quality of drinking water is required to be provided in the bill. 234 For the sale of electricity and gas, the National Authority indicates the information that must be included in the bill including the sources of the electricity sold and the standards of services provided. 222 223	
GRI 419: Socioeconomic Compliance 2016 – The management approach [103-1; 103-2; 103-3]			
419-1 Non-compliance with laws and regulations in the social and economic area	The relationship with the Italian regulatory and supervisory authorities	213	

Independent Auditors' Report

GRUPPO HERA SPA

**INDEPENDENT AUDITOR'S REPORT ON THE CONSOLIDATED
NON-FINANCIAL DISCLOSURE PURSUANT TO ARTICLE 3,
PARAGRAPH 10, OF LEGISLATIVE DECREE 254/2016 AND
ARTICLE 5 OF CONSOB REGULATION 20267 ADOPTED BY
RESOLUTION OF JANUARY 2018**

FOR THE YEAR ENDED 31 DECEMBER 2018

**INDEPENDENT AUDITOR'S REPORT ON THE CONSOLIDATED NON-FINANCIAL
DISCLOSURE PURSUANT TO ARTICLE 3, PARAGRAPH 10, OF LEGISLATIVE
DECREE 254/2016 AND ARTICLE 5 OF THE CONSOB REGULATION 20267 ADOPTED
BY RESOLUTION OF JANUARY 2018**

**To the Board of Directors of
Hera S.p.A.**

Pursuant to article 3, paragraph 10, of Legislative Decree no. 254 of 30 December 2016 (hereinafter the "Decree") and article 5 of CONSOB Regulation no. 20267/2018, we were appointed to carry out the limited assurance engagement on the consolidated non-financial disclosure of Hera S.p.A. and its subsidiaries (hereinafter the "Group") as of and for the year ended 31 December 2018, in accordance with article 4 of the Decree and approved by the Board of Directors on 27 March 2019 (hereinafter the "NFD").

Responsibility of the Directors and the Board of Statutory Auditors for the NFD

The Directors are responsible for the preparation of the NFD in accordance with the requirements of Articles 3 and 4 of the Decree and the "Global Reporting Initiative Sustainability Reporting Standards" issued by GRI - Global Reporting Initiative (hereinafter "GRI Standards") in 2016, which they identified as the reporting standard.

The Directors are responsible, within the terms provided for by law, for that part of the internal control they deem necessary to ensure that the NFD is free from material misstatement, whether due to fraud or unintentional behaviours or events.

The Directors are responsible for identifying the content of the NFD, within the matters mentioned in Article 3, paragraph 1, of the Decree, considering the activities and characteristics of the Group and to the extent necessary to ensure the understanding of the Group's business, its trends, its results and related impacts.

The Directors are responsible for defining the business and organisational model of the Group and, with reference to the matters identified and reported in the NFD, for the policies adopted by the Group and for the identification and management of risks generated or faced by the Group.

The Board of Statutory Auditors is responsible for overseeing, in accordance with the law, the compliance with the Decree.

Auditor's Independence and Quality Control

We are independent in accordance with the principles of ethics and independence disclosed in the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which are based on the fundamental principles of integrity, objectivity, competence and professional diligence, confidentiality and professional behaviour. Our audit firm adopts the International Standard on Quality Control 1 (ISQC Italy 1) and, accordingly, maintains an overall quality control system, that includes processes and procedures for the compliance with ethical and professional standards and with applicable laws and regulations.

Auditor's Responsibility

We are responsible for expressing, on the basis of the work performed, a conclusion regarding the compliance of the NFD with the Decree and the GRI Standards. We conducted our engagement in accordance with the principle "International Standard on Assurance Engagements ISAE 3000 (Revised) - Assurance Engagements Other than Audits or Reviews of Historical Financial Information" (hereinafter "ISAE 3000 Revised"), issued by the International Auditing and Assurance Standards Board (IAASB) for limited assurance engagements. The standard requires that we plan and perform procedures to obtain a limited assurance that the NFD does not contain material errors. The procedures performed in a limited assurance engagement are less in scope than those performed in a reasonable assurance engagement in accordance with ISAE 3000 Revised ("reasonable assurance engagement") and, consequently, do not provide us with a sufficient level of assurance to become aware of all significant facts and circumstances that could be identified in a reasonable assurance engagement.

The procedures performed on the NFD are based on our professional judgment and consisted of interviews, primarily with the company personnel responsible for the preparation of the NFD, in the analysis of documents, recalculations and other procedures aimed at obtaining evidence as appropriate.

In particular, we carried out the following procedures:

1. analysis of the relevant topics reported in the NFD relating to the activities and characteristics of the Group, in order to assess the reasonableness of the selection process used, in accordance with article 3 of the Decree, with the reporting standard adopted;
2. analysis and assessment of the criteria used to identify the consolidation area, to assess its compliance with the Decree;
3. comparing the economic and financial information reported in the NFD with the information reported in the Hera Group's Consolidated Financial Statements;
4. understanding of the following matters:
 - business and organisational model of the Group, with reference to the management of the topics specified by art. 3 of the Decree;
 - policies adopted by the Group with reference to the topics specified by art. 3 of the Decree, actual results and related key performance indicators;
 - main risks, generated or faced by the Group, with reference to the topics specified by art. 3 of the Decree.

With reference to such matters, we carried out some validation procedures on the information presented in the NFD and some controls, as described under point 5, letter a) below;

5. understanding of the processes underlying the preparation, collection and management of the qualitative and quantitative material information included in the NFD.

In particular, we held meetings and interviews with the management of Hera S.p.A. and Hera S.p.A., Hera Trading S.r.l., Inrete Distribuzione Energia S.p.A., Uniflotte S.r.l., Hera Comm S.r.l., Herambiente S.p.A., Frullo Energia Ambiente S.r.l., AcegasApsAmga S.p.A., AcegasApsAmga Servizi Energetici S.p.A., Hera Luce S.r.l., Marche Multiservizi S.p.A. and we performed limited analysis and validation procedures, in order to collect information about the processes and procedures that support the collection, aggregation, processing and submission of non-financial information to the Department responsible for the preparation of the NFD.

Moreover, for significant information, considering the activities and characteristics of the Group:

- at parent company's and subsidiaries' level:
 - a) with reference to the qualitative information included in the NFD, and in particular to the business model, the policies adopted and the main risks, we carried out interviews and obtained supporting documentation to verify its consistency with the available evidence;
 - b) with reference to quantitative information, we performed analytical procedures and limited tests, in order to assess, on a sample basis, the consolidation of the information.

- for the following companies and sites, which we selected on the basis of their activities, their contribution to the performance indicators at consolidated level and their location, we carried out on-site visits, during which we met local management and gathered supporting documentation regarding the compliance with procedures and calculation methods used for the key performance indicators: Hera S.p.A. Bologna Head Office, Imola (BO) site, Granarolo dell'Emilia (BO) site, Modena site, Forlì site, Ferrara site, Ferrara and Imola plants; Hera Trading S.r.l. Imola (BO) site; Inrete Distribuzione Energia S.p.A. Bologna site, Uniflotte S.r.l. Bologna site, Hera Comm S.r.l. Imola (BO) site, Herambiente S.p.A. Bologna site, Rimini site; Frullo Energia Ambiente S.r.l. Granarolo dell'Emilia (BO) plant; AcegasApsAmga S.p.A. and AcegasApsAmga Servizi Energetici S.p.A. Padua site, Trieste site; Marche Multiservizi S.p.A. Pesaro site.

Conclusion

Based on the work performed, nothing has come to our attention that caused us to believe that the NFD of the Hera Group as of 31 December 2018 and for the year then ended has not been prepared, in all material respects, in compliance with articles 3 and 4 of the Decree and the GRI Standards.

Bologna, 8 April 2019

Audirevi S.p.A.

Antonio Cocco
Socio

Annexes

Sustainability and CSV KPIs – Hera except for AcegasApsAmga and Marche Multiservizi

	2005	2016	2017	2018
Smart use of energy				
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%)	25.2%	28.3%	29.7%	30.2%
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%) and cogeneration	50.8%	68.5%	67.3%	65.2%
Intensity index of greenhouse gas emissions (kg/MWh)	-	531	498	482
Efficient use of resources				
Separate waste collection	28.9%	57.4%	58.1%	63.4%
Kilograms of separate waste collection per capita	199	391	392	434
Portion of municipal waste collected for disposal via landfill (% total urban solid waste collected)	9.2%	5.3%	5.2%	2.7%
Quality of purified water vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	-	39.9%	35.9%	33.2%
Non-invoiced water (physical and administrative losses from the domestic aqueduct): m ³ /km of network/day	-	8.71	9.1	-
Innovation and contribution to development				
Waste-to-energy plant emission levels vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	22.4% ²	12.3% ²	12.6% ²	12.3% ²
Vehicles using low environmental impact fuels (methane, LPG, electric powered) (% of total)	-	30.1%	31.4%	30.6%
Open-ended contract employees (average annual % of total workforce)	95.5%	97.3%	96.5%	95.8%
Value of supplies from local suppliers (% of total)	-	68%	66%	69%
Number of environmental education programme students	33,505	80,295	84,963	91,321
Bases and organisational levers				
Training hours (average, per capita)	18.5	31.5	29.5	31.2
Workforce attending at least one training course (%)	82.2%	98.1%	96.9%	99.2%
Accident frequency index (number of accidents/hours worked x 1,000,000)	49.6	17.2	13.9	15.3
Internal climate index (score 0-100)	50	-	64	-
Index of customer satisfaction for residential customers (score 0-100)	67	70	70	71
Compliance with AEEGSI and Service Charter quality standards (gas, electricity, integrated water service, district heating)	94.7%	99.8%	99.7%	99.6%
Emergency gas services: percentage of calls with service within 60 minutes	94.7%	96.9%	95.2%	96.0%
Average call centre response time for residential customers (seconds, with the exclusion of IVR)	70.2	33.8	32.3	37.1
Average waiting times at branch offices (minutes)	26.9	10.4	9.7	9.3
Tender awards adopting the economically most advantageous bid method: sustainability score (% of total)	-	29.8	27.4	33.1

¹ recalculated on the basis of the ARERA calculation method

²For Herambiente plants

Sustainability and CSV KPIs – AcegasApsAmga

	2016	2017	2018
Smart use of energy			
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%)	-	-	-
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%) and cogeneration	-	-	-
Intensity index of greenhouse gas emissions (kg/MWh)	-	-	-
Efficient use of resources			
Separate waste collection	50.2%	51.5%	52.2%
Kilograms of separate waste collection per capita	265	271	281
Portion of municipal waste collected for disposal via landfill (% total urban solid waste collected)	0%	0%	0%
Quality of purified water vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	66.1%	68.5%	48.7%
Non-invoiced water (physical and administrative losses from the domestic aqueduct): m ³ /km of network/day	25.24	23.7	-
Innovation and contribution to development			
Waste-to-energy plant emission levels vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	15.1% ⁵	14.6% ⁵	13.1% ⁵
Vehicles using low environmental impact fuels (methane, LPG, electric powered) (% of total)	1.3%	2.2%	3.4%
Open-ended contract employees (average annual % of total workforce)	96.6%	98.1%	97.7%
Value of supplies from local suppliers (% of total)	69.8%	64.6%	72.4%
Number of environmental education programme students	15,039	13,930	14,196
Bases and organisational levers			
Training hours (average, per capita)	20.5	24.0	25.8
Workforce attending at least one training course (%)	98.2%	96.5%	100%
Accident frequency index (number of accidents/hours worked x 1,000,000)	19.1	20.4	11.9
Internal climate index (score 0-100)	-	62	-
Index of customer satisfaction for residential customers (score 0-100)	681	701	70 ¹
Compliance with AEEGSI and Service Charter quality standards (gas, electricity, integrated water service, district heating)	99.8%	99.7%	99.5%
Emergency gas services: percentage of calls with service within 60 minutes	99.7%	99.5%	99.7%
Average call centre response time for residential customers (seconds, with the exclusion of IVR)	38.92	34.52	28.3 ²
Average waiting times at branch offices (minutes)	20.03	14.83	12.3 ³
Tender awards adopting the economically most advantageous bid method: sustainability score (% of total)	18.7	31.6	26.1

¹For AcegasApsAmga and Energia Base Trieste

²Weighted average of AcegasApsAmga and Estenergy

³Weighted average AcegasApsAmga and Amga Energia&Servizi

⁴Recalculated on the basis of the ARERA calculation method

⁵For Hestambiente plants

Sustainability and CSV KPIs – Marche Multiservizi

	2016	2017	2018
Smart use of energy			
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%)	100%	100%	100%
Portion of energy produced from renewable sources (incl. waste-to-energy at 51%) and cogeneration	100%	100%	100%
Intensity index of greenhouse gas emissions (kg/MWh)	-	-	-
Efficient use of resources			
Separate waste collection	57.6%	62.1%	69.4%
Kilograms of separate waste collection per capita	319	381	430
Portion of municipal waste collected for disposal via landfill (% total urban solid waste collected)	40.7%	34.9%	27.7%
Quality of purified water vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	30.0%	32.1%	36.3%
Non-invoiced water (physical and administrative losses from the domestic aqueduct): m ³ /km of network/day	6.4 ¹	6.5	-
Innovation and contribution to development			
Waste-to-energy plant emission levels vs. regulatory limits (real concentrations/regulatory limits: optimal value <100%)	-	-	-
Vehicles using low environmental impact fuels (methane, LPG, electric powered) (% of total)	12.0%	12.3%	13.4%
Open-ended contract employees (average annual % of total workforce)	95.0%	96.6%	96.2%
Value of supplies from local suppliers (% of total)	65%	64%	66%
Number of environmental education programme students	700	589	1,030
Bases and organisational levers			
Training hours (average, per capita)	33.7	32.0	27.4
Workforce attending at least one training course (%)	97.9%	98.6%	94.7%
Accident frequency index (number of accidents/hours worked x 1,000,000)	27.3	24.0	34.4
Internal climate index (score 0-100)	-	70	-
Index of customer satisfaction for residential customers (score 0-100)	-	-	-
Compliance with AEEGSI and Service Charter quality standards (gas, electricity, integrated water service, district heating)	99.6%	99.8%	99.9%
Emergency gas services: percentage of calls with service within 60 minutes	97.1%	96.6%	96.3%
Average call centre response time for residential customers (seconds, with the exclusion of IVR)	125.0	66.0	41.1
Average waiting times at branch offices (minutes)	14.6	12.5	9.4
Tender awards adopting the economically most advantageous bid method: sustainability score (% of total)	7.6	3.5	22.8

¹Recalculated on the basis of the ARERA calculation method

What we will do... 2030 UN Agenda targets



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Innovation and contribution to development	Spreading innovation and digitalization	41% of customers with online bills and 27% of customers using the online services in 2022. Promote digitalization among customers also through the extension of "Digi e Lode" in favour of the digitalization of schools in the area.	ER		
Innovation and contribution to development	Development of occupation and new expertise	2019 Learning Plan: training interventions for the development of the new skills required in the three reference axes (technical-professional, managerial, technological), to support the evolution of the reference context and of the businesses managed. These include, for example, those in the field of digital transformation, modelling and predictive analysis, circular economy, etc..	ER	T	M
People	Training and development	24.4 training hours per capita in 2019 for HerAcademy.	ER	T	M



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Efficient use of resources	Transition to a circular economy	Develop for large industrial companies a unique offer with “circular” solutions in the fields of waste, energy, water and telecommunications.			
Efficient use of resources	Sustainable management of water resources	2 further measures completed in 2019 for the Rimini Seawater Protection Plan. 9 measures completed by the end of 2019 out of the 14 set out in the Plan, which will be completed by 2023.	ER		
Efficient use of resources	Sustainable management of water resources	10% reduction in internal water consumption by 2022, compared to 2017 consumption.	ER		
Efficient use of resources	Sustainable management of water resources	90 thousand residential customers and 6 thousand industrial customers with the water consumption control service, to promote water saving.	ER		
Efficient use of resources	Sustainable management of water resources	Start new interventions for the reuse of purified water and make those started in 2018 fully operational.	ER		
Efficient use of resources	Sustainable management of water resources	100% urban areas >2,000 pe to achieve compliance by end 2021 thanks to the continuation of the compliance plan for the sewage and purification sector. Furthermore: - 252 urban areas achieved compliance over 254 served between 200 and 2,000 pe in Emilia-Romagna and Triveneto by end 2021 (1 in Triveneto and 91 in Emilia-Romagna) - by 2021, further 6 interventions in 4 urban areas of more than 10,000 pe (in Emilia-Romagna) in relation to the requirements of Resolution 201/2016 of the Emilia-Romagna Regional Government on the compliance of urban wastewater sewage (8 interventions in total carried out by 2021, compared to 33 to be carried out by end of 2030).	ER	T	M
Governance and creation of value	Dialogue with stakeholders	2 HeraLABs active in two new areas in 2019 for dialogue with the local communities. Achieve the 12 local initiatives jointly planned in 2018 with the Ferrara and Ravenna LABs by the end of 2020.	ER		



Drivers / Impact Area/		What we will do	Local area		
Chapter	Paragraph		ER	T	M
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Smart use of energy	Promotion of energy efficiency	6% reduction by 2022 of the energy consumption of Hera, AAA and MMS compared to 2013, 5% by 2020.	ER	T	M
Smart use of energy	Promotion of energy efficiency	1,300 toe energy savings expected in 2019 from interventions in public lighting including the replacement of luminaires with LED lamps (23% Hera Group; 21.4% Hera Luce and 60.9% Marche Multiservizi by 2022).	ER	T	M
Smart use of energy	Promotion of energy efficiency	19% customers in 2022 with gas, electricity and district heating offers with energy efficiency services.			
Smart use of energy	Promotion of energy efficiency	4 new industrial cogeneration plants were built in 2019 and energy efficiency solutions were promoted for condominiums (+5% in the portfolio of condominiums with offers for “energy services”, “solar thermal”, “thermal insulation”, “tax credit assignment offer”, “heat metering system”).	ER	T	
Smart use of energy	Spreading renewable energy	7 million m ³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA).	ER		
Smart use of energy	Spreading renewable energy	19% customers using energy from renewable sources by 2022. Thanks to Hera Comm’s “Pacchetto Natura”.	ER		
Efficient use of resources	Transition to a circular economy	Develop for large industrial companies a unique offer with “circular” solutions in the fields of waste, energy, water and telecommunications.			
Innovation and contribution to development	Air and soil protection	8% increase of the volume served by district heating by the end of 2022 compared to 2018 for the benefit of the air quality in the cities served. Start projects to increase the use of geothermal energy in Ferrara (+2.7% by 2022 compared to 2018 of geothermal energy exploited) and for its use at low enthalpy.	ER		
Quality, cost and safety of customer services	Safety and continuity of the service	Emergency gas services: maintain a much higher level than ARERA requirements for the percentage of calls answered within 120 seconds and arrival at call location within 60 minutes.	ER	T	M



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Smart use of energy	Spreading renewable energy	7 million m ³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA).	ER		
Efficient use of resources	Transition to a circular economy	Develop for large industrial companies a unique offer with “circular” solutions in the fields of waste, energy, water and telecommunications.			
Efficient use of resources	Sustainable management of water resources	10% reduction in internal water consumption by 2022, compared to 2017 consumption.	ER		
Efficient use of resources	Sustainable management of water resources	90 thousand residential customers and 6 thousand industrial customers with the water consumption control service, to promote water saving.	ER		
Efficient use of resources	Sustainable management of water resources	Start new interventions for the reuse of purified water and make those started in 2018 fully operational.	ER		
Innovation and contribution to development	Economic development and social inclusion	Supplier selection: continue to reward social commitment in the sustainability points, also by including disadvantaged personnel, in particular for waste management services.	ER	T	M
Innovation and contribution to development	Development of occupation and new expertise	2019 Learning Plan: training interventions for the development of the new skills required in the three reference axes (technical-professional, managerial, technological), to support the evolution of the reference context and of the businesses managed. These include, for example, those in the field of digital transformation, modelling and predictive analysis, circular economy, etc..	ER	T	M
Innovation and contribution to development	Development of occupation and new expertise	Continue to apply the social clause to guarantee employment in the contracts for emergency services on networks and services relating to customer handling (excluding insourcing situations).	ER	T	M
Innovation and contribution to development	Air and soil protection	700 thousand m ² of land reused between 2019 and 2022 to design infrastructure (3/4 of the total land involved in new projects).	ER		
Governance and creation of value	Economic value for the stakeholders	Euro 1,684 million. Value added to stakeholders as at 2022 (+9.3% compared to 2018).			
Governance and creation of value	Economic value for the stakeholders	Euro 2.4 billion. Investments completed in the period 2019-2022.			
People	Health and safety	-3% reduction in the accident frequency index in 2019 (18.2) compared to the average for 2014-2018. Increase the culture of health and safety for workers	ER	T	M

Drivers / Chapter	Impact Area/ Paragraph	What we will do	Local area		
		at all levels of the company through initiatives such as "Guido come vivo" and "Hera cardioprotetta".			
Suppliers	Suppliers	Monitoring of the corporate social responsibility of the suppliers vis-à-vis their workers: collect an additional 90 assessment questionnaires and perform 20 audits care of the suppliers (headquarters and worksites) in 2019.	ER	T	M
Suppliers	Supplier qualification and selection	Continue to assign a relevant score to the environmental and social sustainability aspects in the tenders held with the most economically advantageous bid.	ER	T	M
Suppliers	Supplier qualification and selection	Continue with the development of the quality, safety, environmental and social responsibility management systems and corporate responsibility in the choice of the suppliers.	ER	T	M
Suppliers	Contract management	75% the value of supplies of services and work in 2019 with the monitoring of accidents in the workplace.	ER	T	



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Smart use of energy	Promotion of energy efficiency	4 new industrial cogeneration plants were built in 2019 and energy efficiency solutions were promoted for condominiums (+5% in the portfolio of condominiums with offers for “energy services”, “solar thermal”, “thermal insulation”, “tax credit assignment offer”, “heat metering system”).	ER	T	
Smart use of energy	Spreading renewable energy	7 million m ³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA).	ER		
Smart use of energy	Spreading renewable energy	19% customers using energy from renewable sources by 2022. Thanks to Hera Comm's “Pacchetto Natura”.	ER		
Efficient use of resources	Transition to a circular economy	Develop for large industrial companies a unique offer with “circular” solutions in the fields of waste, energy, water and telecommunications.			
Efficient use of resources	Transition to a circular economy	Explore the possibility of using recycled plastics and, more generally, the use of secondary raw materials in network services.			
Innovation and contribution to development	Spreading innovation and digitalization	Continue the implementation of business intelligence/data analytics projects. Main objectives: to optimise gas leak detection work, waste collection and treatment plant operation, improving results.	ER		
Innovation and contribution to development	Spreading innovation and digitalization	Promote circular smart city solutions in municipalities and universities.	ER		
Innovation and contribution to development	Spreading innovation and digitalization	Continue research into the production of bioplastic from organic fractions and from CO ₂ and hydrogen in partnership with Bio-on.			
Quality, cost and safety of customer services	Service quality	78% of installed gas meters were electronic at end 2022 (67% InRete, 100% AcegasApsAmga, 100% Marche Multiservizi); 43% at end 2019.	ER	T	M
Quality, cost and safety of customer services	Safety and continuity of the service	Update the electricity grid resilience plan implemented in 2018 and execute the interventions planned on primary/secondary substations to automate the network, improving the continuity and quality of service.			



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Smart use of energy	Spreading renewable energy	7 million m ³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA).	ER		
Smart use of energy	Spreading renewable energy	19% customers using energy from renewable sources by 2022. Thanks to Hera Comm's "Pacchetto Natura".	ER		
Efficient use of resources	Transition to a circular economy	55% coverage rate of "Farmacoamico" of the residents served in 2020. Extend the presence of "reuse areas" in separate waste collection centres to other areas.	ER		
Efficient use of resources	Transition to a circular economy	76% recycling rate for packaging and 60% overall recycling rate for municipal waste by 2022.	ER	T	M
Efficient use of resources	Transition to a circular economy	73.2% separate waste collection by 2022 also by extending the quantity-based tariff in Emilia-Romagna (74.2% Hera, 72.5% Marche Multiservizi, 67.6% AcegasApsAmga).	ER	T	M
Efficient use of resources	Transition to a circular economy	+70% plastic recycled by Aliplast by 2025 (compared to 2017), + 30% plastic collected in the municipalities served and +50% plastic sorted and sent for recycling by the Group's plants are the commitments made by the "New Plastics Economy Global Commitment" of the Ellen MacArthur Foundation to combat pollution from plastic waste.			
Innovation and contribution to development	Spreading innovation and digitalization	Promote circular smart city solutions in municipalities and universities.	ER		
Innovation and contribution to development	Spreading innovation and digitalization	Continue research into the production of bioplastic from organic fractions and from CO ₂ and hydrogen in partnership with Bio-on.			
Innovation and contribution to development	Development of occupation and new expertise	2019 Learning Plan: training interventions for the development of the new skills required in the three reference axes (technical-professional, managerial, technological), to support the evolution of the reference context and of the businesses managed. These include, for example, those in the field of digital transformation, modelling and predictive analysis, circular economy, etc..	ER	T	M
Innovation and contribution to development	Air and soil protection	8% increase of the volume served by district heating by the end of 2022 compared to 2018 for the benefit of the air quality in the cities served. Start projects to increase the use of geothermal energy in Ferrara (+2.7% by 2022 compared to 2018 of geothermal	ER		

Drivers / Chapter	Impact Area/ Paragraph	What we will do	Local area		
		energy exploited) and for its use at low enthalpy.			
Innovation and contribution to development	Air and soil protection	31% low environmental impact vehicles in 2022 (42% Uniflotte, 8% AcegasApsAmga, 11% Marche Multiservizi).	ER	T	M
Innovation and contribution to development	Air and soil protection	+200 public and private infrastructures built in 2019 for electric transportation in cities.	ER	T	
Governance and creation of value	Dialogue with stakeholders	2 HeraLABs active in two new areas in 2019 for dialogue with the local communities. Achieve the 12 local initiatives jointly planned in 2018 with the Ferrara and Ravenna LABs by the end of 2020.	ER		

Drivers / Chapter	Impact Area / Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Efficient use of resources	Transition to a circular economy	55% coverage rate of "Farmacoamico" of the residents served in 2020. Extend the presence of "reuse areas" in separate waste collection centres to other areas.	ER		
Efficient use of resources	Transition to a circular economy	76% recycling rate for packaging and 60% overall recycling rate for municipal waste by 2022.	ER	T	M
Efficient use of resources	Transition to a circular economy	73.2% separate waste collection by 2022 also by extending the quantity-based tariff in Emilia-Romagna (74.2% Hera, 72.5% Marche Multiservizi, 67.6% AcegasApsAmga).	ER	T	M
Efficient use of resources	Transition to a circular economy	Develop for large industrial companies a unique offer with "circular" solutions in the fields of waste, energy, water and telecommunications.			
Efficient use of resources	Transition to a circular economy	+70% plastic recycled by Aliplast by 2025 (compared to 2017), + 30% plastic collected in the municipalities served and +50% plastic sorted and sent for recycling by the Group's plants are the commitments made by the "New Plastics Economy Global Commitment" of the Ellen MacArthur Foundation to combat pollution from plastic waste.			
Efficient use of resources	Transition to a circular economy	Explore the possibility of using recycled plastics and, more generally, the use of secondary raw materials in network services.			
Efficient use of resources	Sustainable management of water resources	10% reduction in internal water consumption by 2022, compared to 2017 consumption.	ER		
Efficient use of resources	Sustainable management of water resources	90 thousand residential customers and 6 thousand industrial customers with the water consumption control service, to promote water saving.	ER		
Efficient use of resources	Sustainable management of water resources	Start new interventions for the reuse of purified water and make those started in 2018 fully operational.	ER		
Innovation and contribution to development	Spreading innovation and digitalization	Promote circular smart city solutions in municipalities and universities.	ER		
Innovation and contribution to development	Spreading innovation and digitalization	Continue research into the production of bioplastic from organic fractions and from CO ₂ and hydrogen in partnership with Bio-on.			
Suppliers	Supplier qualification and selection	Continue to assign a relevant score to the environmental and social sustainability aspects in the tenders held with the most economically advantageous bid.	ER	T	M
Suppliers	Supplier qualification and selection	Continue with the development of the quality, safety, environmental and social responsibility management systems and corporate responsibility in the choice of the	ER	T	M

suppliers.



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Smart use of energy	Promotion of energy efficiency	6% reduction by 2022 of the energy consumption of Hera, AAA and MMS compared to 2013, 5% by 2020.	ER	T	M
Smart use of energy	Promotion of energy efficiency	1,300 toe energy savings expected in 2019 from interventions in public lighting including the replacement of luminaires with LED lamps (23% Hera Group; 21.4% Hera Luce and 60.9% Marche Multiservizi by 2022).	ER	T	M
Smart use of energy	Promotion of energy efficiency	19% customers in 2022 with gas, electricity and district heating offers with energy efficiency services.			
Smart use of energy	Promotion of energy efficiency	4 new industrial cogeneration plants were built in 2019 and energy efficiency solutions were promoted for condominiums (+5% in the portfolio of condominiums with offers for “energy services”, “solar thermal”, “thermal insulation”, “tax credit assignment offer”, “heat metering system”).	ER	T	
Smart use of energy	Spreading renewable energy	7 million m ³ Production of biomethane at the S. Agata Bolognese (BO) plant completed in 2018 and its integration in the gas network. Start the authorisation phase for the construction of the biomethane production plant in Lugo (RA).	ER		
Smart use of energy	Spreading renewable energy	19% customers using energy from renewable sources by 2022. Thanks to Hera Comm’s “Pacchetto Natura”.	ER		
Smart use of energy	Reduction of greenhouse gas emissions	23% Reduction compared to 2015 of the carbon footprint of energy production by 2022 (kg CO ₂ /MWh).	ER	T	M
Quality, cost and safety of customer services	Safety and continuity of the service	Update the electricity grid resilience plan implemented in 2018 and execute the interventions planned on primary/secondary substations to automate the network, improving the continuity and quality of service.			



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Efficient use of resources	Sustainable management of water resources	2 further measures completed in 2019 for the Rimini Seawater Protection Plan. 9 measures completed by the end of 2019 out of the 14 set out in the Plan, which will be completed by 2023.	ER		
Efficient use of resources	Sustainable management of water resources	Start new interventions for the reuse of purified water and make those started in 2018 fully operational.	ER		
Efficient use of resources	Sustainable management of water resources	100% urban areas >2,000 pe to achieve compliance by end 2021 thanks to the continuation of the compliance plan for the sewage and purification sector. Furthermore: - 252 urban areas achieved compliance over 254 served between 200 and 2,000 pe in Emilia-Romagna and Triveneto by end 2021 (1 in Triveneto and 91 in Emilia-Romagna) - by 2021, further 6 interventions in 4 urban areas of more than 10,000 pe (in Emilia-Romagna) in relation to the requirements of Resolution 201/2016 of the Emilia-Romagna Regional Government on the compliance of urban wastewater sewage (8 interventions in total carried out by 2021, compared to 33 to be carried out by end of 2030).	ER	T	M
Innovation and contribution to development	Air and soil protection	8% increase of the volume served by district heating by the end of 2022 compared to 2018 for the benefit of the air quality in the cities served. Start projects to increase the use of geothermal energy in Ferrara (+2.7% by 2022 compared to 2018 of geothermal energy exploited) and for its use at low enthalpy.	ER		



Drivers / Chapter	Impact Area/Paragraph	What we will do	Local area		
Introduction	Shared value	Euro 685 million of shared value investments in the 2019–2022 period (29% of the total net of the investments for Gas tenders).	ER	T	M
Introduction	Shared value	40% of the total, shared value EBITDA of over Euro 470 million by 2022 (around + Euro 150 million compared to 2017).	ER	T	M
Efficient use of resources	Transition to a circular economy	55% coverage rate of "Farmacoamico" of the residents served in 2020. Extend the presence of "reuse areas" in separate waste collection centres to other areas.	ER		
Efficient use of resources	Transition to a circular economy	+70% plastic recycled by Aliplast by 2025 (compared to 2017), + 30% plastic collected in the municipalities served and +50% plastic sorted and sent for recycling by the Group's plants are the commitments made by the "New Plastics Economy Global Commitment" of the Ellen MacArthur Foundation to combat pollution from plastic waste.			
Innovation and contribution to development	Spreading innovation and digitalization	Continue research into the production of bioplastic from organic fractions and from CO ₂ and hydrogen in partnership with Bio-on.			
Innovation and contribution to development	Economic development and social inclusion	Promote tariff concessions and initiatives to support customers facing financial hardship through the new SOStegno Hera initiative. Maintain a rate of avoided service disconnections of 80% of the total thanks to protocols signed with municipalities to prevent service disconnections for customers assisted by social services.	ER		
Governance and creation of value	Dialogue with stakeholders	2 HeraLABs active in two new areas in 2019 for dialogue with the local communities. Achieve the 12 local initiatives jointly planned in 2018 with the Ferrara and Ravenna LABs by the end of 2020.	ER		
People	Workforce	Continue to promote the third edition of HeraSolidale in 2019 and support the pursuit of the objectives of the 5 non-profit organisations partners through donations from employees and customers.	ER	T	M

Detail of atmospheric emissions of waste-to-energy plants

Concentrations of atmospheric emissions from waste-to-energy plants (2018)

mg/Nm ³	Regulatory limits pursuant to Legislative Decree 133/2005	Bologna (lines 1 and 2)	Faenza (Enomondo)	Ferrara (lines 2 and 3)	Forlì (line 3)	Modena (line 4)	Padua (lines 1 and 2)	Pozzilli (IS)	Ravenna (WDF)	Ravenna (special waste integrated platform)	Rimini (line 4)	Trieste (lines 1, 2 and 3)
Particulates	10	0.9	1.3	0.4	0.8	1.2	0.8	0.2	0.9	0.2	0.4	0.1
Hydrochloric acid	10	0.1	3.4	0.5	3.3	1.6	0.5	5.5	1.0	0.1	2.8	0.3
Nitric oxide	200	84.4	49.1	46.2	15.8	60.2	47.2	151.0	135.0	63.5	61.1	151.0
Sulphur oxides	50	0.5	0.4	0.1	1.0	0.9	0.5	3.9	0.2	5.0	1.7	1.6
Carbon monoxide	50	17.5	10.8	9.9	2.9	5.8	5.4	3.2	3.2	3.4	9.7	10.7
Hydrofluoric acid	1	0.0	0.2	0.1	0.0	0.1	0.1		0.1	0.1	0.1	0.1
Total Organic Carbon	10	2.1	0.6	0.5	1.0	1.3	0.8	0.8	0.5	0.5	0.9	0.2
Total metals	0.5	0.00393	0.08000	0.00150	0.00367	0.00239	0.01437	0.00622	0.03653	0.00195	0.00215	0.01301
Aromatic polycyclic hydrocarbons	0.01	0.00000	0.00060	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00001	0.00006
Dioxins and Furans (ng _{FTE} /Nm ³)	0.1	0.0003	0.00447	0.0006	0.0004	0.00093	0.0023	0.0015	0.0257	0.0066	0.0006	0.0057
Cadmium and Thallium	0.05	0.00040	0.00040	0.00043	0.00008	0.00031	0.00019	0.00212	0.00050	0.00027	0.00025	0.00313
Mercury	0.05	0.00012	0.00410	0.00033	0.00050	0.00039	0.00031	0.00020	0.00277	0.00087	0.00085	0.00087

The regulatory limits are those of Italian Legislative Decree 133/2005. For particulates, hydrochloric acid, nitrogen oxides, sulphur oxides, carbon monoxide, hydrofluoric acid, and total organic carbon, the values are the average continuously measured values and the limits are those for daily averages. For all other components, the values are the average of periodic measurements and the limits are for each individual measurement. In the new lines at Ferrara, Forlì, Rimini and Modena, mercury levels are continuously measured.

Detail of investments financed with the Green Bond

Type of measure	Measure	Investment in 2006-2017 (thousands of Euro)
Increase of energy generated from non-fossil sources	Solar photovoltaic Interporto Bologna (see page 153 and 285)	11,416
Increase of energy generated from non-fossil sources	Solar photovoltaic Alfianello (BS) (see page 153 and 285)	943
Increase of energy generated from non-fossil sources	Solar photovoltaic Copparo (FE) (see page 153 and 285)	956
Increase of energy generated from non-fossil sources	Solar photovoltaic Faenza (RA) (see page 153 and 285)	835
Increase of energy generated from non-fossil sources	Solar photovoltaic Petriolo (MC) (see page 153 and 285)	764
Increase of energy generated from non-fossil sources	Biogas from landfills (see page 153 and 285)	4,931
Increase of energy generated from non-fossil sources	Cesena anaerobic digester (see page 153 and 285)	10,864
Increase of energy generated from non-fossil sources	Lugo (RA) anaerobic digester (see page 153 and 285)	12,437
Increase of energy generated from non-fossil sources	Rimini anaerobic digester (see page 153 and 285)	13,173
Increase of energy generated from non-fossil sources	Sant'Agata Bolognese biodigester (see p.)	1,063
Increase of energy efficiency	Imola cogeneration plant (see page 185)	95,471
Increase of energy efficiency	Development of district heating networks - Ferrara Area (see page 161)	21,992
Increase of energy efficiency	Development of district heating networks - Forlì-Cesena Area (see page 161)	34,503
Increase of energy efficiency	Development of district heating networks - Imola-Faenza Area (see page 161)	34,701
Increase of energy efficiency	Development of district heating networks - Modena Area (see page 161)	11,873
Increase of energy efficiency	Development of district heating networks - Bologna Area (see page 161)	19,315
Increase of energy efficiency	Development of industrial cogeneration (see page 163 and 288)	5,643
Improvement of waste treatment plants	WTE Ferrara (see page 182 and 184)	42,885
Improvement of waste treatment plants	WTE Forlì (see page 182 and 184)	39,122
Improvement of waste treatment plants	WTE Modena fourth line (see page 182 and 184)	46,753
Improvement of waste treatment plants	WTE Rimini (see pages 182 and 184)	44,410
Improvement of purification plants	Bologna plant (see page 289)	5,224
Improvement of purification plants	Lugo (RA) plant (see page 289)	4,451
Improvement of purification plants	Forlì plant (see page 289)	7,176
Improvement of purification plants	Rimini Seawater Protection Plan (see page 238)	17,182
Increase of separate waste collection	Separate waste collection services development (see page 196-201 and 243)	11,917
Total		500,000

Glossary

Population Equivalent (pe)

The concept of population equivalent was developed to enable the comparison of various types of sewage (municipal, household, industrial) in terms of organic pollution. Using conversion factors, an estimation is made of how many inhabitants would be required to produce (with normal domestic sewage) the same amount of pollution. By definition, one population equivalent corresponds to 60 g of BOD₅ per day.

Regulatory Authority for Energy, Networks and the Environment (ARERA)

Formally independent authority established under Law 481/1995 which has the goal of promoting the development of competitive markets in the electricity and methane sectors, mainly by regulating rates, network access, market operation and protecting the interests of end users. In 2012, the ARERA was assigned functions in the area of the quality, rates and costs of integrated water services and in 2018 functions concerning waste management services.

Water and Waste Regulatory Authority (ATO)

Pursuant to Law 36/1994, the Water and Waste Regulatory Authorities define the local level of organization of integrated water services to overcome the fragmentation of management and to reach suitable sizes for the areas served.

Ammoniacal Nitrogen

The term ammoniacal nitrogen (NH₄) identifies the concentration of ammonia ions in water. It provides an index of biodegradation of nitrogenous organic substances. It is expressed in mg/l.

Biogas

The term biogas identifies a mixture of types of gas (mainly methane) produced by natural bacterial fermentation (in anaerobic conditions, i.e. in the absence of oxygen) of organic residues from waste.

BOD

The term BOD (biochemical oxygen demand) is used to define the amount of oxygen consumed during a specific time period (5 days for BOD₅), at a given temperature, to biodegrade the organic matter present in the water via bacterial action (uptake of oxygen by micro-organisms). High biochemical oxygen demand indicates intense biodegradation of organic matter, and may highlight the presence of organic pollution. It is therefore an indirect measure of pollution levels. Its value is expressed in mg/l.

Bond

A listed financial instrument of indebtedness issued by a company. These are long-term loans: investors are guaranteed the right to annual interest payments at a fixed rate, with return of the capital on a set date.

Services Charter

A Services Charter is a document that any entity that supplies a public service uses to outline its performance standards, declaring its goals and recognizing specific rights to the public/users/consumers, and therefore to pledge to respect specific levels of quality and quantity, with the intention of monitoring and improving its supply and management methods. It was set by law 273/95, which stated that all suppliers of public services must adopt their own Services Charters on the basis of the general guidelines issued for specific sectors.

Green Certificate (GC)

GCs offer incentives to generate electricity from renewable sources. As required by law 244/07, GCs are issued by the Energy Services Manager (ESM) and concerns the production of electricity from renewable sources of the previous year or the production expected during the current year or during the following year. They represent 1 MWh of electricity. Each individual producer or importer must feed into the grid for 2012 a 7.55% share of electricity produced by renewable sources: this quota decreases linearly starting in 2013 and reaches zero in the year 2015. The requirement can also be satisfied by purchasing GCs from other parties.

COD

The term COD (chemical oxygen demand) identifies the amount of oxygen required for the complete oxidation of organic and inorganic compounds present in a water sample. Thus, this is an index for measuring the degree of pollution, mainly organic, in the water from substances which can be oxidized. It is expressed in mg/l.

Code of Ethics

Document setting forth for all business activities a number of principles and specifying conduct, commitments and ethical responsibilities to be put into practice by members of the Board of Directors, staff and collaborators of the company.

The Code may be described as a "Constitutional Charter" of a company, a charter of moral rights and duties that establishes the ethical and social responsibilities of all those who work within the organization.

Cogeneration

Simultaneous production of electricity and thermal energy (in the form of steam).

Composting

Aerobic treatment (in the presence of oxygen) of biodegradable organic waste, whose final product is compost, a soil improver, which can be used in vegetable cultivation.

Social Cooperatives

Cooperatives governed by Law 381 of 8 November 1991. This law breaks these cooperatives down into two types:

- type A = cooperatives providing social, health and educational services;
- type B = cooperatives operational within the production and labour sectors which have, among their members or employees, a level of at least 30% who are differently-abled or otherwise face hardship.

Corporate Governance

The set of processes, policies, practices, laws and institutions which influence how a company is managed and controlled. Corporate Governance also covers the relations between the various players involved (stakeholders, those who have a vested interest of any type in the company).

Warning

A warning is a deed issued by the Public Administration and/or supervisory bodies in cases where, in exercising their inspection and control activities, they detect existing or possible future deviations from regulations and provisions of national and regional law: the warning sets a term by which breaches must be eliminated.

Dispatching (electricity sector)

Activities that provide instructions for the coordinated use and operation of production plants, of the transmission grid and of auxiliary services (Bersani Decree).

Dispatching (gas sector)

Activities that provide instructions for the coordinated use and operation of extraction and storage plants, the transport and distribution network and auxiliary services (Letta Decree).

EMAS

EU Regulation 761/2001 which requires businesses to implement environmental management systems based on policies, programmes, procedures and objectives aimed at improving the environment, and to publish an Environmental Statement, to be validated by the Ecoaudit Committee.

Primary Energy

Primary energy is the energy potential presented by energy carriers in their natural form, for example oil, natural gas, coal, natural uranium, water and other renewable energy sources. In the majority of the cases, the primary energy must be transformed into secondary energy in electricity power stations, refineries, etc.

Enterprise Value (EV)

Expresses the overall value of a company as the sum of its market capitalization and its net financial indebtedness. When comparing a company's value compared to others of the same industry the Enterprise Value is in relation to economic indicators such as EBITDA and EBIT. Higher EV/EBITDA or EV/EBIT ratios mean higher value of one company over another.

Focus Group

A surveying technique based on discussions between members of a group of persons. The main aim is to conduct an in-depth study of a specific issue in relation to given targets. Interaction between focus group members provides the basis for the surveying action.

Ethical Funds

This term is used to describe mutual investment funds whose choice of shares, bonds and government securities is inspired by ethical selection criteria. These parameters are defined as exclusion/inclusion.

Renewable Energy Sources

Renewable energy sources are: wind, solar, geothermal, wave motion, tidal, hydraulic, biomass, landfill gas, purification process residual gas and biogas. Biomass means the biodegradable part of products, waste and residues generated by farming (including vegetable and animal substances), forestry and associated industries, as well as the biodegradable part of industrial and municipal waste.

Greenhouse Gases

These gases are transparent with respect to solar radiation, and prevent the dispersion of heat from the Earth, thus leading to the overheating of the atmosphere. Over and above greenhouse gases of natural origin, the main greenhouse gases produced by mankind are carbon dioxide, methane, chlorofluorocarbons and nitrogen oxides.

Geothermics

The science that studies the internal energy of the Earth and its practical applications as an energy source.

KPI

Key Performance Indicators are specific indicators selected on the basis of corporate information needs. They are used to carry out corporate monitoring. KPIs may be financial, production-oriented, commercial, environmental or social in nature, or may regard multiple aspects.

Mobility Management

Mobility management identifies an internal corporate department in charge of managing staff commuting.

Nm³

Normal cubic metre, the volume of gas at 0 °C and 0.1 MPa.

OHSAS 18001: 2007

The OHSAS 18001 (Occupational Health & Safety Assessment Series) standard is an internationally recognized benchmark for the certification of workplace health and safety management systems.

Nitrogen Oxides

Nitrogen oxides (mainly NO and NO₂), gases produced by the combustion of fossil materials. Nitrogen oxides contribute to the formation of ozone in the lower atmosphere and acid rain.

PCB (polychlorinated biphenyls)

Highly toxic organic compounds used in a wide range of applications e.g. as fluids for capacitors and transformers. When managing and disposing of them careful attention must be paid to ensure they are not released into the environment, in accordance with laws in force.

Leachate

The substance resulting from water and other liquid mixtures filtering through waste.

PM₁₀

Particulate matter of a diameter of less than 10 microns generated by a broad range of natural and man-made sources, PM₁₀ includes a diverse variety of solid or liquid particles that tend to remain suspended in the air, due to their small size.

Heat Pump

A device capable of transferring heat from a body at a lower temperature to a body at a higher temperature, using electricity.

Waste

Legislative Decree 22/1997 defines waste as “any substance or object which the holder discards or intends or is required to discard”. This decree classifies waste based on its origin, as urban or special, and, according to the level of hazardousness, as hazardous or non-hazardous.

SA 8000

International certification standard regarding respect for human rights, respect for workers' rights, safeguards against exploitation of minors, and guarantees with respect to workplace health and safety conditions.

Default Service

The default service is activated by the distributor responsible for the area when under certain circumstances, a customer has no supplier but is still connected to the network and can therefore continue to draw off gas. In such cases the provision of gas is assigned to a specific vendor selected by the Single Purchaser (Aquirente Unico) by means of a tendering process.

TSS

The term TSS (total suspended solids), which are the cause of the turbidity of liquids, means the total of suspended solids and filterable solids. This represents the total amount of substances present in the sample following drying, at 105 °C. Its value is expressed in mg/l.

Stakeholders

Stakeholders are persons with vested interests. They may or may not belong to the company of which they are a stakeholder, with different interests and needs, and they may have a bearing on the decisions, conduct or success of a company.

Sustainable Development

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report, World Commission for Economic Development, 1987).

District Heating

Remote distribution of heat generated by thermoelectric power stations, cogeneration plants or waste-to-energy plants using an energy carrier (hot water, superheated water, or steam).

toe

Tonne of oil equivalent. The conventional unit of measurement of sources of energy defined as 10,000 Mcal, the amount of energy released by burning one tonne of crude oil.

Waste-to-Energy Plant

A plant that uses waste as a fuel to produce heat or energy.

Primary Treatment

Aims to remove mainly organic TSS (Total Suspended Solids) from the in-flowing liquid waste. The process can be facilitated by using special flocculants that increase the degree of aggregation of the particles and therefore their sedimentation.

Secondary Treatment

Aims to remove biodegradable organic matter and remove solids in colloidal form, non-sedimentable and, therefore, not separable by physical treatments.

Tertiary Treatment

Aims to improve purification by reducing the load of nutrients (phosphorus and nitrogen) in the secondary effluent. In some cases tertiary treatment eliminates poorly biodegradable substances that have not been eliminated by the bacterial metabolic treatment.

Turboexpander

Machine that transforms a given kind of energy (e.g. potential energy) into mechanical energy, made available for use via a rotating shaft. The resulting energy may in turn be used for the production of other energy (e.g. by coupling an alternator to the turbine to enable the alternator to exploit the mechanical energy to produce electricity).

EN ISO 9001:2008

International technical standard for the certification of quality management systems.

EN ISO 14001: 2004

International technical standard for the certification of environmental management systems.