Financials 2019 – Reader's guide

This report consists of the operating and financial review and the consolidated financial statements of Fortum Group, including the parent company financial statements. Other parts of Fortum's reporting entity include CEO letter, corporate governance statement, remuneration statement as well as tax footprint, which are published on Fortum's webpage. Sustainability reporting is an integrated part of Fortum's annual reporting and additional information on sustainability operations can be found on Forum's website in sustainability section.

Operating and financial review
This section includes description of Fortum's financial performance during 2019. Here you will also find a description of the risk management as well as information on sustainability and Fortum share performance.

Consolidated financial statements
Primary statements include Fortum's consolidated income statement, statement of comprehensive income, balance sheet, statement of changes in total equity and cash flow statement.

Notes
The notes to the consolidated financial statements are grouped to six sections based on their nature. Use the note number list on the right side of the notes pages to navigate in the financial statements.

Key figures
Key figures consist of financial key figures, share key figures and operational key figures for 2018–2019. The financial key figures derive mainly from the primary statements. Segment key figures include information on segments.

Parent company financial statements
Here you can read the parent company financial statements including the primary statements, cash flow and notes to the financial statements.

Proposal for the use of profit shown on the balance sheet
The Board of Directors proposal for the dividend in 2019 is disclosed in this section.

Auditor's report
This section includes the audit report issued by Fortum Oyj's auditor, Deloitte Oy.

Key figures 2010–2019, operational key figures and quarterly financial information
Look here for financial key figures, share key figures, operational key figures and volume related key figures for 2010–2019 as well as capex and quarterly financial information for the years 2018 and 2019.

Investor information
Here you will find information on Fortum's Annual General Meeting, dividend payment, basic share information as well as details of the financial information available to shareholders in 2020.

Notes

1–3 Basis of preparation
These notes describe the basis of preparing the consolidated financial statements and consist of the accounting policies, critical accounting estimates and judgements and information about acquisitions and disposals.

4–5 Risks
In the Risks section you will find notes that disclose how Fortum manages financial risks and capital risks.

6–14 Income statement
These notes provide supporting information for the income statement.

15–34 Balance sheet
These notes provide supporting information for the balance sheet.

35–37 Off balance sheet items
The notes in this section provide information on items that are not included on the balance sheet.

38–40 Group structure and related parties
This section includes information on related party transactions, events after balance sheet date and the subsidiaries of Fortum group.

The following symbols show which amounts in the notes reconcile to the items in income statement, balance sheet and cash flow statement.

IS = Income statement
BS = Balance sheet
CF = Cash flow

Financials 2019

Financial performance and position

Strong operational performance in 2019 – financial targets achieved

Key financial ratios [1)]

	2019	2018	2017
Return on capital employed, %	10.0	6.7	7.1
Comparable net debt/EBITDA	3.0	3.6	0.8

1) See ▸ **Definitions of key figures.**

Key figures

EUR million	2019	2018	2017	Change 19/18
IS Sales	5,447	5,242	4,520	4%
Comparable EBITDA	1,766	1,523	1,275	16%
IS Comparable operating profit	1,191	987	811	21%
IS Operating Profit	1,110	1,138	1,158	-2%
- of sales %	20.4	21.7	25.6	
IS Share of profit of associates and joint ventures	744	38	148	1,858%
IS Profit before income tax	1,728	1,040	1,111	66%
- of sales %	31.7	19.8	24.6	
IS Earnings per share, EUR	1.67	0.95	0.98	76%
CF Net cash from operating activities	2,015	804	993	151%
Shareholders' equity per share, EUR	14.61	13.33	14.69	10%
Interest-bearing net debt (at end of period)	5,260	5,509	988	
Return on shareholders' equity, %	11.9	6.8	6.6	
Equity-to-assets ratio, %	57	54	61	

During 2019, we continued our determined efforts to implement Fortum's strategy. We focused on operational excellence in all our operations, re-assessed parts of our district heating business, continued to build solar and wind power, reached an agreement to increase our shareholding in Uniper, and improved our financial results substantially. At year-end, we reached our long term 10% target for return on capital employed.

In June, we announced our intention to assess the strategic options for the district heating and cooling business in Estonia and in Joensuu, Finland. The assessment concluded in the divestment of the Joensuu operations on 10 January 2020, for approximately EUR 530 million, releasing cash, strengthening our balance sheet, and unlocking value. We are initiating an extended assessment that includes our district heating and cooling businesses in all Baltic countries, in Poland, and in Järvenpää, Finland.

In October, our Uniper investment took a leap forward with our agreement to buy an additional stake, in excess of 20%, in the company. In November, we received approval to close the transaction from the Russian Government Commission, subject to certain conditions. The clarification of these conditions is somewhat delayed, due to the recent change of the Russian Government. In December, we received approval from the Unites States. We are still confident to achieve closing during the first quarter of 2020. As announced previously, with closing we will seek adequate board representation in the Supervisory Board of Uniper reflecting our ownership. This naturally includes the chairmanship.

As the majority owner, Fortum will focus on cooperation and strategic alignment with Uniper. Our two companies are already well-positioned to drive forward the European energy transition. Together, both companies can benefit from a further aligned strategic focus to enable a carbon-neutral Europe by 2050. During the transition, Europeans expect their energy companies to execute ambitious climate policies while continuing to provide electricity and heat at all times and at an affordable cost. The German Government's coal exit law, presented last week, reflects these requirements – coal-fired generation will be phased out by the end of 2038 at the latest. Fortum stands for a strategy of decarbonisation, which of course also applies to our investments, and supports Uniper's decision to close down the company's old coal-fired units as the company's new coal-fired CHP plant Datteln 4 is taken into use. As long as coal has to be used to provide for security of supply in Germany, it makes sense to use it in the most efficient and clean units.

We have continued our decarbonisation efforts during the year and will do so in the future. We have therefore decided to tighten our climate target for specific CO_2 emissions by 10% to 180 gCO_2/kWh, applicable to Fortum's stand-alone fleet for the year 2020. We are building more solar and wind power while also utilising our 'capital recycling' business model to release cash. This enables us to invest more with a limited equity exposure. Another major effort is our commitment to carbon-neutral district heating in Espoo, Finland, in the 2020s, accelerated by our goal to discontinue the use of coal in Espoo in 2025. Other examples of work for a cleaner energy system in Finland include the sustainable decommissioning of the one-gigawatt Inkoo coal-fired power plant showing a recycling rate of 92% of the material, placing the Meri-Pori coal-fired power plant into the Finnish national peak-load reserve capacity system from July 2020, as well as the recent decisions of Fortum's associated company Turun Seudun Energiantuotanto to close down the coal-fired unit Naantali 2. In Sweden, Fortum's joint venture Stockholm Exergi has decided to decommission its last coal-fired unit after this heating season.

The comparable operating profit for 2019 increased by more than EUR 200 million to EUR 1.2 billion, mainly driven by a clear result improvement in the Generation segment and also supported by improved results in the

Consumer Solutions and Russia segments. In addition, our share of profits from associated companies and joint ventures increased to almost EUR 750 million, largely thanks to our share of Uniper's profits. Our focus on cash flow measures, together with the strong results in 2019, increased our cash flow to more than EUR 2 billion at year-end. Our comparable net debt-to-EBITDA at year-end was 3.0x. When adjusting the net debt with the impact of the divestment of the Joensuu district heat business in January 2020 and the announced sale of a 80% share of our Nordic wind portfolio, we also achieved our other long-term financial target of a comparable net debt-to-EBITDA ratio of around 2.5x. Maintaining strong cash flow and consistent deleveraging are also central for our credit rating. Fortum's key objective is to have a solid investment-grade rating of at least BBB to preserve financial flexibility and good access to capital markets after the Uniper transaction has been closed.

The fourth-quarter results were characterised by the strong improvement in the Generation segment, driven by clearly higher hydro volumes and good operational performance. The higher hedge price helped us achieve a higher power price, in spite of the clearly lower spot prices in the Nordics. All other operational segments also improved their results. In City Solutions, the result recovered after a disappointing third quarter. The hard work in Consumer Solutions continued to pay off with EBITDA increasing for the ninth consecutive quarter. In the Russia segment, the improvement in the heat business supported the results.

Based on Fortum's 2019 results, our financial position and the outlook for the coming years, Fortum's Board of Directors is proposing an unchanged dividend of EUR 1.10 per share for the calendar year 2019. With an earnings per share of EUR 1.67, the proposal corresponds to a pay-out ratio of 65.9%, which is within the 50%-80% range of our dividend policy.

Financial results

Sales by segment

EUR million	2019	2018	Change 19/18
Generation	2,141	1,842	16%
City Solutions	1,200	1,110	8%
Consumer Solutions	1,835	1,759	4%
Russia	1,071	1,069	0%
Other Operations	115	103	12%
Netting of Nord Pool transactions [1]	-529	-516	
Eliminations	-387	-125	
IS Total	**5,447**	**5,242**	**4%**

1) Sales and purchases with Nord Pool Spot are netted at the Group level on an hourly basis and posted either as revenue or cost depending on whether Fortum is a net seller or net buyer during any particular hour.

Comparable EBITDA by segment

EUR million	2019	2018	Change 19/18
Generation	939	763	23%
City Solutions	309	310	0%
Consumer Solutions	141	110	28%
Russia	469	417	12%
Other Operations	-91	-78	-17%
Total	**1,766**	**1,523**	**16%**

Comparable operating profit by segment

EUR million	2019	2018	Change 19/18
Generation	794	628	26%
City Solutions	121	135	-10%
Consumer Solutions	79	53	49%
Russia	316	271	17%
Other operations	-119	-99	-20%
IS Total	**1,191**	**987**	**21%**

Operating profit by segment

EUR million	2019	2018	Change 19/18
Generation	771	736	5%
City Solutions	127	130	-2%
Consumer Solutions	20	75	-73%
Russia	317	273	16%
Other operations	-127	-76	-67%
IS Total	**1,110**	**1,138**	**-2%**

Share of profits of associated companies and joint ventures

EUR million	2019	2018	Change 19/18
Generation	10	-72	114%
City Solutions	37	74	-50%
Consumer Solutions	0	0	-
Russia	59	36	64%
Other operations	638	0	-
IS Total	**744**	**38**	**1,858%**

For further information see ▸ **Note 6** Segment reporting.

Fortum's sales increased by 4% and comparable operating profit improved by 21% and was EUR 1,191 (987) million. The higher hydro and nuclear volumes and higher achieved power price in the Generation segment as well as the improved performance in the Russia and Consumer Solutions segments were the main contributors to the result improvement.

Operating profit for the period was impacted by EUR -81 (151) million of items affecting comparability, mainly from the fair value change of non-hedge-accounted derivatives (▸ **Note 7**). In the third quarter of 2018, Fortum recorded a capital gain of EUR 77 million from the sale of the 10% stake in Hafslund Produksjon.

The share of profit of associates and joint ventures was EUR 744 (38) million. Fortum's share of Uniper's profits, EUR 632 (-2) million, comprises Uniper's October-December 2018 and January-September 2019 results

and the impact on Uniper's results from the reinstatement of the UK capacity market in the fourth quarter of 2019, totalling EUR 601 (-2) million, as well as the fair value adjustments reversal according to the purchase price allocation of Uniper for 2019, EUR 31 (-) million (▸ **Note 3**). The share of profit of Uniper includes 'Non-operating results', EUR 392 (79) million. Co-owned nuclear companies accounted for EUR 16 (1) million, Stockholm Exergi for EUR 24 (61) million, including the EUR -22 million effect of the impairment booked in Stockholm Exergi relating to the early decommissioning of CHP6 (See Segment Review, City Solutions), and TGC-1 for EUR 54 (40) million (▸ **Note 19**).

Net finance expenses amounted to EUR 125 (136) million, of which net interest expenses were EUR 139 (114) million. Interest expenses include the remaining amortised cost of EUR 13 million due to the prepayment of the bridge financing for the acquisition of Uniper shares in 2018. Other financial expenses include the EUR 10 million cost for the new committed credit facilities related to the acquisition of an additional minimum stake of 20.5% in Uniper. Net finance expenses included a positive impact of EUR 40 million related to the regular nuclear technical update in Finland (▸ **Note 29**).

Profit before income taxes was EUR 1,728 (1,040) million.

Taxes for the period totalled EUR 221 (181) million. The effective income tax rate, according to the income statement, was 12.8% (17.5%). The comparable effective income tax rate, excluding the impact of the share of profit of associated companies and joint ventures as well as non-taxable capital gains, tax rate changes, and other major one-time income tax effects, was 22.4% (22.0%) (▸ **Note 13**).

The profit for the period was EUR 1,507 (858) million. Earnings per share were EUR 1.67 (0.95), of which EUR -0.07 (0.15) per share were related to items affecting comparability.

Cash flow

In 2019, net cash from operating activities was strong and increased by EUR 1,211 million to EUR 2,015 (804) million, mainly impacted by a EUR 356 (-524) million change in settlements for futures on Nasdaq Commodities, the improved comparable EBITDA of EUR 1,766 (1,523) million, dividends received of EUR 239 (61) million, and a EUR -33 (-146) million change in working capital. The impact of the change of realised foreign exchange gains and losses was EUR 14 (231) million.

Net cash from investing activities was EUR -369 (-4,398) million. The comparison period in 2018 included the acquisition of Uniper shares. Capital expenditure increased by EUR 116 million to EUR 695 (579) million. Cash collaterals and restricted cash decreased by EUR 347 million, including the non-cash collateral arrangement in the first quarter to release pledged cash from the Nordic power exchange, which had a major positive impact of EUR 310 million. Consequently, cash flow before financing activities increased significantly to EUR 1,646 (-3,594) million.

Proceeds from long-term liabilities were EUR 2,805 (1,764) million, arising from the issuance of new bonds totalling EUR 2.5 billion under the Euro Medium Term Note (EMTN) programme and a bilateral loan of EUR 300 million. The proceeds from the issued bonds were used to repay the bridge financing of EUR 1,750 million related to the acquisition of Uniper shares in 2018 and repayment of a bond of EUR 750 million. The total payments of long-term liabilities were EUR 2,567 (586) million. The net increase in liquid funds was EUR 806 (-3,268) million.

Dividends received totalled EUR 239 (61) million, mainly related to dividends received from Uniper EUR 165 (-) million, Stockholm Exergi EUR 40 (39) million, Turun Seudun Energiantuotanto EUR 20 (10) million, and TGC-1 EUR 10 (7) million.

Financial position and cash flow

EUR million	2019	2018	Change 19/18
Interest expense	-167	-148	-13%
Interest income	28	34	-18%
Fair value gains and losses on financial instruments	8	-8	200%
Other financial expenses - net	6	-15	140%
IS Finance costs - net	**-125**	**-136**	**8%**
Interest-bearing liabilities	6,694	6,093	10%
Less: Liquid funds	1,435	584	146%
Interest-bearing net debt	**5,260**	**5,509**	**-5%**

Assets and capital employed

At the end of 2019, total assets amounted to EUR 23,364 (22,409) million. Liquid funds at the end of the period increased to EUR 1,433 (584) million. Capital employed was EUR 19,929 (18,170) million.

Equity

Equity attributable to owners of the parent company totalled EUR 12,982 (11,841) million. The dividend of EUR 1.10 per share for 2018 was approved by the 2019 Annual General Meeting (AGM) on 26 March 2019 and paid on 4 April 2019. The increase in equity of EUR 1,141 million was mainly related to the net profit for the period of EUR 1,482 million, the positive impact from fair valuation of cash flow hedges of EUR 561 million, and the positive translation differences of EUR 253 million, partly offset by the dividend payment of EUR 977 million.

Financing

Net debt decreased by EUR 249 million to EUR 5,260 (5,509) million, including lease liabilities of EUR 114 million. Interest-bearing liabilities increased by EUR 601 million and liquid funds increased by EUR 851 million. The dividend, EUR 977 million, was paid on 4 April 2019.

At the end of 2019, the Group's liquid funds (including cash balances of EUR 2 million relating to assets held for sale) totalled EUR 1,435 (584) million. Liquid funds include cash and bank deposits held by PAO Fortum of EUR 201 (317) million. At the end of 2019, Fortum had undrawn committed credit facilities amounting to EUR 1,800 (1,800) million, of which EUR 1,750 million is maturing in June 2023. In the fourth quarter of 2019, Fortum signed additional committed credit facilities of EUR 8,300 million for the acquisition of Uniper shares as announced on 8 October 2019 (▸ **Note 24**). On 7 January 2020, Fortum cancelled EUR 3,000 million of these new committed credit facilities.

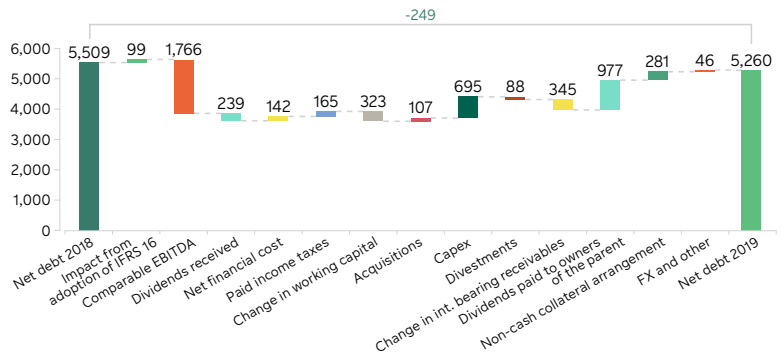
On 19 February 2019, Fortum issued bonds with a total nominal value of EUR 2,500 million under its EMTN programme. The bonds were issued in three tranches with the following maturities; EUR 1,000 million with a 0.875% fixed coupon maturing on 27 February 2023; EUR 750 million with a 1.625% fixed coupon maturing on 27 February 2026; and EUR 750 million with a 2.125% fixed coupon maturing on 27 February 2029.

The proceeds from the issued bonds were used to repay the bridge financing of EUR 1,750 million related to the acquisition of the initial 49.99% stake in Uniper in 2018 and repayment of a 6% fixed-coupon bond of EUR 750 million, which resulted in a more balanced debt maturity profile. In April 2019, Fortum drew a five-year EUR 300 million bilateral financial loan.

Following Fortum's announcement to acquire an additional stake of more than 20.5% of Uniper's shares, Standard & Poor's and Fitch reviewed the credit rating of Fortum. In October 2019, Standard & Poor's placed Fortum's long-term credit rating of BBB on CreditWatch Negative. The short-term rating is at level A-2. In October 2019, Fitch Ratings placed Fortum's long-term credit rating of BBB and short-term credit rating of F2 on Rating Watch Negative. Both rating agencies are expected to update the credit ratings after the closing of the acquisition of at least an additional 20.5% of Uniper shares. Standard & Poor's have announced that they will likely consolidate Uniper into Fortum and link the issuer credit rating on Uniper to that of Fortum upon antitrust approval.

Fortum's key objective is to have a solid investment-grade rating of at least BBB, in order to preserve financial flexibility and good access to capital markets post-closing of the above-mentioned acquisition of Uniper shares, and to strengthen its financial profile longer term. This will provide appropriate financial stability and support to the enlarged group.

Change in net debt during 2019, EUR million



Key figures

The comparable net debt-to-EBITDA ratio for 2019 was 3.0x (3.6x). The target is to steer the leverage from the current net debt-to-EBITDA ratio towards the long-term over-the-cycle target of approximately 2.5x. When adjusting net debt with the impact of the divestment of the Joensuu district heating business and the announced sale of a 80% share of our Nordic wind portfolio, Fortum's long-term target of around 2.5x was achieved.

Gearing was 40% (46%) and the equity-to-assets ratio was 57% (54%). Equity per share was EUR 14.61 (13.33). Return on capital employed (ROCE) for 2019 was 10.0% (6.7%). Fortum targets a long-term over-the-cycle return on capital employed of at least 10%.

Fortum's key financial targets will be revisited in due course to ensure alignment with a commitment to retain a solid investment grade rating of at least BBB.

Operating and regulatory environment

Nordic countries

According to preliminary statistics, electricity consumption in the Nordic countries was 392 (399) TWh, as milder weather during the first quarter and slightly lower industrial demand caused a slight decrease in the power demand.

At the beginning of 2019, the Nordic water reservoirs were at 74 TWh, which is 10 TWh lower than the long-term average and 8 TWh lower than one year earlier. At the end of the year, the reservoirs were at 79 TWh, which is 5 TWh below the long-term average and 5 TWh higher than one year earlier. In April 2019, the Norwegian energy regulator (NVE) revised the Norwegian reservoir statistics. The reported reference levels and historical deviations have been updated accordingly.

Power consumption

TWh	2019	2018	2017
Nordic countries	392	399	392
Russia	1,059	1,055	1,035
Tyumen	94	92	95
Chelyabinsk	35	35	33
Russia Urals area	260	260	261

During 2019, the average system spot price in Nord Pool was EUR 38.9 (44.0) per MWh. The average area price in Finland was EUR 44.0 (46.8) per MWh and in Sweden (SE3, Stockholm) EUR 38.4 (44.5) per MWh.

In 2019, the average German spot price was EUR 37.7 (44.5) per MWh.

The market price of CO_2 emission allowances (EUA) showed some volatility during the year, but ended the year at the same price level as in the beginning of the year, at EUR 25 per tonne.

Average prices

	2019	2018	2017
Spot price for power in Nord Pool power exchange, EUR/MWh	38.9	44.0	29.4
Spot price for power in Finland, EUR/MWh	44.0	46.8	33.2
Spot price for power in Sweden, SE3, Stockholm, EUR/MWh	38.4	44.5	31.2
Spot price for power in Sweden, SE2, Sundsvall, EUR/MWh	37.9	44.2	30.8
Spot price for power in European and Urals part of Russia, RUB/MWh [1]	1,289	1,247	1,204
Average capacity price, tRUB/MW/month	624	609	535
Spot price for power in Germany, EUR/MWh	37.7	44.5	34.2
Average regulated gas price in Urals region, RUB/1,000 m^3	3,910	3,801	3,685
Average capacity price for old capacity (CCS), tRUB/MW/month [2]	154	148	148
Average capacity price for new capacity (CSA), tRUB/MW/month [2]	1,096	1,075	899
Spot price for power (market price), Urals hub, RUB/MWh [1]	1,117	1,043	1,041
CO_2, (ETS EUA), EUR/tonne CO_2	25	16	6
Coal (ICE Rotterdam), USD/tonne	61	92	84
Oil (Brent Crude), USD/bbl	64	72	55

1) Excluding capacity tariff.
2) Capacity prices paid only for the capacity available at the time.

Water reservoirs

TWh	31 Dec 2019	31 Dec 2018	31 Dec 2017
Nordic water reservoirs level	79	74	86
Nordic water reservoirs level, long-term average	84	83	83

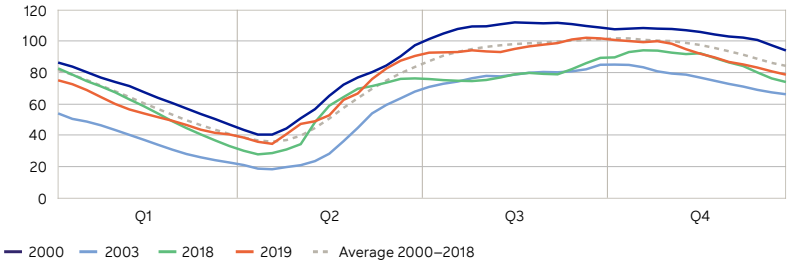
Russia

Fortum operates mainly in the Tyumen and Khanty-Mansiysk area of Western Siberia, where industrial production is dominated by the oil and gas industries, and in the Chelyabinsk area of the Urals, which is dominated by the metal industry. The Russian market is divided into two price zones and Fortum operates in the First Price Zone (European and Urals part of Russia).

According to preliminary statistics, Russian electricity consumption was 1,059 (1,056) TWh and 807 (810) TWh in the First Price Zone in 2019.

In 2019, the average electricity spot price, excluding capacity prices, was RUB 1,289 (1,247) per MWh in the First Price Zone and RUB 1,117 (1,043) per MWh in the Urals hub.

Nordic water reservoirs, energy content, TWh



Source: Nord Pool

Export/import

TWh (+ = import to, - = export from Nordic area)	2019	2018	2017
Export/import between Nordic area and Continental Europe+Baltics	-8	-10	-15
Export/import between Nordic area and Russia	8	8	6
Export/import Nordic area, total	0	-2	-9

Regulatory environment

New EU institutions with a strong focus on climate

Following the EU elections in May, the new Parliament took office. The Commission headed by President Ursula von der Leyen started at the beginning of December and, without delay, issued the first outline of its Green Deal.

The European Council, except Poland, endorsed the target of reaching EU economy-wide climate neutrality by 2050. Meanwhile, the Commission announced its intention to triple the budget of the Just Transition Fund to EUR 100 billion, with the target to ease the transformation in heavily fossil-reliant countries. Polish adherence will be reconsidered in the European Council in June 2020, whilst the 2050 EU economy-wide target will be part of the Climate Law due in February 2020.

Fortum welcomes the firm climate orientation of the new EU institutions.

The European Green Deal emerging

In December, the European Commission published a Communication on the European Green Deal. It will be the new Commission's bold political initiative, aiming at EU economy-wide climate neutrality by 2050. The Commission is expected to launch up to 50 related initiatives during the next two years.

While, the Green Deal will not be solely about climate ambition, it is expected to deliver extensive growth for Europe bundling all EU policy areas and all sectors of society. The Green Deal comprises, among other things, energy supply, circular economy, ecosystems, biodiversity, and mainstreaming of sustainability in all EU policies.

Practically all energy and climate targets and policies will be subject to revision, and consequently, entail a regulatory risk. The Commission will present a Green Financing Strategy in autumn 2020 in order to enable the private sector to contribute to the financing of a green transition.

Fortum welcomes the Green Deal and considers sector integration and electrification as offering significant solutions and business opportunities to meet the ambitious goals of the Green Deal.

Sustainable finance regulation adopted

In December, the European Council and Parliament reached an agreement on the taxonomy regulation of sustainable finance. The taxonomy creates a unified classification system for what can be considered sustainable investments. The regulation still needs to be formally approved by the Council and Parliament and is expected to enter into force by the end of 2022.

The regulation strongly leans towards renewable energy technologies. Nuclear and gas may qualify as 'transitional activities', depending on the outcome of the assessment that will be carried out by the Commission during 2020. The status of waste-to-energy is still open whilst the treatment of hazardous waste has been classified as sustainable.

As such, the objective of the sustainable finance initiative is in line with Fortum's strategy. Fortum has, however, strongly advocated for an approach based on CO_2 emissions and technology-neutrality in compliance with the Paris Agreement. There is a risk that if the taxonomy discriminates against some low-carbon technologies, the financing costs of such investments will increase in the future and result in unduly expensive decarbonisation.

EIB's new energy lending policy approved

In November, the European Investment Bank (EIB) agreed on a new energy lending policy and confirmed the EIB's increased ambition in climate action and environmental sustainability. EIB will align all financing activities with the goals of the Paris Agreement from the end of 2020 and end financing for fossil fuel energy projects from the end of 2021.

The Sustainable Europe Investment Plan launched by the new Commission targets to unlock EUR 1 trillion of climate action and environmentally sustainable investments by 2030. The EIB will play a key role in this and will gradually turn into a climate bank. EIB will no longer consider new financing for fossil fuel energy projects, including gas. In addition, EIB set a new Emissions Performance Standard of 250g of CO_2/kWh for power and heat projects. This will replace the current 550g of CO_2/kWh standard. Nuclear and renewable energy projects continue to be eligible for funding. If in line with the EU waste hierarchy and national waste management plans, waste-to-energy projects are also eligible.

The new EIB lending policy is well in line with Fortum's strategy.

German climate and coal phase-out legislation

In September 2019, the German Government released an extensive climate and energy package in order to meet the 2030 emission reduction target of 55% and carbon-neutrality by 2050. In December, the German Parliament approved the climate package. The package includes a national emissions trading system for the transport and building sectors with carbon prices of EUR 25 in 2021 and EUR 55 in 2025. To offset the higher costs for consumers and companies, the climate package includes subsidies for electric cars and tax incentives for greener heating, electricity, and housing.

The climate protection law ("Klimaschutzgesetz") sets annual CO_2 emission reduction targets for the period 2020–2030 for six sectors: energy, industry, transport, buildings, agriculture, waste management, and others.

In addition, the Government decided on a coal phase-out plan, based on the earlier proposal and is committed to propose legislation in line with the recommendations of the Coal Commission, and to publish a gas strategy including hydrogen. The coal phase-out legislation was approved by the federal cabinet on 29 January 2020 and is expected to be completed in the first half of 2020. In the years 2026 and 2029, the Government plans to carry out large-scale reviews of how the coal phaseout is progressing. The review will inform the decision on whether the phase-out can be brought forward by three years, i.e. that Germany could phase out coal as early as 2035. With regards to the new coal-fired plant Datteln 4, owned by Uniper, the Government announced its interest to allow the commissioning of the plant while, at the same time, old and less-efficient plants would be closed.

In Fortum's opinion, it would be essential to have the respective legislation become effective as soon as possible, as the first auctions for the closure of hard coal plants are planned already for summer 2020 and the first plants are to be closed in 2022.

Changed Swedish taxation resulted in new CHP and waste-to-energy taxes

In line with a broad political agreement made in January 2019, containing new taxes of up to EUR 1.5 billion, legislation on the taxation of waste

incineration was approved by the Swedish Government on 4 December 2019. The tax level was set at SEK 75/tonne in 2020 and will increase to SEK 125/tonne by 2022.

As part of the tax change, the Government also passed a law to increase the tax for fossil-fuelled CHP plants, effective from August 2019. The Government has not specified the definition of a green tax, and additional taxes are likely to be presented during the spring of 2020.

Swedish energy agreement collapses

In December, the Conservatives and Christian Democrats left the Swedish broad energy agreement made in 2016. The main reason was the ongoing disagreement on nuclear power, with the opposition wanting to update the agreement with more nuclear friendly wording. The collapse of the agreement will not have any major financial implications for Fortum as key elements in the original agreement, mainly tax reductions for hydro and nuclear power, have already been implemented. However, it will most likely result in increasing regulatory uncertainty, especially for nuclear power.

Segment reviews

Business model

Fortum's business activities cover the production and sales of electricity and heat, waste-to-energy and circular economy solutions, as well as energy-sector expert services and various consumer solutions. Fortum is the third largest power generator and the largest electricity retailer in the Nordic countries. Globally, the company is one of the leading heat producers. As two thirds of Fortum's power production is hydro and nuclear, the company is also among the lowest-emitting generators in Europe.

With core operations in 10 countries, Fortum employs a diverse team of more than 8,000 energy-sector professionals. Fortum has some 130 hydro power plants, 26 combined heat and power (CHP), condensing, and nuclear power plants, as well as four wind power parks and four solar power plants. Globally, the company supplies heat in 24 cities and towns and has five waste-to-energy plants. Fortum's key markets are the Nordic and Baltic countries, Russia, Poland, and India.

Fortum's business divisions are Generation, City Solutions, Consumer Solutions and Russia. Other Operations includes corporate functions, R&D and technology development projects, as well as Fortum's shareholding in Uniper SE.

In November 2018, Fortum announced that the solar and wind businesses were reorganised and the wind operations became a business area within the Generation segment and the solar operations within the City Solutions segment. Previously these were included in Other Operations. The Russian wind and solar operations continue as a part of the Russia segment. Fortum has restated its 2018 comparative segment reporting figures in accordance with the new organisation structure.

Generation

Generation is responsible for Nordic power production. The segment comprises nuclear, hydro, wind, and thermal power production, as well as power portfolio optimisation, trading, industrial intelligence, and global nuclear services.

EUR million	2019	2018	Change 19/18
Sales	2,141	1,842	16%
- power sales	2,006	1,771	13%
of which Nordic power sales [1]	1,568	1,415	11%
- other sales	135	71	90%
Comparable EBITDA	939	763	23%
Comparable operating profit	794	628	26%
Operating profit	771	736	5%
Share of profits of associates and joint ventures [2]	10	-72	114%
Comparable net assets (at period-end)	6,147	6,485	-5%
Comparable return on net assets, %	12.8	10.8	19%
Capital expenditure and gross investments in shares	260	262	-1%
Number of employees	1,109	1,091	2%

1) The Nordic power sales income and volume includes hydro, wind, and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

2) Power plants are often built jointly with other power producers, and owners purchase electricity at cost including interest cost and production taxes. The share of profit/loss is mainly IFRS adjustments (e.g. accounting for nuclear-related assets and liabilities) and depreciations on fair-value adjustments from historical acquisitions (▸ **Note 19**).

The Generation segment's total power generation in the Nordic countries increased due to higher hydro and nuclear volumes. The hydro volumes in the comparison period were low mainly due to the historically low levels in the third quarter of 2018. The segment's overall operational performance and the load factor for nuclear generation were at a good level. The nuclear load factor for the Fortum fleet and partly owned companies was at the highest level in Fortum's history with the Loviisa 1 power plant setting a new production record. The CO_2-free production accounted for 100% (100%) of the total power generation.

The achieved power price in the Generation segment increased by EUR 2.2 per MWh, +6%, driven by higher hedge prices and successful optimisation of hydropower production, as well as higher first-quarter spot power prices.

Comparable operating profit increased by 26%, mainly due to higher hydro and nuclear volumes and the higher achieved power price.

Operating profit was affected by EUR -23 (108) million of items affecting comparability, mainly related to the fair value change of non-hedge-accounted derivatives. In the third quarter of 2018, Fortum recorded a capital gain of EUR 77 million from the sale of the 10% stake in Hafslund Produksjon (▸ **Note 6**).

The share of profits of associated companies and joint ventures totalled EUR 10 (-72) million (▸ **Note 19**).

The annual outages of the Loviisa nuclear power plant were managed well. The maintenance outages at Unit 1 and Unit 2 lasted 20 days and 26 days, respectively. Both units underwent a refuelling outage, during which approximately one quarter of the fuel was replaced.

In June 2019, Posiva decided to start construction of the encapsulation plant for spent nuclear fuel and start equipping the Onkalo final depository with systems needed for the final disposal. The start of the final disposal will still require licences to operate. In September 2019, the final disposal of spent nuclear fuel took a step forward, as the foundation stone for Posiva's encapsulation plant was laid at Onkalo, in Eurajoki, Finland. Posiva will dispose of the high-level nuclear waste of its owners, Fortum Power and Heat Oy (share of ownership 40%) and Teollisuuden Voima (TVO) (share of ownership 60%).

In December 2019, 440 MW of the production capacity of Fortum's Meri-Pori power plant was selected for inclusion in the Finnish national peak-load reserve capacity system from 1 July 2020 to 30 June 2022.

Power generation by source

TWh	2019	2018	Change 19/18
Hydropower, Nordic	20.3	19.1	6%
Wind power, Nordic	0.4	0.3	33%
Nuclear power, Nordic	23.5	22.8	3%
Thermal power, Nordic	0.2	0.1	100%
Total	**44.4**	**42.3**	**5%**

Nordic sales volume

TWh	2019	2018	Change 19/18
Nordic sales volume	51.3	48.4	6%
of which Nordic Power sales volume [1)]	42.7	40.5	5%

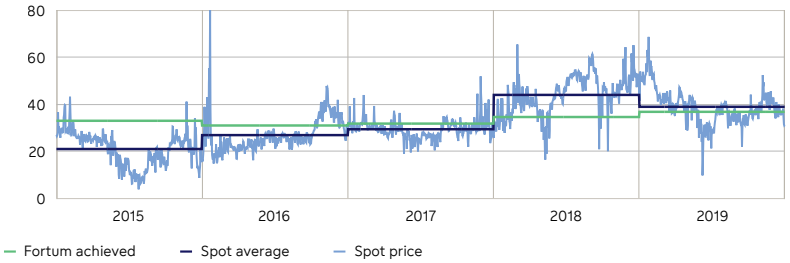
1) The Nordic power sales income and volume includes hydro, wind, and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

Sales price

EUR/MWh	2019	2018	Change 19/18
Generation's Nordic power price [1)]	36.8	34.6	6%

1) Generation's Nordic power price includes hydro, wind, and nuclear generation, excluding minorities. It does not include thermal generation, minorities, customer business or other purchases.

Nord Pool, power price, 2015–2019, EUR/MWh



Source: Nord Pool, Fortum

City Solutions

City Solutions is responsible for developing sustainable solutions for urban areas into a growing business for Fortum. The segment comprises heating, cooling, waste-to-energy, biomass, and other circular economy solutions, as well as solar power production. The business operations are located in the Nordics, the Baltic countries, Poland, and India. The segment also includes Fortum's 50% holding in Stockholm Exergi, which is a joint venture and is accounted for using the equity method.

EUR million	2019	2018	Change 19/18
Sales	1,200	1,110	8%
- heat sales	615	604	2%
- power sales	153	134	14%
- waste treatment sales [1]	250	211	18%
- other sales [2]	181	161	12%
Comparable EBITDA	309	310	0%
Comparable operating profit	121	135	-10%
Operating profit	127	130	-2%
Share of profits of associates and joint ventures	37	74	-50%
Comparable net assets (at period-end)	3,892	3,794	3%
Comparable return on net assets, %	4.7	5.5	-15%
Capital expenditure and gross investments in shares	322	242	33%
Number of employees	1,970	2,017	-2%

1) Waste treatment sales comprise gate fees at waste treatment plants and environmental construction services.

2) Other sales comprise mainly operation and maintenance services and fuel sales.

Heat sales volumes were at the same level as in the previous year. Power sales volumes increased, mainly due to higher power volumes in the new unit in Naantali, Finland.

Comparable operating profit decreased by 10%. The main reason for the decline was the profit of EUR 26 million recorded in the third quarter of 2018 from the sale of a 54% share of Fortum's Indian solar portfolio, partly offset by the positive impact of one-time effects in the fourth quarter of 2019 and the strong result improvement during the year in the Norwegian heating and cooling business. The full-year comparable operating profit from the recycling and waste business was close to the level of the previous year. The cost synergies related to the Hafslund transaction materialised gradually during 2019, with targeted annual synergies of EUR 5–10 million expected to be achieved by the end of 2020.

Operating profit was affected by EUR 7 (-5) million of items affecting comparability, mainly related to capital gains and the fair value change of non-hedge-accounted derivatives (▸ **Note 6**).

The share of profits of associated companies and joint ventures totalled EUR 37 (74) million, the main part of which was related to the share of profit of Stockholm Exergi, EUR 24 (61) million and Turun Seudun Energiantuotanto EUR 13 (13) million (▸ **Note 19**).

In September 2019, Fortum announced, in line with Fortum's strategy and the target to achieve carbon-neutral district heating in Espoo during the 2020's, the intention to discontinue the use of coal in the Espoo district heating network by the end of 2025.

In December 2019, the Swedish Government decided to implement new taxes on fossil fuels used for heat production in CHP plants, taking effect from August 2019. Consequently, during 2019, the board of Stockholm Exergi decided to decommission the last coal-fired unit in Stockholm, CHP6, starting from the end of the 2019–2020 heating season. Fortum's share of profits from Stockholm Exergi was impacted by EUR -22 million related to the impairment booked in Stockholm Exergi's fourth-quarter 2019 results.

On 20 December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland, to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million, and the cash was received at the completion of the divestment on 10 January 2020. Fortum will record a tax-exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results.

Heat sales by country

TWh	2019	2018	Change 19/18
Finland	3.8	3.8	0%
Poland	3.3	3.5	-6%
Norway	1.7	1.6	6%
Other countries	2.0	1.9	5%
Total	**10.8**	**10.8**	**0%**

Power sales by country

TWh	2019	2018	Change 19/18
Finland	1.6	1.4	14%
Poland	0.6	0.5	20%
Other countries	1.0	1.0	0%
Total	**3.2**	**2.9**	**10%**

Consumer Solutions

Consumer Solutions is responsible for the electricity and gas retail businesses in the Nordics and Poland, including the customer service, invoicing, and debt collection businesses. Fortum is the largest electricity retail business in the Nordics, with approximately 2.4 million customers across different brands in Finland, Sweden, Norway, and Poland. The business provides electricity as well as related value-added and digital services.

EUR million	2019	2018	Change 19/18
Sales	1,835	1,759	4%
- power sales	1,630	1,547	5%
- other sales	206	212	-3%
Comparable EBITDA	141	110	28%
Comparable operating profit	79	53	49%
Operating profit	20	75	-73%
Comparable net assets (at period-end)	640	648	-1%
Capital expenditure and gross investments in shares	55	47	17%
Number of employees	1,327	1,399	-5%

The electricity sales volumes increased by 1%, mainly due to increased sales to business customers, partly offset by the impact of the warmer weather in the first and fourth quarters and the reduced number of customers. The decrease in the number of customers was the result of a more selective customer acquisition and retention approach. Throughout the year, the market sentiment in the Nordics continued to be challenging with tough competition and high customer churn. However, during the integration and restructuring of Hafslund, Fortum has been able to improve its competitive position in the Nordics. Higher market prices, especially in the first quarter, was the main driver for the 5% increase in sales.

Comparable operating profit increased by 49%, mainly supported by higher sales margins. The higher sales margins are a result of the active development of the product and service portfolios following the Hafslund integration and subsequent development of the business. Part of the improvement was related to favourable market conditions in the first half of the year, temporarily increasing profitability in certain areas of the customer portfolio. The annual EUR 10 million cost synergies related to the Hafslund transaction, projected to materialise by the end of 2020, fully materialised already during 2019.

Operating profit was affected by EUR -59 (22) million of items affecting comparability, due to the fair value change of non-hedge-accounted derivatives (▸ Note 6).

In August 2019, the Polish Price Freeze Act became effective. This had a EUR -1 million impact on the operating profit.

Sales volumes

TWh	2019	2018	Change 19/18
Electricity [1]	30.6	30.4	1%
Gas [2]	4.1	4.1	0%

1) 2018 figure corrected from previously published.
2) Not including wholesale volumes.

Number of customers

Thousands [1]	2019	2018	Change 19/18
Electricity	2,340	2,440	-4%
Gas	40	30	33%
Total	**2,380**	**2,470**	**-4%**

1) Rounded to the nearest 10,000.

Russia

The Russia segment comprises power and heat generation and sales in Russia. The segment also includes Fortum's over 29% holding in TGC-1, which is an associated company and is accounted for using the equity method.

EUR million	2019	2018	Change 19/18
Sales	1,071	1,069	0%
- power sales	924	872	6%
- heat sales	145	193	-25%
- other sales	2	4	-50%
Comparable EBITDA	469	417	12%
Comparable operating profit	316	271	17%
Operating profit	317	273	16%
Share of profits of associates and joint ventures	59	36	64%
Comparable net assets (at period-end)	3,205	2,789	15%
Comparable return on net assets, %	12.3	10.3	19%
Capital expenditure and gross investments in shares	133	117	14%
Number of employees	2,955	2,941	0%

In 2018, Fortum and STS Corporation established the Yustek joint venture for the heat distribution and supply in Chelyabinsk. The operations of the Yustek joint venture started in November 2018 and became fully operational in January 2019 by obtaining the single heat supplier status and related tariffs. Fortum has transferred the heat networks in Chelyabinsk and certain heat-only boilers with a capacity of 1,661 MW to the Yustek joint venture under a lease agreement. In 2018, the businesses transferred to the Yustek joint venture had a marginal annual effect on the comparable operating profit of the Russia segment.

Power generation volumes remained stable during the year. Heat production volumes decreased following the transfer of the heat distribution business in Chelyabinsk, including certain heat-only boilers, to the Yustek joint venture. The warmer weather in both the Chelyabinsk and Tyumen areas also had a negative impact.

Sales remained stable. The negative effect of the transfer of the heat distribution business in Chelyabinsk to the Yustek joint venture, and lower heat volumes due to the warmer weather in Chelyabinsk and Tyumen were offset by higher electricity prices, higher CSA payments at Nyagan 2, and the stronger Russian rouble.

Comparable operating profit increased by 17%, supported by higher electricity margins, lower bad-debt provisions, and higher received CSA payments. The increase in CSA payments was related to Nyagan 2 receiving higher payments for the last years of the CSA period starting from the third quarter of 2018. The effect of the change in the Russian rouble exchange rate was EUR 4 million.

The share of profits of associated companies and joint ventures totalled EUR 59 (36) million, mainly related to the share of profit of TGC-1, EUR 54 (40) million, and the Yustek joint ventures in Chelyabinsk and Tyumen, EUR 2 (1) million (▸ Note 19).

Russian power generation and heat production

TWh	2019	2018	Change 19/18
Russian power generation	29.3	29.6	-1%
Russian heat production	17.3	20.4	-15%

Key electricity, capacity and gas prices for Fortum Russia

	2019	2018	Change 19/18
Electricity spot price (market price), Urals hub, RUB/MWh	1,117	1,043	7%
Average regulated gas price, Urals region, RUB/1,000 m³	3,910	3,801	3%
Average capacity price for CCS and other, tRUB/MW/month [1) 2)]	154	148	4%
Average capacity price for CSA, tRUB/MW/month [2)]	1,096	1,075	2%
Average capacity price, tRUB/MW/month	624	609	2%
Achieved power price for Fortum in Russia, RUB/MWh	1,990	1,888	5%
Achieved power price for Fortum in Russia, EUR/MWh [3)]	27.3	25.6	7%

1) Including capacity receiving payments under "forced mode status", regulated tariffs, and bilateral agreements.
2) Capacity prices paid for the capacity volumes, excluding unplanned outages, repairs, and own consumption.
3) Translated using the average exchange rate.

Other Operations

Other Operations comprises corporate functions, technology and innovation, internal and external ventures, R&D, as well as Fortum's shareholding in Uniper, which is consolidated as an associated company from 30 June 2018 (▸ **Note 3**).

EUR million	2019	2018	Change 19/18
Sales [1)]	115	103	12%
Comparable EBITDA	-91	-78	-17%
Comparable operating profit	-119	-99	-20%
Operating profit	-127	-76	-67%
Share of profits of associates and joint ventures	638	0	-
Comparable net assets (at period-end)	4,356	4,023	8%
Capital expenditure and gross investments in shares	49	4,003	-99%

1) Mainly internal sales.

Uniper investment and purchase price allocation

In 2017, Fortum announced a public takeover offer to buy shares in Uniper. In June 2018, the offer was settled and Fortum's ownership was 47.12%. At the end of 2018, Fortum's ownership in Uniper was 49.99%. The total acquisition cost for the initial 49.99% stake in Uniper of EUR 3,968 million, including direct costs relating to the acquisition, is reported in 'Participations in associated companies and joint ventures'. The purchase price allocation was finalised during the second quarter of 2019. Uniper's balance sheet as of 30 June 2018 has been used as the starting point for the purchase price allocation; however, a fair value adjustment of EUR 613 million has been made for the acquired assets and liabilities. Fortum's share of the goodwill on Uniper's balance sheet, EUR 930 million, is derecognised, as it is not an identifiable asset according to IFRS. Potential future impairments of goodwill (existing as of 30 June 2018) booked by Uniper will therefore be reversed to Fortum's share of profits of associates and joint ventures. The fair value adjustments of EUR 613 million relates mainly to political and regulatory risks that are reflected in the fair value of certain generation and production assets. The fair value adjustment will be reversed to 'Share of profits of associates and joint ventures' over a period of 20 years, EUR 31 million annually. If Uniper reports negative impacts relating to these generation and production assets, Fortum will assess the potential need to use this fair value adjustment to reverse the negative impacts (▸ **Note 3**).

In May 2019, Uniper hosted its AGM. The AGM approved the proposed dividend of EUR 0.90 per share, which, for Fortum, corresponds to received dividends of EUR 165 million.

On 8 October 2019, Fortum announced it had entered into agreements with Elliott and Knight Vinke to acquire an additional stake of at least 20.5% in Uniper for approximately EUR 2.3 billion, increasing Fortum's share in Uniper to more than 70.5% (subject to regulatory clearances) and the total investment in Uniper to approximately EUR 6.2 billion, representing an average acquisition price of EUR 23.97 per share (▸ **Notes 3 and 19**).

In 2018, in connection with the acquisition of the initial stake of 49.99% in Uniper, Fortum already received unconditional merger clearance from the European Commission with no further clearance required in the EU for any further acquisitions. On 30 December 2019, Fortum received regulatory clearance in the United States for the transaction. On 14 November 2019, the Russian Government Commission for Monitoring Foreign Investments approved, subject to certain conditions, the closing of the acquisition. The clarification of these conditions is still ongoing. Closing of the transactions is still subject to customary merger control clearance in Russia, and is expected by the end of the first quarter of 2020.

Fortum will fully consolidate Uniper as a subsidiary in its financial statements from closing of the transaction. The transaction will be financed with existing cash resources and committed credit facilities, that were syndicated to 13 banks in the fourth quarter of 2019. Fortum's key objective is to have a solid investment-grade rating of at least BBB, in order to preserve financial flexibility and good access to capital markets post-closing of the acquisition of an additional stake of at least 20.5% in Uniper, and to strengthen its financial profile longer term. This will provide the appropriate financial stability and support for the enlarged group. As Uniper publishes its interim reports later than Fortum, Fortum's share of Uniper's results is accounted for with a time lag of one quarter, with potential adjustments. Fortum's 2019 Financial Statements include Fortum's share of Uniper's October-December 2018 and January-September 2019 results (▸ **Note 3**). Uniper will report its full year 2019 results on 10 March 2020 and its first-quarter 2020 results on 7 May 2020.

On 30 January 2020, Uniper announced an ambitious phase-out plan for its German hard-coal-fired power production. The company plans to shut down a total of 1,500 MW of hard-coal capacity by the end of 2022 and a further 1,400 MW by the end of 2025. The last remaining hard-coal-fired power plant would be the 1,100-MW Datteln 4 power plant that must be decommissioned in 2038, at the latest, according to the draft law on coal phase-outs in Germany.

Financial results of Other Operations

Comparable operating profit declined, mainly as a result of the increased spend in Business Technology, including internal and external ventures. The investments in Valo Ventures and the related costs totalled EUR 23 million.

The share of profits of associated companies and joint ventures totalled EUR 638 (0) million (▸ **Note 19**). Fortum's share of Uniper's profits EUR 632 (-2) million, comprises Uniper's October-December 2018 and January-September 2019 results and the impact from reinstatement of the UK capacity market in the fourth quarter 2019, totalling EUR 601 (-2)

million, as well as the fair value adjustments reversal according to the purchase price allocation of Uniper for 2019, EUR 31 (-) million (▸ Note 3). EUR 392 (79) million of non-operating results from Uniper are included in the share of profits (▸ Note 19).

Capital expenditures, divestments and investments in shares

EUR million	2019	2018
Capital expenditure		
Intangible assets	75	53
Property, plant and equipment	638	532
Total	**713**	**584**
Gross investments in shares		
Subsidiaries	13	36
Associated companies and joint ventures	73	4,041
Other investments	20	11
Total	**106**	**4,088**

In 2019, capital expenditures and investments in shares totalled EUR 819 (4,672) million, of which the Solberg acquisition from the Solberg-Blaiken asset swap amounted to EUR 36 million. Capital expenditures, excluding the impact of the Solberg-Blaiken asset swap, were EUR 683 (584) million (▸ Note 6). In 2018, investments in shares were mainly attributable to the purchase of Uniper shares.

Fortum expects to start or has started power and heat production capacity of new power plants and expects to upgrade its existing plants as follows:

	Type	Electricity capacity MW	Heat capacity MW	Supply starts
Generation				
Hydro plants in Sweden and Finland	Hydro	14		2019
Hydro plants in Sweden and Finland	Hydro	~15		2020
Sørfjord, Norway [1]	Wind	97		Q4/2019 -Q3/2020
Kalax, Finland	Wind	90		Q1/2021
City Solutions				
Zabrze, Poland	CHP	75	145	1 April 2019
Kivenlahti, Finland	Bio HOB [2]		58	2020
Suomenoja, Finland	Heat pump		20	2021
Pavagada 2, India	Solar	250		5 August 2019
Rajasthan, India	Solar	250		Q4/2020
Russia				
Solar [3]	Solar	116		2021–2022

1) The Sørfjord wind park is part of the transaction with Credit Suisse Energy Infrastructure Partners and an 80% share will be sold once it is commissioned.
2) Biofuel-fired heat-only boiler (HOB).
3) Separate investment decision needed.

Generation

Through its interest in TVO, Fortum is participating in the building of Olkiluoto 3 (OL3), a 1,600-MW nuclear power plant unit in Finland. OL3 is funded through external loans, share issues, and shareholder loans according to shareholder agreements between the owners and TVO. As a 25% shareholder in OL3, Fortum has committed to pro rata funding of the project. At the end of the reporting period, Fortum's outstanding loan receivables related to OL3 were EUR 170 million and the outstanding commitment was EUR 63 million. In March 2019, the Finnish Government granted an operating licence for OL3. According to the time schedule updated by plant supplier Areva-Siemens consortium in December 2019, the plant will start regular electricity generation in March 2021 (▸ Note 37).

In December 2019, Fortum and Credit Suisse Energy Infrastructure Partners (CSEIP) signed an agreement whereby funds advised by CSEIP will acquire an 80% stake in Fortum's Nordic wind portfolio. Fortum will continue to manage the construction and serve as long-term asset manager for the wind portfolio. The portfolio consists of the operational Nygårdsfjellet (32 MW, Norway), Ånstadblåheia (50 MW, Norway), and Solberg (76 MW, Sweden) wind parks as well as the Kalax (90 MW, Finland) wind park, which is under construction. The parties have also agreed that funds advised by CSEIP will invest in an 80% share of the Sørfjord (97 MW, Norway) wind park, once it is fully commissioned. Part of the capacities are already operational and the remaining part is expected to be commissioned by the end of the third quarter of 2020. In addition, Fortum and CSEIP have agreed on further cooperation and exclusivity on a new project in Sävar, Sweden (154 MW) with the ambition to build it at a later stage. The total consideration of the divestment of the 80% stake on a debt- and cash-free basis is expected to be approximately EUR 250 million, of which EUR 170 million is related to the first quarter of 2020. The transaction is subject to regulatory approvals in the EU and is expected to close in the first quarter of 2020. The sale will have a minor positive effect on the Generation segment's first-quarter 2020 comparable operating profit.

In May 2019, Fortum announced the restructuring of Fortum's and Skellefteå Kraft's ownership in the two jointly owned Swedish wind parks Solberg and Blaiken. Through an asset swap arrangement, Fortum became the sole owner of the 76-MW Solberg wind park and Skellefteå Kraft the sole owner of the 248-MW Blaiken wind park. The Solberg-acquisition related to the Solberg-Blaiken asset swap amounted to EUR 36 million. The asset swap arrangement was finalised in August 2019 and had a minor impact on Fortum's cash flow and results.

In May 2019, Fortum made the investment decision to start construction of the 90-MW Kalax wind park in Närpes, Finland. The capital expenditure of the wind park is approximately EUR 90 million. The wind park is expected to be fully operational in the first quarter of 2021 at the latest. In October 2019, Fortum signed a 12-year power purchase agreement selling 70% of the power production of the Kalax wind park to Neste Corporation.

In January 2019, Fortum acquired all remaining C-shares of TVO, entitling it to 100% of the power production of the Meri-Pori coal condensing power plant, an increase from 67% previously. In December, 440 MW of the production capacity of Fortum's Meri-Pori power plant was selected for inclusion in the Finnish national peak-load reserve capacity system from 1 July 2020 to 30 June 2022.

City Solutions

In December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million. The transaction was completed on 10 January 2020 and Fortum will record a tax exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results. In June 2019, Fortum announced it would review and consider strategic options for the Joensuu and Estonian district heating businesses. The strategic review of the Estonian district heating business is still ongoing. An extended assessment that includes the district heating and cooling businesses in all Baltic countries, in Poland, and in Järvenpää, Finland, is also being initiated.

In May 2019, Fortum announced its plan to construct a new 20-MW heat pump unit at the Suomenoja power plant in Espoo, Finland, to produce carbon-neutral district heating and to replace fossil fuel-based heat production. The unit is planned for commissioning in spring 2021 and will, together with the Kivenlahti bio-HOB, increase the share of Espoo's carbon-neutral district heating production in 2022 to over 50%. The final investment decision to build the unit was made in the fourth quarter of 2019.

In March 2019, Fortum announced that it had won the right from Solar Energy Corporation of India to build a 250-MW solar power plant in Rajasthan, India. Commissioning of the plant is expected in the fourth quarter of 2020.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure was approximately EUR 160 million. The plant was fully commissioned by 5 August 2019.

In June 2018, Fortum signed an agreement to sell a 54% share of its solar power company operating four solar power plants in India to UK Climate Investments (40%) and Elite Alfred Berg (14%). In April 2019, Elite Alfred Berg used its option to buy an additional 2% from Fortum.

In 2015, Fortum decided to build a new multi-fuel CHP plant in Zabrze, Poland. The new plant is primarily fuelled by refuse-derived fuel (RDF) and coal; however, it is also able to use a mixture of fuels. The new plant has a production capacity of 145 MW of heat and 75 MW of electricity and replaces the existing purely coal-fired units in Zabrze and Bytom. Commissioning was somewhat delayed from the original plan and commercial operations started on 1 April 2019.

Russia

In April 2019, the Ministry of Energy of the Russian Federation selected Fortum and Energy Sales Company Vostok's 50/50 joint venture as the guaranteed electricity retail supplier to 1.5 million customers in the Chelyabinsk region as of 1 July 2019. The decision was made based on an auctioning process held in March 2019. In the auction, the joint venture committed to a 100% reimbursement of the RUB 4.8 billion debt of Chelyabenergosbyt, corresponding to approximately EUR 66 million. The transaction required a limited equity investment from Fortum, as the joint venture financed the major part of the reimbursement with external debt. For Fortum, the net impact of the reimbursement was substantially lower due to the fact that Fortum was the single largest creditor, with EUR 11 million of the debt.

In June 2019, Fortum won the right to build 5.6 MW of solar capacity in Russian CSA auctions, in addition to the 110 MW won in June 2018. The power plants are to be commissioned during the years 2021–2022.

In June 2018, the Fortum-Rusnano wind investment fund (50/50 joint venture) won the right to build 823 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during the years 2019–2023. During the fourth quarter of 2018, the wind investment fund made an investment decision on a 100-MW wind farm. Power production and capacity supply is expected to start during the first half of 2020.

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during the years 2018–2022. In the fourth quarters of 2017, 2018, and 2019, the wind investment fund made investment decisions on a 50-MW, a 200-MW, and a 250-MW wind farm, respectively. On 1 January 2019, the 50-MW wind farm started operation. Power production and capacity supply at the 200-MW wind farm is expected to start during the first half of 2020 and at the 250-MW wind farm during the fourth quarter of 2020.

The investment decisions related to the renewable capacities won by Fortum and the Fortum-Rusnano wind investment fund in 2017, 2018, and 2019 are made on a case-by-case basis. Fortum's maximum equity commitment is RUB 15 billion. In the longer term, Fortum seeks to maintain an asset-light structure.

Research and development

Sustainability is at the core of Fortum's strategy and, alongside Fortum's current businesses, the company is carefully exploring and developing new sources of growth within renewable energy production.

Fortum's goal is to be at the forefront of energy technology and application development. To accelerate innovation and the commercialisation of new offerings, Fortum is strengthening its in-house innovation and digitalisation efforts and building partnerships with leading global suppliers, technology and service companies, and research institutions. Fortum makes direct and indirect investments in start-ups that have promising new innovations focused on connectivity, have disruptive potential and accelerate the transition towards a circular economy. Fortum also invests in technologies that support better utilisation of the current asset base and that can create new markets and products for Fortum. The company is continuously looking for emerging clean energy solutions and for solutions that increase resource and system efficiency.

The Group reports its R&D expenditure on a yearly basis. In 2019, Fortum's R&D expenditure was EUR 67 (56) million, or 1.2% (1.1%) of sales.

	2019	2018	2017	Change 19/18
R&D expenditure, EUR million	67	56	53	20%
R&D expenditure, % of sales	1.2	1.1	1.2	

Changes in Group management

In August 2019, Fortum announced that Marco Ryan, a member of Fortum's Board of Directors, resigned from the Board following his appointment at the energy company BP. Fortum's Shareholders' Nomination Board evaluated the Board of Directors' ability to function and concluded that the Board had full capacity to continue in its remaining composition until the 2020 Annual General Meeting.

Annual General Meeting 2019

Fortum Corporation's Annual General Meeting on 26 March 2019 adopted the Financial Statements and the Consolidated Financial Statements for the financial period 1 January-31 December 2018, and discharged from liability the members of the Fortum Board of Directors and the President and CEO for the year 2018.

The Annual General Meeting decided to pay a dividend of EUR 1.10 per share for the financial year that ended on 31 December 2018. The record date for the dividend payment was 28 March 2019 and total dividends of EUR 977 million were paid on 4 April 2019.

The Annual General Meeting confirmed the remuneration for Board service for the upcoming term as follows: EUR 75,000 per year for the Chairman, EUR 57,000 per year for the Deputy Chairman, EUR 40,000 per year for a Member, and EUR 57,000 per year for the Board member acting as the Chairman of the Audit and Risk Committee if he or she is not simultaneously acting as Chairman or Deputy Chairman of the Board. In addition, a fee of EUR 600 will be paid for each Board meeting and Board Committee meeting. For Board members living outside Finland in Europe, the fee for each meeting will be doubled, and for Board members living outside Europe, the fee for each meeting will be tripled. For Board members living in Finland, the fee for each Board and Board Committee meeting will be doubled for meetings held outside Finland and tripled for meetings held outside Europe. For Board and Committee meetings held as a telephone conference, the basic meeting fee will be paid to all members. No fee will be paid for decisions made without a separate meeting.

The Annual General Meeting decided that the number of the members in the Board of Directors will be nine. Mr. Matti Lievonen was elected as Chairman, Klaus-Dieter Maubach as Deputy Chairman, and Ms Eva Hamilton, Mr. Kim Ignatius, Ms Essimari Kairisto, Ms Anja McAlister, Mr. Veli-Matti Reinikkala, Mr. Marco Ryan and Mr. Philipp Rösler as Members. In August 2019, Marco Ryan resigned from the Board following his appointment at the energy company BP.

In addition, Deloitte Oy was re-elected as the auditor with Reeta Virolainen, APA, as the principal auditor. The auditor's fee is paid pursuant to an invoice approved by the company.

The Annual General Meeting authorised the Board of Directors to decide on the repurchase and disposal of the company's own shares up to maximum of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. Only the unrestricted equity of the company can be used to repurchase own shares on the basis of the authorisation. It was also decided that own shares cannot be repurchased or disposed for the purposes of the company's incentive and remuneration schemes. These authorisations cancelled the authorisations resolved by the Annual General Meeting of 2018 and they will be effective until the next Annual General Meeting and in any event no longer than for a period of 18 months. The authorisations have not been used as of 5 February 2020.

The Annual General Meeting authorised the Board of Directors to decide on contributions in the total maximum amount of EUR 500,000 for charitable or similar purposes, and to decide on the recipients, purposes and other terms of the contributions. The authorisation will be effective until the next Annual General Meeting. The authorisation has not been used as of 5 February 2020.

Board decisions

At the meeting held after the Annual General Meeting 2019, Fortum's Board of Directors elected to the Nomination and Remuneration Committee Matti Lievonen as Chairman and Eva Hamilton, Klaus-Dieter Maubach and Anja McAlister as members. Furthermore, the Board elected to the Audit and Risk Committee Kim Ignatius as Chairman and Essimari Kairisto, Veli-Matti Reinikkala, Marco Ryan and Philipp Rösler as members.

Shareholders Nomination Board

On 3 October 2019, Mr. Kimmo Viertola, Director General, Prime Minister's Office, Ownership steering department (Chairman), Mr. Jouko Pölönen, President and CEO, Ilmarinen Mutual Pension Insurance Company, and Mr. Risto Murto, President and CEO, Varma Mutual Pension Insurance Company were appointed to Fortum's Shareholders' Nomination Board. In addition, the Chairman of Fortum's Board of Directors, Mr. Matti Lievonen, is a member of the Shareholders' Nomination Board.

On 31 January 2020, Fortum's Shareholders' Nomination Board submitted its proposals to Fortum's Board of Directors for the 2020 Annual General Meeting concerning the number of the Board members, the members to be nominated to the Board of Directors, and the election of the Chairman and Deputy Chairman. The Shareholders' Nomination Board did not reach a unanimous proposal, and consequently did not make a proposal for the remuneration paid to the Board of Directors for their following term of office.

Other major events during the reporting period

On 19 December 2019, the Board of Directors decided to commence the 2020–2022 long-term incentive (LTI) plan for key employees and executives. The Board of Directors also decided to update the terms and conditions of the LTI programme, valid for the plans commencing as of the beginning of 2020, to include more precise malus and clawback clauses. The 2020–2022 LTI plan is part of Fortum's ongoing LTI programme and otherwise follows the same principles as the previous plan. The 2020–2022 LTI plan will comprise approximately 140

participants, including the members of Fortum Executive Management. The Board of Directors also decided to establish a Restricted Share programme, as a supplement to the LTI programme, and reserve shares that potentially will be allocated under the 2020–2022 plan. The Restricted Share programme will follow the main terms and conditions of the general LTI programme with the exception that the allocated shares will be delivered after the three-year plan period independent of performance measures, subject to continued employment. The maximum number of shares that may be delivered as a reward is expected to be 660,000 shares for the 2020–2022 LTI plan and 60,000 shares for the 2020–2022 Restricted Share plan.

On 11 October 2019, the Board of Directors decided to establish an Employee Share Savings (ESS) programme and launch the savings period for the year 2020 under that programme. The shares for the ESS programme will be purchased from the market quarterly after Fortum's interim reports have been published. Dividends paid for the shares will be reinvested in additional shares to be purchased from the market after the dividend payment. The Board of Directors will annually decide on the potential launch of each individual savings period. The ESS programme participants will, as a gross reward, be granted one matching share for each two purchased savings shares after approximately three years from the beginning of the savings period. The total amount of all savings for the 2020 savings period may not exceed EUR 6 million. More than 40% of the eligible employees took the opportunity to invest in the first ESS plan.

Events after the balance sheet date

On 6 February 2020, Fortum announced, in line with its strategy and continued review of the business portfolio, that it had decided to assess strategic options, including possible divestment, of its district heating and cooling businesses in Poland, Estonia, Lithuania, Latvia, and Järvenpää in Finland. Based on initial assessments, these district heating and cooling businesses have been identified as operations that could provide higher growth and value potential with an alternative ownership structure.

On 20 December 2019, Fortum signed an agreement to sell its district heating business in Joensuu, Finland, to Savon Voima Oyj. The total consideration on a debt- and cash-free basis was approximately EUR 530 million, and the cash was received at the completion of the divestment on 10 January 2020. Fortum will record a tax-exempt capital gain of approximately EUR 430 million in the City Solutions segment's first-quarter 2020 results.

Key drivers and risks

Fortum's financial results are exposed to a number of financial, operational, strategic, and sustainability-related risks. Fortum is exposed to these risks both directly and indirectly through its associated companies and joint ventures. The principal associated companies and joint ventures are Uniper SE, TVO, OKG AB, Forsmarks Kraftgrupp AB, Kemijoki Oy, TGC-1, and Stockholm Exergi AB. For more information about the risk exposures, please see each respective company's annual report.

One of the key factors influencing Fortum's business performance is the Nordic electricity wholesale price. The key short-term drivers behind the electricity wholesale price development in the Nordic region are commodity prices, such as coal and gas, European electricity wholesale prices, prices for CO_2 emission allowances, the hydrological situation, temperatures, and the electricity import-export balance. In the longer term, global economic growth and changes to energy policy and regulations impact commodity and CO_2 emission allowance prices, which, in turn, impact the Nordic wholesale price of electricity. In addition, increased volatility in exchange rates could have both translation and transaction effects on Fortum's financials, especially through the Russian rouble and Swedish krona.

Operational risks resulting from failed internal processes or systems or from external events can have a negative impact on Fortum's results. In all regions, fuel prices and power plant availability also impact profitability.

Changes in the regulatory and fiscal environment create risks and opportunities for the energy and environmental management business. The main strategic risk is that the regulatory and market environment develops in a way that we have not been able to foresee and prepare for. In response to these uncertainties, Fortum analyses and assesses a number of future market and regulation scenarios, including the impact of these on different generation forms and technologies. As a result, Fortum's strategy includes broadening of the revenue base and diversification into new businesses, technologies, and markets. The environmental management business is based on the framework and opportunities created by environmental regulation. Being able to respond to customer needs created by the tightening regulation is a key success factor.

For Fortum's Russian business, the key drivers are economic growth, the rouble exchange rate, regulation of the heat business, and the further development of the electricity and capacity markets. A key profitability driver is the received capacity payments based on the CSA contracts and Competitive Capacity Selection (CCS) auctions. The main part of Fortum's generation capacity built after 2007 is entitled to CSA payments for approximately 10 years after commissioning of each new unit (approximately 15 years for renewable generation). The received capacity payments vary, depending on the age, location, type, and size of the plant, as well as on seasonality and availability. The CSA payments are adjusted for, among other factors, the weighted average cost of capital (WACC), the consumer price index (CPI), and re-examination of earnings from the electricity-only (spot) market (done every three and six years after commissioning of a unit). In addition, thermal power plants are entitled to clearly higher CSA payments starting approximately six years after commissioning.

For further details on Fortum's risks and risk management, see the ▸ **Risk management** section of the Operating and financial review and ▸ **Note 4** Financial risk management.

Outlook

Hedging

At the end of 2019, approximately 75% of the Generation segment's estimated Nordic power sales volume was hedged at EUR 34 per MWh for 2020, and approximately 40% at EUR 33 per MWh for 2021.

The reported hedge ratios may vary significantly, depending on Fortum's actions on the electricity derivatives markets. Hedges are mainly financial contracts, most of them electricity derivatives quoted on Nasdaq Commodities.

Capital expenditure and divestments

Fortum currently estimates its capital expenditure, including maintenance but excluding acquisitions, to be approximately EUR 700 million (previously expected to be less than EUR 600–650 million) in 2020. This includes approximately EUR 200 million of solar and wind investments, which are subject to the capital recycling business model. The maintenance capital expenditure in 2020 is estimated to be approximately EUR 300 million, well below the level of depreciation.

Nordic market

Electricity is expected to continue to gain a higher share of total energy consumption. Electricity demand in the Nordic countries during the next few years is expected to grow annually by approximately 0.5% on average. The growth rate will largely be determined by the macroeconomic development in Europe and especially in the Nordic countries and, in the longer term, also by the rate of electrification of industry, transportation, and heating.

During the fourth quarter of 2019 the gas price was at a low level, and also the front-year gas price decreased. Coal prices decreased, EUA prices developed sideways, and oil prices increased.

At the end of January 2020, the forward quotation for coal (ICE Rotterdam) for the remainder of 2020 was around USD 53 per tonne and the market price for EUAs for 2020 at the level of EUR 24 per tonne. The Nordic system electricity forward price on Nasdaq Commodities for the remainder of 2020 was around EUR 20 per MWh and for 2021 around EUR 27 per MWh. In Germany, the electricity forward price for the remainder of 2020 was around EUR 36 per MWh and for 2021 around EUR 41 per MWh. The Nordic water reservoirs were about 6 TWh above the long-term average and 13 TWh higher than one year earlier.

Generation

The Generation segment's achieved Nordic power price typically depends on factors such as hedge ratios, hedge prices, spot prices, availability and utilisation of Fortum's flexible production portfolio, as well as currency fluctuations. Excluding the potential effects from changes in the power generation mix, a 1 EUR/MWh change in the Generation segment's Nordic power sales achieved price will result in an approximately EUR 45 million change in Fortum's annual comparable operating profit. The achieved power price also includes the results of optimisation of Fortum's hydro and nuclear production, as well as operations in the physical and financial commodity markets.

In June 2018, the Swedish Parliament adopted new hydro legislation effective 1 January 2019. The new legislation states that the power industry shall create a joint hydropower fund to finance major parts of the required environmental actions. Consequently, a fund has been established with a total financial cap of SEK 10 billion to be paid over a 20-year period. All major utilities will contribute to the fund based on their share of Swedish hydropower production. Fortum's share of the fund's total financing is 23%. In addition to the new legislation, the Government issued an ordinance that came into force on 11 January 2019 to establish a national prioritisation plan for the revision of hydropower permits.

In June 2018, the Swedish Administrative Court of Appeal gave its decisions on Fortum Sverige AB's hydropower production-related real-estate tax assessments for the years 2009–2014. The court decisions were not in Fortum's favour. Fortum applied for the right to appeal from the Supreme Administrative Court, but did not receive permission to appeal. As the Administrative Court, the Administrative Court of Appeal in Stockholm, and the Supreme Administrative Court have handled only the arguments concerning state aid, the case concerning the other legal arguments has now been transferred back to the Administrative Court. The disputed amount, excluding interest for the time period, totals approximately SEK 510 million (approximately EUR 49 million). Moreover, Fortum's Swedish companies have appeals for 2011–2016 pending before the Administrative Court relating to the real-estate tax rate for their hydropower plants and referring to the same legal grounds. Fortum has paid the real-estate tax in accordance with the legislation. If the final court decision is unfavourable to Fortum, it will not impact Fortum's results. In December 2018, Fortum Sverige AB filed a complaint to the EU Commission regarding the Swedish real-estate tax for hydropower plants for 2017 and prior years. Fortum has asked the Commission to investigate whether the Swedish legislation regarding the real-estate tax for hydropower plants and the Swedish court decisions are in line with EU state aid rules.

According to the Swedish Government's budget proposal for the coming years, presented in September 2016, the Swedish hydropower real-estate tax will decrease from 2.8% to 0.5%. The tax is being reduced in four steps: in January 2017 to 2.2%; in January 2018 to 1.6%; in January 2019 to 1.0%; and in January 2020 to 0.5%. In 2018, the tax was EUR 65 million, in 2019 EUR 40 million, and in 2020 it is expected to be approximately EUR 25 million. In addition to the decrease in the tax rate, the hydropower real-estate tax values, which are linked to electricity prices, were updated in 2019. The real-estate tax values are updated every six years.

City Solutions

In City Solutions, growth in cash flow and earnings is mainly achieved through investments in new plants and through acquisitions. Heat prices, fuel cost, CO_2 prices, availability, taxation and regulatory changes, flexibility and efficiency of the plants, as well as gate fees for receiving waste are the key drivers for profitability, but power prices and weather conditions also affect profitability. Fortum aims to create new businesses with potential for sizeable profit contribution, e.g. within the areas of waste and recycling and the bio-economy.

The development of Fortum Oslo Varme's business operations is estimated to require one-time integration-related costs and investments over the coming years. The cost synergies materialised gradually during 2019, with targeted annual synergies of EUR 5–10 million expected to be achieved by the end of 2020.

In March 2019, Fortum announced that it had won the right from Solar Energy Corporation of India to build a 250-MW solar power plant in Rajasthan, India. The solar park will be entitled to a fixed tariff of 2.48 INR/kWh for 25 years. Commissioning of the plant is expected in the fourth quarter of 2020.

In June 2018, Fortum won the right to build a 250-MW solar power plant in the Pavagada solar park in Karnataka, India. The capital expenditure was approximately EUR 160 million and the solar park is entitled to a fixed tariff of 2.85 INR/kWh for 25 years. The plant was fully commissioned by 5 August 2019.

Consumer Solutions

Competition in the Nordic electricity retail market is expected to remain challenging, with continued pressure on sales margins and customer churn. To counter the market challenges and to create a solid foundation for competitive operations, Consumer Solutions will continue its cost spend in developing new digital services for consumers.

Russia

In the Russia segment, capacity payments based on CSA contracts are a key driver for earnings growth, as capacity payments based on CSA contracts are considerably higher than for CCS auctions. Currently, Fortum's CSA capacity amounts to 2,368 MW. In February 2019, the System Administrator of the wholesale market published data from 2018 regarding the WACC and the CPI, which were used to calculate the CSA price for 2019. The CSA payments were revised downwards to reflect the lower bond rates and upwards due to the lower earnings from the electricity-only-market. The net impact of the adjustments was a minor increase of the CSA payments for 2019.

In addition, thermal power plants are entitled to clearly higher CSA payments starting approximately six years after commissioning. In 2020, no such increase in CSA payments is expected for the Fortum generation fleet.

Fortum's other Russian generation capacity, totalling 2,560 MW, is allowed to participate in the CCS auctions. The long-term CCS auctions for the years 2018–2021 were held in 2015, 2016, and 2017. All Fortum plants offered in the auctions were selected. The nominal CCS price was 111 tRUB/MW/month for 2018, 110 tRUB/MW/month for 2019, 115 tRUB/MW/month for 2020, and 134 tRUB/MW/month for 2021. The CCS auctions for 2022–2024 were held in August 2019. The nominal CCS price was 168 tRUB/MW/month for 2022, 171 tRUB/MW/month for 2023, and 182 tRUB/MW/month for 2024. The CCS auction for 2025 is expected to be held in February 2020. Fortum has also obtained so-called "forced mode status", i.e. it receives payments with a higher rate, for some of the units at the Argayash power plant. "Forced mode status" was obtained for 195 MW for the years 2018–2019, for 175 MW for the year 2020, and for 105 MW for the year 2021.

In June 2019, Fortum won the right to build 5.6 MW of solar capacity in a CSA auction, in addition to the 110 MW won in June 2018. The power plants will receive a guaranteed CSA price for a period of 15 years, corresponding to approximately RUB 14,000 per MWh and RUB 15,000 per MWh, respectively. The plants are to be commissioned during 2021–2022.

In June 2018, the Fortum-Rusnano wind investment fund (Fortum's ownership 50%) won the right to build 823 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during 2019–2023 and will receive a guaranteed CSA price corresponding to approximately RUB 7,000–8,000 per MWh for a period of 15 years. In December 2018, the wind investment fund made an investment decision on a 100-MW wind farm.

In June 2017, the Fortum-Rusnano wind investment fund won the right to build 1,000 MW of wind capacity in a CSA auction. The wind parks were to be commissioned during 2018–2022 and will receive a guaranteed CSA price corresponding to approximately RUB 7,000–9,000 per MWh for a period of 15 years. In the fourth quarters of 2017, 2018, and 2019, the wind investment fund made investment decisions on a 50-MW, 200-MW, and 250-MW wind farm, respectively.

The Russian Government increased the gas price by 1.4% in July 2019. Fortum estimates the gas price to be increased by 3% in July 2020.

Other Operations

For information on the financial impact of the Uniper shareholding, please see ▸ **Notes 3 and 19**.

Income taxation

In June 2018, the Swedish Government decided to lower the Swedish corporate tax in two steps, from 22.0% to 21.4%, effective January 2019, and to 20.6%, effective January 2021.

In Belgium, Fortum has received income tax assessments for the years 2008–2012. The tax authorities disagree with the tax treatment of Fortum EIF NV, which was later merged into Fortum Project Finance NV. Fortum finds the tax authorities' interpretation to be inconsistent with the local regulation and has appealed the decisions. The Court of First Instance in Antwerp rejected Fortum's appeal for the years 2008 and 2009 in June 2014. Fortum found the decision unjustifiable and appealed to the Court of Appeal. In January 2016, Fortum received a favourable decision from the Court of Appeal in Antwerp in which the Court disagreed with the tax authorities' interpretation and the tax assessment for 2008 was nullified. The tax authorities disagreed with the decision and filed an appeal to the Supreme Court (Hof van Cassatie) in March 2016. In April 2019, the Advocate General at the Supreme Court issued his opinion, which was in favour of Fortum Project Finance. In May 2019, the Supreme Court, however, annulled the decision of the Court of Appeal of Antwerp and referred the case back to the Court of Appeal of Ghent for full retrial. Fortum's appeals concerning 2009–2012 are still pending and Fortum expects the remaining years to follow the final decision for 2008. Based on legal analysis and a supporting legal opinion, no provision has been accounted for. The amount of additional tax claimed is EUR 36 million for the year 2008, EUR 27 million for 2009, EUR 15 million for 2010, EUR 21 million for 2011, and EUR 15 million for 2012. The tax has already been paid.

In March 2018, the Swedish Supreme Administrative Court decided not to grant leave to appeal to Fortum with respect to the interest deduction cases relating to the years 2009–2012. The unfavourable decision of the Administrative Court of Appeal from June 2017 therefore remains in force. The additional tax and interest, in total SEK 1,175 million (EUR 122 million), was paid in 2016 and booked as a cost in the second-quarter 2017 results. There are strong grounds to argue that these decisions of the Administrative Court of Appeal and the Supreme Administrative Court violate EU law and fundamental rights under EU law. On these grounds, Fortum filed a summons application in December 2018 to the District Court of Stockholm in which damages are claimed from the Swedish state in these cases. Fortum also filed a request to initiate a mutual agreement procedure between Sweden and the Netherlands for the year 2012 (▸ **Note 37**).

Sustainability

Sustainability at Fortum

Fortum gives balanced consideration in its operations to climate and resource issues, as well as its impacts on personnel and society. Fortum conducted a sustainability materiality analysis in 2019 and the renewed sustainability priority areas are the following:

Personnel and society		Climate and resources
Business ethics and compliance	Employee wellbeing, health and safety	Climate change and GHG emissions
Customer rights and satisfaction	Labour rights	Energy efficiency
Human rights	Innovation and digitalisation	Circular economy
Corporate governance	Economic value creation	Emissions to air, land and water
Stakeholder engagement	Diversity and equal opportunity	Water use
		Security of supply

The Group-level sustainability targets are linked to the main sustainability priority areas and emphasise Fortum's role in society. They measure not only environmental and safety targets, but also Fortum's reputation, customer satisfaction, employee wellbeing, and the security of power and heat production. Targets are set annually and are based on continuous operational improvement. A new target in 2019 is the Contractor safety improvement index.

The achievement of the sustainability targets is monitored in monthly, quarterly and annual reporting. Fortum publishes a yearly Sustainability Report with additional information on the company's sustainability performance.

Group sustainability targets and performance 2019

	Target	2019	2018
Climate and resources			
Specific CO_2 emissions from total energy production as a five-year average, g/kWh	≤200	186	186
Energy-efficiency improvement by 2020, baseline 2012, GWh/a	≥1,900	1,707	1,637
Major EHS incidents, no. [1]	≤18	11	18
Energy availability of CHP plants, %	≥95.0	95.9	96.4
Personnel and society			
Reputation index, based on One Fortum Survey	≥73.0	72.3	72.5
Customer satisfaction index (CSI), based on One Fortum Survey	70–74	54–80	63–83
Lost Workday Injury Frequency (LWIF), own personnel and contractors	≤1.7	1.7	1.8
Severe occupational accidents, no.	0	1	4
Quality of investigation process of occupational accidents, major EHS incidents and near misses	Level 3.0	Level 3.0	Level 3.0
GAP index, implementation of EHS minimum requirements	Level 3.0	Level 3.0	Level 2.0
Contractor safety improvement index	Level 2.0	Level 2.0 [2]	-
Sickness-related absences, %	≤2.5	3.0	2.8

1) The figure does not include the exceedances caused by possible changes in permit limits in Russia.

2) The reporting of the Contactor safety improvement index started in the second quarter of 2019. The figure is still excluding City Solutions' solar power sites.

Fortum's goal is to achieve excellent financial performance in strategically selected core areas through strong competence and responsible ways of operating. Fortum measures financial performance with return on capital employed (long-term target: at least 10%) and capital structure (long-term target: comparable net debt/EBITDA around 2.5x).

Fortum is a significant economic actor in its operating countries. The most significant direct monetary flows of Fortum's operations come from revenue from customers, procurements of goods and services from suppliers, compensation to lenders, dividends to shareholders, growth and maintenance investments, employee wages and salaries, and taxes paid.

Fortum supports social development and wellbeing in its operating countries by e.g. paying taxes. The tax benefits Fortum produces to society include not only corporate income taxes, but also several other taxes. In 2019, Fortum's taxes borne were EUR 397 (299) million. Fortum publishes its tax footprint annually.

Fortum is listed on the Nasdaq Helsinki exchange and is included in the STOXX Global ESG Leaders, OMX Sustainability Finland, ECPI®, Euronext Vigeo Eurozone 120, Euronext Vigeo Europe 120 and Equileap Gender Equality indices. Fortum is also ranked in category B in the CDP Climate Change 2019 rating, and it has received a rating A in the MSCI ESG Ratings assessment in 2019, and a Prime Status (B-) rating by ISS ESG Corporate Rating. In June 2019, Fortum became a constituent of the FTSE4Good Index Series.

Fortum's sustainability reporting covers all functions under Fortum's operational control, including subsidiaries in all countries of operation. The figures for power and heat generation, capacities and investments include also figures from Fortum's share in associated companies and joint ventures that sell their production to the owners at cost.

In the Financial Statements, Uniper is treated as an associated company and Stockholm Exergi as a joint venture, and both companies are consolidated with the equity method. Stockholm Exergi and Uniper are not included in Fortum's sustainability targets and indicators nor in the descriptions of management practices. Stockholm Exergi's and Uniper's sustainability information are available in the companies' sustainability reports that can be found on the companies' own web pages.

Sustainability risks and opportunities

Fortum's operations are exposed to risks, which if materialised can have adverse effects on the environment and on the safety and security of employees, contractors and neighbouring societies. Key sustainability

risks, including climate-related risks, are reported to Fortum Executive Management and the Audit and Risk Committee as part of the annual review of material risks and uncertainties for the Group. These risks are presented in the Risk management section in the Operating and financial review. Climate change and the need for decarbonisation and resource efficiency are changing the energy industry in a profound way, and these changes also create new business opportunities for Fortum.

Sustainability governance and policies

Sustainability management at Fortum is strategy-driven and is based on the company's Values, the Code of Conduct, the Supplier Code of Conduct, the Sustainability Policy and other Group policies and their specifying instructions. As sustainability is an integral part of Fortum's strategy, the highest decision making on sustainability and climate-related matters falls within the duties of the members of the Board of Directors, who share joint responsibility in these matters.

Fortum Executive Management decides on the sustainability approach and Group-level sustainability targets that guide annual planning. The Group's performance targets, including sustainability and climate-related targets, are ultimately approved by Fortum's Board of Directors. Fortum's line management is responsible for the implementation of the Group's policies and instructions and for day-to-day sustainability management. Realisation of the safety targets is a part of Fortum's short-term incentive system.

Fortum is a participant of the UN Global Compact initiative and the UN Caring for Climate initiative. Fortum respects and supports the International Bill of Human Rights, the United Nations Convention on the Rights of the Child, and the core conventions of the International Labour Organisation (ILO). Additionally, Fortum recognises in its operations the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises and OECD Due Diligence Guidance for Responsible Business Conduct, the International Chamber of Commerce's anti-bribery and anti-corruption guidelines, and the Bettercoal initiative's Code on responsible coal mining.

Fortum's main internal policies and instructions guiding sustainability

		Climate and resources	Personnel and society		
	Economic matters	Environmental matters	Social and employee matters	Human rights	Anti-corruption and bribery
Values	x	x	x	x	x
Code of Conduct	x	x	x	x	x
Supplier Code of Conduct	x	x	x	x	x
Disclosure Policy	x		x		
Group Risk Policy	x	x	x	x	x
Sustainability Policy (including environmental, and health and safety policies)	x	x	x	x	x
Minimum Requirements for EHS Management		x	x	x	
Biodiversity Manual		x			
Group Manual for Sustainability Assessment		x	x	x	x
Human Resources Policy			x	x	
Leadership Principles			x	x	
Accounting Manual	x	x	x		
Investment Manual	x	x	x		x
Tax Principles	x		x		
Group Instructions for Anti-Bribery	x		x		x
Group Instructions for Safeguarding Assets	x		x		x
Group Instructions for Conflicts of Interest	x		x		x
Anti-Money-Laundering Manual	x		x		x
Compliance Guidelines for Competition Law	x		x		x
Security Guidelines		x	x	x	
Policy for Sponsoring and Donations	x		x	x	x
Group Instructions for Compliance Management	x	x	x	x	x

Business ethics

The Fortum Code of Conduct and Fortum Supplier Code of Conduct define how we treat others, engage in business, safeguard corporate assets, and how Fortum expects suppliers and business partners to operate. Fortum's Board of Directors is responsible for the company's mission and values and has approved the Fortum Code of Conduct. Fortum has zero tolerance for corruption and fraud and does not award donations to political parties or political activities, religious organisations, authorities, municipalities or local administrations.

In addition to internal reporting channels, Fortum employees and partners can report suspicions of misconduct confidentially by using the "SpeakUp" channel on Fortum's internal and external web pages.

Suspected misconduct and measures related to ethical business practices and compliance with regulations are regularly reported to the Audit and Risk Committee.

No cases of corruption or bribery were confirmed in 2019.

Climate and resources

Fortum's Group-level targets for climate and resources are related to CO_2 emissions, energy efficiency, secure supply of electricity and heat for customers, and major Environmental, Health and Safety (EHS) incidents.

The Group Sustainability Policy together with the Minimum Requirements for EHS Management steer Fortum's environmental management. Investments, acquisitions and divestments are assessed based on the sustainability assessment criteria defined in the Group's Investment Manual. Operational-level activities follow the requirements set forth in the ISO 14001 environmental management standard, and 99.8% (99.9%) of Fortum's power and heat production worldwide has ISO 14001 certification.

Energy

Fortum's energy production is primarily based on carbon dioxide-free hydropower and nuclear power and on energy-efficient combined heat and power (CHP). In line with the strategy, Fortum targets a multi-gigawatt wind and solar portfolio, which is subject to the capital recycling business model.

In 2019, Fortum's power generation was 76.3 (74.6) TWh and heat production 26.4 (29.8) TWh. 59% (57%) of the total power generation was CO_2-free. In Europe, 96% (96%) of the power generation was CO_2-free. Investments in CO_2-free production were EUR 401 (278) million. Investments in hydro, wind and solar power and bioenergy totalled EUR 344 (180) million.

Fortum has a Group-level target to achieve annual energy-efficiency improvements of ≥1,900 GWh by 2020 compared to 2012. Fortum achieved 1,707 GWh/a by the end of 2019.

The main fuels that Fortum uses to produce electricity and heat are natural gas, uranium, coal, waste-derived fuels and biomass fuels. The most significant fuel was natural gas, which accounted for 63% (63%) of the total fuel consumption. The next highest fuel use was uranium 20% (21%). Coal accounted for 10% (8%) of the total fuel use, and waste-derived fuels and biomass fuels 3% (4%) and 3% (3%), respectively. Russia accounted for 99% of the use of natural gas and 57% of the use of coal.

An uninterrupted and reliable energy supply is critical for society to function. With planned preventive maintenance and condition monitoring, Fortum ensures that the power plants operate reliably to produce the electricity and heat customers need. The energy availability of the company's CHP plants in 2019 was, on average, 95.9% (96.4%), outperforming the target of ≥95.0%.

Climate

Fortum expects the concern about climate change to increase the demand for low-carbon production and energy-efficient solutions and products. Fortum aims to mitigate climate change by investing in CO_2-free energy production and by improving energy and resource efficiency. Fortum is also adapting its operations to climate change in production planning and in the assessment of growth projects and investments.

In 2019, Fortum's direct CO_2 emissions were 19.1 (20.1) Mt. 85% of CO_2 emissions originated from Russian power plants. Direct CO_2 emissions decreased primarily because of the decreased power and heat production. Of the total CO_2 emissions, 2.1 (2.5) Mt were within the EU's emissions trading scheme (ETS). The estimate for Fortum's free emission allowances in 2019 is 0.7 (0.8) Mt.

Fortum's total CO_2 emissions (million tonnes, Mt)	2019	2018	2017
Total emissions	19.1	20.1	18.4
Emissions subject to ETS	2.1	2.5	2.4
Free emission allowances	0.7	0.8	1.0
Emissions in Russia	16.3	16.9	15.4

In 2019, Fortum's specific carbon dioxide emissions from total energy production were 189 (192) g/kWh. The specific CO_2 emissions from total energy production as a five-year average were 186 (186) g/kWh, which is better than Fortum's Group target of ≤200 g/kWh.

Circular economy

Fortum's aim is to promote resource efficiency improvements and the transition towards a more extensive circular economy. Resource efficiency and maximising the added value of waste and biomass are key priorities in the environmental approach, as defined in the Group Sustainability Policy.

In 2019, Fortum received about 1.6 (1.6) million tonnes of non-hazardous waste and about 600,000 (600,000) tonnes of hazardous waste from customers. As much of the waste stream as possible is recycled, recovered or reused. Waste that is unsuitable for recycling or reuse as a material is incinerated in Fortum's waste-to-energy plants in the Nordic countries, Lithuania and Poland.

Emissions

Fortum's activities cause various emissions to air. In addition to carbon dioxide (CO_2) emissions, these include flue-gas emissions, such as sulphur

dioxide (SO_2), nitrogen oxide (NO_x) and particle emissions. All power plants operate in compliance with their air emission limits.

Fortum's flue-gas emissions (1,000 tonnes)	2019	2018	2017
Sulphur dioxide emissions	14.9	16.8	18.8
Nitrogen oxide emissions	24.8	26.1	26.4
Particle emissions	11.7	9.6	15.8

Fortum's target regarding major EHS incidents is to have no more than 18 major EHS incidents annually. Major EHS incidents are monitored, reported and investigated, and corrective actions are implemented. In 2019, there were 11 (18) major EHS incidents in Fortum's operations. The major EHS incidents included three fires, two environmental non-compliances, four leaks, one explosion, and one INES (International Nuclear Event Scale) level 1 incident. The major EHS incidents did not have significant environmental impacts.

Water and biodiversity

Fortum uses large volumes of water at various types of power plants and in district heating networks. In most cases, power plants do not consume water – the water is discharged back to the same water system from where it was withdrawn. Fortum withdrew a total of 2,100 (2,100) million m^3 of water in production operations; 94% of this amount was used as cooling water.

Fortum's main impacts on biodiversity are related to hydropower production. Fuel procurement and flue-gas emissions may also have a negative impact on biodiversity. On the other hand, increasing CO_2-free production mitigates the biodiversity loss caused by climate change. Fortum's Biodiversity Manual and Biodiversity Action Plan define the company's approach to biodiversity management.

Radioactive waste

In 2019, 21.9 (20.3) tonnes of spent nuclear fuel was removed from Loviisa power plant's reactors in Finland. High-level radioactive spent fuel is stored in an interim storage at the Loviisa power plant site. The final disposal of the high-level radioactive spent fuel originating at the Loviisa power plant is scheduled to begin at Olkiluoto in Eurajoki in the 2040s.

Personnel and society

Fortum's Group-level targets for personnel and society are related to operational and occupational safety, employee wellbeing, as well as reputation and customer satisfaction.

Personnel

The Group Human Resources Policy is based on the company's Values, Leadership Principles and Code of Conduct. The HR Policy guides the daily work in the company, and the implementation of the policy is followed up regularly through the employee engagement survey, the annual performance and development discussions, as well as other feedback practices.

Fortum's operations are mainly based in the Nordic countries, Russia, Poland and the Baltic Rim area. The total number of employees at the end of 2019 was 8,191 (8,286).

Group personnel statistics	2019	2018	2017
Number of employees, 31 December	8,191	8,286	8,785
Average number of employees	8,248	8,767	8,507
Total amount of employee benefits, EUR million	480	459	423
Departure turnover, % (of permanent employees)	11.2	16.1	10.5
Permanent employees, %	96.8	95.9	95.2
Full-time employees, % (of permanent employees)	97.7	98.2	98.1
Female employees, %	32	32	32
Females in management, %	30	30	29

Occupational safety

For Fortum, excellence in safety is the foundation of the company's business and an absolute prerequisite for efficient and interruption-free production. Fortum strives to be a safe workplace for the employees, contractors and service providers who work for the company. The Group Sustainability Policy, the Minimum Requirements for EHS Management and more detailed Group-level EHS manuals steer the work. A certified OHSAS 18001 or ISO 45001 safety management system covers 96.5% (97.0%) of Fortum's power and heat production worldwide.

In 2019, Fortum's Lost Workday Injury Frequency (LWIF) for own personnel and contractors was 1.7 (1.8), achieving the set target level (≤1.7). In 2019, there was one occupational violence case in Russia, which was classified as severe accident. The Group target for 2019 was zero severe occupational accidents.

In 2019, the quality of investigation process of occupational accidents, major EHS incidents, and serious near misses was at the level of 3.0 (3.0), achieving the set target level (3.0).

In 2019, the GAP index was at the level 3.0 (2.0), achieving the set target level (3.0). The GAP index measures how well the Group's EHS minimum requirements are realised at the power plant level.

Fortum is continuing its efforts to improve contractor safety, and it systematically assesses contractor safety performance as part of supplier qualification and during work. In 2019, contractor safety improved significantly, and the Contractor safety improvement index was at the level of 2.0, achieving the set target level (2.0). However, the assessment had not yet covered all Fortum operations. The Contractor safety improvement index measures how well Fortum has managed to implement measures targeting improvements in contractor safety.

In 2019, Fortum introduced a "Safety walks" training programme for Fortum's top management. The programme paid special attention to top management's role in improving the safety culture. It included coaching and practical training in the necessary personal leadership skills. It also focused on systems and structures that support the transformation of the safety culture.

Personnel wellbeing

Fortum's goal with workplace wellbeing activities is to promote the health and occupational safety of employees and the functionality of the work community. In 2019, the Energise Your Day wellbeing programme was expanded to the former Hafslund companies in Finland, Sweden, Norway and Poland, and is now under way in all Fortum's operating countries.

In 2019, the percentage of sickness-related absences was 3.0 (2.8), which did not meet the target level of ≤2.5. Sickness absences increased especially in Russia and Norway.

Society

Customer satisfaction

Fortum's targets for reputation and customer satisfaction are monitored annually. In the One Fortum Survey in 2019, the combined company reputation index among key stakeholder groups was 72.3 (72.5) points, on a scale of 0–100, which did not meet the target of ≥73.0 points.

The Group-level target (70–74 points, on a scale of 0–100) for customer satisfaction was achieved among all business areas with two exceptions: retail electricity sales and EV charging solutions for both consumers and businesses.

Supply chain

Fortum's total purchasing volume in 2019 was EUR 3.8 (3.7) billion, and Fortum had about 14,000 suppliers of goods and services. Fortum expects its business partners to act responsibly and to comply with the Fortum Code of Conduct and the Fortum Supplier Code of Conduct. Fortum assesses the performance of its business partners with supplier qualification and supplier audits. In 2019, Fortum conducted a total of 14 (13) supplier audits in Poland, Russia, India, China, Indonesia and Vietnam. In addition, one coal supplier in Kazakhstan was assessed against the Bettercoal Code by a third party.

Human rights

Fortum's goal is to operate in accordance with the UN Guiding Principles on Business and Human Rights and to apply these principles in company's own operations as well as in country and partner risk assessments and supplier audits.

A human rights assessment is carried out for investment projects – especially in new operating areas – and also for new countries where Fortum plans to expand the sales of products and services. In 2019, 6 (7) of these assessments were made.

In 2019, there were no grievances related to human rights filed through Fortum's formal grievance channels, nor were there any grievances carried over from the previous year.

Corporate citizenship

Fortum's operations impact the local communities where the power plants are located, and the company engages in many kinds of collaboration with local stakeholders. According to Fortum's Policy for Sponsoring and Donations, the company's sponsorships focus on the wellbeing of children and youth, renewable energy projects, R&D and innovations supporting Fortum's strategy. In addition, Fortum sponsors projects related to recycling, recovery and reuse. Fortum also engages in collaboration with universities through different research and development projects. In 2019, Fortum's support for activities promoting the common good totalled about EUR 2.7 (3.8) million. In addition, the grants awarded by Fortum Foundation, not part of Fortum Group, totalled about EUR 660,000 (680,000).

Risk management

Risk management framework and objectives

Fortum's Risk Management framework is described in the Group Risk Policy and supporting documents. The Group Risk Policy includes an overview of Fortum's risk management systems consisting of the general principles of risk management and the main features of the risk management process. The objectives of the risk management systems are to;

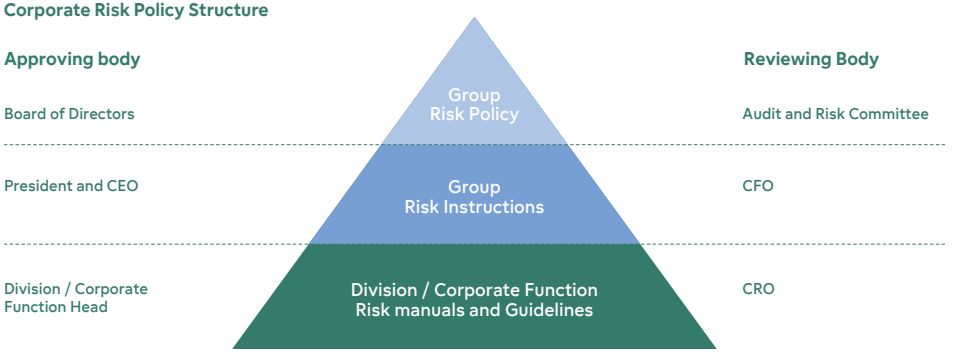
- support the development of the Group strategy,
- support strategy execution,
- support the achievement of agreed targets within acceptable risk levels so that the Group's ability to meet financial commitments is not compromised,
- ensure the understanding of material risks and uncertainties affecting Fortum, and
- support the prevention of accidents that can have a severe effect on the health and safety of employees or third parties, and from incidents that can have a material impact on Fortum's assets, reputation or the environment.

Risk management organisation

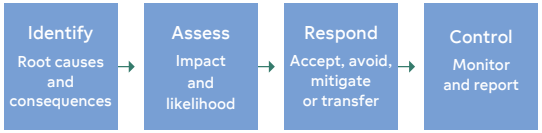
The main principle is that risks are managed at source meaning that each Division and Corporate Function Head is responsible for managing risks that arise within their business operations. However, certain risks, such as currency, interest rate, liquidity and refinancing risks, are managed centrally.

The Audit and Risk Committee (ARC) is responsible for monitoring the efficiency of the company's risk management systems and for annually reviewing the Group Risk Policy and the material risks and uncertainties. Corporate Risk Management, a function headed by the Chief Risk Officer (CRO) reporting to the CFO, provides instructions and tools which support the Group in running an efficient risk management process. Corporate Risk Management is responsible for assessing and reporting maturity of risk management in Divisions and Corporate Functions and for providing independent monitoring and reporting of material risk exposures to Fortum Executive Management (FEM), the ARC and the Board of Directors. Risk control functions and controllers in the business monitor and report risks to the CRO.

Corporate Risk Policy Structure



Risk management process



Fortum's risk management process is designed to support the achievement of agreed targets by ensuring that risk management activities are consistent with the general principles of risk management and that risks are monitored and followed-up in a prudent manner. The main features of risk management process consist of event identification, risk assessment, risk response and risk control. Identification is regularly carried out according to a structured process and risks are assessed in terms of impact and likelihood according to a Group-common methodology. Impact is assessed not only in monetary terms, but also in terms of health and safety, environment and reputation. All risks have risk owners who are responsible for implementing actions to respond to the risk. Risk responses can be to accept, avoid, mitigate or transfer the risk. Risk control processes, which include monitoring and reporting of risks, are designed to support compliance with approved instructions, manuals and guidelines and to ensure that risk exposures remain within approved limits and mandates.

Fortum's Board of Directors approves the Group Risk Policy and the CEO approves Group Risk Instructions covering commodity market risks, counterparty credit risks, and operational risks. Fortum also has other Group policies and instructions covering e.g. compliance, privacy, sustainability, treasury and cyber and information security risks which are aligned with the Group Risk Policy. There are risk mandates or limits defined for commodity market risks, counterparty credit risks and financial risks. Divisions and Corporate Functions issues risk manuals and guidelines as needed which detail how the Group Risk Instructions are implemented.

Risk factors

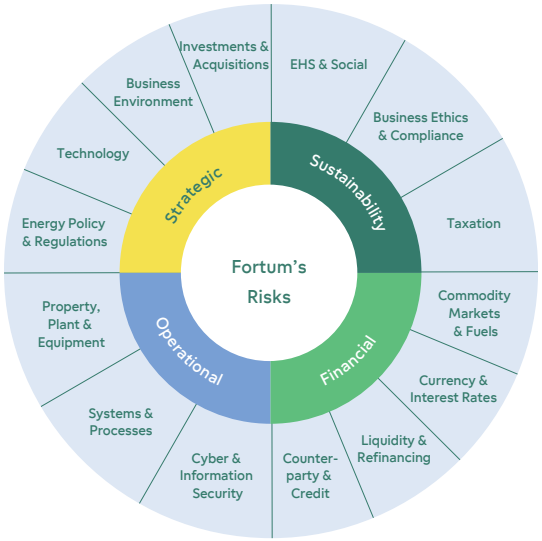
Strategic risks

The main strategic risks are that energy policy, regulation, technology or the business environment develop in ways that have not been foreseen and prepared for. Future energy market and regulation scenarios, including the impact of these to Fortum's business, are continuously assessed and analysed. It is part of Fortum's strategy to, in the long-term, build options to broaden the base of revenues into new businesses, technologies and markets.

Risks which could hinder Fortum in executing its strategy are continuously assessed, monitored and reported as part of the strategy work. These risks include an inability to identify and carry out successful investments and acquisitions with the related project and integration risks.

Business Environment

Fortum operates in a global business environment and is therefore exposed to political and other risks which affect the macroeconomic development and consumer behaviour in the markets where Fortum operates. As operations expand to new geographical regions, markets and businesses, the operating environment becomes more complex and this risk may increase. The current trend of increasingly nationalistic policies and protectionism may lead to more trade restrictions which in turn could affect demand for Fortum's products and services. Fortum continuously monitors how the business environment develops in its operating countries in order to be able to react quickly to market shifts and changes in consumer behaviour.



Investment and acquisition risks

Fortum's strategy includes growth of operations in new businesses, technologies and geographies. This includes an increasing number of partly-owned companies and joint ventures where Fortum does not necessarily have full operational control. Fortum is exposed to a number of risks indirectly through these companies and joint ventures. These risks are monitored and followed-up through Fortum's representation in the respective company Board of Directors and through expert committees. The principal associated companies and joint ventures are Forsmarks Kraftgrupp AB, Kemijoki Oy, OKG AB, Stockholm Exergi AB, TGC-1, Teollisuuden Voima Oyj and Uniper SE. The most significant of these is Uniper SE due to its size, complexity and the phase of the investment. For more information about the risk exposures in these companies, please see each respective company's annual report and other relevant disclosures.

Fortum's recent and current investments, as well as any future investment or acquisition, including possible future partnerships, entail risk such as:

- increased overall operating complexity and requirements for management, personnel and other resources,
- inability to understand the value drivers and their uncertainties in investments or potential acquisition targets,
- inability to manage complex integrations of companies with different cultures and processes, including possibly uncooperative management,
- inability to understand and manage new markets and jurisdictions with different cultural, ethical and legal frameworks,
- inability to understand and manage sustainability risks and safety issues related to new businesses, markets and technologies.

These risks are managed as part of the investment process. The Investment Manual includes requirements for risk identification, assessment and action plans for mitigating identified risks before investment decisions are made. It also sets requirements to follow-up risks in projects and acquisitions. Risks in large projects are mitigated through contract structures and insurance coverage. Partner risk assessments are performed before entering into joint ventures or other material partnership agreements, and there is also a country entry process which includes a country risk assessment before decisions to enter into a new market can be made.

Energy policy and regulation risks

The energy business is heavily influenced by national and EU-level energy policies and regulations. Fortum's strategy has been developed based on scenarios of the future development of the regulatory environment in both existing and potential new businesses and market areas. The overall complexity and possible regulatory changes in the various operating countries pose a risk if Fortum is not able to anticipate, identify and manage those changes efficiently.

Fortum maintains an active dialogue with the bodies involved in the development of laws and regulations in order to manage these risks and proactively contribute to the development of the energy policy and regulatory framework.

Nordic/EU

Fortum's strategy in the power and heat sectors is based on a market-driven development, which would mean more interconnections and competition supported by increasing policy harmonization. Even if the Nordic power market has a long tradition of harmonization, national policies vary considerably when it comes to e.g. taxation, permitting, subsidies and market model meaning that Fortum has to manage risks related to both EU regulation and national regulation. Potential risks related to the future energy, circular economy and climate policy framework include;

- increasing policy costs and uncoordinated national mechanisms hindering an integrated, flexible and dynamic power market,
- overlapping national carbon policies diluting the EU ETS and carbon price despite the ETS reform,
- increasing cost burden for hydro power in Finland, driven by fish obligations, grid costs and real estate taxation,
- unbalanced implementation of the EU Water Framework directive in Sweden leading to lower production volumes,
- stricter sustainability requirements for forest biomass leading to reduced availability and increasing costs,
- implementation of national waste incineration taxes or restrictive measures affecting the operational environment or the competitiveness of the waste-to-energy business as part of overall circular economy promotion,
- acceptability issues related to different fuels or technologies (bio, waste, nuclear, wind, CCS etc.) potentially limiting or slowing down new investments either in power production or transmission grids,
- substantial retroactive changes and/or discontinuation of prevailing CHP support schemes in the Baltic countries and Poland or deteriorating competitiveness of CHP due to fuel tax increases,
- undue heavy-touch price-regulation of district heating in order to enhance the affordability and other social aspects of protecting the end-customers.

The inter-linkage of these issues create uncertainty as changes in policies in one area could undermine the effects of policy changes in other areas.

Russia

Fortum's business in Russia is exposed to political, economic and social uncertainties and risks resulting from changes in regulation, legislation, economic and social upheaval and other similar factors. The current economic sanctions may be enlarged and/or extended having direct and indirect impacts on the business environment. The main energy policy-related risks in Russia are linked to the development of the whole energy sector, part of which, is liberalised, like the wholesale electricity market, while other parts, like gas, heat, and retail electricity, are not. Regulated sectors are inherently exposed to a risk of regulatory changes which could affect Fortum's operations.

Technology risks

Fortum's strategy includes developing or acquiring new technologies, as well as digitalising the business. Fortum's R&D and innovation activities focus on the development of the energy system towards a future low-carbon economy and developing circular economy solutions, bio-economy, other renewable energy concepts and innovative solutions for its customers. New technologies expose Fortum to risks related to intellectual property rights, data privacy and viability of technologies. Technology risks are managed by assessing and monitoring the viability of new technology throughout its development cycle, and selectively developing and investing in a diversified portfolio of projects consisting of different technologies.

Sustainability risks

Corporate social responsibility and sustainable development are integral parts of Fortum's strategy. Fortum gives balanced consideration to economic, environmental and social responsibility. Changes to laws, regulations and the business environment can pose a risk if not identified and managed effectively and the same applies to changes in views of our main stakeholders. In order to identify and manage these risks, Fortum endorses a number of international voluntary charters, standards and guidelines in the area of sustainability, conducts stakeholder surveys annually in order to identify the most material issues for our stakeholders and has defined internal policies and instructions on how to conduct business. Divisions and Corporate Functions identify and assess sustainability risks related to their operations and define mitigating actions. Corporate Sustainability executes oversight as part of the Group's risk management process.

Environmental, health and safety and social risks

Operating power and heat generation plants and circular economy services involves the usage, storage and transportation of fuels and materials, including hazardous waste, that can have adverse effects on the environment and expose personnel, contractors and third parties to safety risks. Assessment of environmental risks and preparedness to operate in exceptional and emergency situations follows legislative requirements as well as the requirements in the environmental management standard (ISO 14001). The same approach, based on the requirements in the operational health and safety standard (OHSAS 18001 or ISO 45001), applies to risks related to occupational health and safety and how to operate in emergency situations.

Environmental, health and safety (EHS) risks as well as social risks related to Fortum's supply chain are evaluated through supplier qualification as well as internal and external audits and risk assessments including partner and country risk assessments. Corrective and preventive actions are implemented when necessary. EHS and social risks related to investments are evaluated in accordance with Fortum's Investment Manual. Environmental risks and liabilities in relation to past actions have been assessed and, where necessary, provisions have been made for future remedial costs.

Tax risk

Fortum operates in a number of countries and is therefore exposed to changes in and conflicts between local and international taxation. Political pressure has resulted in numerous new laws and rules with unclear wording and wide scope creating differences in how tax authorities interpret new rules. This has led to a tax environment with increased tax burden and poor clarity of tax consequences. Clarity and predictability around how our operations are taxed has decreased due to the changing regulation. In addition, new regulation creates material volume of new complex compliance work.

Fortum aims to identify simple and cost-efficient solutions to manage taxes in a sustainable manner. Fortum's tax principle is that tax is a consequence of business and that compliance with tax rules and legislation and transparency result in a correct tax contribution. This principle leaves no room for artificial or other aggressive solutions. Fortum is continuously following the development of tax related issues and their impact on the Group and maintains an active dialogue with tax authorities in unclear cases. Tax-related issues are communicated openly both internally and externally and Fortum's tax footprint is published annually.

Business ethics and compliance risks

Fortum's operations are subject to laws, rules and regulations set forth by the relevant authorities, exchanges, and other regulatory bodies in all markets in which Fortum operates. Fortum's ability to operate in certain countries may be affected by future changes to local laws and regulations.

Fortum's Code of Conduct enhances the understanding of the importance of business ethics for all Fortum employees, contractors and partners. Prevention of corruption is one of the Code of Conduct's focus areas. Fortum has procedures for anti-corruption including prevention, oversight, reporting and enforcement based on the requirements prescribed in international legislation. Fortum's supplier code of conduct sets sustainability requirements for suppliers of goods and services. The Supplier Code of Conduct is based on the principles of the United Nations Global Compact and is divided into four sections: business principles including anti-corruption, human rights, labour standards and environment.

Fortum systematically identifies, assesses, mitigates and reports compliance risks including risks related to business ethics. Internal controls are implemented to prevent the possibilities of unauthorised activities or non-compliance with Group policies and instructions. Fortum's rolling compliance programme includes a risk-based prioritisation of the development and implementation of mitigating actions. Training and communication play a key role in increasing the awareness in the organisation.

Financial risks

Commodity market and fuel risks

Fortum's business is exposed to fluctuations in prices and availability of commodities used in the production and sales of energy products. The main exposure is toward electricity prices and volumes, prices of emissions and prices and availability of fuels. Fortum hedges its exposure to commodity market risks in accordance with approved Hedging Guidelines and Mandates. For further information on hedge ratios, exposures, sensitivities and outstanding derivatives contracts, see ▸ **Note 4** Financial risk management.

Electricity price and volume risks

In competitive electricity markets, such as the Nordpool spot market exchange in the Nordic region, the wholesale price of electricity is determined as the balance between supply and demand. The short-term factors affecting electricity prices and volumes on the Nordic market include hydrological conditions, temperature, wind, CO_2 emission allowance prices, fuel prices, economic development, transmission capacity and the import/export situation.

Electricity price risks are mainly hedged by entering into electricity derivatives contracts on the Nasdaq Commodities exchange. The ability to implement hedging strategies is dependent on a well-functioning and liquid derivatives market. There is a risk of decreasing liquidity on the Nasdaq Commodities exchange, and alternatives including use of OTC derivative contracts and products traded on other exchanges are used to mitigate this risk. Hedging strategies are continuously evaluated as electricity and other commodity market prices, the hydrological balance and other relevant parameters change. In 2019, the models used for evaluating hedging strategies and reporting risk were developed to cover more parameters and improve the use of especially hydrological data. Hedging of the Generation segment's power sales is performed in EUR on a Nordic level covering both Finland and Sweden, and the currency component of these hedges in the Swedish entity is currently

not hedged. In Russia, electricity and capacity prices are the main source of market risk. Electricity price exposure is partly mitigated through regulated fixed-price bilateral agreements, but the majority of electricity sales is exposed to spot price risk. Capacity from newer units is sold under capacity supply agreements where the price is set by the Russian Federation to ensure the return on investments. Capacity from old units has been sold until 2024 via capacity supply auctions which have already been conducted.

Emission and environmental value risks

The European Union has an emissions trading scheme to reduce the amount of CO_2 emissions. In addition to the emissions trading scheme, there are other trading schemes in environmental values in place in Sweden, Norway and Poland. Part of Fortum's power and heat generation is subject to requirements of these schemes. There is currently no trading scheme in Russia for emissions or other environmental values. However, Russia has announced intentions to comply with the Paris Agreement, but there is uncertainty related to how and when a possible carbon market could be implemented.

The main factors influencing the prices of CO_2 emission allowances and other environmental values are political decisions and the supply and demand balance. Fortum hedges its exposure to these prices and volumes through the use of CO_2 derivatives and environmental certificates.

Fuel price and volume risks

Power and heat generation requires use of fuels that are purchased on global or local markets. The main fuels used by Fortum are natural gas, uranium, coal, various biomass-based fuels and waste. The main risk factor for fuels that are traded on global markets such as coal and natural gas, is the uncertainty in price. Prices are largely affected by demand and supply imbalances that can be caused by, e.g. increased demand growth in developing countries, natural disasters or supply constraints in countries experiencing political or social unrest. For fuels that are sourced on local or regional markets, such as bio-fuels, the volume risk in terms of availability of the raw material of appropriate quality is more significant as there may be a limited number of suppliers. Due to the current sanctions, there are also risks related to imported fuels from Russia.

In the Nordic market, exposure to fuel prices is limited due to Fortum's flexible generation capacity which allows for switching between different fuels according to prevailing market conditions. The remaining exposure to fuel price risk is mitigated through fixed- price physical delivery contracts or derivative contracts. The main fuel source for heat and power generation in Russia is natural gas which is partially regulated limiting the price risk exposure.

Liquidity and refinancing risks

Fortum's business is capital intensive and there is a constant need to ensure efficient financing. Fortum maintains a diversified financing structure in terms of debt maturity profile, debt instruments and geographical markets. Liquidity and refinancing risks are managed through a combination of cash positions and committed credit facility agreements. The credit risk of cash positions has been mitigated by diversifying the deposits to high-credit quality financial institutions and issuers of corporate debt.

Fortum's access to and cost of financing is dependent on having an investment-grade rating. The current investment in Uniper has increased Fortum's leverage, and with the announced increase in ownership, there is an increased risk of downgrade in the credit rating which could negatively impact Fortum's access to cost-efficient financing. After the closing of transaction, through which an additional minimum of 20.5% share in Uniper will be acquired, Fortum's key objective is to maintain an investment-grade rating and to strengthening its financial profile longer term. Fortum maintains an active dialogue with credit rating agencies to ensure understanding of Fortum's strategy and planned measures which target to achieve a financial and business profile that supports a solid investment grade rating.

Currency and interest rate risks

Fortum's debt portfolio consists of interest-bearing liabilities and derivatives on a fixed- and floating-rate basis with differing maturity profiles. Fortum manages the duration of the debt portfolio through use of different types of financing contracts and interest rate derivative contracts such as interest rate swaps.

Fortum's currency exposures are divided into transaction exposures (foreign exchange exposures relating to contracted cash flows and balance sheet items where changes in exchange rates will have an impact on earnings and cash flows) and translation exposure (foreign exchange exposure that arises when profits and balance sheets in foreign entities are consolidated at the Group level). The main principle is that material transaction exposures should be hedged while translation exposures are not hedged, or are hedged selectively. An exception is the Generation segment's hedging of power sales in Sweden where the currency component is currently not hedged. The main translation exposures toward the EUR/RUB, EUR/SEK and EUR/NOK are monitored continuously. Changes in these currency rates affect Fortum's profit level and equity when translating results and net assets to euros.

Counterparty and credit risks

Fortum is exposed to counterparty risk whenever there is a contractual arrangement with an external counterparty including customers, suppliers, partners, banks, clearing houses and trading counterparties.

Credit risk exposures relating to financial derivative instruments are often volatile. The majority of commodity derivatives are exchange-traded and cleared through clearing houses such as Nasdaq Clearing AB or through clearing banks. During 2019, Nasdaq Clearing AB has continued implementation of its risk management enhancement program in order to reduce the risk of member defaults. In addition, the trend toward more use of futures contracts instead of forward contracts is decreasing the credit exposure toward clearing houses. Derivatives contracts are also entered into directly with external counterparties and such contracts are limited to high-credit-quality counterparties active on the financial or commodity markets.

Due to the financing needs and management of liquidity, Fortum has counterparty credit exposure toward a number of banks and financial institutions. The majority of the exposure is to Fortum's key relationship banks, which are highly creditworthy institutions, but also includes exposure to the Russian financial sector in terms of deposits with financial institutions as well as to banks that provide guarantees for suppliers and contracting parties. Deposits in Russia have been concentrated to the most creditworthy state-owned or controlled banks.

Credit risk exposures relating to customers is spread across a wide range of industrial counterparties, small businesses and private individuals over a range of geographic regions. The majority of exposure is to the Nordic market, Poland and Russia. The risk of non-payment in the electricity and heat sales business in Russia is higher than in the Nordic market. In order to manage counterparty credit risk, Fortum has routines and processes to identify, assess and control exposure. Credit checks are performed before entering into commercial obligations and exposure limits are set for larger individual counterparties. Creditworthiness is monitored through the use of internal and external sources so that mitigating actions can be taken when needed. Mitigating actions include demanding collateral, such as guarantees, managing payment terms and contract length, and the use of netting agreements.

Operational risks

Operational risks are unexpected events which can lead to negative monetary, safety, environmental or reputational impacts as a result of inadequate or failed internal processes, systems or equipment, or from external events.

Systems and Process Risks

System and process risks are mainly caused by design failures or human errors. Mitigation includes process automation, testing and education. Process-related risks are assessed and controls for the most relevant risks are defined and implemented as part of the internal controls framework. IT-system risk management is based on an IT Service Lifecycle Model, and related processes and practices which has been developed using reference frameworks such as COBIT and ITIL. Business continuity plans are in place for business critical processes.

Property, plant and equipment

Property, plant and equipment risks are primarily managed through monitoring and maintenance planning. In addition, Fortum's industrial assets are covered by a Group Master Policy covering property damage and business interruption risks which mitigates the impact of internal and external events should they occur.

Combined heat and power (CHP) and recycling and waste

Operational events at CHP and recycling and waste facilities, or in the storage and transportation of fuels, waste and materials can lead to physical damages, business interruption, and environmental, health and safety and social impacts. Leakage and contamination of the surrounding environment could lead to clean-up costs and third-party liabilities. An explosion or fire at a facility could cause damages to the plant or third-parties and lead to possible business interruption. These risks are mitigated by condition monitoring, preventive maintenance and other operational improvements as well as competence development of personnel operating the plants. Furthermore, requirements for incoming waste are clearly specified and samples are tested for selected waste deliveries.

Hydro power

Operational events at hydro power generation facilities can lead to physical damages, business interruptions, and third-party liabilities. A long-term programme is in place for improving the surveillance of the condition of dams and for securing the discharge capacity in extreme flood situations. Third-party liabilities from dam failures are strictly the plant owner's responsibility. Together with other hydro power producers, Fortum has a shared dam liability insurance programme in place that covers Finnish and Swedish dam failure liabilities up to SEK 10,000 million.

Nuclear power

Fortum owns the Loviisa nuclear power plant, and has minority interests in two Finnish and two Swedish nuclear power companies. At the Loviisa power plant, the assessment and improvement of nuclear safety is a continuous process performed under the supervision of the Radiation and Nuclear Safety Authority of Finland (STUK).

Third-party liability relating to nuclear accidents is strictly the plant operator's responsibility and must be covered by insurance. As the operator of the Loviisa power plant, Fortum has a statutory liability insurance policy of 600M SDR (Special Drawing Right) and the same type of insurance policies are in place for the operators where Fortum has a minority interest.

Wind and Solar

Fortum is involved in the construction, development and operations of several wind and solar power production projects in the Nordics, Russia and in India. Operational incidents during both construction and operational phases can lead to accidents, delays in commissioning and business interruption. These risks are mitigated as part of the project planning and through maintenance and continuous training of personnel involved in constructing and operating the plants.

Cyber and information security risks

Fortum's business operations and customer related services are dependent on well-functioning IT and information management systems and processes. Due to the nature of the business, large amounts of data are processed and used for decision-making, serving customers and in internal and external communication and reporting. Securing information and availability of the systems are essential for Fortum. Cyber security risks, including risks related to information, operation technology (OT) and digitalisation, are managed centrally by Corporate Security in collaboration with Divisions and Corporate Functions, especially the Business Technology function. The Group's cyber security governance model, instructions and procedures set requirements for managing and mitigating cyber security risks.

The Business Technology function, other support functions and outsourcing partners are responsible for identifying and mitigating operational IT/OT security related risks as well as managing IT/OT security incidents. Divisions are responsible for business continuity planning and IT functions are responsible for IT service continuity.

Climate-related risks

Mitigating climate change, adapting to it and driving the transition to a lower-carbon economy is an integral part of Fortum's strategy. Successfully managing climate-related risks and opportunities is a key element in delivering on the strategy.

Management of climate-related risks is integrated into Fortum's risk management framework and follows the same governance and processes as Fortum's other material risk and uncertainties. Climate-related risks are identified and assessed by the various business areas through an annual bottom-up process. Risk owners are assigned for managing the risks and they are regularly reported and followed-up in business area and division management teams. In 2019, Fortum emphasized climate-related risks as part of the process including a specific top-down review of climate-related risks by Group experts. The key climate-related risks are reported to FEM and the ARC as part of the annual review of material risks and uncertainties for the Group.

Climate-related risks can be divided into two categories; transition risks and physical risks. The identified physical risks are generally found in the operational risk category whereas transition risks are generally longer-term and part of the strategic risk category

Transition risks

Fortum's strategy is to a large extent built on taking advantage of the opportunities associated with the transition to a low-carbon economy and successfully mitigating the risks. The transition to a low carbon economy poses a number of strategic risks related to changes in energy and climate policy and regulation, technology development and the business environment in which Fortum operates. Additionally, Fortum's brand and reputation can be negatively impacted by changes in stakeholder perception about Fortum's ability to deliver on its strategy.

One of the key risks is that the transition develops faster and with policy tools or technologies that have not been anticipated or planned for. The key risks related to climate policy and regulation include the revision of the EU targets for greenhouse gas reduction, renewable energy and energy efficiency leading to overlapping or inefficient mechanisms, tighter restrictions on incineration and burning of various fuels and a more regulated electricity market due to the increase in intermittent renewable production. Fortum favours a market-based approach to decarbonisation with CO_2 pricing as a key tool and clear criteria for capacity remuneration. Fortum supports the use of waste and sustainable biomass as part of the EU circular economy. Additionally, increased flexibility in demand is needed to cope with the expected increase in intermittent renewable production.

The transition to a low-carbon economy also poses risks if there emerge new, disruptive technologies that create cheap sources of flexibility or storage in the energy market. Additionally, if there is an accelerated decline in the cost of renewable energy, it could decrease the value of existing conventional power and heat generation assets. Fortum continuously monitors technology development and invests into a broad portfolio of innovative technologies. Fortum also monitors the price development of renewables and evaluates both divestment and investment opportunities to optimise the portfolio with the aim of lower carbon emissions.

Climate-change may affect the demand and supply of energy products due to consumer behaviour and changing weather patterns. This could lead to, e.g. lower and more volatile electricity prices which negatively affect the revenues of baseload generation assets. Energy efficiency measures and warmer weather may also impact the demand for heating to a larger extent than currently expected.

Stakeholder views on sustainability may lead to stricter demands by shareholders. Stricter definitions of sustainable finance set by the EU may also make it more difficult to access financing. Additionally, there is a risk of increasing activity by NGOs which could affect key stakeholder perception. Fortum's investment in Uniper is currently increasing the exposure to these risks. In order to mitigate these risks, Fortum focuses on the sustainability impacts of strategy and business decisions, communicating transparently about strategy implementation to key stakeholders, ensuring a broad base of investors and flexibility in financing including a diversified bond portfolio.

Physical risks

Fortum's operations and assets are exposed to external events, the frequency and magnitude of which may increase as a result of climate change. Changes in precipitation, inflows and temperatures may affect hydropower production as well as bioenergy supply and availability. Intense storms with, e.g. flash floods could increase the risk of dam breaches as well as causing local damages and production outages. Warmer weather may also lead to a need for new cooling or process water sources and extreme warm and dry summer periods could result in forest fires which potentially damage assets or lead to grid outages restricting power supply. Fortum adapts its operations to the changing climate and takes it into consideration in production and maintenance planning and in evaluating growth and investment projects. Climate change scenarios are, e.g. taken into account in the long-term dam safety investment program so that extreme flooding situations can be managed.

Fortum share and shareholders

Fortum Corporation's shares have been listed on Nasdaq Helsinki since 18 December 1998. The trading code is FORTUM (until 25 January 2017: FUM1V). Fortum Corporation's shares are in the Finnish book entry system maintained by Euroclear Finland Ltd which also maintains the official share register of Fortum Corporation.

Share key figures

EUR	2019	2018	2017
Earnings per share	1.67	0.95	0.98
Cash flow per share	2.27	0.91	1.12
Equity per share	14.61	13.33	14.69
Dividend per share	1.10 [1]	1.10	1.10
Payout ratio, %	65.9 [1]	115.8	112.2
Dividend yield, %	5.0 [1]	5.8	6.7

1) Board of Directors' proposal for the planned Annual General Meeting 17 March 2020.

For full set of share Key figures 2010–2019, see the section ▸ **Key figures** in the Financial Statements.

Shareholders value, share price performance and volumes

Fortum's mission is to deliver excellent value to its shareholders. Fortum's share price has appreciated approximately 22% during the last five years, while Dow Jones European Utility Index has increased 14%. During the same period Nasdaq Helsinki Cap index has increased 37%. During 2019 Fortum's share price appreciated approximately 15%, while Dow Jones European Utility index increased 26% and Nasdaq Helsinki Cap index increased 15%.

In 2019, a total of 372.3 million (2018: 474.7) Fortum Corporation shares, totalling EUR 7,467 million, were traded on Nasdaq Helsinki. The highest quotation of Fortum Corporation shares during 2019 was EUR 22.50, the lowest EUR 18.09, and the volume-weighted average EUR 20.14. The closing quotation on the last trading day of the year 2019 was EUR 22.00 (2018: 19.10). Fortum's market capitalisation, calculated using the closing quotation of the last trading day of the year, was EUR 19,542 million (2018: 16,966).

In addition to the Nasdaq Helsinki, Fortum shares were traded on several alternative market places, for example at Boat, Cboe and Turquoise, and on the OTC market. During 2019, approximately 73% (2018: 68%) of Fortum's shares were traded on markets other than the Nasdaq Helsinki Ltd.

Share capital

Share capital

	2019		2018	
EUR million	Number of shares	Share capital	Number of shares	Share capital
Registered shares at 1 January	888,294,465	3,046	888,367,045	3,046
Cancellation of treasury shares	-	-	72,580	-
Registered shares at 31 December	888,294,465	3,046	888,294,465	3,046

Fortum Corporation has one class of shares. By the end of 2019, a total of 888,294,465 shares (2018: 888,294,465) had been issued. Each share entitles the holder to one vote at the Annual General Meeting. All shares entitle holders to an equal dividend. At the end of 2019 Fortum Corporation's share capital, paid in its entirety and entered in the trade register, was EUR 3,046,185,953.00.

In the merger of Länsivoima Oyj (former Lounais-Suomen Sähkö Oy) to Fortum Corporation in 2000, those shareholders of Länsivoima Oyj that did not produce their share certificates and did not request their rights to be registered in the book-entry system, received their respective shares of Fortum Corporation as merger consideration to a joint book-entry account opened on their behalf (the "Joint Account"). The Annual General Meeting 2018 of Fortum Corporation decided, that the rights to all such shares entered in the Joint Account and to the rights attached to such shares that had not been requested to be registered in the book-entry system prior to the decision by the Annual General Meeting 2018, were forfeited. In addition to the shares, the rights attached to such shares, such as undrawn dividend, were forfeited. The provisions applicable to treasury shares held by the company were applied to the forfeited shares. On 17 December 2018, Board of Directors decided to cancel all these 72,580 Fortum shares owned by the company without decreasing the share capital. The cancellation was entered in the Trade Register on 21 December 2018.

Shareholders

At the end of 2019 the Finnish State owned 50.76% of the company's shares. The Finnish Parliament has authorised the Government to reduce the Finnish State's holding in Fortum Corporation to no less than 50.1% of the share capital and voting rights.

The proportion of nominee registrations and direct foreign shareholders was 30.5% (2018: 30.8%).

Shareholders, 31 December 2019

Shareholders	No. of shares	Holding %
Finnish State	450,932,988	50.76
Ilmarinen Mutual Pension Insurance Company	11,773,000	1.33
Varma Mutual Pension Insurance Company	8,921,167	1.00
The Finnish Social Insurance Institution	7,030,896	0.79
Kurikan Kaupunki	6,203,500	0.70
The State Pension Fund	4,600,000	0.52
Elo Mutual Pension Insurance Company	4,530,000	0.51
OP-Finland	2,867,011	0.32
Danske Invest Finnish Equity Fund	2,150,000	0.24
Schweizerische Nationalbank	2,029,745	0.23
Säästöpankki Kotimaa Mutual Fund	1,222,017	0.14
Nordea Pro Finland Fund	1,161,013	0.13
OP-Henkivakuutus Ltd.	909,824	0.10
Finnish Cultural Foundation	821,611	0.09
Nominee registrations and direct foreign ownership [1]	268,856,293	30.27
Other shareholders in total	114,285,400	12.87
Total number of shares	**888,294,465**	**100.00**

1) Excluding Schweizerische Nationalbank

By shareholder category	% of total amount of shares
Finnish shareholders	
Corporations	1.30
Financial and insurance institutions	1.72
General government	55.80
Non-profit organisations	1.21
Households	9.48
Non-Finnish shareholders	30.50
Total	**100.00**

Breakdown of share ownership, 31 December 2019

Number of shares owned	No. of shareholders	% of shareholders	No. of shares	% of total amount of shares
1–100	42,657	32.97	2,159,339	0.24
101–500	48,493	37.48	12,845,972	1.45
501–1,000	18,443	14.26	13,578,106	1.53
1,001–10,000	18,745	14.49	48,643,484	5.48
10,001–100,000	961	0.74	21,245,211	2.39
100,001–1,000,000	68	0.02	19,012,711	2.14
1,000,001–10,000,000	10	0.01	40,715,349	4.58
over 10,000,000	2	0.00	462,705,988	52.09
	129,379	**100.00**	**620,906,160**	**69.90**
In the joint book-entry account and in special accounts on 31 December			596	0.00
Nominee registrations			267,387,709	30.10
Total			**888,294,465**	**100.00**

Management shareholding 31 December 2019

At the end of 2019, the President and CEO and other members of the Fortum Executive Management owned 263,002 shares (2018: 193,227) representing approximately 0.03% (2018: 0.02%) of the total shares in the company.

A full description of the shareholdings and interests in long-term incentive schemes of the President and CEO and other members of the Fortum Executive Management is shown in ▸ **Note 11** Employee benefits and Board remuneration.

Authorisations from the Annual General Meeting 2019

In 2019, the Annual General Meeting decided to authorise the Board of Directors to decide on the repurchase and disposal of the company's own shares up to a maximum number of 20,000,000 shares, which corresponds to approximately 2.25% of all the shares in the company. The authorisation is effective for a period of 18 months from the resolution of the General Meeting. The authorisation had not been used by the end of 2019.

Dividend policy

The dividend policy ensures that shareholders receive a fair remuneration for their entrusted capital, supported by the company's long-term strategy that aims at increasing earnings per share and thereby the dividend. When proposing the dividend, the Board of Directors looks at a range of factors, including the macro environment, balance sheet strength as well as future investment plans. Fortum Corporation's target is to pay a stable, sustainable and over time increasing dividend, in the range of 50–80% of earnings per share, excluding one-off items.