

The background of the entire image is a high-angle aerial photograph of a coastal city at night. The city is densely packed with lights, and its reflection is clearly visible on the dark blue water below. In the distance, a range of mountains is visible under a dark sky.

2024 Sustainability Report

5N+

2024 Sustainability Report

5N Plus Inc.

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Montréal, Quebec, Canada
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Table of Contents

Business Context	4	Environment	33
Message to Stakeholders	5	Climate Change	34
About this Report	6	Energy Management	37
2024 Highlights	7	Water Management	41
5N+ at a Glance	8	Waste Management	43
Company History	10	Air Quality	45
Business Segments and Markets	12	Product Stewardship	46
A Sustainable Business Model	13	Circular Economy	48
 		Biodiversity	50
Sustainability Management	15	Social	51
Material Sustainability Topics	16	Working at 5N+	52
Materiality Assessment	17	Labour Practices	53
Stakeholder Engagement	19	Health and Safety Management	54
 		Talent Development	58
 		Inclusion and Diversity	59
Governance	21	Community Engagement	60
Corporate and ESG Governance	22	 	
Business Ethics and Compliance	25	 	
Responsible Supply Chain Management	27	Appendix	61
Information Security and Data Privacy	29	Index of GRI-Related Information	62
Product Reliability, Quality and Safety	31	Scope 1 and 2 GHG Emissions Calculations	65
Sustainable Product Innovation	32	Cautionary Statement Regarding Forward-Looking Information	65

Business Context

In this section:

Message to Stakeholders	5
About this Report	6
2024 Highlights	7
5N+ at a Glance	8
Company History	10
Business Segments and Markets	12
A Sustainable Business Model	13



Message to Stakeholders

This year marks our 25th anniversary, an opportunity to reflect and reaffirm our commitment to sustainable development, one of our core values. We remain steadfast in our dedication to playing our part as a responsible supplier of critical advanced materials.

In 2024, we made progress advancing our sustainability initiatives and building out our framework, with the guidance and oversight of management and the Board of Directors. One such development was the launch of a double materiality assessment process. This ongoing effort, which includes stakeholder engagement, has led us to adding four new material topics: information security and data privacy, sustainable product innovation, product reliability, quality and safety, and biodiversity. These updates reflect our efforts to align with recognized standards and prepare for emerging regulatory requirements.

To strengthen our ESG governance, we clarified leadership roles and implemented a Sustainability Committee. In 2024, we also took important steps to enhance our commitment to responsible supply chain management. We introduced a Supplier Code of Conduct to better safeguard human rights and prevent modern slavery. Relevant employees were trained on these issues, and we updated our Code of Business Conduct and other internal policies.

In 2024, we presented our second greenhouse gas inventory for Scope 1 and 2 emissions. We have also improved several reporting methodologies, enhancing our level of disclosure on key environmental topics, such as energy management and water management.

Our commitment to sustainability extends to the products we create. The product lifecycle impact assessment (LCIA) for cadmium-telluride and a related carbon footprint analysis were completed in 2024. This work is supporting our sustainability efforts by providing us – and our customers – with a better understanding of the full impact of our products from cradle to gate. We look forward to launching a second LCIA with another critical product by the end of 2025.

Throughout the year, we continued to maintain strong health and safety policies, as well as programs to support career development for our employees.

As we move into 2025, we remain focused on strengthening our sustainability capabilities, refining our methodologies and improving our disclosure. Our objective is to create solid foundations for the future, building on 25 years of sustainable development.

Sincerely,



Gervais Jacques
President and
Chief Executive Officer



Luc Bertrand
Chair of the Board

About this Report

Report Scope and Boundaries

The information contained in the 2024 Sustainability Report pertains to 5N Plus Inc. (TSX:VNP) ("5N+" or "the Company") and its subsidiaries, which encompass the operations of its two business segments: Specialty Semiconductors and Performance Materials. Unless otherwise indicated, the terms "we", "us", "our" and "the group" are used herein to refer to the Company together with its subsidiaries. Unless otherwise specified, all information in this report is presented as of, and for, the year ended December 31, 2024, and all dollar amounts are expressed in U.S. dollars.

Reporting Standards

The 2024 Sustainability Report produced by 5N+ was developed in alignment with select Global Reporting Initiative (GRI) indicators and by consulting other relevant ESG reporting frameworks and standards. These include:

- Sustainability Accounting Standards Board (SASB) Standards (Chemicals; Metals and Mining; Semiconductors, and Biotechnology and Pharmaceuticals) and Task Force for Climate-related Financial Disclosures (TCFD) Recommendations as consolidated under International Sustainability Standards Board (ISSB) Standards
- European Sustainability Reporting Standards (ESRS) under the European Union's Corporate Sustainability Reporting Directive (CSRD)

Materiality

The material sustainability topics covered in this report are informed by the reporting standards listed and the Company's latest materiality assessment and stakeholder engagement. For more information see the [Sustainability Management](#) section.

RESOURCE

Feedback

If you have questions or would like to provide feedback on our sustainability reporting, please contact: ehssupport@5nplus.com.

2024 Highlights

GOVERNANCE

93%

of critical suppliers have signed/acknowledged our Supplier Code of Conduct

98%

of employees identified for mandatory training on forced and child labour in business supply chains completed the training in 2024¹

SOCIAL

1.2

global lost-time injury frequency rate

16% reduction

in work-related incidents from 2019 baseline

ENVIRONMENT

16,813 tons CO₂e

gross total greenhouse gas emissions for Scope 1 and 2

44.8%

reduction in process water consumption from 2019 baseline

Second inventory disclosure

of Scope 1 and 2 GHG emissions

Completion of first product lifecycle impact assessment

for CdTe compound

30 compliant products

Substance Registrant under European Union REACH in 2024

29%

female representation among corporate office globally, a 7.4% increase over 2023

40%

female representation maintained on Board of Directors

¹ Employees considered to have influence in mitigating human rights risks including Executive Committee members, directors and senior managers.

5N+ at a Glance

Approx.
\$289M
in revenues in 2024

Headquartered in
Montréal,
with 7 manufacturing sites
and 4 R&D centres globally

More than
790
employees and operations
across three continents

Market leader

in advanced materials operating two complementary business segments: Specialty Semiconductors and Performance Materials

North America

Montréal, Canada

- Terrestrial renewable energy
- Imaging and sensing

Bridgeport, United States

- Health and pharma
- Technical materials

St. George, United States

- Space solar power
- Imaging and sensing

Europe

Heilbronn, Germany

- Space solar power
- Terrestrial renewable energy

Lübeck, Germany

- Health and pharma
- Technical materials

Eisenhüttenstadt, Germany

- Terrestrial renewable energy

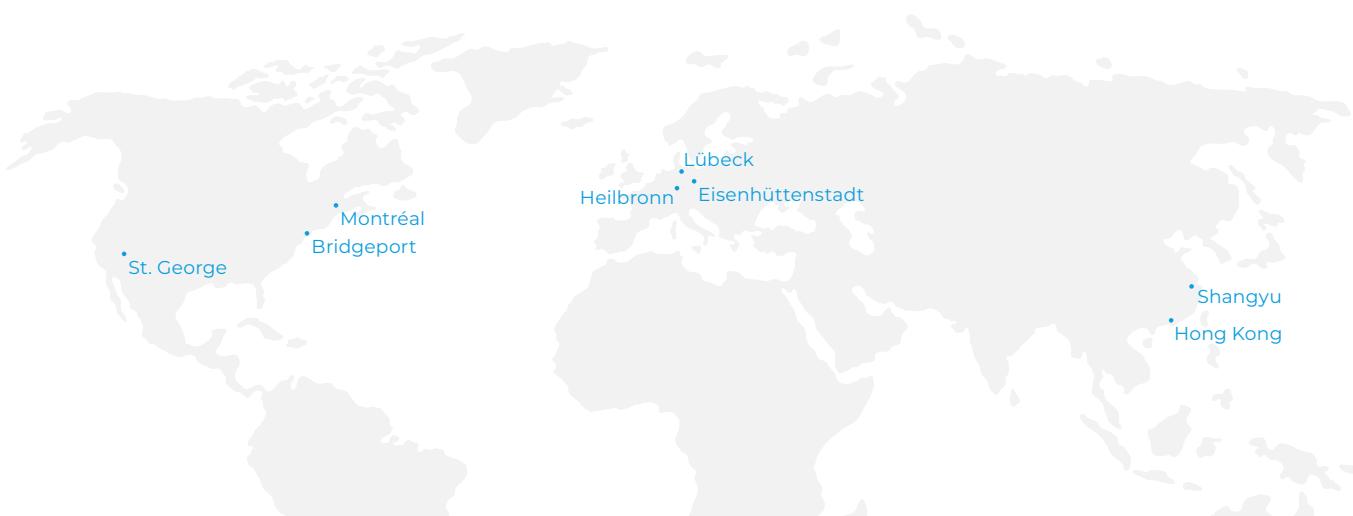
Asia

Shangyu, China

- Technical materials

Hong Kong, China

- Manufacturing
- Research and Development
- Commercial Activities



Mission

To be critical to our customers, valued by our employees and trusted by our shareholders.

Vision

To enable critical industries through essential products based on advanced material technology.

Values

- **Commitment**
- **Continuous improvement**
- **Customer focus**
- **Health and safety**
- **Integrity**
- **Sustainable development**



Company History

Over the last quarter century, 5N+ has grown into a global vertically integrated producer of specialty semiconductors and performance materials, recognized as a reliable and trusted industrial partner to leading private-sector companies and government agencies. Throughout that time, 5N+ has focused on developing and producing advanced materials that are critical enablers of its customers' end-products without being a critical cost component, serving diverse and growing markets ranging from space solar power to pharmaceutical applications.

JUNE 1, 2000



Through a management buyout, a group of employees of a major Canadian mining and metals company start their own enterprise to provide advanced materials for medical imaging to reduce X-ray exposure.

2003



A primary refining plant is commissioned in Montréal, Canada with closed-loop hydrometallurgical operations which span from primary extraction of mining concentrates to recycling capabilities.

2007

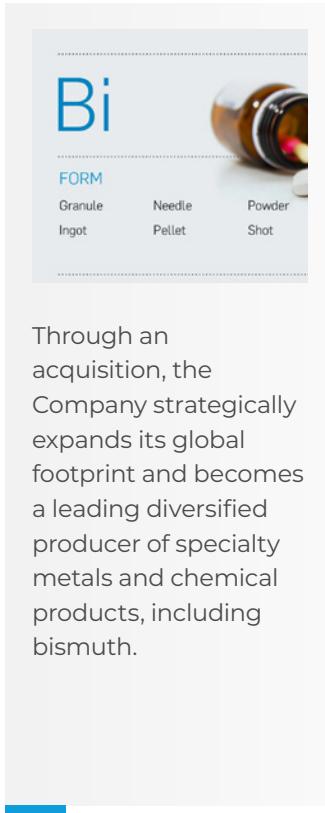


5N+ becomes a publicly listed company with shares trading on the Toronto Stock Exchange under the ticker symbol VNP.

2009

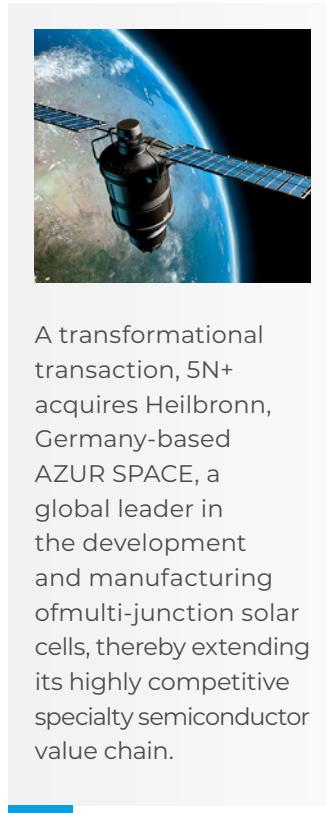


5N+ strengthens its position in the development and production of specialty semiconductors and pure metals through the acquisition of Firebird Technologies.



Through an acquisition, the Company strategically expands its global footprint and becomes a leading diversified producer of specialty metals and chemical products, including bismuth.

2011



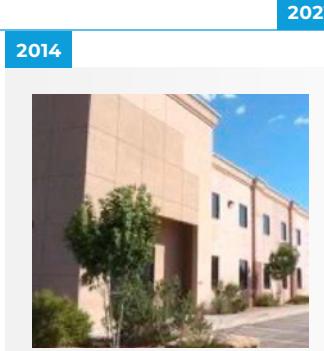
A transformational transaction, 5N+ acquires Heilbronn, Germany-based AZUR SPACE, a global leader in the development and manufacturing of multi-junction solar cells, thereby extending its highly competitive specialty semiconductor value chain.

2021



Installed production capacity in Montréal increases by 100% compared to 2022 levels. AZUR completes a two-year program to increase its output capacity by 35%, with plans to increase capacity by an additional 30% in 2025.

2024



With the acquisition of its remaining ownership interest in Sylarus Technologies in St. George, Utah, 5N+ solidifies its leadership in the production of substrates used for manufacturing, imaging and sensing detector chips, and solar cells.

2022



The Company undertakes a major expansion of its tellurium recovery and production capacity in Montréal to support growing demand for specialty semiconductors in the terrestrial renewable energy sector.

JUNE 1, 2025



5N+ and its more than 790 employees to celebrate the Company's 25th anniversary since its founding.

Business Segments and Markets

Through our unique and proprietary processes and world-class technological expertise, we create advanced materials that enable a broad range of applications across our two business segments: Specialty Semiconductors and Performance Materials.

Specialty Semiconductors



Terrestrial Renewable Energy

As a leading supplier to the renewable energy sector, our specialty semiconductor products are critical in moving towards a sustainable future. With gigawatts of solar panels incorporating our materials installed in utility-scale projects, our products convert the sun's power into renewable energy to provide electricity for consumers worldwide. In addition, our enabling materials are used in next generation energy storage infrastructure.



Space Solar Power

Our high-purity germanium wafers and epitaxial semiconductor substrates are used to produce ultra-high efficiency photovoltaic (PV) solar cells for satellite power generation and concentrated PV systems. Our enabling materials are frequently in orbit powering satellites at various orbits LEO, MEO, GEO and beyond Earth orbit, as well as various space vehicles.



Imaging and Sensing

Our materials are used to manufacture radiation detector chips in medical, infrared and earth imaging applications in the medical, security and defense industries, helping to reduce patient exposure to x-rays and keep nations safe. We are a key player in the product value chain for the new CT scanning devices, photon counting detectors (PCD), that are to replace scintillator detectors.

Performance Materials



Health and Pharma

Non-toxic to human health or the environment, we produce bismuth chemicals that are essential to the creation of everyday human care products. Our bismuth products are used as active pharmaceutical ingredients in over-the-counter antacids and antibiotic creams as well as in cosmetics product applications.



Technical Materials

Whether a substitute of toxic heavy metals in various applications or specialty alloys and chemicals, our technical materials are customizable and critical to a broad range of industries from aviation to optics.

A Sustainable Business Model

5N+ is committed to being a reliable source for specialty semiconductors and performance materials enabling innovative products critical to our everyday lives. In addition to enabling many industries essential to a sustainable future, we apply a sustainability lens to our own operations, our supply chain and practices.

A Commitment to High Standards

We hold several certifications for various aspects of our business to demonstrate our commitment to high standards in health and safety, quality, energy, environment and resource management, including internationally recognized ISO standards.

	ISO 9001 Quality Management	ISO 14001 Environment Management	ISO 45001 Occupational Health and Safety	ISO 50001 Energy Management
Eisenhüttenstadt, Germany	●	●		●
Heilbronn, Germany	●	●	●	○
Lübeck, Germany	●			●
Montréal, Canada	●	●	●	
Shangyu, China	●	●	●	
St. George, USA	●			

○ Process of implementing standard underway

In addition to our ISO certifications, Lübeck is a U.S. Food and Drug Administration (FDA) approved facility and meets Good Manufacturing Practices (GMP) requirements. Heilbronn / AZUR SPACE is EN 9100 (Quality Management System for Aviation Space and Defense) certified. Key space products are qualified to European (ECSS) and U.S. (AIAA) standards, and concentrated photovoltaic products are manufactured in accordance to the International Electrotechnical Commission (IEC) standards.

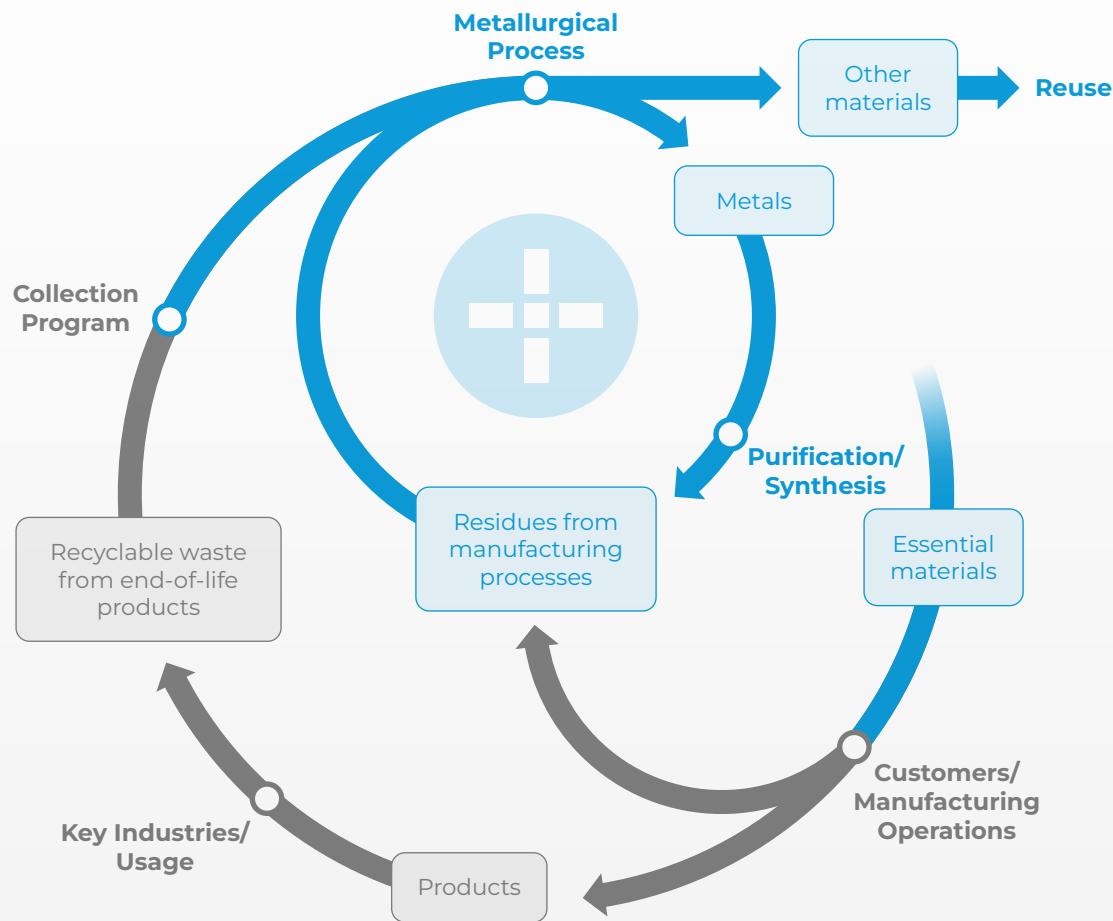
Circular Economy Principles and a Closed-looped Model

We take an integrated, lifecycle approach to materials management and are constantly investing in sustainably sourcing our raw materials, integrating circular economy principles wherever possible.

We have deep expertise and unique technologies for the recovery, treatment and valuation of degraded resources from other industries, with a mineral recycling program that spans three continents.

We procure degraded resources containing low grades of critical metals from upstream suppliers and extract the critical metals to develop and manufacture enabling materials for our customers. As an upcycler of by-products from other industries, we help reduce waste by promoting reuse, while broadening our source market, thereby strengthening our diversified supply chain.

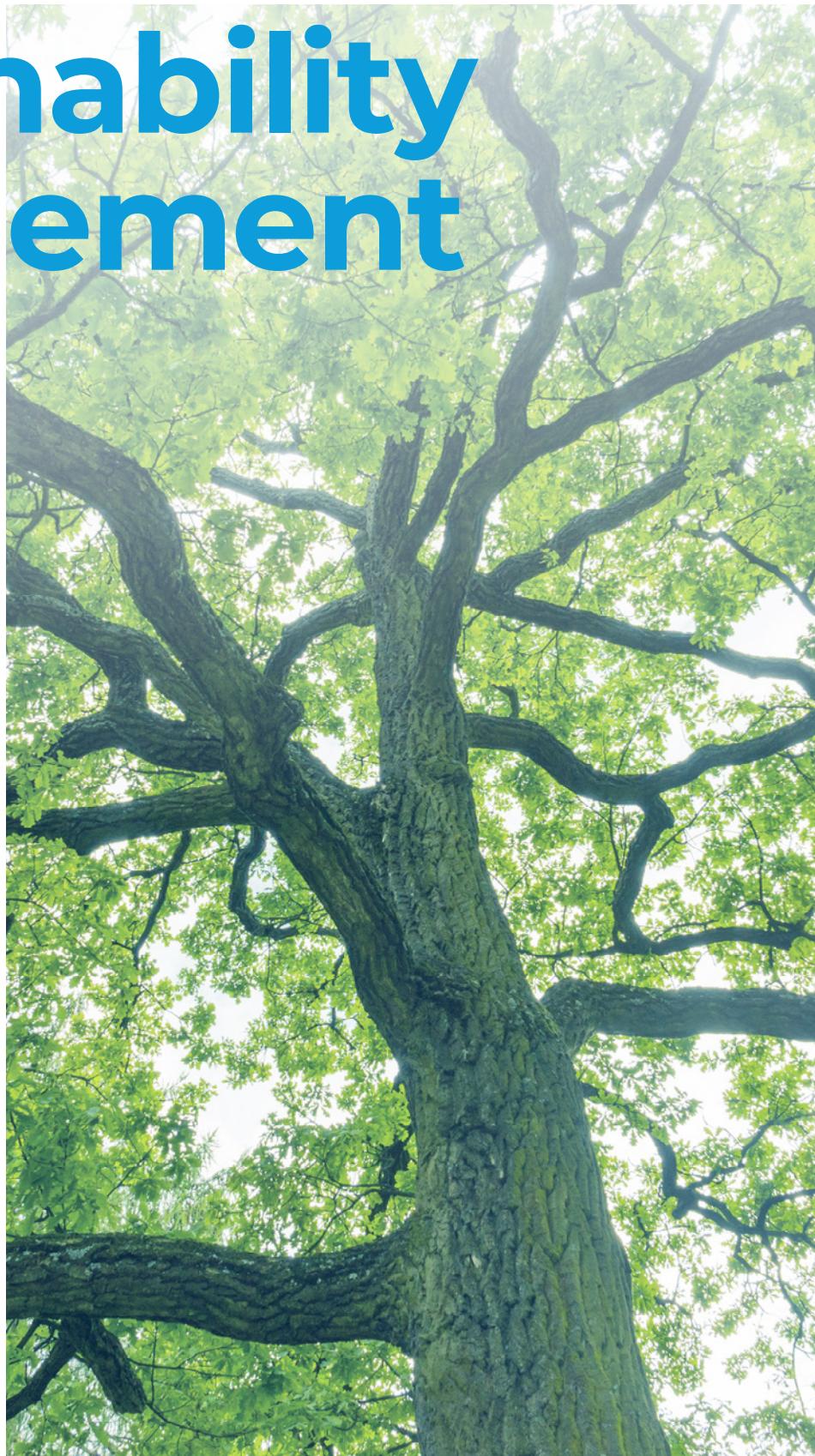
5N+ Lifecycle



Sustainability Management

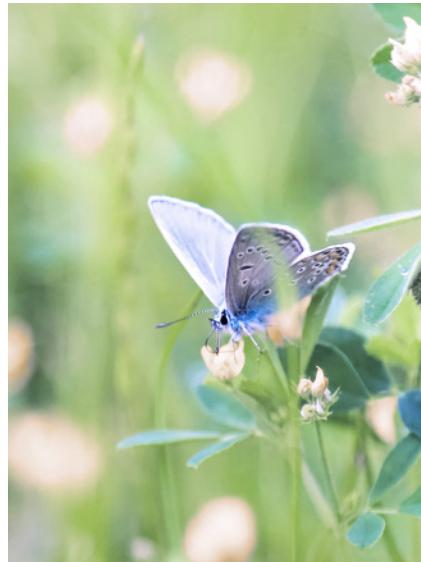
In this section:

Material Sustainability Topics	16
Materiality Assessment	17
Stakeholder Engagement	19



Material Sustainability Topics

Our material sustainability topics are the foundation of our sustainability roadmap and considered as part of our enterprise risk management process. As a result of latest materiality assessment and stakeholder engagement, our material sustainability topics are as follows:



Governance

- Corporate and ESG Governance
- Business Ethics and Compliance
- Responsible Supply Chain Management
- Information Security and Data Privacy
- Product Reliability, Quality and Safety
- Sustainable Product Innovation

Environment

- Climate Change
- Energy Management
- Water Management
- Waste Management
- Air Quality
- Product Stewardship
- Circular Economy
- Biodiversity

Social

- Labour Practices
- Health and Safety Management
- Talent Development
- Inclusion and Diversity
- Community Engagement

Materiality Assessment

In 2024, the Company undertook a review of its material topics originally derived from the materiality assessment conducted ahead of our 2022 Sustainability Report. The goal was to validate that we are focusing on the sustainability topics with the most significant economic, environmental and social impacts on society and the environment, as well as on our business.

To identify and prioritize sustainability topics, we engaged in comprehensive stakeholder dialogue through consultations and engagement with the Board of Directors, management, employees across all functions, customers, suppliers, a climate advocacy group and shareholders. We conducted interviews to capture direct stakeholder perspectives and desktop research to complement findings and ensure a holistic assessment, in addition to information gathered through regular communications channels. We also reviewed the reporting standards relevant to our business to ensure alignment with market expectations.

This resulted in the addition of four new material topics: Information Security and Data Privacy, Sustainable Product Innovation, Product Reliability, Quality and Safety, and Biodiversity.

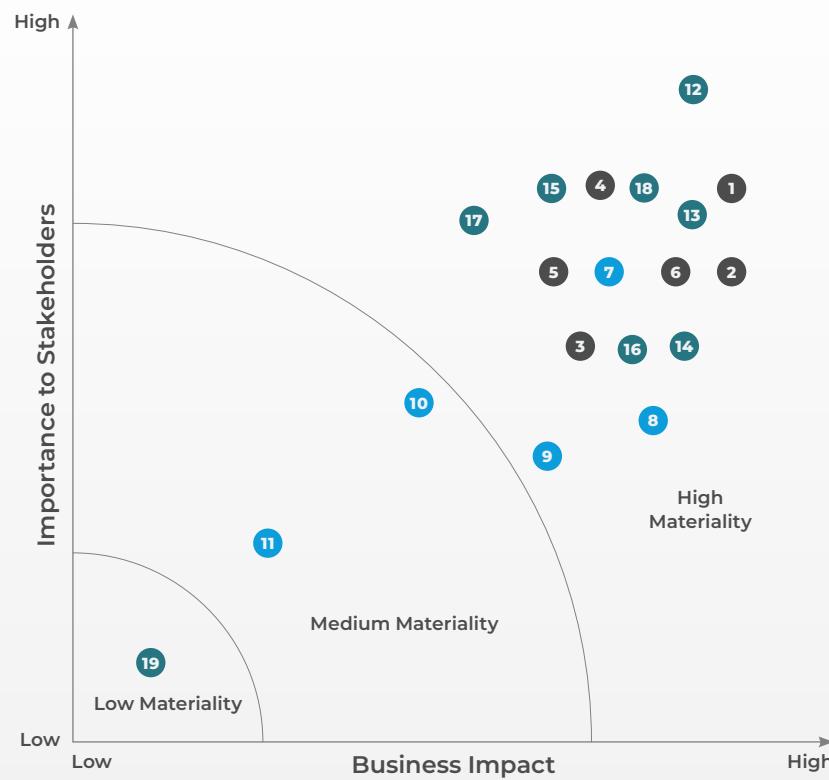
We also consolidated select overlapping topics and harmonized our terminology with relevant standards. In addition, we re-evaluated the significance of our updated material topics to our stakeholders based on outward impact, and their significance on our business based on potential financial impact. The assessment re-confirmed a strong alignment between key topics deemed significant to our business and our stakeholders, as well as their relative importance.

This work has been informed by a double materiality assessment process, which the Company began in 2024 as part of its commitment to advancing its sustainability roadmap. Our objective is to ensure a harmonized and globally consistent sustainability strategy, while addressing region-specific sustainability priorities and business impacts.





Materiality Matrix



Governance

- ① Corporate and ESG Governance
- ② Business Ethics and Compliance
- ③ Information Security and Data Privacy
- ④ Product Reliability, Quality and Safety
- ⑤ Sustainable Product Innovation
- ⑥ Responsible Supply Chain Management

Social

- ⑦ Health and Safety Management
- ⑧ Talent Development
- ⑨ Labour Practices
- ⑩ Diversity and Inclusion
- ⑪ Community Engagement

Environmental

- ⑫ Climate Change
- ⑬ Energy Management
- ⑭ Water Management
- ⑮ Product Stewardship
- ⑯ Waste Management
- ⑰ Air Quality
- ⑱ Circular Economy
- ⑲ Biodiversity

Stakeholder Engagement

Understanding how our operations impact our stakeholders and, in turn, how our stakeholders can influence our business through regular stakeholder engagement is a key component of our sustainability management approach.

Insights from five of our identified stakeholder groups directly contributed to the material topic assessment process described in the previous section. We intend to continue engaging with our key stakeholder groups to keep informing our sustainability initiatives and business decisions, with additional outreach planned in 2025 with industry associations and local communities.

Stakeholder Group	How We Engage
Employees	<ul style="list-style-type: none">▪ Email and intranet communications▪ Townhall and leadership messages▪ Individual, team, department and site meetings▪ Training <ul style="list-style-type: none">▪ Company events▪ Internal surveys▪ Site employee committees▪ Whistleblower communication channels
Management	<ul style="list-style-type: none">▪ Executive Committee meetings▪ Risk management process▪ Annual leadership offsite
Board of Directors	<ul style="list-style-type: none">▪ Board meetings▪ Board committee meetings▪ Risk management process
Customers	<ul style="list-style-type: none">▪ Direct engagement▪ Customer service / sales support▪ Customer focus groups▪ Surveys <ul style="list-style-type: none">▪ Industry events and conferences▪ Website▪ Social media
Suppliers	<ul style="list-style-type: none">▪ Direct engagement▪ Procurement process▪ Acknowledgement of Supplier Code of Conduct <ul style="list-style-type: none">▪ Surveys▪ Self-assessment▪ Purchasing performance meetings▪ Whistleblower communication channels

Stakeholder Group	How We Engage	
Investors	<ul style="list-style-type: none">▪ Direct engagement▪ Annual general meeting▪ Website	<ul style="list-style-type: none">▪ Quarterly earnings conference calls, financial reports and other annual reporting
Industry Associations	<ul style="list-style-type: none">▪ Memberships▪ Event, conference and meeting participation	
Government	<ul style="list-style-type: none">▪ Industry consultations▪ Direct engagement▪ Compliance assessment tools	<ul style="list-style-type: none">▪ Regulatory tracking services▪ Participation in climate government programs
Local Communities	<ul style="list-style-type: none">▪ Partnerships with local organizations▪ Community meetings	<ul style="list-style-type: none">▪ Website▪ Social media
NGOs and Advocacy Groups	<ul style="list-style-type: none">▪ Webinars▪ Partnership programs	
Academia and Industry Experts	<ul style="list-style-type: none">▪ Industry events and conferences▪ Partnerships▪ Technical working groups	

Governance

In this section:

Corporate and ESG Governance	22
Business Ethics and Compliance	25
Responsible Supply Chain Management	27
Information Security and Data Privacy	29
Product Reliability, Quality and Safety	31
Sustainable Product Innovation	32



Corporate and ESG Governance

5N+ has adopted several corporate governance guidelines, charters and policies to assist the Board and management in the exercise of their responsibilities and to ensure that all directors, officers and employees conduct themselves under and hold themselves to the highest ethical standards.

RESOURCE

The complete list of corporate governance policies, board charters and guidelines can be found on the 5N+ website at www.5nplus.com/en/investors/governance/.



The screenshot shows the 5N+ website's navigation bar with links to About Us, Markets, Products, Innovation, Sustainability, Investors (which is highlighted in blue), and News. Below the navigation, a section titled "Board of Directors" features five black and white portraits of the directors. Each portrait includes the director's name and title. The text below the portraits states: "The Board of Directors is responsible for the overall stewardship of the company and overseeing the management of our business and affairs in the best interests of our stakeholders."

Director	Title
Luc Bertrand	Independent Member of the Board - Member Audit and Risk Management; Chairman of the Remuneration and Compensation Committee
Jean-Marie Bourassa	Independent - Chair of the Audit and Risk Management Committee
Blair Dickerson	Independent Member of the Remuneration and Compensation Committee
Gervais Jacques	President and Chief Executive Officer
Andrée-Lise Ménétin	Independent - Member of the Governance and Compensation Committee; Chair of the Audit and Risk Management Committee

Board Composition

The Board of Directors is responsible for the overall stewardship of the company and overseeing the management of our business and affairs in the best interests of our stakeholders. The majority of board members are independent Board and as a group bring a diverse and relevant mix of skills, backgrounds and experience.

2024 DIRECTOR INDEPENDENCE

80%

4 out of 5 directors are independent

2024 BOARD GENDER DIVERSITY

40%

2 out of 5 directors are female

2024 AVERAGE DIRECTOR TENURE

7 years

2024 AVERAGE DIRECTOR AGE

64 years

ESG Governance

The following table outlines ESG Governance at 5N+, from clear Board oversight to ownership and accountability across the organization. Our approach continues to evolve as we develop and implement our sustainability management system and roadmap. In 2024, we clarified leadership roles and implemented a Sustainability Committee.

Board of Directors

- Reviews and approves, at least on an annual basis, a strategic plan that must take into account, among others, the opportunities and risks of the Company's business
- Periodically reviews the significant risks and opportunities affecting the Company and its business and oversees the actions, systems and controls in place to manage and monitor risks and opportunities
- Ultimately responsible for overall ESG matters oversight and governance, with specific ESG matters delegated to the relevant Board committees which are comprised of independent Board members

Governance and Compensation Committee

- Oversees the Company's ESG strategy and its integration within the business strategy
- Responsibility officially integrated into committee charter in 2023

Audit and Risk Management Committee

- Responsible for the identification and management of the Company's risks, including relevant ESG-related risks, including climate risks which are integrated into the Enterprise Risk Management (ERM) process

Chief Executive Officer

- Designated by the Board as responsible for sustainability management
- With the support of the Chief Financial Officer and other members of management, reports to the Board and its relevant committees on ESG considerations and risks on a quarterly basis

Chief Financial Officer

- Directly reporting to the Chief Executive Officer, oversees the development and implementation of the Company's sustainability management system and roadmap, supported by the Corporate Director, EH&S and Product Stewardship

Sustainability Committee

- Cross functional committee chaired by the Corporate Director, EH&S and Product Stewardship
- Provides support in the development and implementation of sustainability initiatives
- Monitors sustainability performance, setting targets, and ensuring transparent reporting to stakeholders, including compliance with sustainability standards
- Fosters collaboration with internal and external stakeholders to promote sustainable practices

ESG Governance at 5N+



Business Ethics and Compliance

Across the organization, we are committed to the highest standards of business ethics and compliance, supported by robust policies and processes, proactive risk management and a structured management approach to ensure continuous oversight and accountability. In 2024, with the implementation of our Supplier Code of Conduct, we updated several related policies and processes to support these efforts and better address key themes, such as human rights.

Code of Business Conduct

Our Code of Business Conduct explains the fundamental values and standards (Code) of behaviour that are expected from us in all aspects of our business. It applies to all employees, officers, directors, agents, consultants and partners of the Company, all employees and directors complete an annual certification acknowledging that they have read and understood the Code.

As outlined in the Code, we are responsible for complying with the laws and regulations governing the activities of 5N+, for acting with honesty at all times, and for adopting the highest standards of ethics and business conduct. In 2024, the Code was reviewed and updated by the Board of Directors to better capture key themes such as human rights.



Whistleblower Policy

Employees who become aware of a possible violation of the Code or other legal violation by the Company or any of its employees, have an important duty to report it. Our Whistleblower Policy allows employees to report such violations or express their concerns in good faith with the assurance that they will be protected against reprisals or victimization. If an employee is aware of or suspects another party is acting unethically or illegally, they can make a confidential or anonymous report using any of the reporting channels. The Whistleblower Policy is available on our website.

Risk Management

The Board is responsible for overall risk management, and it is management's policy and responsibility to regularly assess and identify risk factors which may affect the business operations of 5N+ and take steps to minimize their impact. All business risks are mandated to be reviewed twice a year through the Corporate Internal Audit with all risks and mitigation measures undertaken reported to the Board of Directors on a regular basis.

At the business level, 5N+ takes a proactive approach to risk management, continuously identifying, assessing, mitigating risks and seizing opportunities. This approach is reinforced by the Business Continuity Plan, which has been in place since 2018, ensuring resilience and adaptability in an evolving business environment. The potential risks and uncertainties the business faces are outlined in detail in our latest Management's Discussion and Analysis.

Anti-Corruption

In our commitment to ensuring ethical business operations, we comply with and train our employees on the requirements associated with the Corruption of Foreign Public Officials Act of Canada to avoid real or perceived corruption. The policies we have implemented provide guidance to our employees on situations that may be considered a conflict of interest or bribery, including restrictions on receiving or giving gifts in the course of business. In 2024, 5N+ did not report any compliance cases related to allegations of bribery.

Human Rights

As described in applicable policies and reports, we have no tolerance for human rights violations or any form of child labour, forced labour, sexual exploitation or abuse, modern slavery or human trafficking – whether in our operations or in our supply chain. This zero-tolerance policy extends to our business partners and suppliers as outlined in our Human Rights Statement, which is applicable to both employees and suppliers, and our recently launched Supplier Code of Conduct with which suppliers must comply, as described in more detail under [Responsible Supply Chain Management](#).

To further support our efforts to prevent human rights violations, we implemented mandatory training in 2024 for employees considered to have influence in mitigating human rights risks including Executive Committee members, directors and senior managers.

98% of employees identified for mandatory training on forced and child labour in business supply chains completed the training in 2024.

RESOURCES

For more information:

[Code of Business Conduct](#)

[2024 Management's Discussion and Analysis](#)

[Supplier Code of Conduct](#)

[Human Rights Statement](#)

[2024 Report on Modern Slavery Act](#)

[Whistleblower Policy](#)

[Whistleblower Form](#)



Responsible Supply Chain Management

As a global manufacturer of advanced materials, we procure a wide range of materials and services from diverse suppliers both within and outside Canada. In line with our procurement policies, we are committed to fostering long-term business relationships while strengthening sustainability initiatives across our entire supply chain and enhancing measures for ethical and transparent transactions with our critical suppliers.

Critical Supplier Identification

We employ a structured procurement approach focused on the ongoing assessment of critical suppliers through a risk-based identification process, aligned with our procurement policies and which we aim to continue to improve. This classification enables us to evaluate direct suppliers (Tier 1) based on their impact on sustainability and business continuity. Additionally, by mapping our Tier 1 suppliers, we can identify and assess risks associated with indirect suppliers (Tier 2 or Tier 3), ensuring our procurement strategy is resilient and responsible.

Our process considers key factors:

- **Spending Influence** – We categorize suppliers based on spending levels and their potential to disrupt business operations, leveraging this analysis to strengthen supply chain stability.
- **Environmental and Social Risks** – We prioritize suppliers whose operations may pose significant environmental, social, or financial risks. Particular attention is given to suppliers in high-risk regions or industries with increased exposure to human rights violations, climate change vulnerabilities, or environmental degradation.
- **Critical Supplier Identification** – We identify key Tier 1 suppliers, particularly those providing raw materials, high-expenditure products, or those associated with heightened human rights and climate-related risks, as they represent significant business continuity concerns.

Based on this process, our critical suppliers are those whose geographical location and operational risks expose them to heightened threats related to human rights, climate change, and supply chain disruptions. To mitigate these risks, we maintain proactive engagement as outlined, in support of our responsible sourcing strategy and for long-term supply chain stability.

Supplier Engagement

We engage with our critical suppliers as strategic partners, to promote alignment on sustainability, quality, and performance, while fostering long-term relationships through:

- **Purchasing Performance Meetings** – Regular evaluations to track supplier performance and proactively address concerns.
- **Procurement Process** – Forecasting collaboration to enhance supply chain efficiency and anticipate future needs.
- **Direct Engagement** – Focused conversations on ethical practices, health and safety, environmental impact, and collaborative improvement.
- **Supplier Self-assessment and Surveys** – engagement through self-assessment surveys and materiality assessment and data collection/evaluation.
- **Supplier Code of Conduct** – Requiring critical suppliers to acknowledge and sign the code, launched in 2024.

Supplier Code of Conduct

In 2024, we implemented our Supplier Code of Conduct, reinforcing our existing policies and outlining our expectation that our suppliers uphold the same high standards we hold ourselves when it comes to business ethics, human rights, labour relations, health and safety, and environmental protection, while also ensuring compliance with laws and regulations. In 2024, 93% of our critical suppliers, as defined below, acknowledged and signed our Supplier Code of Conduct. In 2024, human rights considerations were also embedded in our purchasing terms. To support our stakeholder engagement efforts, we intend to expand the number of suppliers subject to our Supplier Code of Conduct beyond that of critical suppliers.

Supplier Self-assessment Process

In 2023, we launched a sustainability supplier self-assessment to help us better evaluate sustainability, human rights, and ethical practices across our supply chain, particularly for Tier 1 suppliers. This process provides for a mechanism through which suppliers can self-report their compliance status, fostering transparency, accountability, and proactive ESG risk mitigation. This process encourages open dialogue, enabling suppliers to identify areas for improvement, while strengthening alignment with our procurement standards.

We continue to work on improving our supplier risk-based identification methodology and supplier self-assessment process by strengthening data collection and implementing a scoring system to improve risk evaluation and decision-making.

Conflict-free Minerals

While 5N+ does not directly mine the materials it refines, it is of critical importance to us that all materials we receive from our suppliers (Tier 1) and indirect suppliers (Tier 2 or Tier 3) are ethically obtained. Our Code of Business Conduct and Supplier Code of Conduct cover the guidelines under which we operate for all our sourcing, including following all applicable laws and regulations.

RESOURCES

For more information:

[Code of Business Conduct](#)

[Supplier Code of Conduct](#)

[Materiality Assessment](#)

Information Security and Data Privacy

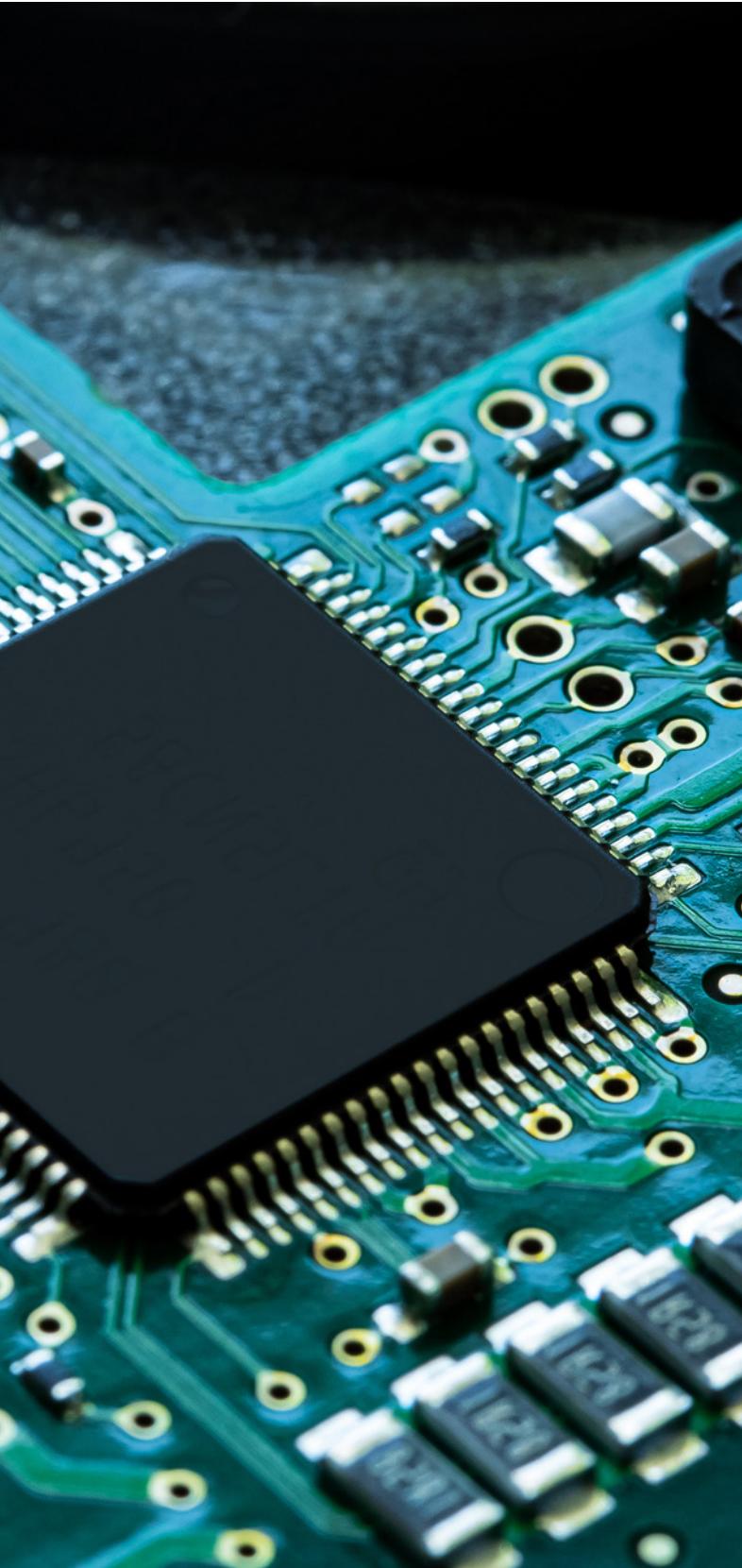
Our comprehensive information security program aims to safeguard sensitive and identifiable information belonging to the Company, subsidiaries, business units, partners, customers and employees.

Led by our Information Technology (IT) department, and sponsored by management and our Board of Directors, the program aims to ensure compliance with global privacy laws and regularly reports progress to the Audit and Risk Management Committee and the Director of IT. In 2024, 5N+ did not experience any material data breaches.

Here are some of our key steps and best practices:

- **Risk Assessment:** Identifying and evaluating potential threats and vulnerabilities in our systems.
- **Security Framework:** Adopting an established cybersecurity and management frameworks, aligned with NIST and ITIL.
- **Access Control:** Ensuring that only authorized people have access to sensitive information, use of strong identity and access management (IAM) practices.
- **Regular Updates and Patching:** Keeping software and systems up to date with the latest security patches to protect against known vulnerabilities.
- **Employee Awareness and Training:** Educating our employees about cybersecurity best practices, such as recognizing phishing attempts and using strong passwords through awareness programs. Additional employee training to be launched in 2025.
- **Incident Response Plan:** Maintaining and regularly updating our incident response plan to quickly address and mitigate the impact of security breach.
- **Continuous Monitoring:** Continuously monitoring our systems for unusual activity and potential threats.
- **Data Encryption:** Encryption of sensitive data both in transit and at rest to protect from unauthorized access.
- **Third-party Risk Management:** Assessing and managing the cybersecurity practices of third-party vendors who have access to our data.
- **Regular Audits and Compliance:** Conducting regular security audits and ensuring compliance with relevant laws and regulations.





Global Data Privacy Governance

Recognizing the paramount importance of data privacy, we maintain a global information security and privacy program that harmonizes privacy principles across the organization. This program is led by the IT department and supported by a cross-functional privacy working group.

Key elements of our approach include:

- Monitoring global privacy and data protection regulations (including patents, trademarks and intellectual property).
- Harmonizing privacy requirements across subsidiaries.
- Coordinating responses to individual and client requests regarding data privacy.
- Maintaining an internal Privacy Program Portal for accessible resources.
- Staying informed of legal developments, industry trends, and evolving privacy practices and policies.

To maintain transparency and trust, we published our Privacy Policy and our Workplace Privacy Policy in 2024, so that they can be accessible to our external stakeholders, including suppliers and clients.

RESOURCE

For more information:

[Privacy Policy and Workplace Privacy Policy](#)

Product Reliability, Quality and Safety

We have consistently demonstrated our commitment to delivering high-quality, value-added products, ensuring reliability through stringent quality control and maintaining safety in substance management—from product conception to distribution. To uphold these high standards, our sites have successfully implemented robust management systems, as outlined under 'ISO Certifications'.

SPOTLIGHT

Advanced Materials for Pharmaceutical Applications

Within our Performance Materials business segment, we have established a strong presence in the pharmaceutical sector, adhering to the highest industry standards. Our facility in Lübeck, Germany, has leading expertise in the development and manufacturing of state-of-the-art medical bismuth essential to the creation of human care products.

In addition to its ISO certifications, the facility operates under Good Manufacturing Practices (GMP), is approved by the U.S. Food and Drug Administration (FDA) and is certified as an active pharmaceutical ingredient (API) producer in Germany. This promotes compliance, consistency and the highest safety standards for pharmaceutical materials. It also enhances product safety and reliability, supporting our clients in mitigating risks that could affect end users. These stringent controls reinforce our long-standing reputation as a trusted supplier in the pharmaceutical industry.

#1 supplier

of bismuth-based active pharmaceutical ingredients, representing 75% of global demand based on management estimates

SPOTLIGHT

Specialty Semiconductors Powering Space Missions

In our Specialty Semiconductors segment, our subsidiary AZUR, based in Heilbronn, Germany, has been a key player in the space sector for decades. As a European leader in multi-junction solar cell technology for space photovoltaic (PV) applications, AZUR has played a fundamental role in shaping industry standards, including contributions to the European Cooperation for Space Standardization (ECSS).

Our focus on high standards is further demonstrated by our EN 9100:2018 certification, a globally recognized Quality Management System (QMS) for aviation, space and defense organizations. In addition, key space products are qualified to both European (ECSS) and U.S. (AIAA) standards, ensuring compliance with the highest industry benchmarks.



RESOURCES

For more information:

[ISO Certifications](#)

[Business Segments and Markets](#)

Sustainable Product Innovation

Innovation is at the core of our business and sustainability strategy. From R&D to proprietary technology and processes, we collaborate with our long-standing partners to enable innovative products critical to our everyday lives, from converting solar power into energy to active pharmaceutical ingredients.

Our name, 5N+, reflects the exceptional purity levels of our materials—5N (99.999% of purity) and beyond—achieved through proprietary technologies, advanced processing techniques, and the expertise of our strong R&D team.

With robust purification processes and cutting-edge technology, we ensure the production of ultra-high-purity materials that meet the most stringent industry requirements for semiconductors, optoelectronics, renewable energy, and life sciences.

4 R&D centres

strategically located around the globe close to customers and suppliers

We have strong R&D capabilities with a world-class technical team strategically located around the globe and close to suppliers and customers. We have R&D operations in Canada, the United States and Germany. Our specialist R&D teams are subject-matter experts with decades of experience who work with our customers, often sector-leaders themselves, in joint R&D partnerships for product advancement. We are constantly enhancing our processes, developing new products or accelerating their path to market to address the needs of our customers and their end markets.

Our culture of innovation remains the foundation for continuous advancement, technological excellence, and responsible industrial transformation fostering strong partnerships with our clients.

SPOTLIGHT

Innovation in Medical Imaging

On the medical imaging front, our advanced materials are essential to the manufacturing of radiation detector chips helping to reduce patient exposure to x-rays. Photon counting detector (PCD) technology, which is set to replace traditional scintillator detectors, represents the next frontier in medical imaging. In 2024, we continued to work closely with several major corporations in their product development ahead of this transition.

SPOTLIGHT

Contributing to an Efficient Solution for Energy Demand

As a leading supplier of specialty semiconductor materials, we play a critical role in the manufacturing of thin-film solar power generating technologies, supporting the global transition to clean energy. Today, gigawatts of solar panels worldwide utilize our materials, reinforcing our commitment to sustainable energy solutions. In addition, we are advancing next-generation materials, including wide bandgap materials for improved energy efficiency, as well as radiofrequency, optoelectronic and electronic applications that enable cutting-edge technological advancements.

RESOURCE

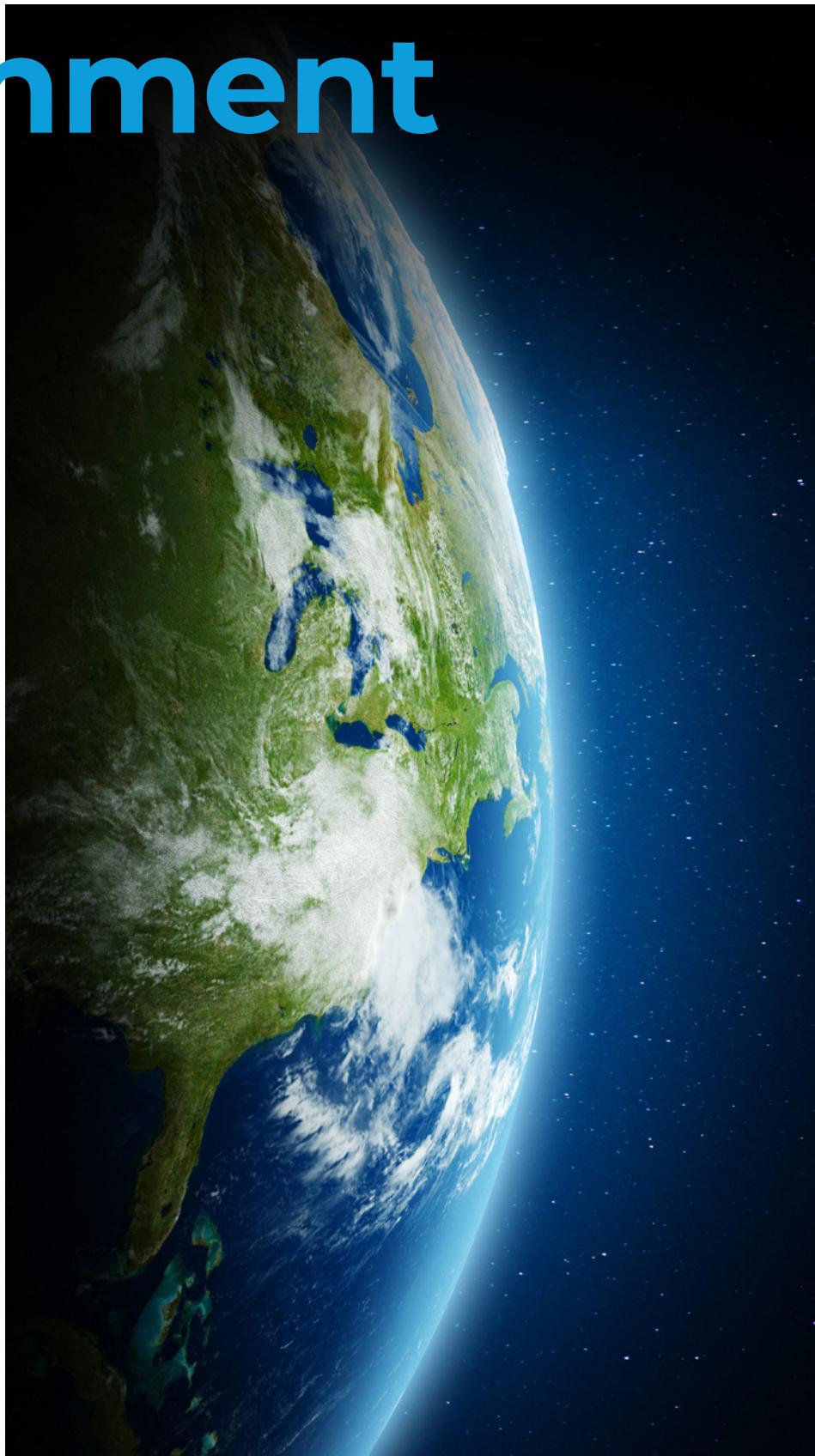
For more information:

[Business Segments and Markets](#)

Environment

In this section:

Climate Change	34
Energy Management	37
Water Management	41
Waste Management	43
Air Quality	45
Product Stewardship	46
Circular Economy	48
Biodiversity	50



Climate Change

In 2024, 5N+ continued to make progress to better understand and measure the potential impact of climate change-related physical and transition risks on our operations and business and to enhance its alignment with TCFD recommendations. This follows the foundational work completed in 2022 and 2023, outlined in detail in our 2023 Sustainability Report.

In 2024, we updated our climate risk assessments for all manufacturing sites globally, alongside conducting related financial risk assessments and climate scenario analyses. These assessments were based on the methodology outlined in our 2023 Sustainability Report. With our 2024 update, our aim was to continue ensuring alignment with the latest available climate data, regulatory developments, and evolving business needs, while embedding climate risk management into our broader business continuity strategy.

Climate Risk Assessment Update

Following our 2024 process, our findings remained in line with the previous year, with our manufacturing sites continuing to face moderate to low physical risks in relation to flooding, earthquakes, landslides, cyclones, water scarcity, extreme heat, wildfire and other environmental challenges over the medium and long term (2030 and 2040). In terms of transition risks, our monitoring across the jurisdictions in which we operate also continued to confirm that we are currently in compliance with established government regulations.

Financial Impact Assessment and Climate Scenario Analysis Update

Consistent with last year, the transition risk and financial impact assessment allows us to better understand how our operations could be affected if we take no climate action, thereby establishing a baseline under each climate scenario analyzed. Over the next few years, our aim is to develop action plans that address the risks to our operations identified through this exercise.

Next Steps

In 2024, transition risks were identified as key sustainability topics through our latest materiality assessment and stakeholder engagement. Critical areas such as sustainable product innovation, product quality, safety, and reliability emerged as priorities. Additionally, responsible supply chain management and ESG governance gained greater significance.

With these material topics now clearly defined, we are aligning them with our enterprise risk management framework, to ensure they are formally assessed and managed within our broader risk strategy. Simultaneously, these risks are being integrated into our climate risk assessment framework, allowing for enhanced financial and operational impact analysis and scenario modeling.

Our intention is to expand the integration of transition risks and opportunities across our subsidiaries in the coming years, ensuring a structured and comprehensive approach to sustainability-driven risk management. This will also support the Company in developing decarbonization plans in the future and in alignment with emerging regulation, including the regulation established by the European Union.

RESOURCE

[2023 Sustainability Report](#)

SPOTLIGHT**AZUR Achieves CDP Climate Score of B**

In early 2025, our site in Heilbronn, Germany received a CDP SME Climate Score of B – the highest score available in 2024 for this category. CDP ratings aim to encourage transparency, and measure performance across key climate-related topics. This is the first time AZUR completed the CDP's questionnaire. A score of B indicates evidence of managing our environmental impact while not necessarily being a leader in the field.

AZUR's score reflects our ongoing commitment to optimizing energy consumption and enhancing operational efficiency through targeted initiatives. Our participation also directly contributes to our broader company-wide sustainability roadmap.

Scope 1 and 2 GHG Emissions

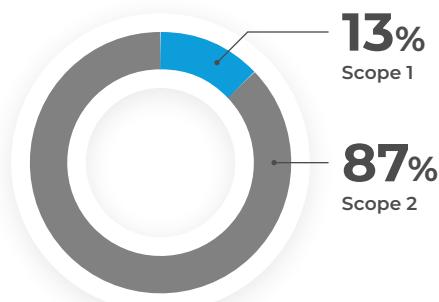
In 2024, we continued to refine our emissions data following our initial 2023 calculation of Scope 1 and 2 emissions, conducting our inventory in accordance with the GHG Protocol, as defined in the Appendix. As we improve our methodology, we are building the foundation for the future development of a carbon footprint reduction plan to meet emerging regulatory requirements and policies, such as those outlined in the European Green Deal, as described on the following page.

GHG Emissions by Scope (Metric Tons CO₂ eq)

	2023	2024
Scope 1	2,522	2,168
Scope 2	14,014	14,645
Total	16,535	16,813

Scope 1 emissions are direct GHG emissions that occur from sources that are owned or controlled by 5N+. For 5N+, these include stationary combustion, mobile combustion, refrigerants and fugitives from all our sites, as well as from company-owned vehicles. Scope 2 are indirect emissions from the generation of purchased electricity consumed by 5N+. This is primarily comprised of purchased (grid) electricity for consumption within our operations, as well as from steam, heat and cooling because of our industrial processes.

In 2024, Scope 1 emissions were lower than in 2023, primarily due to the transition from diesel to electricity in certain operational processes, leading to a decrease in direct emissions from fuel consumption. Scope 2 emissions increased in 2024 because of higher production. The transition from diesel to electricity for certain processes also contributed to increased demand for electricity, impacting Scope 2 emissions.

2024 Scope 1 and 2 GHG Emissions Breakdown

Scope 3 GHG Emissions

In mid-2024, we conducted the calculation of our Scope 3 emissions, which are indirect emissions from our activities, but that occur from sources not owned or controlled by 5N+ to validate our methodology and to support our supply chain mapping efforts.

Initially, we applied the spend-based method, following GHG Protocol recommendations, to identify the categories with the highest impact. We then decided to leverage a hybrid methodology, integrating supplier-specific data with secondary data sources to enhance the accuracy of our Scope 3 emissions estimates.

This analysis is supporting our supply chain mapping efforts by helping us identify supplier categories with the greatest impact. Specifically, we have pinpointed raw materials—including metal concentrates, metals, and chemical reagents—as representing over 95% of our Scope 3 purchased goods and services category. As we continue refining our approach, we will formally report Scope 3 emissions once we have validated the most viable methodology, ensuring accuracy and consistency in our disclosure.

SPOTLIGHT

Adapting our European Green Deal Roadmap

The European Green Deal is the response of the European Union to the Paris Agreement, with a core goal of no net GHG emissions by 2050. As part of this initiative, the Circular Economy Action Plan (CEAP) introduced new regulatory priorities, including the Eco-design for Sustainable Products Regulation (ESPR) in July 2024. This will establish environmental performance parameters to drive circular business models and reinforce sustainable product design.

With three operating plants in Europe, 5N+ continues to actively prepare for anticipated regulatory and operational impacts across key areas, including transportation, energy management, financing, building efficiency, and resource management, as outlined in our [2023 Sustainability Report](#).



Energy Management

Through process optimization, equipment upgrades, and operational best practices, we aim to standardize energy performance improvements while maintaining regulatory compliance and industry leadership in sustainability.

Our Energy Management Gold Standard

Our Corporate Environmental, Health, and Safety (EHS) Policy serves as the foundation for our energy management approach, aligning with ISO 50001 standards for energy performance and continuous improvement, to drive efficiency across our operations.

Three out of our seven subsidiaries have implemented energy management systems including two of our facilities in Germany which are ISO 50001 certified. Additionally, Heilbronn has successfully passed its ISO 50001 pre-audit and is preparing for its first certification audit by the end of 2025.

To further strengthen our energy management framework, we are actively working to expand ISO 50001 to other sites to standardize our approach. Currently, all seven of our subsidiaries have identified their Significant Energy Uses (SEUs) as defined by ISO 50001, as part of their energy management efforts, and we intend to enhance the identification of SEUs at sites that have not yet implemented ISO 50001.

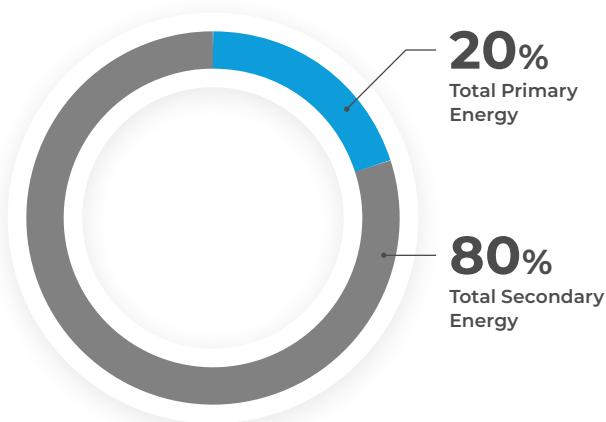
Our three sites in Germany have aligned their energy monitoring and management systems and now conduct regular internal and external energy and carbon audits. Our other sites continue to monitor energy performance as part of their operational initiatives, to enhance energy efficiency. We also plan to expand energy monitoring capabilities, leveraging data analytics tools to track consumption patterns and optimize operational energy performance. Where feasible, we will assess opportunities to integrate renewable energy sources, further reducing our Scope 2 emissions footprint.

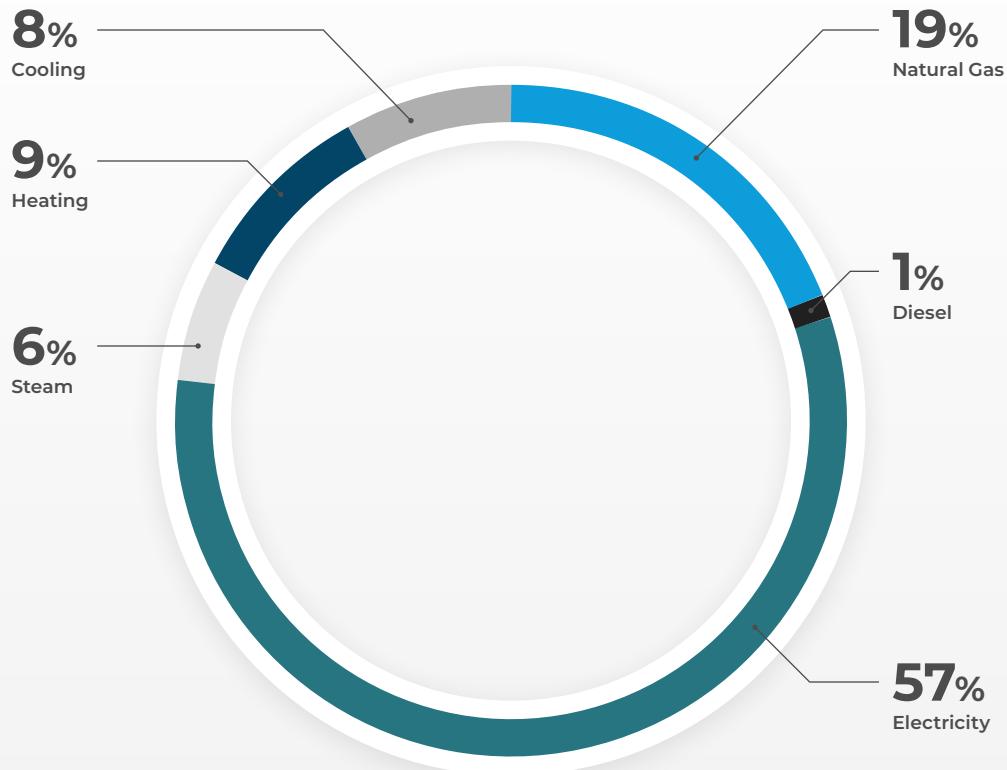
Energy Consumption

We differentiate between primary and secondary energy consumption to gain a more precise understanding of our energy usage across operations, and track energy efficiency improvements across both categories.

- **Primary energy consumption** consists of natural gas and diesel directly used in our facilities for heating, production processes, and backup power generation. These energy sources are required for high-temperature operations and fuel-dependent equipment.
- **Secondary energy consumption** consists of purchased electricity, purchased heating, purchased steam, and purchased cooling. These are externally supplied sources used to power production lines, maintain optimal facility conditions, and support auxiliary systems such as lighting, ventilation, and process cooling.

2024 Energy Distribution: Primary and Secondary



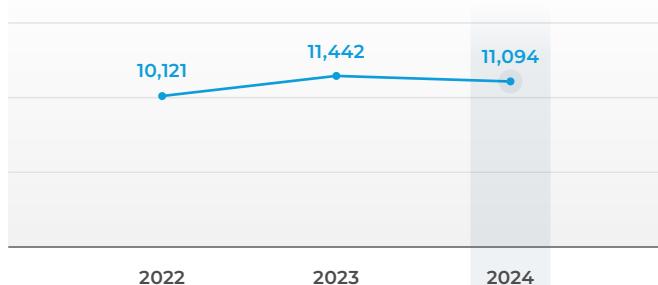
2024 Total Energy Distribution

Our primary energy consumption decreased by 6% in 2024, primarily due to the idling of our operations in Vientiane, Laos and technological advancements in water treatment in Shangyu, where the transition to an electrically powered Reverse Osmosis (RO) system resulted in a 43% reduction in diesel consumption. Our secondary energy consumption increased by 10% in 2024, reflecting our business expansion resulting in higher production output. Finally, we recorded a 6.5% increase in total energy consumption in 2024, primarily due to an increase in production capacity and sales growth.

To maintain and enhance energy efficiency and performance, we have implemented initiatives based on SEUs identified across our sites. These include continuous energy monitoring, preventive maintenance to optimize equipment performance, peak-hour energy management to reduce demand spikes, work schedule adjustments for off-peak energy efficiency, raw material improvements to lower processing energy needs, and technological process optimization.

PRIMARY ENERGY

Natural Gas Consumption (MWh)



3% natural gas reduction compared to 2023

Diesel Consumption (MWh)



41% diesel reduction compared to 2023

6% total primary energy consumption reduction compared to 2023

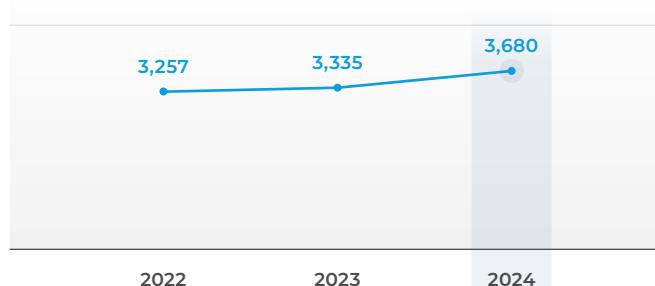
SECONDARY ENERGY

Electricity Consumption (MWh)



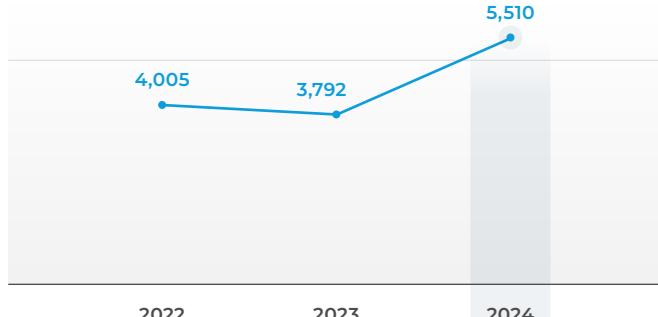
6% electricity consumption increase compared to 2023

Steam Consumption (MWh)



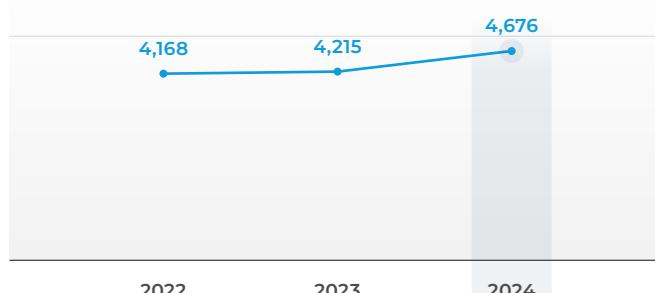
7.4% steam consumption increase compared to 2023

Heating Consumption (MWh)



45.3% heating consumption increase compared to 2023

Cooling Consumption (MWh)



10.9% cooling consumption increase compared to 2023

10% total secondary energy consumption increase compared to 2023

SPOTLIGHT

Green Electricity Contract in Lübeck

Since 2024, Lübeck, Germany has been working on securing a renewable electricity and certified renewable gas contract. Initially secured in 2024, the contract timeline was adjusted, and the delivery has now been confirmed for 2025. Under the agreement, the site will procure 3,497 MWh of renewable electricity and 3,011 MWh of certified renewable gas.

This electricity supply is certified under NaturPLUS and will be supplied by Stadtwerke Lübeck Energie. The electricity is further verified through a Guarantee of Origin (Herkunftsachweis, HKNÜ) certificate, ensuring it comes from renewable sources. Our renewable gas supply is backed by a Verified Emission Reduction (VER) certificate, guaranteeing compliance with rigorous environmental and sustainability standards.

A TÜV NORD (Geprüfter Ökostrom) certified portfolio management system is used to process and monitor the renewable energy supply, ensuring traceability, reliability, and balancing of electricity and gas deliveries. As an independent auditor, TÜV NORD annually verifies the quantities of green energy supplied, reinforcing the credibility and transparency of our procurement strategy.

Once this contract comes into effect, we anticipate more than 10% of our global energy consumption to come from renewable sources and for this to also reduce our GHG emissions at this site.



Water Management

While most of our sites are currently considered to have low water scarcity risks, we recognize that our operations are water-intensive for production, cooling and chemical processes. Therefore, we actively implement initiatives to improve efficiency, reduce withdrawals, and improve treatment and reuse systems to mitigate risks related to water supply.

To support our responsible water management efforts and ensure data-driven decision making, we monitor and report on withdrawal, which tracks total water sourced from external or direct extraction; consumption, which measures the portion of water used in processes that does not return to the local system; and discharge, which accounts for treated wastewater released through regulated channels. With this report, we are reporting across these key water indicators for the first time.

Areas of focus in support our water management efforts include:

- Optimizing water sourcing and implementing recirculation systems to lower overall site demand
- Implementing process optimization to minimize water losses and maximize water reuse
- Enhancing treatment systems and ensure compliance with regulations and environmental stewardship

Our three sites in Germany and our Shangyu plant have in-house water treatment facilities, enabling water recycling. Eisenhüttenstadt operates a closed-loop system for Cadmium Telluride (CdTe) production, which represents 99% of its production. Shangyu operates a closed-loop system, achieving zero wastewater discharge by reusing process water. While Heilbronn and Lübeck do not have closed-loop systems, we ensure compliance with environmental discharge regulations through trusted external partners and regular performance audits. In 2024, Heilbronn introduced a recirculation water process for the vapor deposition process, further improving water efficiency and resource utilization. We also continue to evaluate the feasibility of implementing wastewater treatment plants at additional sites, with Montréal currently prioritized for assessment.

Water Performance

In 2024, we achieved a 1.7% reduction in total water withdrawal, primarily driven by lower production levels at Lübeck, the idling of our Laos operations, and 100% water recovery in Shangyu and Eisenhüttenstadt. Notably, Shangyu's implementation of reverse osmosis (RO) technology further enhanced water efficiency by reducing chemical usage and lowering overall water withdrawal. The implementation of a water recirculation process in Heilbronn also optimized water usage despite an increase in production.

In 2024, total water discharge increased by 27.7%, largely due to increased production at Eisenhüttenstadt, Heilbronn, Montréal and St. George.

Process Water Withdrawal (m³)



Process Wastewater Discharged (m³)

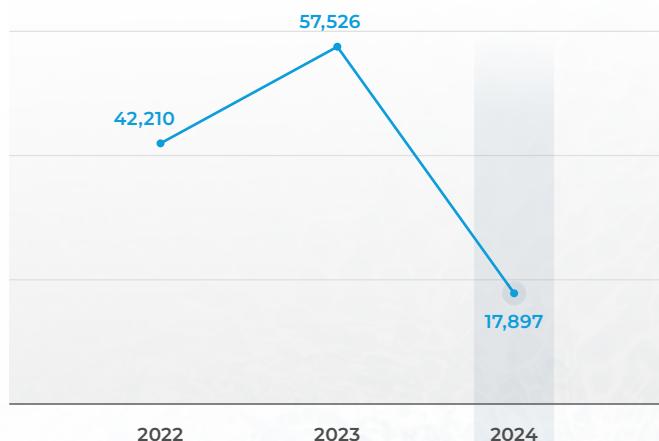


Water consumption is primarily driven by evaporation losses, residual concentrates from water treatment, and chemical reactions within refining. High-temperature processes, such as refining and purification, contribute to evaporation losses, while cooling systems, especially those in open-loop configurations—further increase water loss. Reverse osmosis (RO) and chemical purification generate concentrated brine, which cannot always be fully reintegrated, necessitating specialized disposal or recovery. Additionally, optimized reactor temperature management likely altered evaporation rates, influencing water retention across refining operations.

Despite our water recovery initiatives, business expansion has resulted in increased production, leading to higher volumes of wastewater discharge. As a result, the calculation of water consumption—based on the difference between water withdrawal and wastewater discharge—reflects a reduction in overall water consumption by 69%.

Furthermore, as more recovered water was reintroduced into production, particularly the RO system, chemical usage decreased, leading to lower water withdrawal and improved process efficiency reducing, leading to lower net consumption.

Process Water Consumption (m³)



To further enhance water efficiency, risk management, and monitoring, 5N+ is focused on the following initiatives:

- Implementing a comprehensive water mapping system to improve tracking of withdrawal sources, discharge categories, and water stress risks at the site level, enabling more precise water management strategies.
- Enhancing the integration of water risk assessments within the Enterprise Risk Management (ERM) framework, ensuring alignment with climate adaptation strategies and reinforcing resilience against potential water-related challenges.
- Establishing site-specific reduction goals for water withdrawal, consumption, and discharge, ensuring alignment with operational needs and regional water risk levels.
- Investing in water treatment infrastructure at sites without water treatment plants onsite where strategically feasible.

These initiatives will support long-term water sustainability efforts, optimizing resource efficiency while mitigating operational and environmental risks.



Waste Management

Ensuring compliance with hazardous and non-hazardous waste management regulations while maximizing resource recovery is integral to our approach to responsible waste management. Our operations prioritize waste reduction, recycling and responsible disposal, leveraging process improvements and material efficiency strategies to minimize environmental impact.

Our company operates under an upstream and downstream business model, where our upstream operations include a dedicated recycling unit. Our facilities process primary and secondary materials. Primary materials, such as by-products from mining and smelting operations, are processed in our recycling units before undergoing further refinement in our upstream facilities for metal purification. Secondary materials include client waste and residues from our own processes, which are reprocessed in our recycling units to maximize resource efficiency. Our downstream business is driven by advanced refining and purification technologies, enabling high-value material recovery while minimizing waste generation at every stage.

We adhere to strict waste management regulations across all our operations and submit annual waste reports to the appropriate regulatory authorities in each jurisdiction. To ensure compliance and minimize environmental impact, we partner with certified waste operators for proper waste disposal, recycling, and treatment. Over the next two years, we plan to standardize waste segregation across all facilities to enhance recycling rates and improve disposal efficiency.

RESOURCES

For more information:

[A Sustainable Business Model](#)

[Circular Economy](#)

Metal Recovery

We are dedicated to developing reuse solutions that prevent some of the metals we use from being wasted in landfills. We are continuously working to reduce waste by reusing residues from our processes to create valuable products.

SPOTLIGHT

Germanium Recovery in St. George and Heilbronn

Across our operations and wherever possible, we promote the circular economy by maximizing the recycling of primary resources.

Since 2022, our Heilbronn facility recycles germanium in low concentrations from its wastewater. The wastewater from some of its processes is passed through a filter to capture the low concentrations of germanium particles still present. An external partner's technology is then used to process the filtered water, with its low concentration of germanium, to further concentrate and extract the germanium. The resulting concentrate solution can be reused as a raw material.

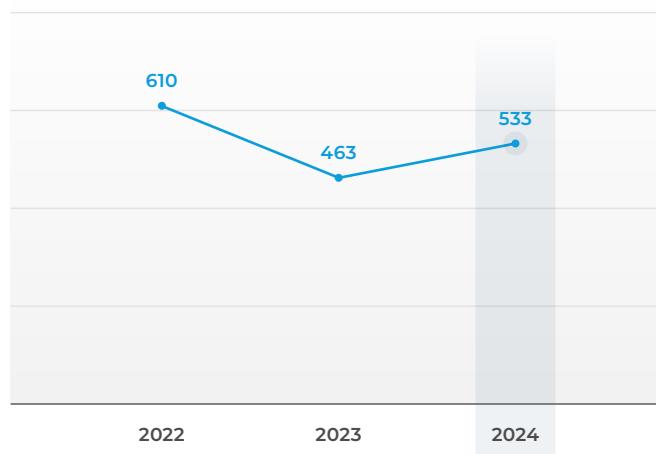
In St. George, nearly all germanium residues from production are recaptured and reused in value-added products, minimizing waste and reducing the need for virgin material sourcing.

By integrating advanced recovery technologies, process optimization, and strategic partnerships, we remain engaged in circularity-driven material processing, ensuring resource efficiency and sustainability across our value chain.

Hazardous Waste

Hazardous waste produced at our facilities includes input material packaging, used personal protective equipment, laboratory waste and potential production spills. As per our global standard, any hazardous waste must be disposed of by certified waste operators and is not stored for more than 90 days in any of our facilities. In 2024, our increase in hazardous waste reflects increased production in Montréal and in Germany.

Hazardous Waste (Metric Tons)



Air Quality

Air quality management is a key priority in the processing of Cadmium Telluride (CdTe), bismuth-based products, and solar cell materials, to ensure compliance with regulatory standards, workplace safety and environmental responsibility. The primary emissions from 5N+ sites are mostly related to the use of natural gas in the manufacturing operations, the use of nitrogen-based raw materials and chemical processes that may produce sulfates.

In Heilbronn, we produce solar cells, processes which require controlled thermal conditions, leading to potential air emissions, including volatile compounds and metal particles. These are carefully managed through filtration, exhaust ventilation and emission control systems. Similarly, CdTe processing, essential for thin-film photovoltaic solar cells, involves thermal and chemical processes, generating fine particulate matter, cadmium-bearing vapors, NOx and acidic gas emissions that may produce sulfates. To mitigate these, we implement high-efficiency dust collection, local exhaust ventilation systems, and scrubbing technologies, while optimizing energy efficiency. Bismuth-based product processing involves metallurgical refining, chemical synthesis, and powder processing—activities that generate metal dust, nitrogen oxides (NOx) from nitric acid reactions and sulfate emissions. Our advanced filtration systems, acid gas scrubbers and fuel optimization strategies help minimize these impacts while enhancing overall air quality.

At every 5N+ manufacturing site, we are committed to compliance with local atmospheric emissions regulatory requirements and audited at the corporate level. Air quality sampling is conducted at all our sites where required. Frequency is determined by applicable regulatory requirements.

Next Steps

In support of our air quality management priorities, we plan to align the monitoring of substances that could potentially harm the ozone layer to ensure compliance with the international [Montréal Protocol on Substances that Deplete the Ozone Layer](#), as well as various regulations applicable in each jurisdiction. This initiative will enhance our ability to track, manage, and mitigate the use of regulated substances, reinforcing our commitment to environmental responsibility and regulatory compliance.



Product Stewardship

At 5N+, product stewardship is at the core of our commitment to sustainability, regulatory compliance, and circular economy principles. Our portfolio includes semiconductor materials and components, such as compounds, solar cells, wafers as well as performance materials, including bismuth chemicals, high-purity metals and low-melting-point alloys.

Beyond the materials in our products, we also manage substances used in our operations, including chemical reagents, packaging materials and lubricants. Our approach aims at efficient and responsible material sourcing, and product innovation, while minimizing environmental impact.

Substance Management

Our substance management strategy covers both core materials, final products and support operational substances, ensuring:

- Responsible sourcing and purification of high-purity metal compounds, alloys, and pharmaceutical materials, meeting strict safety, environmental and quality standards.
- Compliance with global regulations, including:
 - REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) – ensuring safe handling and use of regulated substances.
 - PFAS monitoring and reduction – actively working to minimize the use of per- and poly-fluoroalkyl substances in our operations.
 - Applicable regional and international regulatory frameworks governing hazardous substances.
- Responsible management of operational substances and chemical vetting.

Product Innovation

Eco-design is imbedded in our product development, to promote material efficiency, sustainability and performance. Initiatives include:

- Development of next-generation materials such as multijunction solar cells and semiconductor compounds improving energy efficiency class and performance in solar applications.
- Integration of recovered metals from our recycling unit into new products, reducing reliance on virgin material.
- End-of-life product recovery and reintegration by working closely with customers to collect and reprocess materials from their reprocessing operations, to reintroduce valuable metals into our production cycle.
- Optimizing the composition of solar cells, wafers, and advanced semiconductor materials to improve efficiency and performance, while reducing resource consumption.

Substance Registrant	Number of Compliant Products in 2024
EU REACH	30

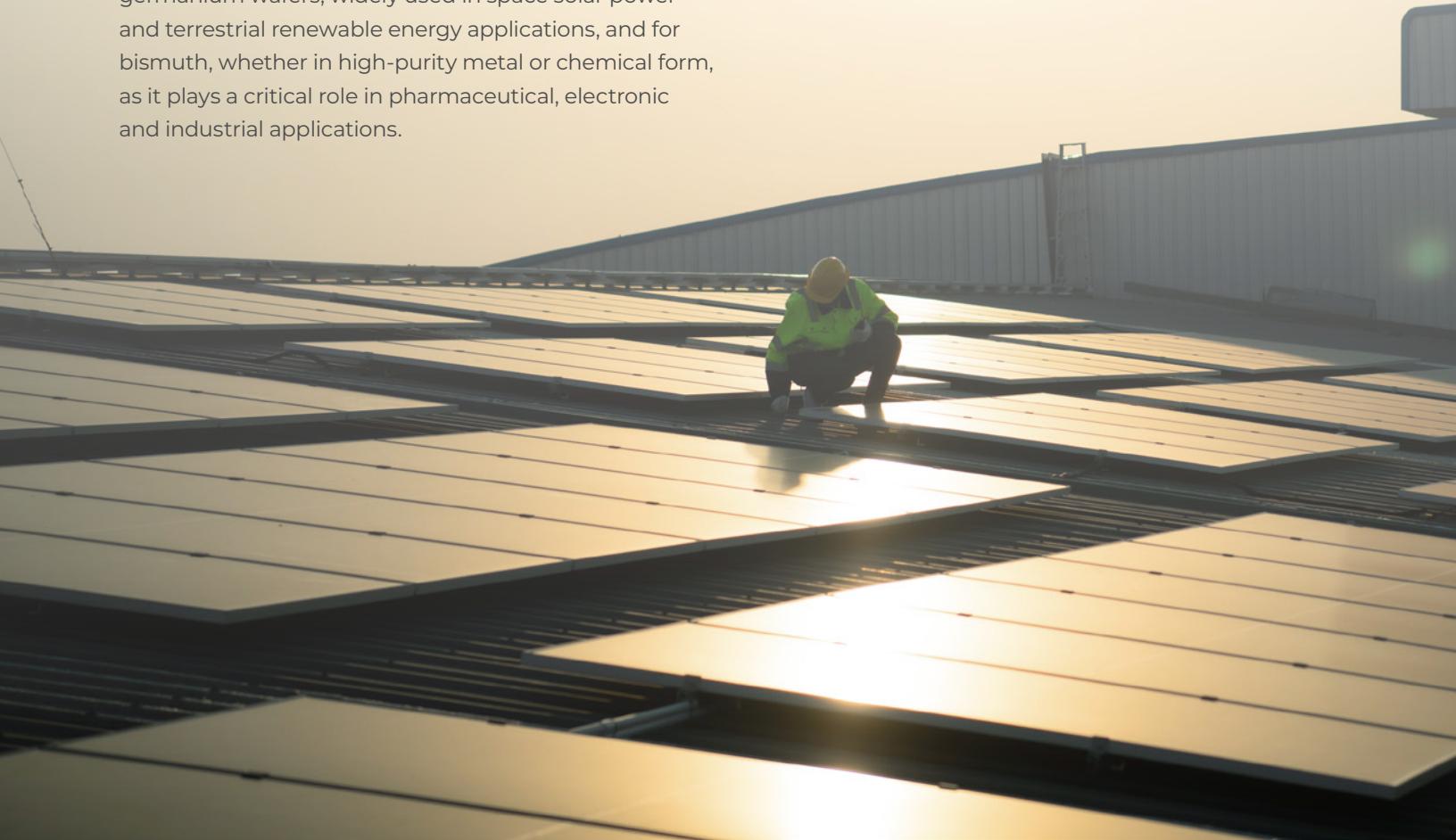
Product Carbon Footprint

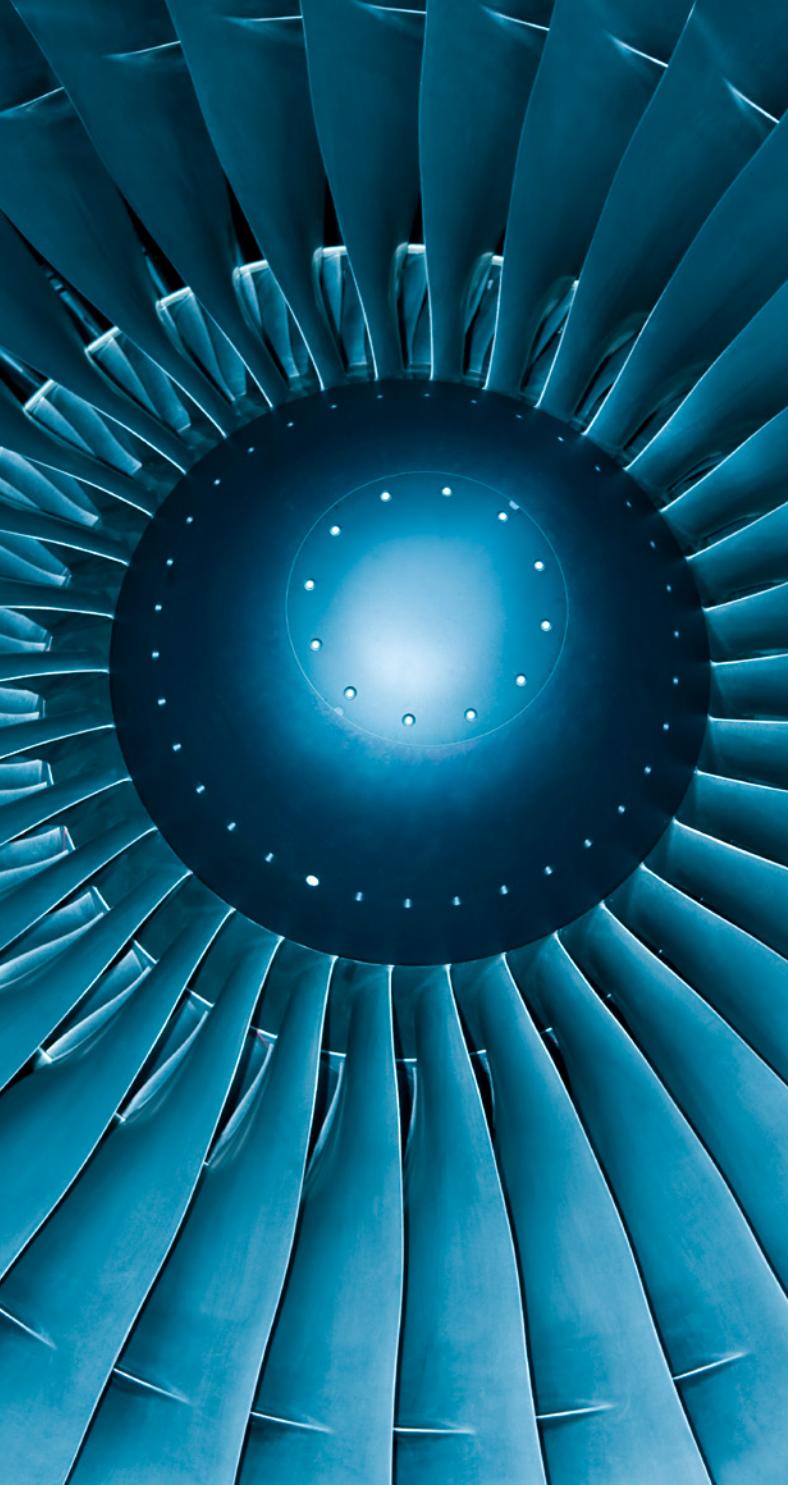
Assessments

Based on the recently completed product lifecycle impact assessment (LCIA) for cadmium-telluride, we have been able to quantify this product's carbon footprint when produced in Montréal and Eisenhüttenstadt, to help our customers assess the environmental impact of our materials.

Specifically, we have quantified the carbon footprint across its lifecycle from cradle to gate, covering emissions from raw material extraction to the product leaving our facilities. This information helps support our customers' sustainability goals by providing data-driven insights into the emissions associated with our final products. This also supports our own efforts to continuously improve our footprint by establish baseline emissions through optimized processes, material efficiency, and circularity initiatives.

Building on our carbon footprint assessment for CdTe, we intend to assess the carbon footprint for germanium wafers, widely used in space solar power and terrestrial renewable energy applications, and for bismuth, whether in high-purity metal or chemical form, as it plays a critical role in pharmaceutical, electronic and industrial applications.





Circular Economy

5N+ integrates circular economy principles wherever possible through its closed-loop business model. Our upstream business model is driven by our recycling unit, which specializes in processing industrial by-products and secondary feeds. Our downstream business model focuses on advanced manufacturing and high-purity metal processing.

Through our recycling unit, we recover valuable materials from both internal process residues and external secondary sources. Our refining processes and technological advancements also support continuous innovation in material recovery methods and resource reutilization. As an example, the tellurium supply we secure from Rio Tinto in Utah is a by-product of their copper mining operations which we process primarily in Montréal. Following investments made in our Montréal operations, we made significant improvements to the overall recovery yield on the tellurium present in complex feedstocks thereby increasing our recycling capacity.

We apply an end-of-life approach by recovering and reprocessing materials from internal residues and customer returns. This process contributed to resource efficiency.

Product Lifecycle Impact Assessment

In 2024, we completed a comprehensive (LCIA) for cadmium-telluride (CdTe), which is a semiconductor compound formed of cadmium and tellurium. The study evaluated the functional performance of the cadmium telluride used in thin-film solar panels, manufactured in Montréal and Eisenhüttenstadt with a cradle-to-gate scope.

The LCIA examined impact indicators related to climate change, fossil and nuclear energy, mineral resource use, human health and ecosystem quality. It provides valuable insights into CdTe's environmental impact, key improvement areas, regional comparisons, and decision-making support for clients.

Through this study, we determined that the main drivers of environmental impact are the use of primary resources and energy consumption during CdTe manufacturing. The lack of recycling processes in reference manufacturers located in China resulted in a higher environmental footprint, whereas our circular business model—encompassing both upstream and downstream operations—helped mitigate these impacts by integrating resource recovery and secondary material use.

Across all regions, cadmium and tellurium production and energy consumption are the primary contributors to environmental impact. Germany's higher impact is driven by energy consumption, while China's higher values stem from both material sourcing and energy use.

The Global Warming Potential (GWP) was calculated by life cycle stages and processes for CdTe manufactured in both Eisenhüttenstadt and Montréal, confirming that cadmium, tellurium and energy consumption are the major contributors to environmental impact. The assessment also confirms that the carbon footprint of CdTe produced in Montréal is lower, primarily due to the lower carbon intensity of Quebec's energy grid compared to Germany. Additionally, Germany relies more on tellurium from the primary market, while Canada has the capability to refine secondary tellurium into metal, allowing for greater use of recycled materials, further reducing its environmental impact.

To mitigate CdTe's environmental impact, the study recommends increasing the share of recycled cadmium and tellurium (secondary materials), optimizing energy use and reducing transportation distances.

Conducted by CIRAIQ in accordance with ISO 14040 and ISO 14044, the study underwent independent critical review to ensure credibility and best practices.

The findings will enable 5N+ to make more informed decisions in our continuous product improvement projects and will further inform our ability to adopt circular economy principles across our value chain. Following the completion of the cadmium-telluride LCIA, we are committed to completing a LCIA for germanium and bismuth, with the launch of our next critical metal LCIA expected by the end of 2025.

RESOURCE

For more information:

[A Sustainable Business Model](#)



Biodiversity

Through our Life Cycle Impact Assessment (LCIA) initiatives, we have begun identifying the key contributions of our operations and value chain to ecosystem quality. This marks an important starting point in integrating biodiversity considerations into our broader sustainability roadmap.

By assessing our direct and indirect environmental impacts, we aim to develop a more comprehensive approach to mitigating risks, protecting natural ecosystems, and incorporating biodiversity into future analyses and decision-making processes over the long term.



Social

In this section:

Working at 5N+	52
Labour Practices	53
Health and Safety Management	54
Talent Development	58
Inclusion and Diversity	59
Community Engagement	60



Working at 5N+

At 5N+, our success is driven by our diverse and highly skilled workforce. Our team brings together expertise in engineering, physical sciences and technical fields, along with operational and business experience. We recognize and value the skills and experience our employees bring, actively contributing to continuous improvement and strategic decision-making across our Company.

To remain at the forefront of our industry, we are committed to investing in our employees, equipping them with the skills and leadership capabilities necessary to sustain long-term success. We provide career development, training and continuous learning opportunities and programs, so that our workforce is prepared to adapt to industry changes and contribute to innovation.

We foster an inclusive and respectful workplace, and engage with employees through surveys, focus groups and open discussions, allowing their voices to shape our policies and programs. We also prioritize health and safety, acting responsibly to minimize risks and promote prevention, thereby contributing to promoting workplace well-being.

2024 Employees by Region

(% of total number of employees)





Labour Practices

5N+ is committed to ensuring safe and inclusive working conditions, respect for human rights and ethical business operations. Our commitments and standards are outlined in our Human Rights Statement, which was guided by the Universal Declaration of Human Rights, the International Labour Organization's (ILO) Declaration on Fundamental Principles and Rights at Work, and the UN Guiding Principles on Business and Human Rights.

Human Rights in our Workforce

We are committed to respecting human rights in all aspects of our operations and business activities. We have zero tolerance for any form of child labour, forced labour, sexual exploitation or abuse, modern slavery or human trafficking whether in our operations, those of our suppliers or in the communities in which we operate.

Our Whistleblower Policy provides for several mechanisms, including confidentially through which our employees can report concerns or suspected human rights violations.

A Fair and Inclusive Work Environment

We respect and value our employees and are committed to providing a fair and inclusive working environment. All employment decisions, including hiring, training and compensation, are based on performance, skills and experience, ensuring equity and inclusivity across the organization.

We are committed to ensuring pay equity across the Company and to offering comprehensive compensation packages that include health insurance, retirement contributions and paid time off.

We respect the rights of employees to freely join labour unions, seek representation and join workers' councils in accordance with local laws, and to bargain collectively. In 2024, approximately 10% of our workforce was unionized. We are committed to fostering open, transparent and constructive dialogue with our unionized employees and their labour representatives.

RESOURCES

For more information:

[Business Ethics and Compliance](#)

[Human Rights Statement](#)

[Whistleblower Policy](#)

[Report on Modern Slavery](#)

Health and Safety Management

Management Approach at 5N+

The health and safety of our employees is a top priority, with a strong emphasis on preventative measures. It is embedded in every aspect of our operations, ensuring a structured, proactive and continuously improving approach.

Every manufacturing site operates under a rigorous health and safety management system. Three sites are ISO 45001 certified, while the other four have self-implemented systems based on ISO 45001 principles. Regardless of certification status, all sites follow strict protocols and operate under a unified approach, ensuring consistency across the organization.

Our health and safety management system is built on six key pillars: culture, leadership, standards, communication, competency and governance. These provide the governance and accountability framework to ensure implementation, monitoring, continuous improvement, and compliance with regulations and best practices.

Our leadership team also regularly analyzes safety metrics, incidents, and audit findings to evaluate the effectiveness of safety programs and establish new action plans. In 2024, our safety priorities included expanding High-Risk Control Protocols, strengthening employee participation in safety initiatives, and enhancing digital safety tracking and reporting.

In 2025, areas of focus will include improving contractor and supplier safety integration to reinforce expectations and compliance from our external partners, as well as advancing digital safety reporting, which include further enhancing real-time data collection and analytics tools to improve decision-making and performance tracking.



Health and Safety Management Approach at 5N+



Plan

Risk Management
Compliance and Legal
Objectives and Program

Do

Resource and Competence and Accountability
Training and Awareness
Communication and Participation
Documentation
Operational Preventions and Control
Emergency Preparedness and Response

Check

Environmental, Health and Safety Audits
Control of Records
Incident Investigation
Preventive and Corrective Actions
Measurement and Monitoring
Performance Evaluation

Act

Management Review
Continual Improvement

EHS Training and Awareness

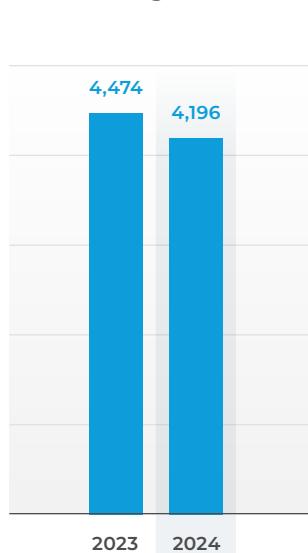
We provide comprehensive environmental, health and safety (EHS) training to all our employees on our related policies and programs so each employee has a clear understanding of our approach to incident management and prevention.

All our EHS programs include a training and certification dimension, through structured programs, digital learning tools, and on-site sessions, enhancing both knowledge retention and engagement across all operations. This is supplemented by regular awareness initiatives such as safety talks, emergency drills and leadership engagement to reinforce our culture of safety and vigilance.

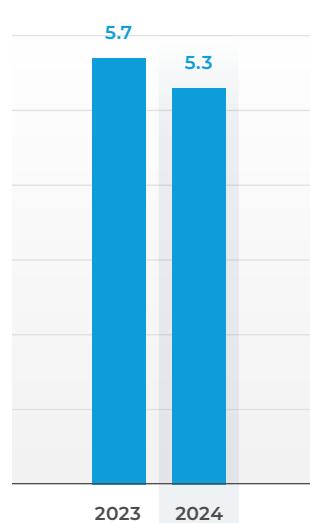
In 2024, we maintained a stable average of EHS training hours per employee, ensuring targeted instruction on operational risks, compliance requirements and best practices. The decrease in average training hours per employee year-over-year reflects the idling of our operations in Vientiane, Laos in 2024.

We intend to continue optimizing our EHS training programs, focusing on targeted high-risk training, advanced learning methodologies, and continuous improvement initiatives.

EHS Training Hours



Average EHS Training Hours per Employee



Operational Prevention, Incident and Emergency Management

Control Protocols

High-risk operations are managed through strict safety protocols and control measures. These risks are addressed through engineering controls, administrative measures and specialized training, for a comprehensive risk mitigation approach. To enhance engagement, accessibility and adoption of these protocols, we have developed a visual standard for our high-risk control protocols, allowing employees to easily reference critical safety measures in their daily work.

Our high-risk control protocols include:

Hazardous materials handling	Work at heights
Occupational exposure to hazardous agents	Confined space entry
Molten metal safety	Equipment safeguarding
Energy isolation (lockout/tagout)	Lifting operations
Electrical safety	Vehicle and mobile equipment driving

Chemical Handling and Risk Management

We uphold rigorous health and safety standards for the handling of input materials and finished products, contributing to the safe management of substances used or produced in our operations. Employees adhere to our high-risk control protocols, supported by Safety Data Sheets (SDS) classifications for all applicable substances. We ensure compliance with global chemical safety regulations, including REACH in Europe, WHMIS/SIMDUT in Canada, Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HazCom) in the U.S., and equivalent regional requirements in Asia. Continuous training, assessments, and best practices reinforce our commitment to safety across all sites.

Incident Management

To mitigate risks associated with chemical spills, leaks and other incidents, we maintain emergency response plans at all locations. We also have specific action plans for different types of incidents, from potential risks to severe events.

Our incident response protocols focus on containment, cleanup, investigation and corrective actions.

Emergencies are managed locally first, and all incidents are reported, investigated, and tracked centrally through our internal platform and assessed by our EHS team. Lessons learned from one facility are applied globally, reinforcing a concerted and proactive approach to safety and continuous improvement.

We have a comprehensive emergency preparedness plan for critical situations which includes site-specific emergency protocols, evacuation procedures and crisis communication strategies. Regular emergency drills are conducted to reinforce preparedness.

These measures strengthen our ability to minimize risks, protect our people and maintain business continuity in the event of an incident. Since 2019, the number of total work-related incidents have significantly reduced, and no fatalities have occurred at any of our facilities.

Safety Performance Evaluation

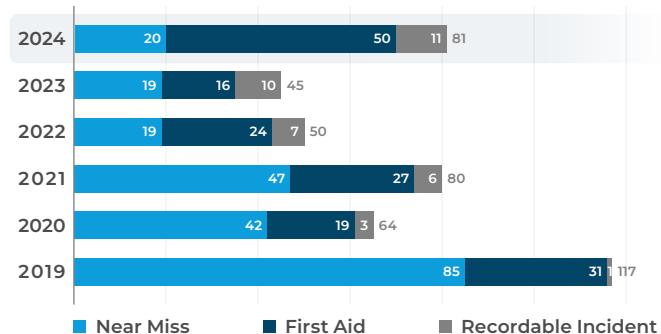
We classify work-related incidents are comprised of near misses, first aid cases, and recordable incidents according to U.S. OSHA standards. Recordable incidents include medical treatment cases, lost time cases and restricted work or job transfer cases. Such incidents necessitate medical treatment beyond first aid, lead to days away from work, or require job restrictions or transfers due to severity.

To evaluate our safety performance, we monitor our Lost Time Injury Frequency Rate (LTIFR) and Total Recordable Incident Rate (TRIR). LTIFR calculates the number of incidents resulting in lost workdays (lost time cases), offering insights into frequency. TRIR encompasses all recordable incidents, providing

a comprehensive measure of workplace safety relative to total hours worked.

We continuously monitor and evaluate our performance through audits, inspections and data-driven assessments. Through this tracking, we gain valuable insights into the effectiveness of our management system and identify areas for improvement.

Total Work-related Incidents



	2023	2024
Hours of Work	1,301,718	1,442,912
Total Number of Work-related Incidents	45	81
Global Total Recordable Injury Rate	1.5	1.5
Global Lost Time Injury Frequency Rate	1.2	1.2

In 2024, work-related incidents rose from 45 to 81, primarily due to an increase in first aid cases, while recordable incidents remained stable. We maintained a stable LTIFR of 1.5 and TRIR of 1.2, aligning with industry benchmarks for advanced materials and metal and chemical processing, reinforcing the effectiveness of our risk mitigation strategies and strong safety culture.

While first aid cases and near misses are not included in LTIFR or TRIR, reporting them is crucial for identifying risks, preventing serious accidents, and fostering a proactive safety culture. By encouraging incident reporting at all levels, we enhance workplace safety and reinforce our commitment to continuous improvement.

Talent Development

Fostering Future Talent

At 5N+, we believe in investing in the next generation through our talent development, which includes both internship and apprenticeship programs. These initiatives, which involve integration and collaboration, provide students and recent graduates invaluable experience and skills. In addition, it benefits 5N+ by exposing these bright individuals to our industry, while also providing us with fresh, diverse perspectives and a potential pool of future talent of future talent.

2024 Talent Development

	Montréal	Lübeck	Heilbronn	St. George
Number of Interns/Apprentice	3		12	1
Number of hours	1,394		12,607	

As an example, since 2018, our Lübeck site runs a Young Professionals Program designed to attract and develop talented trainees. In 2024, the plant won the 2024 Best Educational Program Award by the Lübeck Chamber of Commerce and Industry, recognizing our commitment to vocational training. The award also honored the exceptional achievements of one of our employees who initially joined as a trainee in 2021 and recently graduated as a qualified chemical technician with honors. He was named Best Trainee of the Federal State of Schleswig-Holstein, home to our Lübeck plant.

Global Training

Through a combination of technical training, leadership development, and health and safety programs, we work to ensure that employees across all regions receive the necessary training to develop their skills and succeed in their roles. Our structured training includes onsite workshops, digital learning platforms, and specialized certifications, fostering a culture of growth, compliance, and innovation. The decrease in average training hours per employee year-over-year reflects the idling of our operations in Vientiane, Laos in 2024.

	2023	2024
Global Training Hours	19,028	17,854
Global Training Hours per Employee	24.39	22.51

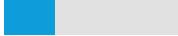
5N+ actively also collaborates with government institutions to foster public-private relations that support the professional growth of our employees. One such example is our engagement with the Ministry of Finance in China, where three employees from Shangyu are currently participating in a government-led talent development program which offers specialized training, industry insights, and leadership development.

Inclusion and Diversity

With integrity as one of our core corporate values, we are committed to establishing and maintaining respectful work environment free from all forms of harassment and discriminatory conduct, and that recognizes and welcomes differences, and promotes diversity, equality and fairness. This is governed by our Code of Business Conduct and Policy for Preventing and Addressing Workplace Harassment, Including Discrimination.

Gender Diversity

As we continue to advance our diversity efforts, we were pleased to add a new female director to our Board in February 2023, bringing female representation on the Board to 40%. This level of representation has been maintained in 2024, despite changes to the Board's composition during the year. Similarly, across our global corporate offices, women represented 29% of our workforce in 2024 compared to 27% in 2023, demonstrating consistency in gender diversity within the company.

29% 

female representation among corporate office globally in 2024, an increase of 7.4% over 2023

40% 

female representation on Board of Directors maintained in 2024

Inclusive Language Learning

Since 2020, our Heilbronn site subsidiary offers a language training program to support site employees who migrated to Germany for work to facilitate their integration in the workplace and enhance their professional growth. The program offers 24/7 online language classes, ensuring flexible access to learning opportunities. Since its launch, it has been continuously tailored to help foster better communication, workplace integration and career development. In 2024, 21 employees took advantage of this available training.



RESOURCE

For more information:

[Code of Business Conduct](#)

Community Engagement

Across our operations, we strive to make a positive impact in the communities where we are present through support and engagement. We are also committed to recognizing the contributions of our employees and supporting the causes they care about. Here are some examples of some of our local contributions in 2024.

Montréal, Canada

In 2024, our head office continued to support [Moisson Montréal](#), a food bank with a mission to promote food security and provide an optimal food supply for community agencies serving Montréal's most vulnerable people. We also supported [Fondation Teljeunes' 38th edition of its Lobster Lunch](#), an annual fundraising event in support of its mission to provide a non-judgmental place for Quebec youth to turn to, providing daily support as they discover the world, have their first experiences, and deal with struggles in their everyday lives. In addition, we were proud sponsors of the [Youth In Mind Foundation's](#) annual golf tournament fundraising event, in support of their awareness-training programs aimed at preventing psychological distress in 11 to 18-year-olds.



Shangyu, China

In Shangyu, China, the team contributed to several initiatives in 2024 that support health, education and environmental restoration. This included the donation of funds for the Free Lunch for Children initiative, a program that aims to combat child hunger in rural China. The program aimed to provide nutritious meals for students in underprivileged areas, improving their health, well-being, and academic performance.

We also supported the [100 million Suosuo Project](#), by the Society of Entrepreneurs and Ecology (SEE) Foundation to combat desertification in Inner Mongolia. The program aims to improve local ecosystems and increase carbon sequestration capacity, which aligns with our commitment to biodiversity, climate action and community resilience.



Photo credit: 100 million Suosuo Project, SEE Foundation

Appendix

In this section:

Index of GRI-Related Information	62
Scope 1 and 2 GHG Emissions Calculations	65
Cautionary Statement Regarding Forward-Looking Information	65



Index of GRI-Related Information

This section provides select GRI-related information.

Business Context

	FY 2024	FY 2023	(+/-)	Standard
Total revenue (\$Million)	289.3	242.4	19%	GRI 201-1
Net income (\$Million)	14.7	15.3	-4%	GRI 201-1

Governance

	FY 2024	FY 2023	(+/-)	Standard
Compliance case reported (Allegations of bribery)	0	0		GRI 205-3, GRI 2-27

Social

	FY 2024	FY 2023	(+/-)	Standard
Employees (total number)	793	780	1.7%	GRI 2-7
Employee geographic representation	Europe	490	470	4.3% GRI 2-7
	North America	232	209	11.0% GRI 2-7
	Asia	71	101	-29.7% GRI 2-7
Sites with Health and safety management system ISO 45001 certification	3	3	0%	5N+
Share of sites with health and safety management system ISO 45001 certification	43%	43%	0%	5N+
Sites with self-Implemented health and safety management system	4	4	0%	5N+

	FY 2024	FY 2023	(+/-)	Standard
Share of sites with self-implemented health and safety management system	57%	57%	0%	5N+
Global Total Recordable Injury Rate (per 200,000 hours)	1.5	1.5	0%	GRI 403-9
Global Lost Time Injury Frequency Rate (per 200,000 hours)	1.2	1.2	0%	GRI 403-10
Number of work-related incidents (recordable, first aid and near miss)	81	45	80.0%	GRI 403-10
Number of work-related fatalities	0	0		GRI 403-9
Rate of high-consequence work-related injuries	0	0		GRI 403-9
Total hours worked	1,442,912	1,301,718	10.8%	GRI 403-9
Total training hours in environment, health and safety	4,195.60	4,473.75	-6.2%	GRI 404-0
Average health and safety training hours per employee	5.3	5.7	-7.0%	GRI 404-0
Total training hours different from environment, health and safety	13,658	14,554	-6.2%	GRI 404-1
Total training hours	17,854	19,028	-6.2%	GRI 404-1
Average training hours per employee	22.51	24.39	-7.7%	GRI 401-1
Inclusion and Diversity	Men workforce	71%	73%	-2.7%
	Women workforce	29%	27%	7.4%
	Women representation on the board	40%	40%	0%

Environment

		FY 2024	FY 2023	(+/-)	Standard
Management System	Sites with environmental management system ISO 14001 certification	4	4	0%	5N+
	Share of sites with environmental management system ISO 14001 certification	57%	57%	0%	5N+
	Sites with energy management system ISO 50001 certification	2	2	0%	5N+
	Share of sites with energy management system ISO 50001 certification	29%	29%	0%	5N+
Climate Change	Total Scope 1 GHG emissions	2,168	2,522	-14.0%	GRI 305-1
	Scope 2 location-based	14,645	14,014	4.5%	GRI 305-2
	Total Scope 1 and Scope 2	16,813	16,535	1.7%	GRI 305-1
Energy Management	Electricity consumption	34,168	32,219	6.0%	GRI 302-1
	Steam consumption	3,680	3,335	10.3%	GRI 302-1
	Heating consumption	5,510	3,792	45.3%	GRI 302-1
	Cooling consumption	4,676	4,215	10.9%	GRI 302-1
	Natural gas consumption	11,094	11,442	-3.0%	GRI 302-1
	Diesel consumption	578	979	-41.0%	GRI 302-1
Water Management	Water withdrawal	185,795	188,963	-1.7%	GRI 306-2
	Wastewater discharged	167,898	131,437	27.7%	GRI 306-2
	Water consumption	17,897	57,526	-68.9%	GRI 306-2
Waste Management	Hazardous waste	533	463	15.2%	GRI 306-3
Product Stewardship	Life Cycle Impact Assessments (LCIA)	1	0	0%	5N+
	Product carbon footprint	1	0	0%	5N+
	Substance Registrant under EU REACH until 2024	30	16	87.5%	5N+

Scope 1 and 2 GHG Emissions Calculations

All data used to calculate Scope 1 and Scope 2 GHG emissions comes directly from the GHG Protocol. The GHG Protocol is a multistakeholder partnership of businesses, nongovernmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). For certain countries in which we have operations, such as Laos, the data for electricity comes from Carbon Footprint Ltd, based on emission factors specific of several countries.

GHG emissions not covered by the Kyoto Protocol, e.g., chlorofluorocarbons (CFCs), NOx, etc. were not included in Scope 1. The method selected for Scope 2 GHG emissions is the Location-Based Method (LBM). LBM is a method to quantify Scope 2 GHG emissions based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries.

Cautionary Statement Regarding Forward-Looking Information

Certain statements in this Sustainability Report may be forward-looking within the meaning of applicable securities laws. These statements are not guarantees of future performance and involve assumptions, risks and uncertainties that are difficult to predict and may cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Factors of uncertainty and risk that might result in such differences include the risks associated with interest rate, foreign currency, credit, liquidity, global economic conditions, international operations including China and trade protectionist measures and any retaliatory action from affected countries, environmental regulations, crisis and climate change management, environmental social and governance (ESG) considerations, safety and hazards, prolonged armed conflict in Ukraine, disease outbreaks, availability and retention of qualified professional employees, collective agreements, litigation, our growth strategy, competition, commodity price, sources of supply, protection of intellectual property, inventory price, business interruptions, loss of an important customer, changes to backlog, acquisitions, systems, network infrastructure and data failure interruption and breach, privacy, market price of the common shares, as well as grants and other incentive programs. A description of the risks affecting the Company's business and activities appears under the heading "Risk and Uncertainties" of our management discussion and analysis dated February 25, 2025.

Forward-looking statements can generally be identified by the use of terms such as "may", "should", "would", "believe", "expect", the negative of these terms, variations of them or any similar terms. No assurance can be given that any events anticipated by the forward-looking statements in this Sustainability Report will transpire or occur, or if any of them do so, what benefits that 5N+ will derive therefrom. In particular, no assurance can be given as to the future financial performance of 5N+. The forwardlooking statements contained in this Sustainability Report are made as of the date hereof and 5N+ has no obligation to publicly update such forward-looking information to reflect new information, subsequent or otherwise, unless required by applicable securities laws. The reader is warned against placing undue reliance on these forward-looking statements.



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