

# Enabling a Sustainable Future

2022 Sustainability Report



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# **Enabling a Sustainable Future**

At 5N Plus, we have had a history of sustainable growth since being founded in 2000, with strategic decisions to extend our position in the circular economy, enable innovative technology and be a critical supplier to sectors essential to a sustainable future – like the renewable energy, security, health and medical imaging industries, among many others. As such, we are pleased to introduce our inaugural sustainability report, with the understanding that we must continue to do more each year to enhance our disclosures and continue to integrate key environmental, social and governance (ESG) factors in all our decision making.

In this first report, we start to make our performance public, allowing us to reflect on what is important to 5N Plus and our stakeholders, to set baselines and to support further planning to execute on our vision of being a sustainable business and a force for good for our people, our communities and our environment.

The governance of ESG factors is also a priority area for us. At the Board level, we are officially integrating ESG oversight and responsibility to the Board's Governance and Compensation Committee in 2023, which is an addition and are continuously evaluating the Board's composition to ensure it is aligned with the objectives of the Company, while maintaining independence and improving upon diversity. For management, every leader is empowered and responsible for evaluating ESG factors, integrating them into our business decision making, and recommending ways for us to improve. These commitments stem from a top-to-bottom belief in our role as an organization to reduce our environmental footprint, contribute to a sustainable economy through our enabling products and by actively working to have a positive impact in the communities where we operate.

Effective ESG demands transparency, honesty and constant improvement. As we look ahead, our goal is to continue mindfully planning our path forward to further integrate our approach to sustainability into our business model. We view this integration as critical and will require us to continue our authentic discussions of what our sustainable future should look like, where we can make a difference and how it will be achieved.

We look forward to keeping you informed on our sustainability journey and to actively engage with our key stakeholders – our employees, our customers, our suppliers and our shareholders – on the issues that matter.

**Gervais Jacques** 

President and CEO

**Luc Bertrand** 

Chair of the Board

# **2022 Sustainability Highlights**



~**25**GW

of solar power equivalent in the world has been enabled by 5N Plus technology to date<sup>1</sup>



#1

supplier of bismuth<sup>2</sup>-based active pharmaceutical ingredients, representing 80% of global demand<sup>1</sup>



**430**%

reduction in process water consumption over five years



**27**%

female staff across the global office



**40**%

female representation on the Board of Directors<sup>3</sup>



We have the ISO 50001 standard in two sites in Germany, an energy management methodology that aims to improve energy performance



**100**%

of process water is recycled at our facilities in Eisenhüttenstadt and Shangyu



Our sodium nitrate containing wastewater in Lübeck is used for odor reduction

(organic wastewater, against anaerobic digestion in the sewers)





4,220

hours of EHS training provided in 2022

- 1 Based on management estimates
- 2 See Performance Materials on page 6
- 3 Since February 23, 2023

# A Critical Supplier to Critical Industries

**5N Plus** is a leading global producer of specialty semiconductors and performance materials headquartered in Montréal, Quebec, Canada with R&D, manufacturing and commercial centres located in Europe, North America and Asia. We deploy proprietary and proven technologies to develop and manufacture advanced materials that are often core components of our customers' products.

# **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**

Sustainable development Commitment Continuous improvement Customer focus Health and safety Integrity



# 800 Employees on Three Continents





# Our Products and Services

Our products and services are divided into two reportable segments: Specialty Semiconductors and Performance Materials. At 5N Plus, we are not just a producer, we are also an upcycler of by-products from other industries. This supply/sourcing strategy reduces waste by promoting reuse and broadens our source market, which strengthens our supply chain, and reduces costs. By using by-products in our processes where we can, we also reduce our reliance on virgin materials, which, in turn, reduces energy requirements associated with primary extraction and transit.

#### **Speciality Semiconductors**

Our Specialty Semiconductors segment manufactures and sells products used in several applications, such as renewable energy, space satellites and imaging. Typical end markets include terrestrial and spatial solar energy (thin-film photovoltaic and concentrated photovoltaic), medical imaging, infrared imaging, optoelectronics and advanced electronics. These products are sold either as semiconductor compounds, semiconductor wafers, ultra-high purity metals, epitaxial semiconductor substrates or solar cells.







#### **Performance Materials**

Our Performance Materials segment is largely associated with bismuth, one of the few heavy metals that has no detrimental effects on human health or the environment, and makes an excellent lead replacement as it shares similar metallurgical properties. We supply over 50% of the world's bismuth and bismuth chemicals for applications in the health, pharmaceutical and electronics industry and are proud to provide this product to our customers as an alternative to other metals which may be more harmful to human health and/ or the environment. Our Performance Materials products are primarily sold as active pharmaceutical ingredients, animal feed additives, specialized chemicals, commercial grade metals and alloys.





# History of Sustainable Growth

5N Plus' continued growth and success can be attributed to our focus on maintaining a leading edge in material technologies serving diversified sectors.

Sustainable development is embedded in our DNA and at the core of our strategy.

#### 2022

Renewed multi-year agreement with First Solar extending supply of sustainable sourcing solutions and expanding presence in renewable energy

Divestiture of Tilly, Belgium operations thereby exiting the manufacture of lead and nitrate-based products

#### 2000

Founded to provide materials for medical imaging purposes to reduce X-ray exposure

#### 2003

Commissioning of a closedloop refining plant - primary extraction from mining concentrates and recycling capabilities

#### 2011

Acquired MCP incorporating eco-friendly products with use of Bismuth

#### 2017

Entry into animal feed products to improve food nutritional quality through use of selective trace elements

#### 2021

Investment in Montréal to expand the development and manufacturing of critical and strategic materials supply chain optimization will reduce unit cost of production and the overall carbon footprint of the activity

Acquired minority stake in Microbion to further the development of active pharmaceutical products for novel treatments for rare and serious diseases

Acquired AZUR SPACE Solar Power GmbH ("AZUR") with capacity to improve energy production efficiency with CPV technology

#### 2007

Entry into the thin-film photovoltaic market to help enable solar power generating technologies in the renewable energy sector

Robust governance practices adopted with listing on the TSX



# **Our Approach to Sustainability**

The 5N Plus mission is to earn and retain the privilege to be critical to our customers, valued by our employees and trusted by our shareholders in a quest to enable innovation and technology deployment based on natural resources for the betterment of the human race. To accomplish our mission, we remain sustainable, innovative and resilient, which helps us build long-term value for our stakeholders. Inherent in our mission is our approach to sustainability: operating ethically, while reducing our impact on the environment and supporting our communities.

As experts in refining and processing metals, we work closely with some of the world's largest primary suppliers to form lasting partnerships. We offer our customers and partners unique Technology Enablers allowing them to unlock new opportunities while proving pathways to fight climate change and reduce our environmental impact. In these mutually beneficial relationships, we create bilateral opportunities for improvements and generate sustainable value for 5N Plus, society and our environment. Our sustainability programs reduce our ecological footprint and secure our business through the creation of multi-streamed and independent supply chains and sustainable procurement practices.

We understand the responsibility and importance of our role as a business in fighting climate change and consider ourselves optimally positioned in three areas to support our communities and environment:

- → Leading the Sustainable Economy, minimizing our environmental footprint and impact;
- → Supplying the Renewable Energy Industry & Enabling New Technology; and
- → Community Responsibility.

#### **Leading the Sustainable Economy**

From our inception, we have applied a sustainability lens to all our business operations and developed robust sustainable supply chains. We are always researching and investing in new and innovative ways of sourcing our raw materials. Currently, 5N Plus is initiating two circular economy studies to investigate alternative, more renewable and local raw material sources. Our commitment to a sustainable economy is also evidenced by our mineral recycling program, which spans three continents.

We are an early adopter of sustainable procurement programs and focus on ensuring waste products stay out of landfills and waste streams, proudly ensuring thoughtful and circular supply chains. For example, in January 2022, our Shangyu location achieved its goal of discharging zero wastewater.

#### Supplying the Renewable Energy Industry and Enabling New Technology

Solar energy is one of the most important components required for transitioning the world to a decarbonized green economy. At 5N Plus, we are proud to be a leading supplier of semiconductor materials for the manufacturing of thin-film solar power generating technologies. There are already gigawatts of solar panels using our materials installed worldwide. We also have many initiatives ongoing to reduce resource usage and improve our communities within our own operations. We are also developing next-generation materials to be used for increasing energy efficiency (wide bandgap materials), and radiofrequency optoelectronic and electronic applications.

New technological developments are critical in ensuring we are prepared for future global challenges. In support of pharmaceuticals and other medical technology developments, we provide materials needed for new medical imaging devices, thereby reducing x-ray exposure, as well as investing in novel class pharmaceuticals. We will continue to contribute to these solutions by responding to new challenges with leading-edge technology.

#### **Community Responsibility**

We know the importance of online connection and communication and are committed to remaining a trusted and dependable partner as a supplier of technology enablers.

Being a valued pillar in our community is critical to remaining a trusted supplier to our customers. Giving back and contributing to the communities where we work is critical to building our vision of integrated resilience to climate change, threats to human rights and economic inequalities. At 5N Plus, we give back to the communities where we work and invest in their development. We have provided books and reading materials

to communities in need and coordinated community tree planting events. We are committed to maintaining our reputation as a great place to work, a trusted supplier and valued member of the community.

We know that we will face challenges on our journey, but doing the right thing has always been the foundation of our business model and employee culture. We are proud of our products and how we work, and we are excited to share our sustainability initiatives and to push ourselves to do more.



# **Applying Circular Economy Principles**

5N Plus inscribes itself to sustainable development through its initiatives and business model. Moreover, 5N Plus also integrates some of the pillars of the circular economy in its business practices. From upcycling waste into useful products and recycling our process water, we are always looking for new ways to reduce our waste and build a more sustainable company.

CASE STUDY

### **Circular Economy Projects**

In 2021, we launched two new and exciting circular economy initiatives.

Our critical metals circular economy project aims to measure the current circular materials productivity and revenue for three of our critical metals (Bismuth, Germanium and Tellurium). This project, which is in line with the European Union's Green Deal and Circular Economy Action Plan, will provide us with financial metrics for the circularity of these critical metals and will provide ideas to sustain and promote our business growth.

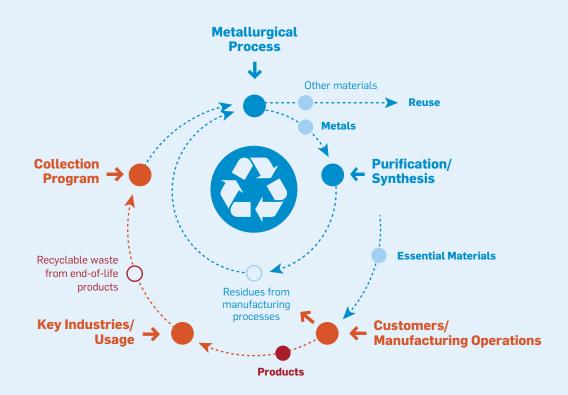
We also launched a resource efficiency evaluation of 5N Plus processes and business circular economy initiative in 2021. The purpose is to characterize the use of resources of specific 5N Plus processes, including critical minerals like tellurium and bismuth, to identify areas for improvement using circular economy principles. Criteria evaluated include:

- → The circularity of our supply, including our ability to recover our finished goods for reprocessing and our ability to acquire non-virgin material
- → The proportion of revenue coming from non-virgin material with respect to total revenue generated
- → The characterization of our supply sources and the potential risks associated with them
- → Growth potential relative to demand for virgin raw materials

These metrics are intended to facilitate the integration of circular economy principles in our sourcing and to improve our practices generally. For instance, the evaluation of this criteria may lead us to establish takeback programs and then monitor their performance over time.

As we study our circular economy project results, we will gain a better understanding of our waste generation and environmental footprint of the studied processes, as well as gain a competitive advantage in our understanding of the benefits of circular economy principles.

In addition to supplying materials for green technology, 5N Plus is exploring opportunities to further our transition to the circular economy by adopting sustainable procurement practices. Our vision for a sustainable economy goes beyond recycling materials, it also includes repurposing and remanufacturing materials to reduce our impact on the environment. We not only recycle materials when necessary, but we also rely on degraded resources – waste and byproducts from other industries – to use as inputs in our own manufacturing processes. As a company, we want to see this methodology applied across the economy and see other companies focusing on reducing waste generation by reprocessing and repurposing materials. This includes both raw materials, such as metals and ore, and process materials, such as chemicals and water.



# **Accountability**

Being accountable to our stakeholders, our employees and our communities is important to 5N Plus. To show that we were serious about improvement, we pursued ISO certifications for various aspects of our business.

In our commitment to the environment, we are ISO 14001 for Environmental Management and ISO 50001 Energy Management certified. To show our customers that 5N Plus is dedicated to being their reliable source for high-purity metals, we are ISO 9001 for Quality Management certified. ISO 9001 is just one way we demonstrate to our customers that we stand behind our products and their high quality.

Our employees are the ones who make everything at 5N Plus possible, and their health and safety are our highest priorities. Our commitment to health and safety starts at the top of our organization and we ensure that we are held accountable to our commitments through our ISO 45001 for Occupational Health and Safety certification.

# **ISO Certifications**

International Organization for Standardization	ISO 9001	ISO 14001	ISO 45001	ISO 50001
Eisenhüttenstadt (Germany)	•	•		•
Heilbronn (Germany)	•	•	•	
Lübeck (Germany)	•			•
Montréal (Canada)	•	•	•	
Shangyu (China)	•	•	•	
St. George (USA)	•			

# **Empowering the Renewable Energy Transition**

5N Plus is a leader in the renewable energy transition, as many of our products are essential to the decarbonization of the world's economies. For example, our long-term business relationship with a leading photovoltaic module manufacturer allowed us to contribute to the reduction of greenhouse gas (GHG) emissions. We supported the development of thin-film solar panels, which are not only more efficient, but also use fewer materials than traditional panels. CdTe solar modules

have a carbon footprint that is up to 2.5 times lower and a water footprint that is up to three times lower than conventional crystalline silicon on a life cycle basis.

We are investing to double our production capacity to manufacture a key component to the photovoltaic sector and have chosen to make these investments in Montréal to be close to the growing markets in this sector.

PROJECT SPOTLIGHT

## First Solar **Agua Caliente Solar Project**

The Agua Caliente Solar Project is a 290 megawatt photovoltaic power station, built in Yuma County, Arizona, using 5.2 million thin-film solar modules based on cadmium telluride supplied by 5N Plus. It was the largest solar facility in the world when the project was commissioned in April 2014. To date, this project has generated 7600GW hours since commissioning and counting.



#### PROJECT SPOTLIGHT

## RayGen Project

RayGen's Australian power plant in Carwarp, Victoria is one of the world's largest and lowest cost next-generation long-duration energy storage projects. The project will add 4MW of solar and 3MW / 50MWh (17 hours) storage to the West Murray grid, saving 10,000 tonnes of CO<sub>2</sub> emissions per year and providing day and night renewable electricity to approximately 1,000 homes. AZUR's CPV solar cells are integrated into the small, high-tech heart of RayGen's system, the PV Ultra module. Each PV Ultra receiver contains an array of PV Ultra modules that generate a total of 1MW electricity and 2MW heat under concentration.



# **Environment**

The **5N Plus** team is focused on reducing the environmental footprint. In our business model, waste reduction and reuse are a necessity. They reduce costs, shrink our environmental footprint and strengthen our supply chain. Through our waste and energy reduction programs, we are committed to driving sustainable development for us and our partners. As leaders in sustainable development, we take an integrated lifecycle approach to materials management and reuse. Our global facilities buy residues and by-products from upstream suppliers and manufacture them into critical materials which form the backbone of our business and the core of our customers' products.

# Climate Risk

The changes we are seeing in our climate could pose risks to 5N Plus, both direct, such as flooding or droughts, and indirect, like political unrest or resource scarcity. We continue to study how these risks could impact our facilities and business operations so that we can develop strategies to ensure we are resilient. We must also consider the risks facing our supply chains and the potential for socio-economic disturbances and increased carbon emission costs. These risks could pose real threats to our business and we are investigating them seriously to better understand their impacts and work towards mitigating their consequences.

GRI 201-2

#### **Task Force on Climate-related Financial Disclosures**

As 5N Plus pursues its sustainability journey, management is actively reviewing the effort and tasks required to, in the future, align and commit to the relevant Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Achieving alignment with TCFD recommendations would include 5N Plus disclosing a timeline for implementation and committing to set GHG emissions targets that are in line with the goals of the jurisdictions in which we and our clients operate and other relevant global organizations. This review is ongoing, and we understand quantifying and reporting climaterelated risk, governance and related strategies is important.

Climate risk is overseen at the Board level from an enterprise risk management perspective by the Audit and Risk Management Committee and from a broader ESG perspective, starting in 2023, by the Governance and Compensation Committee, both composed of independent directors. The implementation of site-by-site climate change assessments beginning in 2022, as described below, is also part of our alignment process.

We aim to continue to enhance disclosure in alignment with TCFD recommendations in the future to provide our investors with a clearer view of our climate-related risks, as well as our internal risk identification, management and mitigation plans.

#### **Climate Change Risk Assessments**

In 2022, we launched a comprehensive climate risk assessment program to identify the climate-related physical and transitional risks to the business to proactively manage them through the enterprise risk management process, which is updated bi-annually.

Our climate risk assessments aim to evaluate site-specific strengths, weakness, opportunities and threats using relevant models and climate scenarios. Climate change risk assessments were completed at our facilities in Montréal, St. George, Eisenhüttenstadt, Lübeck, Heilbronn and Shangyu in 2022, allowing us to better understand the potential climate impacts we face at these locations.

Sites assessed to date were found to present moderate to low physical risks in relation to flooding, earthquake, landslide, cyclone, water scarcity, extreme heat, wild fire and other environmental challenges.

In terms of transition risks, the Company continues to monitor relevant regulatory changes or government environmental targets that could impact our sites and business. This includes, but is not limited to, targets on reduction of GHG emissions,

ultra-low carbon industrial processes and other green economy initiatives. At this time, our monitoring of the various jurisdictions in which we operate suggests that we are not in non-compliance and/or that government targets have not been determined and/or implemented.

The Company continues to pursue its climate assessment program with assessments planned or in progress for completion in 2023 for its Bridgeport and Vientiane facilities, which will represent all of our manufacturing sites.

As part of this program, the Company intends to complete an assessment of the financial risks posed by the climate risks identified as we aim to deepen our understanding and, in turn, our preparedness for various climate scenarios. We will also initiate the assessment of the impact of technological changes and consumer preferences on our business and will share our findings.

More broadly, the Company is making progress improving company-wide data compilation on GHG emissions to properly measure the impact of initiatives to reduce our integrated carbon footprint.

# **Energy Consumption**



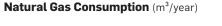
5N Plus is committed to protecting our natural environment. We are focused, not just on our facilities, but also on our communities and our supply chains. Our products require resources and energy and we are proud to lead recycling solutions that prevent the metals we use from being wasted in landfills. As we expand our waste reduction, reuse and energy reduction initiatives, we are working to reduce our impact on the environment.

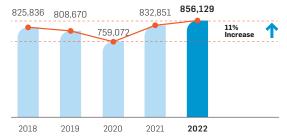
One of the main reasons why we consumed more energy this year, for both electricity and natural gas, was the acquisition and integration of AZUR in November 2021, for which a full year of consumption is reported for 2022. Across the reported metrics, the year 2020 was impacted by reduced operations mostly in Europe and Asia due to COVID-19.

Natural gas consumption increased by 11%, due to the addition of AZUR reported on a full-year basis from 2022 onward and overall increase in production levels to support demand at other sites compared to 2020, the lowest year of natural gas consumption over the last five years impacted by reduced operations due to COVID-19.









#### CASE STUDY

#### **Process Improvement in Lübeck**

A process related initiative, involving a significant investment in state-of-the-art process equipment, was implemented in Lübeck to replace reliance on electrical power by natural gas.

This investment enabled a step-change in productivity at the plant and reduced overall energy consumption.

# Water Usage Reduction



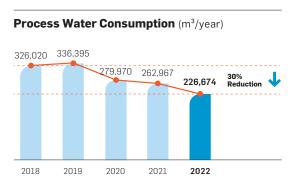
Water is a valuable and limited resource and we are actively implementing water usage reduction strategies. Several facilities have already implemented projects to decrease usage by up to 85%.

#### **Water Reuse**

Our facility in Eisenhüttenstadt, Germany has reduced its annual water consumption to just 300m³ per year and our Chinese facility in Shangyu has already reached zero wastewater discharge with its new wastewater recycling system, which reuses water after internal treatment and purification.

#### **Water Metrics**

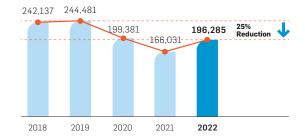
In the past, the Eisenhüttenstadt site in Germany and Shangyu site in China have worked to reduce the amount of water used in their processes. They are now operating in closed loops, enabling us to reduce our global water consumption by more than 30% over five years.



## Wastewater

Our overall wastewater discharge has noticeably declined since 2018 and we aim to continue these reductions through continuous improvements to our production and recycling processes. From 2019, we managed to reduce the water leaving our site by 25%. The year 2022 includes the integration of AZUR.





#### CASE STUDY

#### Lübeck, Germany

Our wastewater containing sodium nitrate is used for organic wastewater treatment, preventing anaerobic digestion (treatment in absence of oxygen) in the pipes of the city of Lübeck. In general, the use of our nitrate-containing wastewater prevents or suppresses the digestion process and the formation of hydrogen sulfide, removing odors and cleaning the city's drains. It is rewarding to have our operations included in the concept of the circular economy.

In practice, efforts are made to keep the wastewater in an aerobic or "fresh" state for as long as possible so that the anaerobic environment in the sewage system does not predominate, thereby supporting the digestion processes.

If kept in an aerobic state, we can bring the net sodium nitrate back into circulation.

# Waste

GRI 303-4 GRI 306-3 We take waste reduction very seriously and we are continuously working to reduce the quantity of waste we generate. As part of our waste reduction efforts, we reuse residues from our processes to create valuable products. For example, at our St. George location, we capture and use almost all our germanium residues from our regular processes for use in our products, which reduces the amount of virgin materials we need to procure, as well as waste sent for disposal.

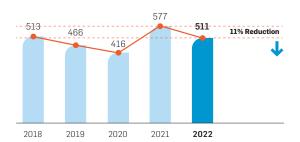
Our global facilities process not only our waste and secondaries, but also that from other manufacturers to make an impact that goes beyond 5N Plus facilities.

As a result of our Project St-Laurent, we will improve the overall recovery yield on the tellurium present in complex feedstocks, mostly procured from mining and smelting companies.

We are committed to responsible waste management and we submit annual waste reports to the appropriate regulatory authorities in each of our jurisdictions. As per our global standard, any hazardous waste generated is required to be disposed by certified operators and is not stored for more than 90 days in any of our facilities.

In terms of hazardous waste, we have managed to reduce it by more than 11% over the past year, at a level aligned with 2018, despite the incremental operations of AZUR acquired in 2021. We are trying to consume the resources we have in a more efficient way to reduce our overall impact.

#### Hazardous Waste (tons/year)



#### CASE STUDY

#### Saint Laurent Project in Montréal

The objective of the St-Laurent project, completed in late 2022, is to consolidate and integrate 5N Plus' tellurium 4N (99.99%) recycling and primary refining activities at our Montréal plant to support our global leadership position. The relocation of two production sites from Asia to Montréal allows us to reduce our manufacturing footprint, gives us the opportunity to add new technologies and capabilities, and increases our reliance on renewable energy sources to operate. A systematic approach was put in place to ensure an efficient and safe start-up of the activities while respecting environmental standards.

The operational objectives of the project were:

- → To triple the capacity to recycle industrial by-products into TeO<sub>2</sub> through a two-step pyrometallurgicalhydrometallurgical process.
- → To increase our capacity by 30% to transform TeO<sub>2</sub> into metallic tellurium 4N via an electrowinning process.
- → To revalorize a wider range of industrial by-products into TeO2, supported by new capabilities installed at the pyrometallurgical process. Feedstocks sourced both internally and externally.

# Chemical Use Reduction

As part of our efforts to reduce our impact on the environment, we are working diligently to reduce the use of chemicals in our processes. By using less, we reduce our environmental footprint as fewer needs to be produced and disposed. In addition, we reduce the risk of spills as fewer chemicals need to be stored in our facilities. Two processes on which we are focusing our chemical reductions are the copper telluride and tellurium recycling.

In March 2020, advances to our copper telluride process resulted in an increased yield recovery and reduced our reagent requirements. Additionally, as part of our continuous waste reduction plan, our St-Laurent Project will result in

process enhancements in our tellurium refining methods allowing us to recover more tellurium oxide and reduce our chemical requirements.

All members of the 5N Plus team take chemical management very seriously. We have rigorous health and safety standards regarding the use and handling of chemicals and hazardous materials. We use a safety data sheet (SDS) classification system for all applicable products and we sell our products complete with their own SDS, which are prepared by our EHS corporate office.

# Incident Risk Management

We have emergency response plans for all our locations. Should an incident take place, we minimize the risk to the environment and human health by immediately implementing mitigating and remedial actions. In the event of a leak or chemical spill, our incident response protocol focuses on containment, cleanup and investigation.

Any chemical spill must be reported to management through our internal reporting platform. The cause and severity of the spill must be investigated by our EHS team and recommendations for preventing future spills must be presented to our teams so that we can learn from these incidents. 5N Plus maintains a record of all reported spill incidents and uses these for improvement and training purposes. As a global organization with multiple sites, lessons learned from one of our facilities are applied globally to prevent similar incidents.

# Social

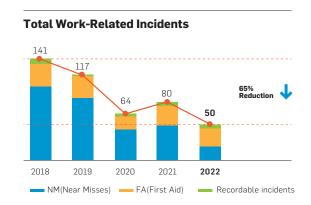
On the **5N Plus** team, we value and invest in our people. People – our employees, customers and community – are what make us who we are and enable our business to thrive. We are proud to invest in our employees and give back to our communities. As part of our corporate social responsibility, we are committed to doing better for our employees, our customers and our communities. Our focus on people starts with our employees and providing them with safe and equitable work environments. We ensure that the health and safety of our employees, including mental health, always come first. More broadly, we help bring people together through the technologies that we enable for the communications industry. Products and technologies are essential to our business, but it is the people that make 5N Plus truly different. We employ some of the most dedicated, knowledgeable and astute minds in the industry.

# **Health and Safety**

GRI 405-1 GRI 412-1 At 5N Plus, safety always comes first and we take considerable pride in being able to provide our employees with a safe working environment. From the top of our organization and down, everyone at 5N Plus is a leader when it comes to safety and we diligently work to ensure our employees' health and safety in all our operations

We are thorough in our constant reminders to our employees to put safety first and keep job hazards top of mind. This culture of safety is instilled in our work. To date, we have never had a fatality at any of our facilities and the total number of work-related incidents, which includes nearmisses, first aid and recordable incidents, has decreased by 65% since 2018.

In 2022, 5N Plus managed to oversee 1,305,611 total hours of work, with a total of just 50 near misses, first aid, and recordable incidents over the entire year. While these statistics are promising, one injury is too many and we must strive to be better still.



Health and safety audits, assessments and management reviews of our facilities keep us accountable to our commitment and show us how we can improve and make sure our employees go home to their families every day. As part of 5N Plus' culture of safety first, we are regularly reviewing examples of past incidents, common health and safety risks and our procedures to ensure that all our employees are following best practices. Every month, our employees meet to review safety risks and to discuss their facility's specific EHS incidents. If none have occurred, the meeting focuses on a review of historical incidents or examples from other facilities and reviews best practices.

#### **Training**

At 5N Plus, our employees go through rigorous training on our environmental, health and safety policies. These policies mandate our approach to injury and incident prevention through a hierarchy of elimination and controls. Each of our 5N Plus sites must develop and follow a health and safety program that ensures employees are trained and certified on the risks of their workplace. In addition, the sites must verify that these programs are being followed and that they accurately cover the specific risks of that workplace. To prepare all new employees for a safe transition onto our team, we provided 4,220 hours of EHS training in 2022.

#### **Emergency Management**

Emergencies are managed locally first. We have specific programs and action plans for each type of incident from minor potential risks to severe and catastrophic events. These real and potential incident reports are tracked at each facility, investigated and addressed with specific action items.

# **Employee Rights and Freedoms**

As a fair and reputable employer, 5N Plus maintains a strong belief that all workers deserve to be treated justly and have the right to work in a safe and supportive environment. To reflect this belief, in 2015, we adopted our Global Corporate Harassment-Free Workplace Policy to ensure our employees are treated with dignity and respect, 5N Plus maintains a zero-tolerance policy concerning harassment and encourages managers and employees to deal with any harassment in their workplace, while not limiting a person's right to pursue legal recourse.

Recruitment, training, compensation and advancement at 5N Plus is attributable to performance, qualifications, skills and experience. We also ensure gender pay equity across the organization.

#### **Inclusion and Diversity**

The culture in our facilities and our employees' sense of belonging is key to our corporate performance. We aim to ensure that every one of our employees feels included in our workforce and can work without any threat of harassment. Across our facilities on three continents, we promote diversity in our hiring process and are actively working to remove any real or perceived bias. Our corporate culture is one of continuous improvement, integrity and dedication to inclusion.

# **Employee Compensation and Benefits**

The health, wellness and happiness of our employees are paramount to our success. At 5N Plus, compensation goes far beyond just a monetary salary. We know that peace of mind is important to our employees as much as it is to our customers. At many of our facilities, we are proud to offer comprehensive compensation packages, which include benefits such as health insurance and retirement contributions and paid time off.

#### **Employee Recognition**

We believe that providing each employee with a workplace that values and recognizes individual and collective contribution is fundamental on our path to success. As such, we launched an Employee Recognition Program in 2019 and committed to creating a work environment where employees feel valued, respected and supported by their colleagues and leaders of the Company through simple daily gestures, but also through formal channels, such as social events and tangible testimonials of appreciation. For example, every year, we celebrate work anniversaries and services milestones.

# Community Relations and Support

Community is a vital component of building a resilient organization. We want our employees and neighbors to know that we are here to help. At 5N Plus, we do not just exist in our communities, we are a part of our communities. We appreciate feedback on how we can be better and aim to have a positive impact on those around us.

#### CASE STUDY

#### Supporting Literacy in Shangyu

In our daily work, we rely on a team of highly-educated and talented people. Their skills and knowledge have been developed over years, often decades, of education and development. Without education, we would not have the skilled people we need to develop processes for the materials needed for today's high-tech world. Therefore, we are proud to be able to give back to the younger generations and encourage them to learn. This is especially evident at our Shangyu location where we donated over 200 books in 2021 alone and supplied computers and printers to a local school in need. The knowledge passed down through these books will bring value far beyond their materials to the next generation of our community and the computers will allow children to explore all that technology has to offer.

#### CASE STUDY

#### **COVID-19 Support in Laos**

Family, friends and community are especially important parts of the culture in Laos. Through good and bad times, neighbors and friends band together to make the community stronger and more resilient. These communal bonds could not have been more apparent in 2020 when the COVID-19 pandemic caused worldwide disruptions. In this time of need, our 5N Plus community in Laos stepped up and donated face masks, sanitization products and other much-needed items to local government personnel to ensure that they would be healthy and safe. This gesture is just one of many examples of the Laos' community resilience and how 5N Plus supports the local community.

We are proud to support many aspects of our Vientiane community, from donating books and computers to a local school to providing funds to an elephant sanctuary needed to support their facility. On an annual basis, our Laos team donates to local communities and the district to help ensure that they have the needed funds to maintain the community services. 5N Plus in Vientiane sponsored the Lao Friends Hospital for Children fundraiser and helped raise money.

# Governance

As a publicly traded company, **5N Plus** is subject to corporate governance requirements under securities laws. 5N Plus' Board of Directors (the "Board"), supported by its committees and officers, believes that strict standards of ethics are indispensable to the success of our company and add value for its shareholders. 5N Plus encourages all directors, officers and employees to conduct themselves in accordance with the Company's values, which are based on open communication, honesty and accountability. Corporate governance guidelines were adopted to assist the Board in the exercise of its responsibilities and are available on our website at <a href="https://www.5nplus.com/Corporate Governance Guidelines">www.5nplus.com/Corporate Governance Guidelines</a>.

# **Board of Directors and Committees**

#### **Board Diversity**

Our Board is responsible for the overall stewardship of our organization and overseeing the management of our business and affairs in the best interests of the shareholders and other stakeholders. As of February 23, 2023, our Board was composed of five highly qualified and experienced individuals, including one non-independent director, our CEO. Two women sit on the Board (40%), surpassing our goal of 30% by 2025.

#### **ESG Governance**

Two committees will assist in fulfilling the Board's ESG oversight responsibilities. Climate and other relevant ESGrelated risks are overseen from an enterprise risk management perspective by the Audit and Risk Management Committee and effective in 2023, from a broader ESG perspective by the Governance and Compensation Committee.

For more information on the Board's and Committees' responsibilities, please visit our website at www.5nplus.com/governance.

# **Executive Committee**

5N Plus' executive management team is accountable for our daily business operations. They are responsible for strategic planning, financial statements and forecasts, and work with our Board on large developments. Our executive management team leads us towards effective action on our mission, vision and values, and has formed the 5N Plus that you know today. To serve our clients and pursue innovation in green technology, the executive management team ensures 5N Plus remains on an authentic path forward of sustainable, responsible business practices.

# **Ethical Business Conduct**

Integrity is one of our key values and we are steadfast in our commitment to conducting ourselves ethically in all our business transactions. In 2009, we formally implemented our Code of Business Conduct (the "Code"). The Code does not replace obligations under the law, and cannot answer every question; rather, it is intended to set out the general principles of acceptable conduct in our relations with other employees, clients, suppliers, investors and the communities in which we carry on our activities. The Code applies to everyone at 5N Plus. This includes all employees, officers, directors, agents, consultants, suppliers and partners of the Company.

We ensure the effectiveness of the Code by having new employees review and sign a certification that they have read and clearly understood the Code. Additionally, all employees and board members are required to review the Code at least once per year and confirm that they have done so by signing the Certification of Annual Review of the Code.

Our Whistleblower Policy allows employees to raise concerns regarding violations of our Code, which may have serious repercussions for 5N Plus, including erroneous financial reports, illegal activities or policy violations. Employees, officers, directors, agents, consultants, suppliers and partners will be protected against reprisals or victimization following whistleblowing that is carried out in good faith.

# **Human Rights**

As per our Code of Conduct, which is also applicable to our suppliers, 5N Plus is committed to respecting human rights and endorses equal opportunity in employment. The Company does not tolerate discrimination on the ground of race, gender, ethnic origin, religious belief, sexual orientation or any other characteristic protected by law.

# Risk Management

In the normal course of business, we are subject to a number of risk factors which may limit our ability to execute our strategy and achieve our long-term growth objectives. Management identifies these risks and implements strategies to minimize their impact on the Company's performance. Corporate Internal Audit and site leadership have the mandate to review all business risks semestrially. The risks and risk reduction measures are presented to the Audit Committee and the Board of Directors on an ongoing basis.

# **Anti-Corruption**

Fighting corruption in our industry is important to 5N Plus and we have strict policies and guidelines in place to ensure that we operate ethically. As a company based in Canada, we ensure that our business complies with the Corruption of Foreign Public Officials Act of Canada and we provide our employees with education on what constitutes corruption. To prevent conflicts of interest (whether real or perceived), 5N Plus has policies and guidelines in place to educate employees on situations that may be perceived to be in conflict and restrictions on receiving or giving gifts while conducting business.

# **Conflict-Free Minerals**

At 5N Plus, not only do we comply with all national and other applicable laws and regulations, but we also actively promote initiatives for managing resources responsibly and continue our environmental leadership position within our industry by minimizing the impact of our operations and products on the environment.





# **About this Report**

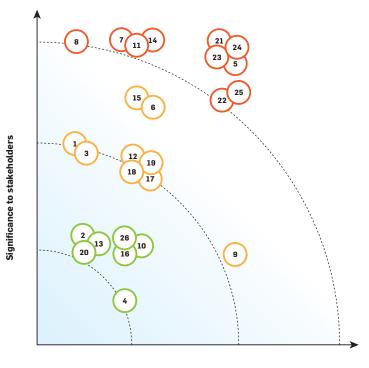
This inaugural Sustainability Report produced by **5N Plus** was developed in alignment or reference with select Global Reporting Initiative (GRI) indicators. Other reporting frameworks were also reviewed to help identify the topics to report on, including the Sustainability Accounting Standards Board Standards, Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and the United Nations Sustainable Development Goals.

**5N Plus** has committed to measuring, reporting on and improving our sustainability initiatives in line with environmental, social and governance (ESG) frameworks. This report outlines the proactive steps that 5N Plus is taking to manage several risks through innovation, procurement, emissions reduction strategies, waste reduction strategies, employee safety and community responsibility. Unless otherwise mentioned, the reporting period spans up to and including December 31, 2022.

# **Materiality Assessment**

5N Plus conducted a preliminary materiality assessment, guided by key GRI indicators, to identify the relevant ESG risks and opportunities relevant and material to the business, and their relative importance to our stakeholders (authorities, public, investors and shareholders, employees and customers). This assessment has guided the development of our ESG strategy.

1	Diversity
2	Sulfate Emissions
3	CO <sub>2</sub> Emissions
4	Product Life Cycle
5	Process Safety Management
6	Solid and Liquid Spills
7	NO <sub>x</sub> Emissions
8	Emission of Particulate Material & Combustions Gases
9	Community Incidents
10	Water Consumption
11	Human Rights
12	Electrical Energy Consumption
13	Board Composition
14	Waste
15	Wastewater
16	Community Relations
17	Worker Participation
18	EHS and Quality Training
19	Fuel and Gas Consumption
20	Gender Pay Equity
21	EHS Management System – Incident Management
22	Anti-Corruption, Anti-Trust and Fair Competition Practices
23	Employee Health – Exposure to Contaminants
24	Compliance to Environmental Regulations
25	EHS - Injury Ratio
26	Manufactured Chemicals



Significance on business

# **Measuring Progress**

As we strive to be more accountable to our customers and communities, we must disclose how we are performing, where we are improving and where we need to improve. Disclosure of our sustainability progress is important to build trust with our stakeholders and show that we are dedicated to building a better world.

Currently, in many of our processes, we track energy, water and waste metrics, such as electrical consumption, natural gas consumption, water process consumption, wastewater discharge and hazardous waste production. With data on our usages in these areas, we are continuously seeking ways to improve our energy and water efficiencies and reduce our waste production. In addition, it is critical for us to create safe work environments for our employees, so we actively track work related incidents in all our facilities.

As we continue this journey, we will make further improvements to report on the topics identified in our materiality assessment and our evolving sustainability efforts.

To provide feedback on our Sustainability Report, please contact: ehssupport@5nplus.com



# Index of Alignment with External Sustainability Frameworks

This section provides an index listing the locations where 5N Plus' reporting is in alignment or reference to the Global Reporting Initiative (GRI).

#### Table 1. Index of GRI-Related Information

GRI <sup>1</sup>	Topic/Description	Page Number
201-2	Financial implications and other risks and opportunities due to climate change	15
302-1	Energy consumption within the organization	16
303-1	Interactions with water as a shared resource	10, 17
303-4	Water discharge (m³)	17, 18
303-5	Water consumption (m³)	17
305-1	Direct (Scope 1) GHG emissions	16
306-1	Waste generation and significant waste-related impacts	10
306-2	Management of significant waste-related impacts	10
306-3	Waste generated	18
306-4	Waste diverted from disposal	10
403-3	Occupational health services	21
403-4	Worker participation, consultation and communication on occupational health and safety	21
403-9	Work-related injuries (total number of incidents – standardized)	21
404-1	Average training per employee	21
405-1	Diversity of governance bodies and employees	21
412-1	Operations with local community engagement, impact assessments, and development programs.	21

<sup>1</sup> GRI Indicators provided for comparison only, data and reporting does not necessarily meet all GRI requirements (example: data reported by facility)

# **Cautionary Statement Regarding Forward-Looking Information**

Certain statements in this report may be forward-looking within the meaning of applicable securities laws. Forward-looking information and statements are based on the best estimates available to the Company at the time and involve known and unknown risks, uncertainties or other factors that 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. Forwardlooking 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 any forwardlooking information in this report will occur, or if any of them do so, what benefits that 5N Plus will derive therefrom. In particular, no assurance can be given as to the future financial performance of 5N Plus. The forward-looking information contained in this report is made as of the date hereof and the Company 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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