5N Plus 2019 Annual Report

Resilient. Resourceful. Resolute.

5N PLUS
Enabling Performance™

MISSION

As a leading global material technology company, our mission, each and every day, is to earn and retain the privilege to be essential to our customers, preferred by our employees and trusted among our shareholders in a quest to enable innovation and technology deployment based on natural resources for the betterment of the human race.

VISION

As a leading global material technology company with employees and assets throughout the world, we are determined to enable and empower our people in a manner which inspires them to perform collectively at their best and optimize resource utilization so as to deliver competitive financial returns.

Our footprint

With multiple facilities on three continents, 5N Plus is strategically situated close to resources, suppliers and customers, making us efficient and effective in any supply chain.

- Employees on three continents
- Manufacturing facilities in North America, Europe and Asia
- Sales offices around the world

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Arjang J. (AJ) Roshan
President and
Chief Executive Officer

Dear Shareholders,

I would characterize the events of 2019 as a perfect storm. We began 2019 anticipating that it would be a staging year, positioning our growth businesses for market introduction and our core businesses for greater competitiveness under emerging global market dynamics. Aligned with this expectation, we anticipated lower earnings than in 2018. But what we and the entire industry did not anticipate were the challenges that ensued, driven by significant and rapid deterioration of minor metal notations. Bismuth, for example, the metal 5N Plus consumes the most, dropped by 27% during the year and ended 2019 at almost 40% lower than in 2015, which is regarded as one of this metal's poorest performing years ever.

Despite these challenges and their negative impact on earnings, 5N Plus delivered 11% Adjusted EBITDA Margin on approximately $200 million of sales. This falls short of our goals for the year. However, considering the magnitude of these headwinds, the numbers highlight a significant positive development since the launch of our 5N21 strategic plan. Indeed, a few years ago, headwinds of this force would have utterly derailed the company's performance and resulted in notable losses.

With the launch of 5N21, 5N Plus has begun to improve its performance metrics. The plan's three drivers:

1. **Develop & Extract Value from Upstream Activities**
   Invest in process technologies to extract from complex feeds a range of essential metals used as consumables in downstream businesses, and do this at a lower cost than purchasing the metals on the spot market.

2. **Deliver Quality Growth from Existing Initiatives**
   Leverage 5N Plus' core competencies to grow products within future markets: those with higher value-added activities and lower metal content relative to total sales revenue.

3. **Maximize Value from Global Assets & Capabilities**
   Optimize the company's operating activities across all global sites, with a focus on reducing production unit costs and working capital, while managing risk.

Performance of Upstream Activities in 2019

In 2019, nearly all minor metals used as consumables in materials we produce experienced an erosion in their underlying price not seen in a very long time. This impacted 5N Plus in two major ways:

- Margins across downstream products contracted, with our Eco-Friendly Materials business unit absorbing the brunt of this impact. It is important to note that when metal notations change, the price associated with the pass-through metal content of the product being sold almost immediately adjusts to market price, while the cost of inventory for this metal takes longer to reconcile, resulting in a transitory gain or loss. In 2019, deteriorating metal notations produced both a reduction in overall revenues and a transitory contraction of margins across downstream products.
- Deteriorating metal notations also significantly impacted earnings from recycling and refining activities, which are essential for our upstream business. As metal notations decline, the margins shrink between final metal monetization and the cost of refining and recycling the complex feed containing the metal.

Since the introduction of its 5N21 strategic plan, 5N Plus has focused efforts on lowering refining and recycling costs (i.e. valorization costs) of complex feed containing desired metals. This has paid dividends, as upstream earnings have contributed notably to the company's overall performance. Indeed, we envisioned a 20% contribution to 5N Plus' overall margins in the latter stages of 5N21. In fact, we've made so much progress in this area that in 2019, as certain metals reached historically low notations, we were still able to extract margins from our refining and recycling activities, albeit at lower levels than the year before. This is a testament to our team's performance in developing value-added processes. By mid-2019,

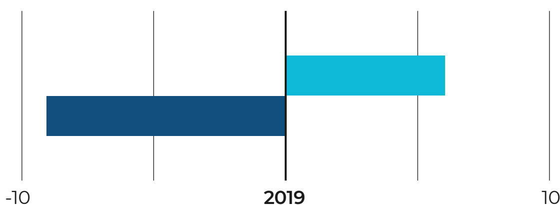
as underlying metals prices continued to deteriorate, certain suppliers of complex feed either ceased production or decided to withhold their material, citing unfavorable market conditions. Given this reality, in the second half of the year the input for our recycling and refining activities reached suboptimal levels, impacting profitability from upstream activities.

As we move into 2020, our best information indicates that the metals we use, such as bismuth and tellurium, are readily available and there is little market reason to expect a notable increase in near-term metal notations. We therefore expect upstream activities to remain at suboptimal levels. That said, for our downstream businesses to grow their margins, all that's needed are stable metal prices—even at historically low levels. This is one of the key benefits of 5N21: the increase in value-added activities generates higher margins. We're moving away from our former reliance on metal movements for profitability and toward product innovation and a unique value proposition as the twin engines for earnings. By contrast, without the implementation of 5N21, our company would have generated significantly lower margins in 2019, as shown in the chart below.

Impact from Metals Relative Gross Margin Performance

with and without 5N21 Strategic Plan Implemented

In millions of USD



- Additional gains if metals stayed stable — **5N21 implemented**
- Additional losses without 5N21 implemented

Performance of Growth Initiatives in 2019

By the beginning of the 2019, 5N Plus had positioned a number of growth initiatives at various stages of development:

The Case of Security, Aerospace, Sensing & Imaging

After securing sizable contracts in the Security, Aerospace, Sensing & Imaging sector, we began 2019 by ramping up operations to reach mass-production scale on certain products—a first for 5N Plus. Similarly, some customers were also entering new markets and ramping up to new scales. In anticipation of this exciting challenge, early in the year my management team identified 2019 as a staging year. As expected, some production challenges did crop up throughout the year and culminated in lower sales. However, by year end nearly all the issues were resolved and we're even better positioned to serve these markets.

The Case of Catalytic & Extractive Materials

In 2019, this sector also faced challenges associated with scaling production. In recent years, 5N Plus has made significant progress in penetrating select markets, and by late 2018, the company's production capacity for the following year was sold out. This positive development meant that the facility responsible for producing these materials had to increase production in 2019 to unprecedented levels. As a result we experienced a series of production interruptions that impacted revenue, as our teams grappled with this new challenge throughout the year.

> **"Both of the above cases, while adverse for our 2019 performance, are nevertheless highly encouraging. They demonstrate solid progress for 5N Plus, as it negotiates a challenging transformation toward higher value activities. I strongly believe that the speed at which we learn during this process will correlate to the magnitude and sustainability of our success."**

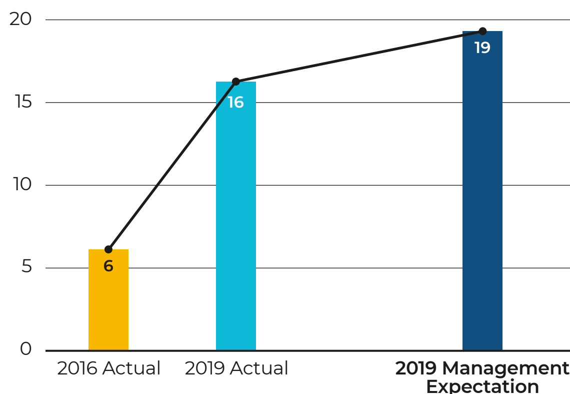
The Case of Feed Additives

After its completion of a state-of-the-art automated additive plant in Germany in 2018, 5N Plus allocated significant resources in 2019 to meeting regulatory and customer qualifications. By year end, several potential customers had listed 5N Plus as a qualified supplier of trace minerals that improve animal health. While our goal was to move faster through these qualification trials and secure a larger orderbook, we are pleased to be entering this market within 12 months of completing our plant's construction and we now have several contracts from high-profile customers. We've learned from this experience that it takes some time to reach critical milestones in this space, given the rigor associated with commercializing products for animal health. We will continue to invest in better ways to serve our customers and address their needs.

The Case of Micro-Powders

We're pleased to see a strong reception for products from this segment. It's a clear indication that the engineered powders we supply to the electronics industry deliver unique attributes that enable functionality and reliability in tomorrow's devices. We're honored to have been awarded a series of programs for next-generation wearables and smart devices, confirming the viability of our approach and product roadmap. Given the uniqueness of our products and their ability to meet highly demanding specifications, we have positioned them at a premium. Our growth in this segment will be dictated by our customers' continued success in launching new products with ever-more challenging requirements.

> **"While my team would like to see our new ventures and growth initiatives develop more rapidly, we believe it's self-evident that 5N Plus is making substantial progress—not only introducing novel products desired by customers and markets but also growing revenues from these activities. So, is the 5N21 Strategic Plan viable and working? The answer is a resounding 'Yes!' The only remaining question is what can be done to expedite results."**



Maximizing Value from Global Assets and Capabilities

By 2018, 5N Plus had executed most of the actions management had identified to maximize value across its global assets without requiring significant investment. Under 5N21, we earmarked a capital expenditure budget of $50 million over approximately five years to invest in the business. This amount is equivalent to the company's annual rate of depreciation across the planning period. Recognizing that additional value extraction across the existing assets would require notable capital expenditure, by the middle of 2019 we launched a package of investments worth more than $10 million in process technologies aimed at substantially increasing capacity in our existing assets, enhancing capability, and providing notable environmental benefits to local communities. The package was designed to provide a three-year payback and is expected to be fully implemented by the third quarter of 2020. The investment sum remains well within budget.

I believe it is important to recognize the ever-changing nature of our business, as it is our responsibility to employees and shareholders to anticipate change and take appropriate action to ensure 5N Plus thrives in tomorrow's world. This responsibility means investing not only in physical assets and capabilities, but also in invaluable assets such as human talent. It is also crucial that we integrate all these assets and capabilities within a framework of sustainability focused on building a business with a track record that withstands the test of time.

While 2019 has truly brought a perfect storm, I am proud to say that thanks to the contributions of every 5N Plus employee, under the guidance of our strategic plan, a storm that would have severely impaired our journey in former years, has failed to impact our trajectory. Despite the current tumult, our company remains on course, with a strong balance sheet that self-funds our investments and growth; an orderbook with robust demand for our products and services; a portfolio of growth initiatives with options and pathways for future growth; an impressive list of leading customers who place their trust in 5N Plus; and a competent, diverse and talented group of colleagues around the world. They are unmatched in our industry.

I would be remiss in not thanking our constructive base of shareholders, who lend their support every day and to whom we owe a debt of gratitude.

As we move to 2020, my team and I are looking forward to the new year. Fortified with key learnings from 2019, we anticipate smoother sailing as we enable all our stakeholders to reach their ambitions.

Electronic Materials

We maintained our growth trajectory along multiple axes and are well positioned for the future, fueled by record customer demand for products in infrared imaging, medical imaging and micro-powders.

SASI Semiconductor Materials (Security, Aerospace, Sensing and Imaging)

We produce semiconductor materials essential to cutting-edge detectors for medical imaging, high efficiency solar cells for space satellites, and focal plane array cameras for infrared imaging. Despite some production challenges in the early part of the year, now well behind us, we had record revenues for these products in 2019. Our security, sensing and medical imaging products all posted record production, sales volume and market share, and we responded by doubling our ultra high purity materials production capacity at our Montreal facility. Our SASI semiconductor materials, recognized as the best in the world, have helped us secure the United States government as a strategic partner, supplying them with products for key national security programs.

Micro-Powders

Production and sales volumes for our high value-added Micro-Powders business more than doubled in 2019. 5N Plus micro-powders are based on a unique process technology that enables the cost-effective production of various complex powdered alloys that meet stringent specifications and ever finer particle sizes. Indeed, we're now embedded in the technology roadmap of several global companies, making our products critical to some of the most advanced smart phone and smart watch devices. To bolster our leadership, we introduced new particle size classification capabilities in 2019. This made us the first in the world to market Type 9 (1 to 5 microns) and Type 10 (1 to 3 microns) solder powders for microelectronic assembly and semiconductor packaging applications.

Renewable Energy

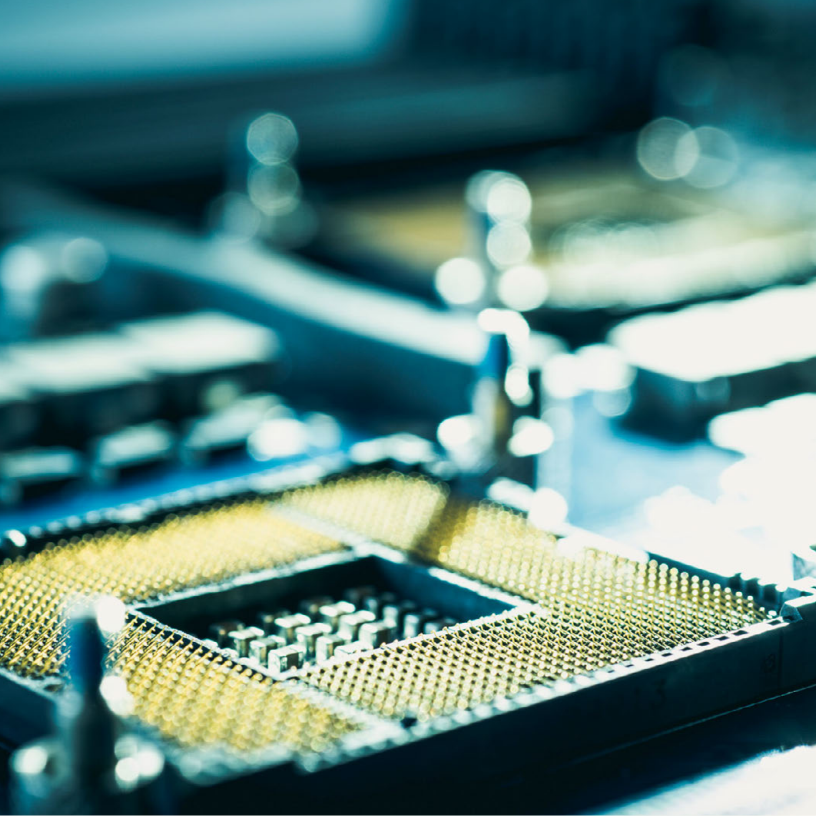
We delivered flawlessly on a new series of contracts in 2019, reaching a company record in volume of products shipped. In parallel, we continue to streamline operations and grow capabilities and efficiencies to enhance performance.

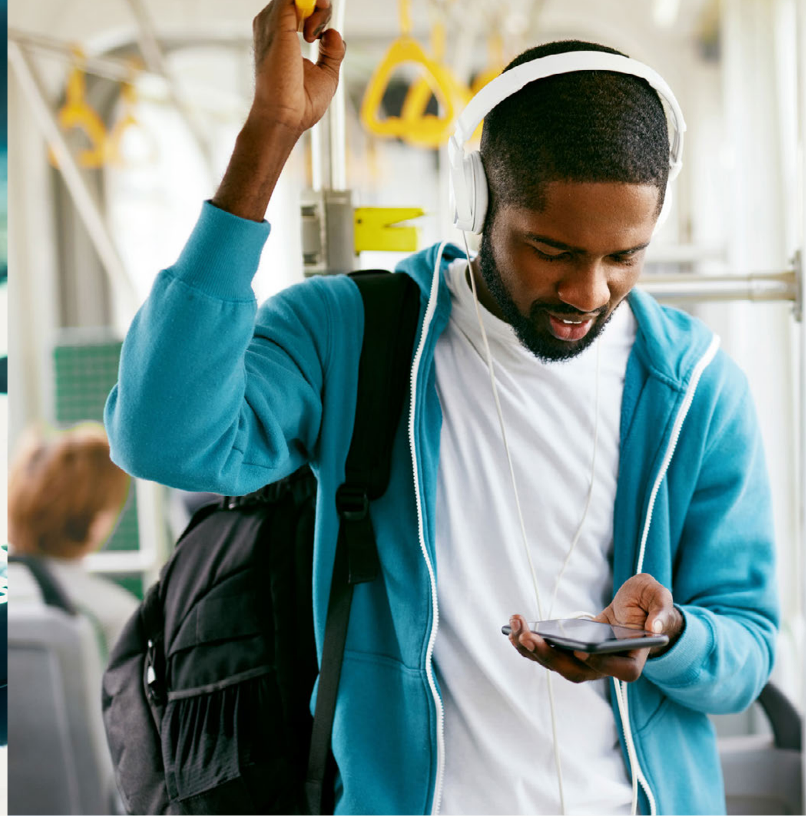
Looking Forward

We expect a strong year ahead for several Electronic Materials products. Geopolitical shifts and customer investments will drive our Security business, while the surging OneWeb global program, for which we're the main supplier of germanium wafers, is expected to bolster demand for our Aerospace products. Sensing will benefit from defense spending and unique attributes associated with the most recent advances in our products. As for Imaging, the accelerated development and use of next-generation medical imaging using our products will stimulate volume and sales.

Our Micro-Powders business is on course for sustained growth. Further advances in electronics miniaturization, cutting-edge wearable technologies and 3D printing will drive greater demand for our high-performing micro-powders. Along with these existing drivers, we're seeing emerging demand for mini-LED technology, which is expected to grow ten-fold in the next five years; a new replacement technology for displays and flat screens; and the wider use of smart cards versus conventional credit cards. All these developments demand extra-fine powders, which perfectly align with our unique capabilities.

5N Plus semiconductor materials are regarded as the best in the world. Their quality and performance have helped the company secure national security contracts with the United States government.





Courtesy of First Solar, Inc.

Micro-powders made by 5N Plus meet the highest industry specifications and are used in the production of next-generation smartphones and wearables.

Eco-Friendly Materials

The past year saw the Eco-Friendly Materials business unit build sales and penetrate select markets, while laying the foundation for future growth in emerging ones.

Health and Pharmaceuticals

We had substantial growth in product sales to major customers, as demand surged for certain active pharmaceutical ingredients. We are the number one global supplier of bismuth chemicals to this market, and our facility in Lübeck, Germany has unmatched capabilities and capacity to maintain this leading position. Meanwhile we continue to differentiate ourselves from competitors through superior product quality and service.

Industrial Materials

Our products in this segment have a wide range of industrial applications, from automotive and aviation to electronics. Faced with eroding margins for some applications in recent years, we invested in critical production processes across several sites to reduce costs and further enhance quality. This investment plan is already paying off in lower operational expenses and a more robust and responsive supply chain. Once the plan is fully implemented in 2020, we expect more of its benefits to emerge.

Catalytic and Extractive Materials

Customers for these products are largely from the mining and petrochemical industries. While demand from petrochemical customers remained stable in 2019, the mining sector continued its multi-year growth trajectory. We experienced some challenges scaling up production to meet customer demand. However, we have largely solved these issues and are better prepared to satisfy the market in 2020 and beyond.

Feed Additives

With our state-of-the-art production facility in Germany now fully operational, in 2019 we focused on securing industry accreditations and product qualifications with major pre-mix buyers through a program of product sampling and other promotional efforts. We have, as anticipated, brought a new level of quality to this market and expect to capitalize in the coming years. In line with our strategy, we have broadened our product portfolio with new pre-mixes in 2019. Encouragingly, they have been well-received in the market. Our products are now widely approved in the industry, providing a platform from which to deliver growth. While we still have work to do in 2020, we're on track to transform this segment into a growth engine.

Looking Forward

We are well positioned and expect to re-establish growth in 2020, with Health and Pharmaceuticals driving our performance.

Pre-mixes are complex, high-purity additives to animal feed that are essential to animal and human health. Our entry into this high-potential market is branded *Nutritive* and *Nutritive+*.

We are the world's leading supplier of bismuth chemicals to the pharmaceutical industry.

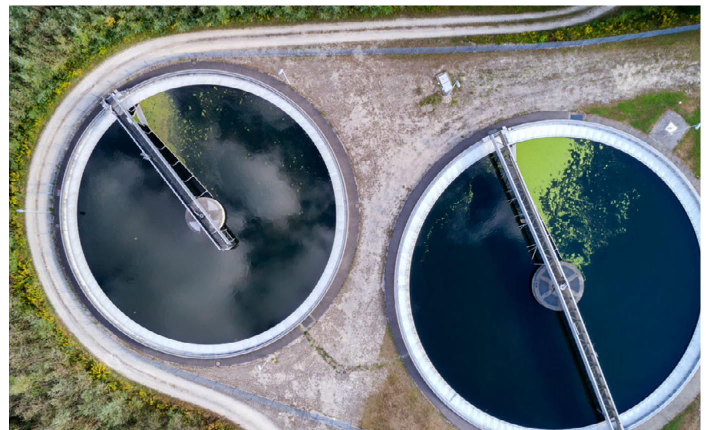
Sustainability

At 5N Plus, we've been using process technologies to recycle and recover valuable resources from waste, by-products and secondary streams—generated by our own activities and our customers'—since our very inception.

Today, as a leading global materials technology company, we're broadening our global footprint and further diversifying our feed materials. To meet our commitment to sustainability, we deploy industry best practices and respect all applicable local laws. This is why customers engage us for resource management and recycling services. We have the assets, capabilities and essential permits on three continents to provide top-notch expertise and service.

By procuring and recycling vital metals essential for our business and our customers, we promote financial sustainability that supports all our stakeholders. Among our 2019 highlights:

- A supplier audit of our Laos plant's environmental, EHS (environment, health and safety), product stewardship and other sustainability practices, gave us a favorable review.
- Our St. George, Utah facility implemented a metal recovery system to minimize material losses across various processes. This system will be commissioned in 2020 and will further expand its capabilities in the near future, making St. George the sixth 5N Plus plant to close the sustainability loop for critical materials.
- We have been investing in our Kulim, Malaysia facility to double recycling capacity for metal-bearing recyclable materials. As a result, in 2019 the plant recycled record amounts of material—some 50% greater than ever before.
- We installed a new high efficiency cooling system at our Eisenhüttenstadt, Germany facility, greatly increasing energy efficiency and reducing energy costs.
- Our Montreal plant upgraded its water treatment system to reduce overall water consumption.
- Automated material handling in Shangyu, China now reduces dust exposure in the workplace and positively contributes to EHS performance.



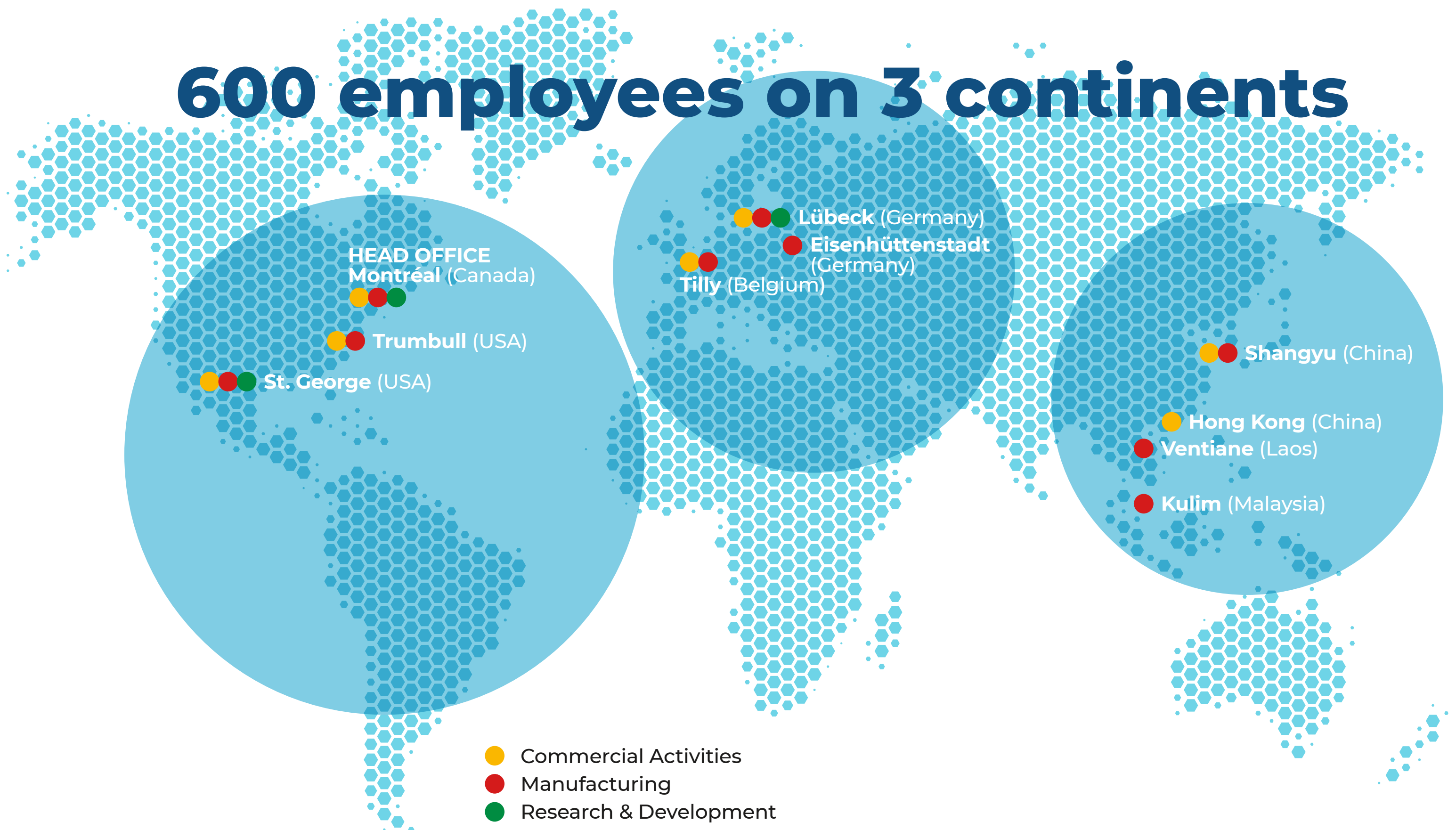
Conflict-free Procurement

5N Plus respects and complies with all national and applicable laws and regulations related to its business and scope of activity. Through its actions, the company promotes initiatives for managing resources in a responsible manner.

Certifications

- ISO 9001
- ISO 14001
- ISO 50001
- OHSAS 18001
- C-TPAT
- GMP
- FDA

600 employees on 3 continents



Waste Water Treatment

We are investing in new processes and technologies to minimize water consumption, treat wastewater and minimize discharges, often ahead of local standards. Our sites also engage with local communities and work with them to benefit the environment. The 5N21 strategic plan has allocated a significant budget to further reduce discharges across our global footprint:

- Our Montreal plant's new wastewater treatment system will almost entirely eliminate third-party disposal of wastewater, while also recovering sulfates.
- We are implementing a new system in Tilly, Belgium to cut discharges by half.
- Our Shangyu, China plant is also investing in technologies to significantly reduce nitrate discharges into the water system.

Environment, Health and Safety

5N Plus allocates resources to promote, monitor and advance its EHS practices. We continue to invest in this area, as it is management's priority. Indeed, we believe good performance in EHS can translate to financial sustainability. We therefore view compliance with local laws and regulations as a minimum requirement and often strive to exceed these measures. In 2019 we made key investments to increase operational safety at a number of our plants. We monitor our safety record and have incorporated it into our yearly performance assessments.

Ethical Conduct

5N Plus has issued and implemented a Code of Ethics. Strict ethical standards are enshrined in the Code, and adherence is obligatory for everyone within the company regardless of their position or tenure. Management promotes a safe environment where any violation of the Code can be disclosed and the matter dealt with in a responsible manner. We monitor employee performance with respect to our values and have incorporated these results into our yearly performance assessments.

Sound Governance

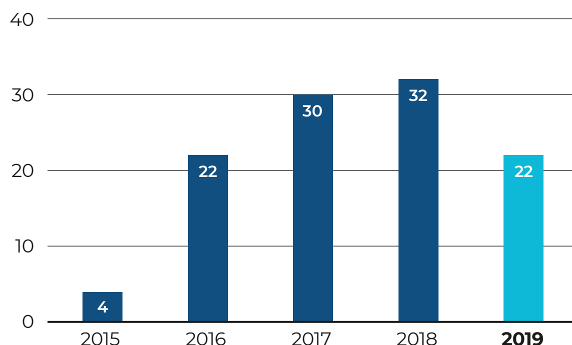
5N Plus adheres to the highest standards of governance. Six out of seven members of our Board of Directors are independent. With approximately one-third of our workforce in each of the three continents where we operate — Asia, Europe and North America — we embrace and actively encourage diversity across the organization and on our Board of Directors.

Financial Performance

Despite lagging financial results in 2019, as compared to the previous year, we intend to remain the most profitable producer in our industry segments. This is largely owed to our strategic plan, 5N21, which is structured to further reduce the volatility of earnings caused by adverse movements in underlying metal notations. The plan also continues to advance opportunities for organic growth and supports our transition toward higher added value products.

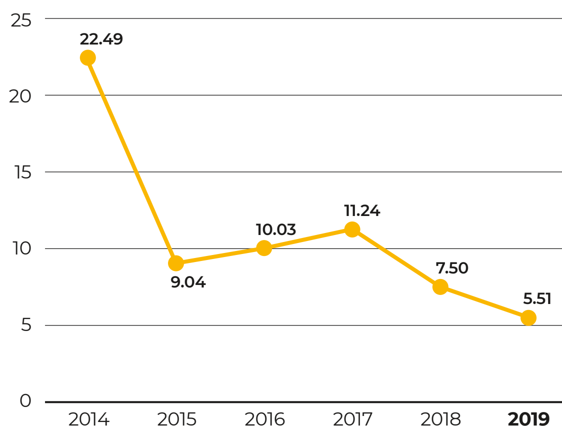
Despite the dynamic nature of our business, the company demonstrated resilience, achieving an adjusted EBITDA of $22 million. This clearly shows how far the company has come since the last significant drop in metal notations four years ago. The current drop is driven by a global metal inventory overhang, even as we experience continued strong demand for our products.

Despite factors beyond our control, we achieved progress on various fronts and continued to manage cash diligently, deploying surplus cash on capacity, capabilities and internal growth initiatives that will enhance cost competitiveness. We ended the year with a healthy balance sheet and a net debt of $35 million.



Acute Challenges

The diversity of the markets we serve continued to yield substantial commercial benefits. When adjusted for metal notations' volatility, our core business is outperforming previous years in a number of areas. That said, 2019 proved to be challenging. Among underlying metal notations, for example, bismuth metal lost substantial value, reaching levels not seen in decades. In addition, various operational issues at the beginning of the year impacted our output, the cost of key non-metal consumables rose dramatically, and some growth initiatives experienced market delays. Low metal notations brought unprecedent pressure on our upstream activities, directly impacting opportunities to source complex feeds and valorize metals. Where this scenario would have once spelled disaster, under our current model it only impaired our financial performance.



The Year Ahead

While our upstream activities will remain challenging in the short term, indicators are encouraging for our growth initiatives and competitiveness, thanks to recent investments and demand from our customers.

In line with our strategy to build a balanced business model and transition to a materials technology company, our most important assets remain our customers and technology know-how. We continue to leverage these assets to access end-markets and serve customers more competitively. Shareholders can therefore expect that investments will continue to be highly disciplined, enabling us to capture the upside in new markets.

We believe we are making strong progress, but the proof lies in the pudding. We still have much to do in order to convince our stakeholders and financial markets that the fundamental structure of 5N Plus has changed. The best way to make our case is by showing progress and delivering results in 2020 and beyond: demonstrating sustainable business initiatives and reduced earnings volatility.

We remain optimistic that the improvements we have achieved are sustainable. We are transforming a notoriously volatile and cyclical business, shedding our past image and reinventing 5N Plus to generate long-term value.

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MANAGEMENT'S DISCUSSION AND ANALYSIS

This Management's Discussion and Analysis ("MD&A") of the financial condition and results of operations is intended to assist readers in understanding 5N Plus Inc. (the "Company" or "5N Plus"), its business environment, strategies, performance and risk factors. This MD&A should be read in conjunction with the audited consolidated financial statements and the accompanying notes for the year ended December 31, 2019. This MD&A has been prepared in accordance with the requirements of the Canadian Securities Administrators.

Information contained herein includes any significant developments to February 25, 2020, the date on which the MD&A was approved by the Company's board of directors. Unless otherwise indicated, the terms "we", "us" "our" and "the group" as used herein refer to the Company together with its subsidiaries.

"Q4 2019" and "Q4 2018" refer to the three-month periods ended December 31, 2019 and 2018 respectively, and "FY 2019" and "FY 2018" refer to the years ended December 31, 2019 and 2018 respectively. All amounts in this MD&A are expressed in U.S. dollars, and all amounts in the tables are in thousands of U.S. dollars, unless otherwise indicated. All quarterly information disclosed in this MD&A is based on unaudited figures.

Non-IFRS Measures

This MD&A also includes certain figures that are not performance measures consistent with IFRS. These measures are defined at the end of this MD&A under the heading Non-IFRS Measures.

Notice Regarding Forward-Looking Statements

Certain statements in this MD&A 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. Factors of uncertainty and risk that might result in such differences include the risks associated with our growth strategy, credit, liquidity, interest rate, litigation, inventory pricing, commodity pricing, currency fluctuation, fair value, source of supply, environmental regulations, competition, dependence on key personnel, business interruptions, changes to backlog, protection of intellectual property, international operations including China, international trade regulations, collective agreements and being a public issuer as well as systems, network infrastructure and data failure, interruption and breach. A description of the risks affecting the Company's business and activities appears under the heading "Risk and Uncertainties" of this MD&A dated February 25, 2020. 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 information in this MD&A will transpire or 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 MD&A 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.

Overview

5N Plus is a leading global producer of engineered materials and specialty chemicals with integrated recycling and refining assets to manage the sustainability of its business model. The Company is headquartered in Montreal, Québec, Canada and operates R&D, manufacturing and commercial centers in several locations in Europe, the Americas and Asia. 5N Plus deploys a range of proprietary and proven technologies to produce products which are used as enabling precursors by its customers in a number of advanced electronics, optoelectronics, pharmaceutical, health, renewable energy and industrial applications. Many of the materials produced by 5N Plus are critical for the functionality and performance of the products and systems produced by its customers, many of whom are leaders within their industry.

Reporting Segments

The Company has two reportable segments, namely Electronic Materials and Eco-Friendly Materials. Corresponding operations and activities are managed accordingly by the Company's key decision makers. Segmented operating, financial information and labelled key performance indicators are available and used to manage these business segments, review performance and allocate resources. Financial performance of any given segment is evaluated primarily in terms of revenues and Adjusted EBITDA[1,2] which is reconciled to consolidated numbers by taking into account corporate income and expenses.

The Electronic Materials segment operates in North America, Europe and Asia. The Electronic Materials segment manufactures and sells products which are used in a number of applications such as security, aerospace, sensing, imaging, renewable energy and various technical industries. Typical end markets include photovoltaics (terrestrial and spatial solar energy), advance electronics, optoelectronics, electronic packaging, medical imaging and thermoelectric. These are sold either in elemental or alloyed form as well as in the form of chemicals, compounds and wafers. Revenues and earnings associated with recycling services and activities provided to customers of the Electronic Materials segment are also included in the Electronic Materials segment.

The Eco-Friendly Materials segment is so labelled because it is mainly associated with bismuth, one of the very few heavy metals which has no detrimental effect on either human health or in the environment. The Eco-Friendly Materials segment operates in North America, Europe and Asia. The Eco-Friendly Materials segment manufactures and sells products which are used in a number of applications such as pharmaceutical, healthcare, animal feed additive, catalytic and extractive, as well as various industrial materials. Main products are sold either in elemental or alloyed form but mostly in the form of specialized chemicals. Revenues and earnings associated with recycling services and activities provided to customers of the Eco-Friendly Materials segment are also included in the Eco-Friendly Materials segment.

Corporate expenses associated with the head office and unallocated selling, general and administrative expenses (SG&A) together with financial expenses (revenues) have been regrouped under the heading Corporate.

Vision and Strategy

As a leading global materials technology company with employees and assets throughout the world, we are determined to enable and empower our people in a manner which inspires them to perform collectively at their best and optimize resource utilization to deliver competitive financial returns.

The Company unveiled its Strategic Plan 5N21 ("5N21") designed to enhance profitability while reducing earnings volatility on September 12, 2016. 5N21 focuses on three major pillars:

1. Extracting more value from core businesses and global assets;
2. Optimizing balance of contribution from upstream and downstream activities; and
3. Delivering quality growth from both existing growth initiatives and future M&A opportunities.

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[1] See Non-IFRS Measures

[2] On January 1, 2019, the Company applied IFRS 16 Leases retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Highlights of Q4 2019 & Fiscal Year 2019 – Demonstrating Resilience & Viability in a Perfect Storm

In a year, characterized by a very difficult environment in the metal markets, anticipated lower contributions from renewable energy sector, higher costs of consumables (excluding metals) and challenges associated with industrialization of the Company's growth initiatives, 5N Plus delivered an Adjusted EBITDA[1,2] of $22.0 million, adequately invested in the Company's future initiatives and closed the year with a strong balance sheet. Throughout the year, the market demand for products produced by 5N Plus remained strong and was supported by a growing backlog[1] driven by the diversity of markets 5N Plus serves.

When adjusted for the decline in metal notations, nearly all core businesses of 5N Plus outperformed in 2019 as compared to the previous year. The persistent decline in metal notations such as bismuth adversely impacted revenue and earnings two ways. Firstly, it affected the difference between sales price and inventory value, which is transitory in nature. With the implementation of 5N21, these impacts have been significantly reduced, though not eliminated. Secondly, by mid-year the supply of complex feed for the Company's refining activities became increasingly limited, as upstream suppliers ceased production or withheld their bismuth-containing by-products, while waiting for more favorable metal market conditions. This resulted in notably lower contributions from refining and recycling activities.

Under 5N21, the Company has been very successful in procuring consumable metals from complex feedstock. In fact, this activity has become a notable contributor to 5N Plus' performance. As metal notations remain low, contributions from this activity will remain under pressure. That being said, under current market conditions, competitive access to metals required by the Company remains robust and 5N Plus is well supplied. It is worth remembering that in the past, this combination of events would have resulted in disruptive damage to the Company. Today however, the impact is noteworthy but certainly not disruptive, enabling 5N Plus to remain keenly focused on delivering its strategic objectives.

For the fourth quarter and fiscal year of 2019, the Company reported the following:

- Adjusted EBITDA and EBITDA[1,2] reached $22.0 million and $19.1 million in 2019, compared to $32.4 million and $29.0 million in 2018. This performance reflects the adverse movements in the underlying metal notations, recent deterioration of the contributions from our upstream activities due to current metal market conditions, production challenges associated with the new business activities at the beginning of the year, along with the application of the most recent multi-year commercial contracts awarded in sector renewable energy, delivering higher volume of products at lower margins.

- The Adjusted EBITDA and EBITDA for the fourth quarter reached $4.5 million and $3.7 million in 2019 compared to $6.9 million and $5.6 million in 2018. The fourth quarter results were impacted by factors mentioned above along with the historical cyclicality associated with the fourth quarter.

- Net earnings for the year 2019 reached $1.8 million or $0.02 per share, compared to $14.0 million or $0.17 per share for the year 2018.

- Revenue in 2019 reached $196.0 million compared to $218.0 million in 2018, mostly impacted by adverse movements in the underlying metal notations as evident in lower revenue from the Eco-Friendly Materials segment which utilizes more of these metals as consumables in its products.

[1] See Non-IFRS Measures

[2] On January 1, 2019, the Company applied IFRS 16 Leases retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

- Return on Capital Employed[1] (ROCE) reached 8.2% in 2019, compared to 15.1% in 2018 reflecting the overall margin contraction mostly explained by the adverse movements in the underlying metal notations, while capital employed reduced by 4% when compared to 2018.

- Net debt[1] stood at $35.0 million as at December 31, 2019 from $22.2 million for the same period last year, impacted by additional working capital and to a lesser degree participation in the normal course issuer bid ("NCIB") plan.

- As of December 31, 2019, backlog[1] reached 243 days of sales outstanding, higher than previous quarter and Q4 2018 which ended at 217 days. Bookings[1] in Q4 2019 reached 96 days compared to 102 days in Q3 2019 and 105 days in Q4 2018.

- As of December 31, 2019, 5N Plus had purchased and cancelled 1,696,733 of the Company's common shares under the NCIB plan.

- On February 18, 2019, 5N Plus confirmed that its U.S. based subsidiary, 5N Plus Semiconductors, had been awarded a multi-year program to supply opto-electronic semiconductor substrates to Albuquerque, New Mexico based SolAero Technologies. The substrates are intended for use in satellite solar arrays for a number of applications, including powering a constellation of several hundreds low-orbit broadband satellites being manufactured by Airbus OneWeb Satellites. This network of satellites will provide global, persistent, low latency internet access that promises to bridge the digital divide.

- On July 22, 2019, 5N Plus announced having significantly reduced production at its bismuth refining and recycling facilities. With bismuth notations continuing to decline and reaching levels not seen in decades, certain suppliers halted production or begun to stop marketing their residues. Consequently, the Company increased its commercial grade bismuth metal purchases. The market for bismuth metal remains well supplied and 5N Plus has competitive access.

- On July 24, 2019, 5N Plus announced that it had begun to execute a plan to invest over $10.0 million in process technologies aimed at substantially increasing capacity of the existing assets while enhancing capability along with providing notable environmental benefits in local communities. The investment package is expected to be focused on select sites in North America, Europe and China. The plan should be fully implemented by the third quarter of 2020 with certain investments to be fully commissioned prior to that date. The average payback for this tranche of investments is estimated at about three years.

Fiscal year 2019 is a clear testament to 5N Plus' resilience and agility under its strategic plan 5N21. Despite the punitive set of circumstances, the Company delivered 11% Adjusted EBITDA margin[1,2], invested in both new and core initiatives, and actively participated in an NCIB plan while delivering a strong balance sheet. Given the historically low metal notations, and assuming the underlying prices remain at these levels, the earnings outlook for the Company's upstream activities is challenging. On the other hand, the earnings outlook from both new and core activities is strong and encouraging, lending credence to the prospect for overall improved earnings in the year ahead.

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[2] On January 1, 2019, the Company applied IFRS 16 Leases retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Summary of Results

	Q4 2019	Q4 2018	**FY 2019**	FY 2018
	$	$	**$**	$
Revenue	**44,714**	47,710	**195,971**	217,995
Adjusted operating expenses[1,2] *	**(40,212)**	(40,798)	**(174,021)**	(185,645)
Adjusted EBITDA[1,2]	**4,502**	6,912	**21,950**	32,350
Impairment of inventory	**-**	-	**-**	-
Share-based compensation expense	**(455)**	(721)	**(2,583)**	(3,298)
Litigation and restructuring costs	**-**	(766)	**-**	(316)
Gain on disposal of property, plant and equipment (PPE)	**-**	-	**-**	510
Foreign exchange and derivative (loss) gain	**(365)**	164	**(316)**	(225)
EBITDA[1,2]	**3,682**	5,589	**19,051**	29,021
Interest on long-term debt, imputed interest and other interest expense	**789**	886	**4,079**	6,295
Depreciation and amortization	**2,887**	2,469	**11,139**	8,810
Earnings before income taxes	**6**	2,234	**3,833**	13,916
Income tax expense (recovery)				
Current	**186**	(2,955)	**2,187**	848
Deferred	**(326)**	1,143	**(139)**	(904)
	(140)	(1,812)	**2,048**	(56)
Net earnings	**146**	4,046	**1,785**	13,972
Basic earnings per share	**$-**	$0.05	**$0.02**	$0.17
Diluted earnings per share	**$-**	$0.05	**$0.02**	$0.17

**Excluding share-based compensation expense, litigation and restructuring costs, gain on disposal of property, plant and equipment, impairment of non-current assets and depreciation and amortization.*

Revenue by Segment and Gross Margin

	Q4 2019	Q4 2018	Change	**FY 2019**	FY 2018	Change
	$	$		**$**	$	
Electronic Materials	**20,517**	19,368	6%	**81,281**	81,014	-%
Eco-Friendly Materials	**24,197**	28,342	(15%)	**114,690**	136,981	(16%)
Total revenue	**44,714**	47,710	(6%)	**195,971**	217,995	(10%)
Cost of sales	**(37,221)**	(37,916)	(2%)	**(161,213)**	(169,061)	(5%)
Depreciation included in cost of sales	**2,457**	2,256	9%	**9,931**	7,962	25%
Gross margin[1]	**9,950**	12,050	(17%)	**44,689**	56,896	(21%)
Gross margin percentage[1]	**22.3%**	25.3%		**22.8%**	26.1%	

In Q4 2019, revenue decreased by 6% compared to the prior year fourth quarter. Gross margin[1] reached 22.3% in Q4 2019 compared to 25.3% in Q4 2018, tracking an average gross margin of 22.8%, or $44.7 million for this fiscal year compared to 26.1% or $56.9 million last year. Both revenue and gross margin were negatively impacted by adverse movements in the underlying metal notations, recent deterioration of the contributions from our upstream activities due to current metal market conditions along with the application of the most recent commercial terms from the multi-year contracts awarded in sector renewable energy, delivering higher volume of products at lower margins.

[1] See Non-IFRS Measures

[2] On January 1, 2019, the Company applied IFRS 16 *Leases* retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Operating earnings, EBITDA and Adjusted EBITDA

	Q4 2019	Q4 2018	Change	FY 2019	FY 2018	Change
	$	$		**$**	$	
Electronic Materials	**4,387**	7,142	(39%)	**19,581**	29,226	(33%)
Eco-Friendly Materials	**2,047**	1,115	84%	**10,993**	12,517	(12%)
Corporate	**(1,932)**	(1,345)	44%	**(8,624)**	(9,393)	(8%)
Adjusted EBITDA[1,2]	**4,502**	6,912	(35%)	**21,950**	32,350	(32%)
EBITDA[1,2]	**3,682**	5,589	(34%)	**19,051**	29,021	(34%)
Operating earnings	**1,160**	2,956	(61%)	**8,228**	20,436	(60%)

In Q4 2019, Adjusted EBITDA[1,2] was $4.5 million compared to $6.9 million in Q4 2018, negatively impacted by adverse movements in the underlying metal notations, recent deterioration of the contributions from our upstream activities due to the current metal market conditions, along with the application of the most recent commercial terms from the multi-year supply and services contracts renewal within the renewable energy sector. In FY 2019, Adjusted EBITDA decreased by $10.4 million, from $32.4 million in FY 2018 to $22.0 million, impacted by factors mentioned above, and production challenges associated with new business activities at the beginning of the year.

In Q4 2019, EBITDA[1,2] was $3.7 million compared to $5.6 million in Q4 2018. The decrease is mainly explained by the lower Adjusted EBITDA and a foreign exchange and derivatives loss in Q4 2019.

In FY 2019, EBITDA reached $19.1 million compared to $29.0 million in FY 2018. The decrease is mainly explained by the lower Adjusted EBITDA, mitigated by lower shared-based compensation expense reflecting the decline in the Company's share price during 2019 when compared to the increase in 2018. In addition, no significant non-recurrent item was recorded in 2019 while in 2018, the Company recorded non-recurrent items totalling $0.2 million recognized as income.

In Q4 2019, operating earnings reached $1.2 million compared to $3.0 million in Q4 2018 and $8.2 million in FY 2019 compared to $20.4 million in FY 2018.

Electronic Materials Segment
Adjusted EBITDA in Q4 2019 decreased by $2.8 million to $4.4 million representing an Adjusted EBITDA margin[1,2] of 21% compared to 37% in Q4 2018. Adjusted EBITDA decreased by $9.6 million to $19.6 million in FY 2019 representing an Adjusted EBITDA margin of 24% compared to 36% in FY 2018.

Eco-Friendly Materials Segment
Adjusted EBITDA increased by $0.9 million to $2.0 million representing an Adjusted EBITDA margin of 8% in Q4 2019 and 4% in Q4 2018. Adjusted EBITDA decreased by $1.5 million to $11.0 million representing an Adjusted EBITDA margin of 10% in FY 2019 compared to 9% in FY 2018.

[1] See Non-IFRS Measures

[2] On January 1, 2019, the Company applied IFRS 16 *Leases* retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Net Earnings and Adjusted Net Earnings

	Q4 2019	Q4 2018	FY 2019	FY 2018
	$	$	**$**	$
Net earnings	**146**	4,046	**1,785**	13,972
Basic earnings per share	**$-**	$0.05	**$0.02**	$0.17
Reconciling items:				
Share-based compensation expense	**455**	721	**2,583**	3,298
Accelerated imputed interest	**-**	-	**267**	1,490
Litigation and restructuring costs	**-**	766	**-**	316
Gain on disposal of PPE	**-**	-	**-**	(510)
Income tax recovery on taxable items above	**(121)**	(126)	**(760)**	(1,082)
Adjusted net earnings [1]	**480**	5,407	**3,875**	17,484
Basic adjusted net earnings per share[1]	**$0.01**	$0.06	**$0.05**	$0.21

Net earnings were $0.1 million in Q4 2019 compared to $4.0 million or $0.05 per share in Q4 2018. Adjusted net earnings[1] increased by $0.3 million and were $0.5 million in Q4 2019, compared to $5.4 million in Q4 2018. Excluding the income tax recovery, the main item reconciling the Adjusted net earnings in Q4 2019 is the share-based compensation expense.

In FY 2019, net earnings were $1.8 million or $0.02 per share compared to $14.0 million or $0.17 per share in FY 2018. Adjusted net earnings were $3.9 million in FY 2019, compared to $17.5 million in FY 2018. Excluding the income tax recovery, the main items reconciling the Adjusted net earnings in FY 2019 are the share-based compensation expense and the accelerated imputed interest recognized as an expense following the early redemption of the CA$26.0 million convertible debentures in March 2019.

Bookings and Backlog

	BACKLOG[1]			BOOKINGS[1]		
	Q4 2019	Q3 2019	Q4 2018	**Q4 2019**	Q3 2019	Q4 2018
	$	$	$	**$**	$	$
Electronic Materials	**68,888**	69,380	61,771	**20,025**	27,181	18,964
Eco-Friendly Materials	**50,009**	47,387	51,493	**26,819**	28,196	36,005
Total	**118,897**	116,767	113,264	**46,844**	55,377	54,969

	BACKLOG[1]			BOOKINGS[1]		
(number of days based on annualized revenues) *	**Q4 2019**	Q3 2019	Q4 2018	**Q4 2019**	Q3 2019	Q4 2018
Electronic Materials	**306**	293	291	**89**	115	89
Eco-Friendly Materials	**189**	155	166	**101**	92	116
Weighted average	**243**	215	217	**96**	102	105

** Backlog and bookings are also presented in number of days to normalize the impact of commodity prices.*

Q4 2019 vs Q3 2019

Backlog[1] as at December 31, 2019 reached a level of 243 days of annualized revenue, an increase of 28 days or 13% over the backlog ended September 30, 2019.

Backlog as at December 31, 2019 for the Electronic Materials segment represented 306 days of annualized segment revenue, an increase of 13 days or 4% over the backlog ended September 30, 2019. The backlog for the Eco-Friendly Materials segment represented 189 days of annualized segment revenue, an increase of 34 days or 22% over the backlog ended September 30, 2019.

[1] See Non-IFRS Measures

Bookings[1] for the Electronic Materials segment decreased by 26 days, from 115 days in Q3 2019 to 89 days in Q4 2019. Bookings for the Eco-Friendly Materials segment increased by 9 days, from 92 days in Q3 2019 to 101 days in Q4 2019.

Q4 2019 vs Q4 2018

Backlog[1] as at December 31, 2019 for the Electronic Materials segment increased by 15 days and by 23 days for the Eco-Friendly Materials segment compared to December 31, 2018, reaching 243 days on a consolidated basis compared to 217 days.

Bookings were stable for the Electronic Materials segment and decreased by 15 days for the Eco-Friendly Materials segment compared to the previous year quarter.

Expenses

	Q4 2019	Q4 2018	**FY 2019**	FY 2018
	$	$	**$**	$
Depreciation and amortization	**2,887**	2,469	**11,139**	8,810
SG&A	**4,945**	4,713	**21,179**	23,940
Share-based compensation expense	**455**	721	**2,583**	3,298
Litigation and restructuring costs	**-**	766	**-**	316
Financial expense	**1,154**	722	**4,395**	6,520
Income taxes (recovery) expense	**(140)**	(1,812)	**2,048**	(56)
Total expenses	**9,301**	7,579	**41,344**	42,828

Depreciation and Amortization

Depreciation and amortization expenses in Q4 2019 and FY 2019 amounted to $2.9 million and $11.1 million respectively, compared to $2.5 million and $8.8 million for the same periods of 2018. The expenses in Q4 2019 and FY 2019 included the depreciation of right of use assets of $0.4 million and $1.5 million respectively, following the adoption of the new standard, IFRS 16 – Leases, as at January 1, 2019.

SG&A

In Q4 2019 and FY 2019, SG&A expenses were $4.9 million and $21.2 million respectively compared to $4.7 million and $23.9 million for the same periods of 2018. In 2019, the expenses were positively impacted by favorable exchange rates across most local currency denominated expenses when compared to 2018, lower expenses following restructuring initiatives in 2018, as well as lower short-term incentives.

Share-Based Compensation Expense

Share-based compensation expense in Q4 2019 and FY 2019 amounted to $0.5 million and $2.6 million respectively, compared to $0.7 million and $3.3 million for the same periods of 2018. These lower expenses mainly due to the decrease in the Company's share price at the end of 2019 when compared to December 31, 2018.

Litigation and Restructuring Costs

No expenses or income from litigation and restructuring activity were recognized in FY 2019.

In Q4 2018, the Company recorded litigation and restructuring costs of $0.8 million related to severance costs associated with workforce optimization initiatives implemented throughout the year, in line with 5N21. In addition, in Q3 2018, the Company sold its participation in the joint venture, Zhuhai Gallium Industry Co. for an amount of $0.4 million and recognized a loss of $0.3 million which was partially mitigated by an amount received of $0.2 million following the liquidation of its other joint venture, Ingal Stade GmbH which had closed its manufacturing activities in 2016. In Q1 2018, the Company recorded an income from litigation and restructuring of $0.6 million representing a non-recurring income relating to an amount receivable from an inactive legal entity for which no receivable had been recorded given the uncertainty.

[1] See Non-IFRS Measures

Financial Expense

Financial expense in Q4 2019 amounted to $1.2 million compared to $0.7 million in Q4 2018. The increase of $0.4 million is mainly due to a loss in foreign exchange and derivative recorded in Q4 2019 while the Company recorded a gain of foreign exchange in derivatives in Q4 2018. In FY 2019, financial expense amounted to $4.4 million compared to $6.5 million in FY 2018. The decrease of $2.1 million is mainly due to less accelerated imputed interest recognized as a non-cash expense following the early redemption of the CA$26.0 million convertible debentures in March 2019 compared to those following the early redemption of CA$40.0 million convertible debentures in June 2018. The financial expense in Q4 2019 and FY 2019 included the imputed interest related to lease liabilities of $0.1 million and $0.3 million respectively, following the adoption of the new standard, IFRS 16 – Leases, as at January 1, 2019.

Income Taxes

The Company reported earnings before income taxes of $nil million in Q4 2019 and $3.8 million in FY 2019. Income tax recovery in Q4 2019 was $0.1 million compared to $1.8 million in Q4 2018. In FY 2019, income tax expense was $2.0 million compared to income tax recovery of $0.1 million in FY 2018. Both periods were impacted by deferred tax assets applicable in certain jurisdictions.

Liquidity and Capital Resources

	Q4 2019	Q4 2018	**FY 2019**	FY 2018
	$	$	**$**	$
Funds from operations[1]	**3,343**	8,641	**15,724**	28,643
Net changes in non-cash working capital items	**1,817**	(5,374)	**(13,043)**	(26,448)
Operating activities	**5,160**	3,267	**2,681**	2,195
Investing activities	**(3,076)**	(3,085)	**(10,182)**	(9,754)
Financing activities	**(417)**	(26)	**794**	693
Effect of foreign exchange rate changes on cash and cash equivalents	**216**	(231)	**48**	(434)
Net increase (decrease) in cash and cash equivalents	**1,883**	(75)	**(6,659)**	(7,300)

Cash generated by operating activities amounted to $5.2 million in Q4 2019 compared to $3.3 million in Q4 2018. In FY 2019, cash generated by operating activities amounted to $2.7 million compared to $2.2 million in FY 2018.

The decrease in funds from operations[1] when compared to 2018 is mainly explained by the lower Adjusted EBITDA[1,2]. The negative change in non-cash working capital in FY 2019 is mainly due to a decrease in trade and accrued liabilities of $15.6 million, a decrease in net position of income tax payable of $4.9 million combined with an increase of $5.5 million in accounts receivable mitigated by a decrease of inventory of $13.5 million.

In Q4 2019, cash used in investing activities totaled $3.1 million similar to Q4 2018, mainly attributed to additions to PPE. In FY 2019, cash used by investing activities totaled $10.2 million compared to $9.8 million in FY 2018.

In Q4 2019, cash used in financing activities amounted to $0.4 million compared to $nil million in Q4 2018. The decrease is mainly due to principal elements of lease payments following the adoption of the new standard, IFRS 16 – Leases, on January 1, 2019. In FY 2019, cash generated from financing activities amounted $0.8 million compared to $0.7 million in FY 2018. The increase is associated with the new five-year unsecured subordinated term loan of $25.0 million announced in Q1 2019 for which only $19.3 million were used to redeem the Company's outstanding convertible unsecured subordinated debentures of CA$26.0 million, while in Q2 2018, the Company completed a drawdown on its senior credit facility of $30 million for which $29.7 million were used to partially redeem the debentures of CA$40 million. Since the beginning of 2019, the Company has repurchased and cancelled 1,696,733 common shares under the NCIB plan for an amount of $4.0 million and paid principal elements of lease payments of $1.6 million following the adoption of the new standard, IFRS 16 – Leases, as at January 1, 2019.

[1] See Non-IRFS Measures

[2] On January 1, 2019, the Company applied IFRS 16 *Leases* retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Working Capital

	As at December 31, 2019	As at December 31, 2018
	$	$
Inventories	**83,367**	96,889
Other current assets	**61,346**	62,396
Current liabilities	**(37,016)**	(65,924)
Working capital[1]	**107,697**	93,361
Working capital current ratio[1]	**3.91**	2.42

The increase in working capital[1] compared to December 31, 2018 was mainly attributable to lower current liabilities following the early redemption of the CA$26.0 million convertible debentures in March 2019, reclassified as short-term during 2018, which were replaced by a five-year unsecured subordinated term loan, as well as less payable following lower inventories when compared to December 31, 2018. The decrease in inventories is mainly due to lower refining and recycling activities announced in Q2 2019 combined with the adverse movements in the underlying metal notations.

Net Debt

	As at December 31, 2019	As at December 31, 2018
	$	$
Bank indebtedness	**-**	-
Long-term debt including current portion	**55,107**	30,175
Convertible debentures	**-**	18,571
Cross-currency swap	**-**	197
Total Debt[1]	**55,107**	48,943
Cash and cash equivalents	**(20,065)**	(26,724)
Net Debt[1]	**35,042**	22,219

Total debt[1], including the cross-currency swap, increased by $6.2 million to $55.1 million as at December 31, 2019 compared to $48.9 million as at December 31, 2018, mainly due to the replacement of the convertible debentures by a five-year unsecured subordinated term loan at a higher face value.

Net debt[1], after considering cash and cash equivalents, increased by $12.8 million, from $22.2 million as at December 31, 2018 to $35.0 million as at December 31, 2019, mostly impacted by non-cash working capital requirements.

On March 28, 2019, the Company redeemed all its outstanding 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019 for an aggregate principal amount of CA$26.0 million. On March 22, 2019, the Company completed the withdrawal of the second tranche of its new term loan in the amount of $20.0 million to redeem the outstanding debentures. As at December 31, 2019, there were no outstanding convertible debentures.

Consequently, the Company de-designated the remaining nominal amount of the associated cross-currency swap of CA$26.0 million and reclassified the net loss of $0.1 million, representing the accumulated net changes in cash flow hedges, from accumulated other comprehensive loss to realized loss on de-designation within the consolidated statement of earnings.

Following the redemption of the CA$26.0 million convertible debentures, an accelerated imputed interest of $0.3 million was recognized as an expense in the consolidated statement of earnings.

[1] See Non-IFRS Measures

Available Short-Term Capital Resources

	As at December 31, 2019	As at December 31, 2018
	$	$
Cash and cash equivalents	20,065	26,724
Available bank indebtedness	1,431	1,454
Available revolving credit facility	49,000	49,000
Available short-term capital resources	70,496	77,178

In April 2018, the Company signed a senior secured multi-currency revolving credit facility of $79.0 million maturing in April 2022. At any time, the Company has the option to request that the credit facility be expanded through the exercise of an additional $30.0 million accordion feature, subject to review and approval by the lenders. This revolving credit facility can be drawn in US dollars, Canadian dollars or Hong Kong dollars (up to $4.0 million). Drawings bear interest at either the Canadian prime rate, US base rate, Hong Kong base rate or LIBOR, plus a margin based on the Company's senior net debt to consolidated EBITDA ratio. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2019, the Company has met all covenants.

On February 2019, the Company signed a five-year unsecured subordinated term loan with Investissement Québec. The loan was disbursed in two tranches: the first tranche of $5.0 million on February 6, 2019 and the second tranche of $20.0 million on March 22, 2019. The two tranches of the term loan bear interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%, which equals to 6.82% and 6.64% respectively. Under the terms of the loan, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2019, the Company has met all covenants.

Share Information

	As at February 25, 2020	As at December 31, 2019
Issued and outstanding shares	83,401,558	83,401,558
Stock options potentially issuable	928,291	932,041

On February 27, 2019, the TSX approved the Company's NCIB plan under which, the Company has the right to purchase for cancellation, from March 1, 2019 to February 29, 2020, a maximum of 3,515,926 common shares. In FY 2019, the Company repurchased and cancelled 1,696,733 common shares at an average price of $2.35 (CA$3.16) for a total amount of $4.0 million applied against the equity.

Restricted Share Unit and Performance Share Unit Plan

On November 4, 2015, the Company adopted a new Restricted Share Unit and Performance Share Unit ("PSU") Plan (the "New RSU & PSU Plan"). The New RSU & PSU Plan enables the Company to award eligible participants: (i) phantom RSUs that vest no later than three years following the grant date; and (ii) phantom PSUs that vest after certain periods of time, not exceeding three years, and subject to the achievement of certain performance criteria as determined by the Board of Directors. Such plan provides for the settlement of RSUs and PSUs through either cash or the issuance of common shares of the Company from treasury, for an amount equivalent to the volume weighted average of the trading price of the common shares of the Company on the TSX for the five trading days immediately preceding the applicable RSU vesting determination date or PSU vesting determination date.

In FY 2019, the Company granted 248,543 New RSUs (2018 – 393,897), 1,157,099 New RSUs were paid (2018 – 28,361) and 81,042 New RSUs were forfeited (2018 – 67,370). As at December 31, 2019, 864,428 New RSUs were outstanding (2018 – 1,854,026).

In FY 2019, the Company granted 430,000 PSUs (2018 – nil) and 166,667 PSUs were paid (2018 – nil). As at December 31, 2019, 763,333 PSUs were outstanding (2018 – 500,000).

Stock Option Plan

On April 11, 2011, the Company adopted a new stock option plan under which a maximum number of options granted cannot exceed 5,000,000. Options granted under the Stock Option Plan may be exercised during a period not exceeding ten years from the date of grant. The stock options outstanding as at December 31, 2019 may be exercised during a period not exceeding six years from their date of grant. Options vest at a rate of 25% (100% for directors) per year, beginning one year following the grant date of the options. Any unexercised options will expire one month after the date beneficiary ceases to be an employee, director or officer and one year for retired directors.

The following table presents information concerning all outstanding stock options:

		2019		2018
	Number of options	**Weighted average exercise price**	Number of options	Weighted average exercise price
		CA$		CA$
Outstanding, beginning of year	**1,490,541**	**2.32**	2,224,747	2.20
Granted	**123,016**	**3.43**	143,335	2.71
Exercised	**(488,500)**	**1.98**	(708,750)	1.92
Forfeited	**(193,016)**	**2.61**	(137,704)	2.54
Expired	**-**	**-**	(31,087)	3.61
Outstanding, end of year	**932,041**	**2.58**	1,490,541	2.32
Exercisable, end of year	**632,360**	**2.65**	726,750	2.75

Off-Balance Sheet Arrangements

The Company has certain off-balance sheet arrangements, consisting of contractual obligations in the normal course of business since most of the leases are recognized on the consolidated statement of financial position following the adoption of the new standard, IFRS 16 – Leases, as at January 1, 2019.

The Company is exposed to currency risk on sales in Euro and other currencies and therefore periodically enters into foreign currency forward contracts to protect itself against currency fluctuation. The reader will find more details related to these contracts in Notes 16 and 24 of the audited consolidated financial statements for the year ended December 31, 2019.

The following table reflects the contractual maturity of the Company's financial liabilities as at December 31, 2019:

	Carrying amount	1 year	2 years	3 years	4 years	Over 5 years	Total
	$	$	$	$	$	$	$
Trade and accrued liabilities	32,066	32,066	-	-	-	-	32,066
Long-term debt	55,107	2,790	2,683	32,008	25,418	-	62,899
Lease liabilities	6,236	1,539	1,248	567	410	4,202	7,966
Total	93,409	36,395	3,931	32,575	25,828	4,202	102,931

Commitments

As at December 31, 2019 and December 31, 2018, in the normal course of business, the Company contracted letters of credit for an amount of $0.4 million.

Contingencies

In the normal course of operations, the Company is exposed to events that could give rise to contingent liabilities or assets. As at the date of issue of the consolidated financial statements, the Company was not aware of any significant events that would have a material effect on its consolidated financial statements.

Governance

As required by Multilateral Instrument 52-109 of the Canadian Securities Administrators («MI 52-109 »), 5N Plus has filed certificates signed by the Chief Executive Officer and the Chief Financial Officer that, among other things, attest to the design of the disclosure controls and procedures and the design and effectiveness of internal controls over financial reporting.

Disclosure Controls and Procedures

The Chief Executive Officer and the Chief Financial Officer have designed disclosure controls and procedures, or have caused them to be designed under their supervision, in order to provide reasonable assurance that:

- material information relating to the Company has been made known to them; and
- information required to be disclosed in the Company's filings is recorded, processed, summarized and reported within the time periods specified in securities legislation.

An evaluation was carried out, under the supervision of the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the Company's disclosure controls and procedures. Based on this evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that the disclosure controls and procedures are effective.

Internal Control over Financial Reporting

The Chief Executive Officer and the Chief Financial Officer have also designed internal controls over financial reporting (ICFR) or have caused them to be designed under their supervision, in order to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS.

Based on their evaluation carried out to assess the effectiveness of the Company's ICFR, the Chief Executive Officer and the Chief Financial Officer have concluded that the ICFR were designed and operated effectively using the Internal Control – Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO 2013 Framework").

Changes in Internal Control over Financial Reporting

No changes were made to our ICFR during the fiscal year ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

Accounting Policies and Changes

The Company established its accounting policies and methods used in the preparation of its audited consolidated financial statements for the fiscal year 2019 in accordance with IFRS. The Company's significant accounting policies are described in Note 2 of the audited consolidated financial statements for the year ended December 31, 2019.

Adoption of new accounting standards

IFRS 16 - *Leases*

On January 1, 2019, the Company adopted the new accounting standard IFRS 16 using the modified retrospective approach.

Adjustments recognized on adoption of IFRS 16

On adoption of IFRS 16, the Company recognized lease liabilities in relation to leases which had previously been classified as operating leases under the principles of IAS 17 Leases. These liabilities were measured at the present value of the remaining lease payments, discounted using the Company's incremental borrowing rate as at January 1, 2019 of 4.45%.

	January 1, 2019
	$
Operating lease commitments disclosed as at December 31, 2018	4,294
Effect of discounting those lease commitments	(260)
Effect of electing to account for short-term and low value leases off balance sheet	(80)
Adjustment as a result of a different treatment of extension options	3,198
Lease liability recognized as at January 1, 2019	7,152
Of which are:	
Current lease liabilities	1,554
Non-current lease liabilities	5,598

The associated right-of-use assets were measured at the amount equal to the lease liability and they relate to the following types of assets:

	December 31, 2019	January 1, 2019
	$	$
Land and buildings	**5,239**	6,342
Production equipment	**468**	454
Office equipment and rolling stock	**343**	356
Total right-of-use assets	**6,050**	7,152

As noted above, the change in accounting policy resulted in the increase of right-of-use assets and lease liabilities by $7.2 million in the balance sheet on January 1, 2019.

The impact of adoption of IFRS 16 *Leases* on the three-month period and year ended December 31, 2019 is as follows:

	Q4 2019	FY 2019
	$	$
Increase in Adjusted EBITDA[1]/ EBITDA[1]	**475**	1,900
Increase in Financial expense	**70**	296
Increase in depreciation and amortization expense	**392**	1,470

Practical expedients applied

In applying IFRS 16 for the first time, the Company has used the following practical expedients permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics;
- the accounting for operating leases with a remaining lease term of less than 12 months as at January 1, 2019 as short-term leases; and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

The Company has also elected not to reassess whether a contract is or contains a lease at the date of initial application. Instead, for contracts entered into before the transition date, the Company relied on its assessment made applying IAS 17 and IFRIC 4 *Determining whether an Arrangement contains a Lease*.

[1] See Non-IFRS Measures

The Company's leasing activities and how these are accounted for
The Company leases various production and warehouse locations, production equipment and furniture, office equipment and rolling stock. Rental contracts are typically made for fixed periods of 2 to 5 years but may have extension options as described below. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Until the 2018 financial year, leases of property, plant and equipment were classified as either finance or operating leases. Payments made under operating leases (net of any incentives received from the lessor) were charged to profit or loss on a straight-line basis over the period of the lease.

From January 1, 2019, leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

Extension options
Extension options are included in a number of property and equipment leases across the Company. These terms are used to maximise operational flexibility in terms of managing contracts. The majority of extension options held are exercisable only by the Company and not by the respective lessor.

IFRIC 23 – *Uncertainty over Income Tax Treatments*
On January 1, 2019, the Company also adopted the new accounting standard IFRIC 23.

The interpretation provides guidance on the accounting for current and deferred tax liabilities and assets in circumstances in which there is uncertainty over income tax treatments. The Company has concluded that there is no significant impact resulting from the application of this new standard on its consolidated financial statements.

Significant Management Estimation and Judgment in Applying Accounting Policies

The following are significant management judgments used in applying the accounting policies of the Company that have the most significant effect on the consolidated financial statements.

Estimation uncertainty

When preparing the consolidated financial statements, management undertakes a number of judgments, estimates and assumptions about recognition and measurement of assets, liabilities, revenues and expenses. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Information about the significant judgments, estimates and assumptions that have the most significant effect on the recognition and measurement of assets, liabilities, revenues and expenses are discussed below.

Impairment of non-financial assets

Non-financial assets are reviewed for an indication of impairment at each statement of financial position date upon the occurrence of events or changes in circumstances indicating that the carrying value of the assets may not be recoverable which requires significant judgement.

An impairment loss is recognized for the amount by which an asset's or cash-generating unit's carrying amount exceeds its recoverable amount, which is the higher of fair value less cost of disposal and value in use.

An intangible asset and related equipment that are not yet available for their intended use are tested for impairment at least annually, which also requires significant judgement. To determine the recoverable amount (fair value less cost to dispose of these assets), management estimates expected future cash flows from the asset and determines a suitable interest rate in order to calculate the present value of those cash flows. In the process of measuring expected future cash flows, management makes assumptions about future operating results using the estimated forecasted prices obtained from various market sources including publicly available metals information as at December 31, 2019. These key assumptions relate to future events and circumstances. The actual results will vary and may cause adjustments to the Company's intangible and tangible assets in future periods.

By their nature, assets not yet available for intended use have a higher estimation uncertainty, as they depend on future market development and the Company's ability to commercialize and manufacture new products to realize forecasted earnings. For example, new manufacturing processes may not be scalable to industrial level within expected timeframe and new products might not receive sufficient market penetration. Management believes that the following assumptions are the most susceptible to change and impact the valuation of these assets in time: a) expected significant growth of the market for different metal products (demand), b) selling prices which have an impact on revenues and metal margins (pricing), and c) the discount rate associated with new processes and products (after considering a premium over the Company's weighted average cost of capital (WACC) to reflect the additional uncertainty).

In most cases, determining the applicable discount rate involves estimating the appropriate adjustment to market risk and to asset specific risk factors. Assets not yet available for intended use have a higher estimation uncertainty, since they depend on future market information and the Company's ability to finish the project and realize the budgeted earnings. Management believes that the following assumptions are the most susceptible to change and therefore could impact the valuation of the assets in the next year: metal prices which have an impact on revenues and metal margins and the discount rate.

Inventories

Inventories are carried at the lower of cost and net realizable value, with cost determined using the average cost method. In estimating net realizable values, management takes into account the most reliable evidence available at the time the estimates are made. The Company's core business is subject to changes in foreign policies and internationally accepted metal prices which may cause future selling prices to change rapidly. The Company evaluates its inventories using a group of similar items basis and considers expected future prices as well as events that have occurred between the consolidated statement of financial position date and the date of the completion of the consolidated financial statements. Net realizable value for inventory to satisfy a specific sales contract is measured at the contract price.

Income taxes

The Company is subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the worldwide provision for income taxes. There are many transactions and calculations for which the ultimate tax determination is uncertain. The Company recognizes liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

The Company has deferred income tax assets that are subject to periodic recoverability assessments. Realization of the Company's deferred income tax assets is largely dependent on its achievement of projected future taxable income and the continued applicability of ongoing tax planning strategies. The Company's judgments regarding future profitability may change due to future market conditions, changes in tax legislation and other factors that could adversely affect the ongoing value of the deferred income tax assets. These changes, if any, may require a material adjustment of these deferred income tax asset balances through an adjustment to the carrying value thereon in the future. This adjustment would reduce the deferred income tax asset to the amount that is considered to be more likely than not to be realized and would be recorded in the period such a determination was to be made. Refer to note 15 of the 2019 consolidated financial statements of the Company.

Related Party Transactions

The Company's related parties are its joint ventures, directors and executive members. Transactions with these related parties are described in Note 23 in the 2019 consolidated financial statements of the Company.

Financial Instruments and Risk Management

Fair Value of financial instruments

A detailed description of the methods and assumptions used to measure the fair value of the Company financial instruments and their fair value are discussed in Note 16 – Fair Value of Financial Instruments in the 2019 consolidated financial statements of the Company.

The fair value of the derivative financial instruments was as follows:

	2019	2018
	$	$
Cross-currency swap	**-**	(197)
Equity swap agreement	**4,862**	5,835

Financial Risk Management

For a detailed description of the nature and extent of risks arising from financial instruments, and their related risk management, refer to Note 24 of the 2019 consolidated financial statements of the Company.

Interest Rate

Interest rate risk refers to the risk that future cash flows will fluctuate as a result of changes in market interest rates. The Company's policy is to limit its exposure to interest rate risk fluctuation by ensuring that a reasonable portion of its long-term debt, made of subordinated debts at fixed rate. The Company is exposed to interest rate fluctuations on its revolving credit facility, which bears a floating interest rate. A 1% increase/decrease in interest rates would have an impact of approximately $0.3 million on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2019.

Foreign Currency

The Company's sales are primarily denominated in U.S. dollars whereas a portion of its operating costs are realized in local currencies, such as Euros and Canadian dollars. Even though the purchases of raw materials are denominated in U.S. dollars, which reduce to some extent exchange rate fluctuations, we are subject to currency translation risk which can negatively impact our results. Management has implemented a policy for managing foreign exchange risk against the relevant functional currency.

On December 7, 2015, the Company entered into cross-currency swap to hedge cash flows under the CA$66.0 convertible debentures, applying hedge accounting principles to the transaction. Following early redemptions of the convertible debenture on June 28, 2018 and March 28, 2019, the Company de-designated CA$40.0 million and CA$26.0 million respectively of the nominal amount of the associated cross currency swap.

In addition, the Company will occasionally enter into foreign exchange forward contracts to sell US dollars in exchange for Canadian dollars and Euros. These contracts would hedge a portion of ongoing foreign exchange risk on the Company's cash flows since much of its non-US dollar expenses are incurred in Canadian dollars and Euros. The Company may also enter into foreign exchange contracts to sell Euros for US dollars. As at December 31, 2019, the Company has no foreign exchange contracts outstanding.

The following table summarizes in US dollar equivalents the Company's major currency exposures as at December 31, 2019:

	CA$	EUR	GBP	RMB	MYR	Other
	$	$	$	$	$	$
Cash and cash equivalents	605	3,122	1,136	724	161	59
Accounts receivable	1,007	6,558	-	1,315	3	251
Other current assets	4,862	-	-	-	-	-
Trade and accrued liabilities	(9,202)	(7,496)	(65)	(62)	(242)	(411)
Long-term debt	(107)	-	-	-	-	-
Lease liabilities	(756)	(746)	-	-	(25)	(93)
Net financial assets (liabilities)	(3,591)	1,438	1,071	1,977	(103)	(194)

The following table shows the impact on earnings before income tax of a five-percentage point strengthening or weakening of foreign currencies against the US dollar as at December 31, 2019 for the Company's financial instruments denominated in non-functional currencies:

	CA$	EUR	GBP	RMB	MRY	Other
	$	$	$	$	$	$
5% Strengthening	(180)	72	54	99	(5)	(10)
5% Weakening	180	(72)	(54)	(99)	5	10

Credit

Credit risk refers to the possibility that a customer or counterparty will fail to fulfill its obligations under a contract and, as a result, create a financial loss for the Company. The Company has a credit policy that defines standard credit practice. This policy dictates that all new customer accounts be reviewed prior to approval and establishes the maximum amount of credit exposure per customer. The creditworthiness and financial well-being of the customer are monitored on an ongoing basis.

The Company applies the IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss allowance for trade receivables. The expected loss rates are based on the Company's historical credit losses experienced over the three-year period prior to the period end. The historical loss rates are then adjusted for current and forward-looking information on macroeconomic factors affecting the Company's customers.

As at December 31, 2019 and 2018, the Company had a loss allowance of $0.1 million. The loss allowance is included in selling, general and administrative expenses in the consolidated statement of earnings and is net of any recoveries that were provided for in prior periods.

Liquidity

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. The Company manages liquidity risk through the management of its capital structure. It also manages liquidity risk by continually monitoring actual and projected cash flows, taking into account the Company's sales and receipts and matching the maturity profile of financial assets and financial liabilities. The Board of Directors reviews and approves the Company's annual operating and capital budgets as well as any material transactions out of the ordinary course of business, including proposals on acquisitions and other major investments. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants. In order to comply with these covenants, the Company will need to execute on its EBITDA and cash flow estimates. Management believes that the assumptions used by the Company in preparing its estimates are reasonable. However, risk remains. Successful achievement of these estimates results is dependent on stability in the price of metals and other raw materials, the reduction of debt due to the optimization of the Company's working capital and the continued viability and support of the Company's banks.

Risk and Uncertainties

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 analyses these risks and implements strategies in order to minimize their impact on the Company's performance.

Risks Associated with our Growth Strategy

5N Plus' strategic plan is designed to enhance profitability while reducing earnings volatility and is founded on three pillars of growth: first, optimizing balance of contribution from upstream and downstream activities; second, extracting more value from core businesses and global asset; and third, delivering quality growth from both existing growth initiatives and future M&A opportunities. There is a risk that some of the expected benefits will fail to materialize or may not occur within the time periods anticipated by management. The realization of such benefits may be affected by a number of factors, many of which are beyond our control.

International Operations

We operate in a number of countries, including China, Laos and Malaysia, and, as such, face risks associated with international business activities. We could be significantly affected by such risks, which include the integration of international operations, challenges associated with dealing with numerous legal and tax systems, the potential for volatile economic and labor conditions, political instability, foreign exchange, expropriation, changes in taxes, and other regulatory costs. Although we operate primarily in countries with relatively stable economic and political climates, there can be no assurance that our business will not be adversely affected by the risks inherent in international operations.

The following conditions or events could disrupt our supply chain, interrupt production at our facilities or those of our suppliers or customers, increase our cost of sales and other operating expenses, result in material asset losses, or require additional capital expenditures to be incurred:

- fires, pandemics, extraordinary weather conditions, or natural disasters, such as hurricanes, tornadoes, floods, tsunamis, typhoons, and earthquakes;
- political instability, social and labor unrest, war, or terrorism;
- disruptions in port activities, shipping and freight forwarding services; and
- interruptions in the availability of basic services and infrastructure, including power and water shortages.

Our insurance programs do not cover every potential loss associated with our operations, including potential damage to assets, lost profits, and liability that could result from the aforementioned conditions or events. In addition, our insurance may not fully cover the consequences resulting from a loss event, due to insurance limits, sub-limits, or policy exclusions. Any occurrence not fully covered by insurance could have a negative effect on our business.

Risks Related to China

The legal system in mainland China is a civil law system based on written statutes. Unlike common law systems, it is a system in which decided legal cases have little precedential value. The legal system in mainland China evolves rapidly, and the interpretations of many laws, regulations and rules may contain inconsistencies and their interpretation and enforcement involve uncertainties. These uncertainties could limit the legal protections available to us. In addition, the Company cannot predict the effect of future developments in the mainland Chinese legal system, including the promulgation of new laws, changes to existing laws or the interpretation or enforcement thereof, or the pre-emption of local regulations by national laws. Such unpredictability towards the Company's contractual, property (including intellectual property) and procedural rights could adversely affect the Company's business and impede its ability to continue operations. Furthermore, any litigation in mainland China may be protracted and result in substantial costs and diversion of resources and management attention.

The mainland Chinese government exercises significant control over mainland China's economic growth through strategically allocating resources, controlling the payment of foreign currency-denominated obligations, setting monetary policy and providing preferential treatment to particular industries or companies. Any growth in the Chinese economy may not continue and any slowdown may have a negative effect on our business. Any adverse changes in economic conditions in mainland China, in the policies of the mainland Chinese government, or in the laws and regulations in mainland China, could have a material adverse effect on the overall economic growth of mainland China. Such developments could adversely affect the Company's businesses, lead to reduction in demand for its products and adversely affect the Company's competitive position.

International Trade Regulations

We do business in a number of countries from various locations, as such, face risks associated with changes to International trade regulations and policies. Such risks include, but are not limited to, barriers to or restrictions on free trade, changes in taxes, tariffs and other regulatory costs. The current global political environment, including but not limited to the stated positions of the U.S. administration towards China, and the United Kingdom leaving the European Union on January, 31, 2020, appear to favour increasing restrictions on trade. Such restrictions could have a negative effect on our business if they were to limit our ability to export our products to markets in which we currently do business or to import raw materials from our current suppliers. Conversely, it is possible that they could have a favourable effect on our business if they were to inhibit competition in markets in which we do business without having an adverse effect on our operations.

Although we operate primarily in countries with proximity to our customers and suppliers and with relatively stable economic and political climates, there can be no assurance that our business will not be adversely affected by the risks inherent to the changing international political landscape and its impact on global trade.

Environmental Regulations

Our operations involve the use, handling, generation, processing, storage, transportation, recycling and disposal of hazardous materials and are subject to extensive environmental laws and regulations at the national, provincial, local and international level. These environmental laws and regulations include those governing the discharge of pollutants into the air and water, the use, management and disposal of hazardous materials and wastes, the clean-up of contaminated sites and occupational health and safety. Failure to comply with such laws, regulations and permits can have serious consequences, including damage to our reputation; stopping us from pursuing operations at one of our facilities; being subject to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, clean-up costs or other costs; increasing the costs of development or production and litigation or regulatory action against us, and materially adversely affecting our business, results of operations or financial condition. Future changes in applicable environmental and health and safety laws and regulations could substantially increase costs and burdens to achieve compliance or otherwise have an adverse impact on our business, results of operations or financial condition.

We have incurred and will continue to incur capital expenditures in order to comply with environmental laws and regulations. While we believe that we are currently in compliance with applicable environmental requirements, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of currently unknown environmental conditions may require expenditures that could have a material adverse effect on our business, results of operations and financial condition.

Competition

We are a leading producer of engineered materials, and specialty chemicals with a limited number of competitors, few of which are as fully integrated as we are or have a similar range of products. Accordingly, they have limitation to provide the same comprehensive set of services and products as we do. However, there can be no guarantee that this situation will continue in the future and competition could arise from new low-cost metal refiners or from certain of our customers who could decide to backward integrate. Greater competition could have an adverse effect on our revenues and operating margins if our competitors gain market share and we are unable to compensate for the volume lost to our competition.

Commodity Price

The price we pay for, and availability of, various inputs fluctuates due to numerous factors beyond our control, including economic conditions, currency exchange rates, global demand for metal products, trade sanctions, tariffs, labor costs, competition, over capacity of producers and price surcharges. Fluctuations in availability and cost of inputs may materially affect our business, financial condition, results of operations and cash flows. These fluctuations can be unpredictable and can occur over short periods of time. To the extent that we are not able to pass on any increases, our business, financial condition, results of operations and cash flows may be materially adversely affected.

Sources of Supply

We may not be able to secure the critical raw material feedstock on which we depend for our operations. We currently procure our raw materials from a number of suppliers with whom we have had long-term commercial relationships. The loss of any one of these suppliers or a reduction in the level of deliveries to us may reduce our production capacity and impact our deliveries to customers. This would in turn negatively impact our sales, net margins and may lead to liabilities with respect to some of our supply contracts.

Protection of Intellectual Property

Protection of our proprietary processes, methods and other technologies is important to our business. We rely almost exclusively on a combination of trade secrets and employee confidentiality agreements to safeguard our intellectual property. We have deliberately chosen to limit our patent position to avoid disclosing valuable information. Failure to protect and monitor the use of our existing intellectual property rights could result in the loss of valuable technologies and processes. There can be no assurance that our confidentiality agreements will provide meaningful protection for our intellectual property rights or other proprietary information in the event of any unauthorized use or disclosure or that we will be able to meaningfully protect our trade secrets.

Inventory Price

We monitor the risks associated with the value of our inventories in relation to the market price of such inventories. Because of the highly illiquid nature of many of our inventories, we rely on a combination of standard risk measurement techniques, such as value at risk as well as a more empirical assessment of the market conditions. Decisions on appropriate physical stock levels are taken by considering both the value at risk calculations and the market conditions.

Business Interruptions

We may incur losses resulting from business interruptions. In many instances, especially those related to our long-term contracts, we have contractual obligations to deliver product in a timely manner. Any disruption in our activities which leads to a business interruption could harm our customers' confidence level and lead to the cancellation of our contracts and legal recourse against us. Although we believe that we have taken the necessary precautions to avoid business interruptions and carry business interruption insurance, we could still experience interruptions which would adversely impact our financial results.

Changes to Backlog

The Company cannot guarantee that the revenues projected in its backlog will be realized. In addition, contract delays, suspensions, terminations, cancellations, reductions in scope or other adjustments may occur from time to time due to considerations beyond the Company's control and may have an impact on the value of reported backlog with a corresponding adverse impact on future revenues and profitability.

Dependence on Key Personnel
We rely on the expertise and know-how of its personnel to conduct our operations. The loss of any member of our senior management team could have a material adverse effect on us. Our future success also depends on our ability to retain and attract our key employees, train, retain and successfully integrate new talent into our management and technical teams. Recruiting and retaining talented personnel, particularly those with expertise in the specialty metals industry and refining technology is vital to our success and may prove difficult. We cannot provide assurance that we will be able to attract and retain qualified personnel when needed.

Collective Agreements
A portion of our workforce is unionized, and we are party to collective agreements that are due to expire at various times in the future. If we are unable to renew these collective agreements on similar terms as they become subject to renegotiation from time to time, this could result in work stoppages or other labour disturbances, such as strikes, walkouts or lockouts, potentially affecting our performance.

Litigation Risks
We may be subject to a variety of civil or other legal proceedings, with or without merit.

Systems, Network Infrastructure and Data Failure, Interruption and Breach
Our operations rely on information systems, communications technology, business and other technology applications, including global and regional networks, complex server infrastructure and operating systems, in order to operate properly. If we are unable to continually maintain our software and hardware, effectively upgrade our systems and network infrastructure, and take other steps to improve the efficiency and protect our systems, the Company's operation systems could be interrupted or delayed. The same applies if our network, communication and operations systems are damaged or interrupted by natural disasters, telecommunications failures, acts of war or terrorism, computer viruses, physical or electronic security breaches, or similar events or disruptions. The Company also faces the threat of unauthorized system access, computer hackers, malicious code and organized cyber-attacks.

Risks Associated with Public Issuer Status
Our shares are publicly traded and, as such, we are subject to all of the obligations imposed on "reporting issuers" under applicable securities laws in Canada and all of the obligations applicable to a listed company under stock exchange rules. Another risk associated with a public issuer status is the disclosure of key Company information as compared to privately owned competitors.

Non-IFRS Measures

In this Management's Report, the Company's management uses certain measures which are not in accordance with IFRS. Non-IFRS measures are useful supplemental information but may not have a standardized meaning according to IFRS.

Backlog represents the expected orders we have received but have not yet executed and that are expected to translate into sales within the next twelve months expressed in number of days. Bookings represent orders received during the period considered, expressed in days, and is calculated by adding revenues to the increase or decrease in backlog for the period considered divided by annualized year revenues. We use backlog to provide an indication of expected future revenues in days, and bookings to determine our ability to sustain and increase our revenues.

EBITDA means net earnings before interest expenses, income taxes, depreciation and amortization. We use EBITDA because we believe it is a meaningful measure of the operating performance of our ongoing business without the effects of certain expenses. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

EBITDA margin is defined as EBITDA divided by revenues.

Adjusted EBITDA means EBITDA as defined above before impairment of inventories, share-based compensation expense, impairment of non-current assets, litigation and restructuring costs (income), gain on disposal of property, plant and equipment, change in fair value of debenture conversion option, foreign exchange and derivatives loss (gain). We use adjusted EBITDA because we believe it is a meaningful measure of the operating performance of our ongoing business without the effects of certain expenses. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Adjusted EBITDA margin is defined as Adjusted EBITDA divided by revenues.

Adjusted operating expenses means operating charges before shared-based compensation expense, impairment of non-current assets, litigation and restructuring costs (income), gain on disposal on property, plant and equipment and depreciation and amortization. We use adjusted operating expenses to calculate the Adjusted EBITDA. We believe it is a meaningful measure of the operating performance of our ongoing business. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Adjusted net earnings means the net earnings before the effect of charge of impairment related to inventory, PPE and intangible assets, share-based compensation expense, litigation and restructuring costs (income), gain on disposal of property, plant and equipment, change in fair value of debenture conversion option net of the related income tax. We use adjusted net earnings because we believe it is a meaningful measure of the operating performance of our ongoing business without the effects of unusual inventory write-downs and property plant and equipment, intangible asset impairment charges, share-based compensation expense, litigation and restructuring costs (income), gain on disposal of property, plant and equipment and change in fair value of debenture conversion option. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Basic adjusted net earnings per share means adjusted net earnings divided by the weighted average number of outstanding shares. We use basic adjusted net earnings per share because we believe it is a meaningful measure of the operating performance of our ongoing business without the effects of unusual inventory write-downs and property plant and equipment and intangible asset impairment charges, share-based compensation expense, litigation and restructuring costs (income), gain on disposal of property, plant and equipment and change in fair value of debenture conversion option per share. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Funds (used in) from operations means the amount of cash generated from operating activities before changes in non-cash working capital balances related to operations. This amount appears directly in the consolidated statements of cash flows of the Company. We consider funds (used in) from operations to be a key measure as it demonstrates the Company's ability to generate cash necessary for future growth and debt repayment.

Gross margin is a measure we use to monitor the sales contribution after paying cost of sales excluding depreciation and impairment inventory charge. We also expressed this measure in percentage of revenues by dividing the gross margin value by the total revenue.

Net debt is calculated as total debt (comprising long-term debt, convertible debentures and cross-currency swap in the consolidated statement of financial position) less cash and cash equivalents. Any newly introduced IFRS 16 reporting measures in reference to lease liabilities are excluded from the calculation. We use this measure as an indicator of our overall financial position.

Return on Capital Employed (ROCE) is a non-IFRS financial measure, calculated by dividing the annualized Adjusted EBIT by capital employed at the end of the period. Adjusted EBIT is calculated as the Adjusted EBITDA less depreciation of PPE and amortization of intangible assets (adjusted for accelerated depreciation charge, if any). Capital employed is the sum of the accounts receivable, the inventory, the PPE, the goodwill and intangibles less trade and accrued liabilities (adjusted for exceptional items). We use ROCE to measure the return on capital employed, whether the financing is through equity or debt. In our view, this measure provides useful information to determine if capital invested in the Company yields competitive returns. The usefulness of ROCE is limited by the fact that it is a ratio and not providing information as to the absolute amount of our net income, debt or equity. It also excludes certain items from the calculation and other companies may use a similar measure but calculate it differently.

Working capital is a measure of liquid assets that is calculated by taking current assets and subtracting current liabilities. Given that the Company is currently indebted, we use it as an indicator of our financial efficiency and aim to maintain it at the lowest possible level.

Working capital ratio is calculated by dividing current assets by current liabilities.

Additional Information

Our common shares trade on the Toronto Stock Exchange (TSX) under the ticker symbol VNP. Additional information relating to the Company, including the Company's annual information form is available under the Company's profile on SEDAR at www.sedar.com.

Selected Quarterly Financial Information

(in thousands of United States dollars except per share amounts)	**Dec. 31, 2019**	Sept. 30, 2019	June 30, 2019	March. 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	March 31, 2018
	$	$	$	$	$	$	$	$
Revenue	**44,714**	49,554	50,290	51,413	47,710	53,379	58,359	58,547
EBITDA[1,2]	**3,682**	5,860	5,321	4,188	5,589	7,772	7,860	7,800
Adjusted EBITDA[1,2]	**4,502**	5,974	5,862	5,612	6,912	8,581	8,972	7,885
Net earnings (loss) attributable to equity holders of 5N Plus	**146**	1,030	1,758	(1,149)	4,046	3,457	3,417	3,051
Basic earnings (loss) per share attributable to equity holders of 5N Plus	**$-**	$0.01	$0.02	($0.01)	$0.05	$0.04	$0.04	$0.04
Net earnings (loss)	**146**	1,030	1,758	(1,149)	4,046	3,458	3,420	3,048
Basic earnings (loss) per share	**$-**	$0.01	$0.02	($0.01)	$0.05	$0.04	$0.04	$0.04
Diluted earnings (loss) per share	**$-**	$0.01	$0.02	($0.01)	$0.05	$0.04	$0.04	$0.04
Adjusted net earnings[1] (loss)	**480**	1,460	2,055	(120)	5,407	3,919	5,344	2,814
Basic adjusted net earnings per share[1]	**$0.01**	$0.02	$0.02	$-	$0.06	$0.05	$0.06	$0.03
Funds from operations[1]	**3,343**	4,570	4,866	2,945	8,641	6,582	7,194	6,226
Backlog[1]	**243 days**	215 days	201 days	202 days	217 days	181 days	170 days	172 days

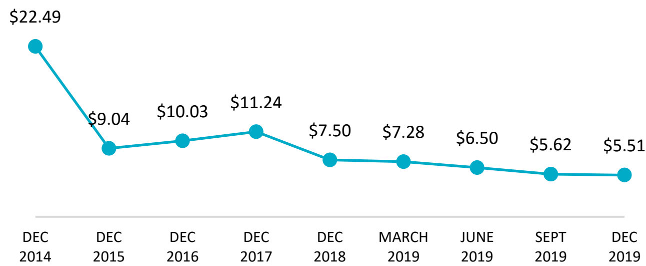
Selected Yearly Financial Information

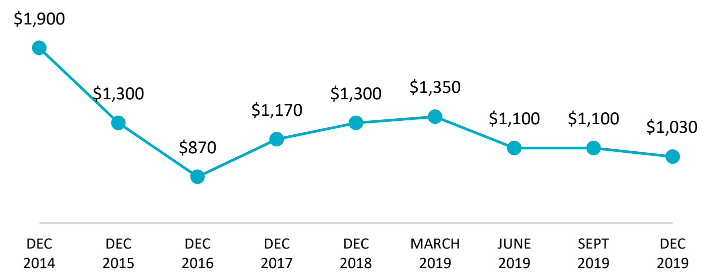
As at and for the years ended December 31 (in thousands of United States dollars except per share amounts)	**2019**	2018	2017
	$	$	$
Revenue	**195,971**	217,995	219,916
EBITDA	**19,051**	29,021	26,863
Adjusted EBITDA	**21,950**	32,350	29,587
Net earnings attributable to equity holders of 5N Plus	**1,785**	13,971	12,023
Basic earnings per share attributable to equity holders of 5N Plus	**$0.02**	$0.17	$0.14
Net earnings	**1,785**	13,972	12,013
Basic earnings per share	**$0.02**	$0.17	$0.14
Diluted earnings per share	**$0.02**	$0.17	$0.14
Adjusted net earnings	**3,875**	17,484	13,889
Basic adjusted net earnings per share	**$0.05**	$0.21	$0.17
Funds from operations	**15,724**	28,643	26,336
Backlog	**243 days**	217 days	187 days
Balance Sheet			
Total assets	**229,942**	237,057	244,932
Total non-current liabilities	**75,629**	51,430	70,851
Net debt[1]	**35,042**	22,219	11,413
Shareholders' equity	**117,297**	119,703	105,446

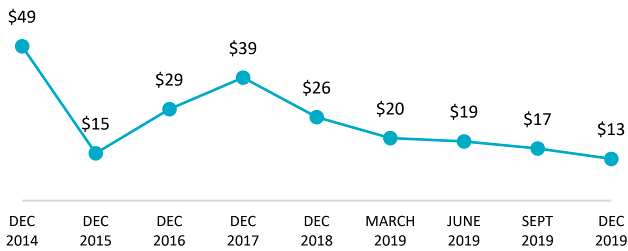
[1] See Non-IFRS Measures

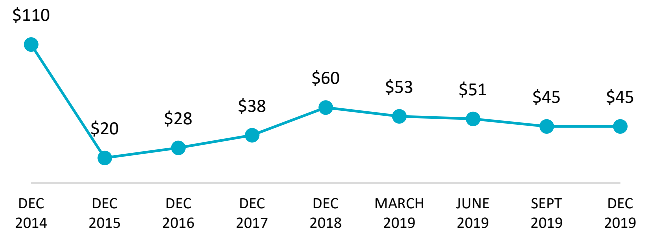
[2] On January 1, 2019, the Company applied IFRS 16 *Leases* retrospectively with no restatement of comparative information, including non-IFRS measures and tables, as allowed by the Standard. This positively impacted the current year's Adjusted EBITDA and EBITDA when comparing them to the prior year's amounts (see Accounting Policies and Changes section for more details).

Metal Prices
(in U.S. dollars per kilo)









Source : Low Metal Bulletin

MANAGEMENT'S REPORT TO THE SHAREHOLDERS OF 5N PLUS INC.

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

The consolidated financial statements and related notes have been prepared by management in conformity with generally accepted accounting principles in Canada which incorporate International Financial Reporting Standards. Management is responsible for the selection of accounting policies and making significant accounting judgements and estimates.

Management is also responsible for all other information included in the management's discussion and analysis and for ensuring that this information is consistent with the information contained in the consolidated financial statements.

Management is responsible for establishing and maintaining adequate internal control over financial reporting which includes those policies and procedures that provide reasonable assurance over the safeguarding of assets and over the completeness, fairness and accuracy of the consolidated financial statements.

The Audit and Risk Management Committee, which is comprised entirely of independent directors, reviews the quality and integrity of the Corporation's financial reporting and provides its recommendations, in respect of the approval of the financial statements, to the Board of Directors; oversees management's responsibilities as to the adequacy of the supporting systems of internal controls; provides oversight of the independence, qualifications, and appointment of the external auditor; and, review audit, audit-related, and non-audit fees and expenses. The Board of Directors approves the Corporation's consolidated financial statements and management's discussion and analysis disclosures prior to their release. The Audit and Risk Management Committee meets with management, the internal auditors and external auditors at least four times each year to review and discuss financial reporting, disclosures, auditing and other matters.

The external auditors, PricewaterhouseCoopers LLP, conduct an independent audit of the consolidated financial statements in accordance with Canadian generally accepted auditing standards and express their opinion thereon. Those standards require that the audit is planned and performed to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. The external auditors have unlimited access to the Audit and Risk Management Committee and meet with the Committee on a regular basis.

(signed) Arjang J. Roshan
Arjang J. Roshan
President and Chief Executive Officer

(signed) Richard Perron
Richard Perron
Chief Financial Officer

Montreal, Canada
February 25, 2020

Independent auditor's report

To the Shareholders of 5N Plus Inc.

Our opinion

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of 5N Plus Inc. and its subsidiaries (together, the Company) as at December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with International Financial Reporting Standards as issued by the IASB (IFRS).

What we have audited
The Company's consolidated financial statements comprise:

- the consolidated statements of financial position as at December 31, 2019 and 2018;
- the consolidated statements of earnings for the years then ended;
- the consolidated statements of comprehensive income for the years then ended;
- the consolidated statements of changes in equity for the years then ended;
- the consolidated statements of cash flows for the years then ended; and
- the notes to the consolidated financial statements, which include a summary of significant accounting policies.

Basis for opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the consolidated financial statements* section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence
We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada. We have fulfilled our other ethical responsibilities in accordance with these requirements.

PricewaterhouseCoopers LLP/s.r.l./s.e.n.c.r.l.
1250 René-Lévesque Boulevard West, Suite 2500, Montréal, Quebec, Canada H3B 4Y1
T: +1 514 205 5000, F: +1 514 876 1502

"PwC" refers to PricewaterhouseCoopers LLP/s.r.l./s.e.n.c.r.l., an Ontario limited liability partnership.

Other information

Management is responsible for the other information. The other information comprises the Management's Discussion and Analysis, which we obtained prior to the date of this auditor's report and the information, other than the consolidated financial statements and our auditor's report thereon, included in the annual report, which is expected to be made available to us after that date.

Our opinion on the consolidated financial statements does not cover the other information and we do not and will not express an opinion or any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard. When we read the information, other than the consolidated financial statements and our auditor's report thereon, included in the annual report, if we conclude that there is a material misstatement therein, we are required to communicate the matter to those charged with governance.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Company to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

The engagement partner on the audit resulting in this independent auditor's report is Marc-Stéphane Pennee.

PricewaterhouseCoopers LLP[1]

Montréal, Quebec
February 25, 2020

[1] CPA auditor, CA, public accountancy permit No.A123642

Consolidated Statements of Financial Position

(in thousands of United States dollars)

	Notes	December 31 2019	December 31 2018
		$	$
Assets			
Current			
Cash and cash equivalents		**20,065**	26,724
Accounts receivable	4	**28,477**	22,984
Inventories	5	**83,367**	96,889
Income tax receivable	15	**5,433**	4,891
Other current assets	16	**7,371**	7,797
Total current assets		**144,713**	159,285
Property, plant and equipment	6, 26	**58,590**	57,297
Right-of-use assets	7, 26	**6,050**	-
Intangible assets	8, 26	**10,990**	11,199
Deferred tax assets	15	**8,425**	7,872
Other assets	9	**1,174**	1,404
Total non-current assets		**85,229**	77,772
Total assets		**229,942**	237,057
Liabilities			
Current			
Trade and accrued liabilities	10	**32,066**	39,249
Income tax payable	15	**3,374**	7,732
Derivative financial liabilities	16	**-**	197
Current portion of long-term debt	11	**107**	175
Current portion of convertible debentures	12	**-**	18,571
Current portion of lease liabilities	7	**1,469**	-
Total current liabilities		**37,016**	65,924
Long-term debt	11	**55,000**	30,000
Deferred tax liabilities	15	**269**	266
Employee benefit plan obligation	13	**15,398**	14,619
Lease liabilities	7	**4,767**	-
Other liabilities	14	**195**	6,545
Total non-current liabilities		**75,629**	51,430
Total liabilities		**112,645**	117,354
Equity		**117,297**	119,703
Total liabilities and equity		**229,942**	237,057

Commitments and contingencies (Note 22)

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Earnings

Years ended December 31
(in thousands of United States dollars, except per share information)

	Notes	2019	2018
		$	$
Revenue		**195,971**	217,995
Cost of sales	26	**161,213**	169,061
Selling, general and administrative expenses	26	**21,179**	23,940
Other expenses (income), net	26	**5,351**	4,536
Share of loss from joint ventures		**-**	22
		187,743	197,559
Operating earnings		**8,228**	20,436
Financial expenses			
Interest on long-term debt		**2,914**	2,873
Imputed interest and other interest expense	7, 12	**1,165**	3,422
Foreign exchange and derivative loss		**316**	225
		4,395	6,520
Earnings before income taxes		**3,833**	13,916
Income tax expense (recovery)			
Current	15	**2,187**	848
Deferred	15	**(139)**	(904)
		2,048	(56)
Net earnings		**1,785**	13,972
Attributable to:			
Equity holders of 5N Plus Inc.		**1,785**	13,972
		1,785	13,972
Earnings per share attributable to equity holders of 5N Plus Inc.	20	**0.02**	0.17
Basic earnings per share	20	**0.02**	0.17
Diluted earnings per share	20	**0.02**	0.17

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Comprehensive Income

Years ended December 31
(in thousands of United States dollars)

	Notes	2019	2018
		$	$
Net earnings		**1,785**	13,972
Other comprehensive loss			
Items that may be reclassified subsequently to net earnings			
Net changes in cash flow hedges			
Effective portion of changes in fair value of cash flow hedges	16	**723**	(2,384)
Reclassification to net earnings		**(693)**	2,461
De-designation of cash flow hedges	12	**145**	(79)
Income taxes		**(21)**	(1)
		154	(3)
Currency translation adjustment		**(293)**	(964)
		(139)	(967)
Items that will not be reclassified subsequently to net earnings			
Remeasurement of employee benefit plan obligation	13	**(1,369)**	(200)
Income taxes		**432**	63
		(937)	(137)
Other comprehensive loss		**(1,076)**	(1,104)
Comprehensive income		**709**	12,868
Attributable to equity holders of 5N Plus Inc.		**709**	12,868

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes In Equity

Years ended December 31
(in thousands of United States dollars, except per share information)

	Attributable to equity holders of the Company							
2019	**Number of shares**	**Share capital**	**Contributed surplus**	**Accumulated other comprehensive loss**	**Deficit**	**Total shareholders' equity**	**Non-controlling Interest**	**Total Equity**
		$	**$**	**$**	**$**	**$**	**$**	**$**
Balances at beginning of year	**84,609,791**	**343,480**	**4,444**	**(5,674)**	**(222,547)**	**119,703**	**-**	**119,703**
Net earnings for the year	**-**	**-**	**-**	**-**	**1,785**	**1,785**	**-**	**1,785**
Other comprehensive loss	**-**	**-**	**-**	**(1,076)**	**-**	**(1,076)**	**-**	**(1,076)**
Comprehensive (loss) income	**-**	**-**	**-**	**(1,076)**	**1,785**	**709**	**-**	**709**
Reduction of share capital (Note 19)	**-**	**(338,478)**	**338,478**	**-**	**-**	**-**	**-**	**-**
Common shares repurchased and cancelled (Note 19)	**(1,696,733)**	**(101)**	**-**	**-**	**(3,889)**	**(3,990)**	**-**	**(3,990)**
Exercice of stocks options (Note 21)	**488,500**	**1,060**	**(337)**	**-**	**-**	**723**	**-**	**723**
Share-based compensation (Note 21)	**-**	**-**	**152**	**-**	**-**	**152**	**-**	**152**
Balances at end of year	**83,401,558**	**5,961**	**342,737**	**(6,750)**	**(224,651)**	**117,297**	**-**	**117,297**

	Attributable to equity holders of the Company							
2018	Number of shares	Share capital	Contributed surplus	Accumulated other comprehensive loss	Deficit	Total shareholders' equity	Non-controlling interest	Total equity
		$	$	$	$	$	$	$
Balances at beginning of year	83,901,041	341,949	4,586	(4,570)	(236,519)	105,446	(18)	105,428
Net earnings for the year	-	-	-	-	13,972	13,972	-	13,972
Other comprehensive loss	-	-	-	(1,104)	-	(1,104)	-	(1,104)
Comprehensive income (loss)	-	-	-	(1,104)	13,972	12,868	-	12,868
Repurchase of non-controlling interest	-	-	-	-	-	-	18	18
Exercice of stocks options (Note 21)	708,750	1,531	(487)	-	-	1,044	-	1,044
Share-based compensation (Note 21)	-	-	345	-	-	345	-	345
Balances at end of year	84,609,791	343,480	4,444	(5,674)	(222,547)	119,703	-	119,703

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows

Years ended December 31
(in thousands of United States dollars, unless otherwise indicated)

	Notes	2019	2018
		$	$
Operating activities			
Net earnings		**1,785**	13,972
Adjustments to reconcile net earnings to cash flows			
Depreciation of property, plant and equipment and amortization of intangible assets		**9,669**	8,810
Depreciation of right-of-use assets	7	**1,470**	-
Amortization of other assets		**173**	163
Increase (reversal) for loss allowance	4, 24	**23**	(29)
Share-based compensation expense	21	**1,334**	3,422
Deferred income taxes	15	**(139)**	(904)
Share of loss from joint ventures		**-**	22
Loss on disposal of investment in joint venture		**-**	360
Imputed interest	7, 12	**792**	3,146
Employee benefit plan obligation	13	**(313)**	(291)
Gain on disposal of property, plant and equipment		**(32)**	(510)
Unrealized loss (gain) on non-hedge financial instruments		**1,249**	(124)
Unrealized foreign exchange (gain) loss on assets and liabilities		**(457)**	370
Realized loss on non-hedge financial instruments		**-**	670
Realized foreign exchange loss (gain) on assets and liabilities		**25**	(355)
Loss (gain) on de-designation of cash flow hedges	12	**145**	(79)
Funds from operations before the following :		**15,724**	28,643
Net change in non-cash working capital balances	18	**(13,043)**	(26,448)
Cash from operating activities		**2,681**	2,195
Investing activities			
Additions to property, plant and equipment	6, 18	**(9,447)**	(10,098)
Additions of intangible assets	8	**(815)**	(1,198)
Proceeds on disposal of investment in joint venture		**-**	417
Proceeds on disposal of property, plant and equipment	6	**80**	1,125
Cash used in investing activities		**(10,182)**	(9,754)
Financing activities			
Repayment of long-term debt		**(75)**	(78)
Proceeds from issuance of long term debt	11	**25,000**	30,000
Issue expenses related to issuance of long-term debt		**-**	(679)
Repayment of convertible debentures	12	**(19,259)**	(29,714)
Common shares repurchased	19	**(3,990)**	-
Issuance of common shares	19	**723**	1,044
Principal elements of lease payments		**(1,605)**	-
Increase in other liabilities	14	**-**	120
Cash from financing activities		**794**	693
Effect of foreign exchange rate changes on cash and cash equivalents		**48**	(434)
Net decrease in cash and cash equivalents		**(6,659)**	(7,300)
Cash and cash equivalents, beginning of year		**26,724**	34,024
Cash and cash equivalents, end of year		**20,065**	26,724
Supplemental information(1)			
Income tax paid		**6,554**	1,190
Interest paid		**2,392**	2,714

(1) Amounts paid for income tax and interest were reflected as cash flows from operating activities in the consolidated statements of cash flows.

The accompanying notes are an integral part of these consolidated financial statements.

1. Nature of Activities

5N Plus Inc. ("5N Plus" or the "Company") is a Canadian-based international company. 5N Plus is a leading global producer of engineered materials and specialty chemicals with integrated recycling and refining assets to manage the sustainability of its business model. The Company is headquartered at 4385 Garand Street, Montreal, Quebec (Canada) H4R 2B4. The Company operates R&D, manufacturing and commercial centers in several locations in Europe, the Americas and Asia. 5N Plus deploys a range of proprietary and proven technologies to manufacture products which are used as enabling precursors by its customers in a number of advanced electronics, optoelectronics, pharmaceutical, health, renewable energy and industrial applications. Many of the materials produced by 5N Plus are critical for the functionality and performance of the products and systems produced by its customers, many of whom are leaders within their industry. The Company's shares are listed on the Toronto Stock Exchange ("TSX"). 5N Plus and its subsidiaries represent the "Company" mentioned throughout these consolidated financial statements. The Company has two reportable business segments, namely Electronic Materials and Eco-Friendly Materials.

These consolidated financial statements were approved by the Board of Directors on February 25, 2020.

2. Summary of Principal Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all periods presented, unless otherwise stated.

Basis of preparation

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards as issued by the IASB (IFRS). The consolidated financial statements have been prepared under the historical cost convention, except for derivative financial instruments which are recorded at fair value.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgment in the process of applying the Company's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are also further disclosed in this note, in the "Significant management estimation and judgment in applying accounting policies" section.

a) Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Company has control. Control exists when the Company is exposed to, or has the rights to, variable returns from its involvement with the entity and has the ability to affect those returns through the power over the entity.

The subsidiaries are fully consolidated from the date on which control is transferred to the Company. They are deconsolidated from the date that control ceases.

The following table includes the principal subsidiaries which significantly impact the results or assets of the Company:

	Country of incorporation	% Equity interest 2019	2018
5N Plus Inc.	Canada	100%	100%
5N PV GmbH	Germany	100%	100%
5N Plus Lübeck GmbH	Germany	100%	100%
5N Plus Belgium SA	Belgium	100%	100%
5N Plus Asia Limited	Hong Kong	100%	100%
5N Plus Wisconsin Inc.	United States	100%	100%

The US dollar is the functional currency of all those subsidiaries.

Intercompany transactions, balances, income and expenses on transactions between group companies are eliminated. Profits and losses resulting from intercompany transactions that are recognized in assets are also eliminated. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Company.

b) Joint ventures

A joint venture is a contractual agreement whereby the Company agrees with other parties to undertake an economic activity that is subject to joint control, i.e. strategic financial and operating decisions relating to the joint venture's activities require the unanimous consent of the parties sharing control. Investments in joint ventures are accounted for using the equity method. The share of earnings (loss) of joint ventures is recognized in the consolidated statement of earnings and the share of other comprehensive income of joint ventures is included in other comprehensive loss.

Foreign currency translation

a) Functional and presentation currency

The Company's functional and presentation currency is the US dollar. Functional currency is determined for each of the Company's entities, and items included in the financial statements of each entity are measured using that functional currency.

b) Transactions and balances

Monetary assets and liabilities denominated in foreign currencies are translated at the prevailing exchange rate at the reporting date. Non-monetary assets and liabilities, and revenue and expense items denominated in foreign currencies are translated into the functional currency using the exchange rate prevailing at the date of the respective transactions. Foreign exchange gains and losses resulting from the settlement of such transactions are recognized in the consolidated statement of earnings.

Foreign exchange gains and losses are presented in the consolidated statement of earnings within "foreign exchange and derivative loss".

c) Foreign operations

Assets and liabilities of subsidiaries that have a functional currency other than US dollar are translated from their functional currency to US dollars at exchange rates in effect at the reporting date. The resulting translation adjustments are included in the currency translation adjustment in other comprehensive loss. Revenue and expenses are translated at the average exchange rates for the period.

Segment reporting

The Company operates two principal segments: Electronic Materials and Eco-Friendly Materials. Corresponding operations and activities are managed accordingly by the Company's key decision makers. Segmented operating, financial information and labelled key performance indicators are available and used to manage these business segments, review performance and allocate resources.

The Electronic Materials segment manufactures and sells products which are used in a number of applications such as security, aerospace, sensing, imaging, renewable energy and various technical materials.

The Eco-Friendly Materials segment manufactures and sells products which are used in a number of applications such as pharmaceutical, healthcare, animal feed additive, catalytic and extractive as well as various industrial materials.

Corporate expenses associated with the head office and unallocated selling, general and administrative expenses together with financing expenses have been regrouped under the heading "Corporate and unallocated".

Each operating segment is managed separately as each of these service lines requires different technologies, resources and marketing approaches. The financial information of the recycling and trading of complex material is allocated to the two main segments. All intersegment transactions between the Electronic Materials and the Eco-Friendly Materials segments have been eliminated on consolidation.

Revenue recognition

Revenue comprises the sale of manufactured products and the rendering of services and is measured at the amounts specified in the customer's arrangement.

Sales of manufactured products are recognized when products are delivered to the customer, which is also the moment when control of the products is transferred, and when there is no unfulfilled obligation that could affect the customer's acceptance of the products. Delivery occurs when the products have been shipped to the specific location, the risks of loss have been transferred to the customer and has accepted the products in accordance with the sales contract. Revenue from custom refining activities, often referred to as tolling, is recognized when services are rendered, at a point in time.

Accounts receivable are recognized when the products are delivered or services are rendered, as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due. The Company does not expect to have any contracts where the period between the transfer of the promised products or services to the customer and payment by the customer exceeds one year. As a consequence, the Company does not adjust any of the transaction prices for the time value of money. Cash payments received or advances due pursuant to contractual arrangements are recorded as deferred revenue until all of the foregoing conditions of revenue recognition have been met.

Property, plant and equipment

Property, plant and equipment are recorded at cost, net of accumulated depreciation, accumulated impairment losses and subsequent reversals, if applicable. Property, plant and equipment are depreciated using the straight-line method over their estimated useful lives, taking into account any residual values. Useful lives are as follows:

	Period
Land	Not depreciated
Building	25 years
Production equipment	Up to 15 years
Furniture	3 to 10 years
Office equipment	3 to 10 years
Rolling stock	3 to 10 years
Leasehold improvements	Over the term of the lease

Major overhaul and replacement are capitalized in the consolidated statement of financial position as a separate component, with the replaced part or previous overhaul derecognized from the statement. Maintenance and repairs are charged to expense as incurred.

Construction in progress is not depreciated until the assets are put into use. Costs are only capitalized if they are directly attributable to the construction or development of the assets.

Residual values, method of depreciation and useful life of the assets are reviewed annually and adjusted if appropriate.

Leases (since January 1, 2019)

Leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company. Assets and liabilities arising from a lease are initially measured on a present value basis.

Right-of-use assets
Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Lease liabilities
Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

Extension options are included in a number of property and equipment leases across the Company. These terms are used to maximise operational flexibility in terms of managing contracts. The majority of extension options held are exercisable only by the Company and not by the respective lessor.

Intangible assets

Intangible assets acquired separately are recorded at cost, net of accumulated amortization, accumulated impairment losses and reversals, if applicable. Intangible assets acquired through a business combination are recognized at fair value at the date of acquisition. Intangible assets are amortized on a straight-line basis over their useful lives according to the following annual terms:

	Period
Technology	5 years
Software	5 years
Intellectual property	10 years
Development costs	Not exceeding 10 years

Impairment of non-financial assets

The carrying amounts of the Company's non-financial assets subject to amortization are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Assets that are not yet available for use are tested for impairment annually or at any time if an indicator of impairment exists.

An impairment loss is recognized if the carrying amount of an asset or a cash-generating unit ("CGU") exceeds its recoverable amount. The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less cost of disposal. The recoverable amount is determined for an individual asset; unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In such case, the CGU's belonging asset is used to determine the recoverable amount. Impairment losses are recognized in statement of earnings.

The Company evaluates impairment losses for potential reversals at each reporting date. An impairment loss is reversed if there is any indication that the loss has decreased or no longer exists due to changes in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized. Such reversal is recognized in statement of earnings.

Financial instruments

Financial assets and liabilities are recognized when the Company becomes a party to the contractual provisions of the instrument. Financial assets are derecognized when the rights to receive cash flows from the assets have expired or have been transferred and the Company has transferred substantially all risks and rewards of ownership.

Financial assets and liabilities are offset and the net amount is reported in the consolidated statement of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis, or realize the asset and settle the liability simultaneously.

Measurement

At initial recognition, the Company measures a financial asset or financial liability at its fair value plus or minus, in the case of a financial asset or financial liability not at fair value through profit or loss (FVPL), transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability. Transaction costs of financial assets or financial liabilities carried at FVPL are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

Measurement in subsequent periods depends on the classification of the financial instrument. The Company has classified its financial instruments in the following categories depending on the purpose for which the instruments were acquired and their characteristics.

Financial assets

Debt instruments
For the subsequent measurement, there are two measurement categories into which the Company classifies its debt instruments:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. Interest income from these financial assets is included in finance income using the effective interest rate method. Any gain or loss arising on derecognition is recognized directly in profit or loss and presented in other gains/(losses), together with foreign exchange gains and losses. Impairment losses are presented as separate line item in the consolidated statement of earnings.
- FVPL (fair value through profit or loss): Assets that do not meet the criteria for amortized cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognized in profit or loss and presented net within other gains/(losses) in the period in which it arises.

Financial liabilities

Financial liabilities are subsequently measured at amortized cost using the effective interest method, except for financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.

The Company has classified its financial instruments as follows:

Category	Financial instrument
Financial assets and liabilities at fair value through profit and loss	Other current assets Derivative financial assets[1] Derivative financial liabilities[1]
Financial assets and liabilities at amortized cost	Cash and cash equivalents Accounts receivable Trade and accrued liabilities Long-term debt Convertible debentures

[1] The derivative financial instruments are designated in a hedge relationship.

Impairment

At each reporting date, the Company assesses, on a forward-looking basis, the expected credit losses associated with its debt instruments carried at amortized cost. The impairment methodology applied depends on whether there has been a significant increase in credit risk.

For trade receivables, the Company applies the simplified approach permitted by IFRS 9, which requires expected lifetime losses to be recognized from initial recognition of the receivables (Note 24). The Company assumes that there is no significant increase in credit risk for instruments that have a low credit risk.

Derivative financial instruments and hedging activities

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently remeasured at their fair value. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument and, if so, the nature of the item being hedged. The Company designates certain derivatives as hedges of a particular risk associated with a recognized asset or liability or a highly probable forecast transaction (cash flow hedge).

The fair values of various derivative instruments used for hedging purposes are disclosed in Note 16.

The full fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than twelve months and as a current asset or liability when the remaining maturity of the hedged item is less than twelve months. Trading derivatives are classified as a current asset or liability.

The Company applies cash flow hedge accounting to certain foreign exchange forward contracts and cross-currency swap entered into to hedge forecasted transactions. In a cash flow hedge relationship, the portion of gains or losses on the hedging item that is determined to be an effective hedge is recognized in other comprehensive income, while the ineffective portion is recorded in consolidated statement of earnings. The amounts recognized in other comprehensive income are reclassified in consolidated statement of earnings as a reclassification adjustment when the hedged item affects net earnings.

Embedded financial liabilities derivatives

Embedded derivatives, which include the debenture conversion option, are recorded at fair value separately from the host contract when their economic characteristics and risks are not clearly and closely related to those of the host contract. Subsequent changes in fair value are recorded in financial expenses in the consolidated statement of earnings.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand.

Inventories

Inventories are carried at the lower of cost and net realizable value. Cost includes all expenditures directly attributable to the manufacturing process as well as suitable portions of related production overheads based on normal operating capacity. Costs of ordinarily interchangeable items are assigned using weighted average cost. Net realizable value is the estimated selling price in the ordinary course of business less costs of completion and any applicable selling expenses. When the circumstances that previously caused inventories to be written down below cost no longer exist or when there is clear evidence of an increase in net realizable value because of changed economic circumstances, the amount of the impairment is reversed (i.e. the reversal is limited to the amount of the original impairment) so that the new carrying amount is the lower of the cost and the revised net realizable value.

From time to time, when substantially all required raw materials are in inventory, the Company may choose to enter into long-term fixed-price sales contracts. The quantity of raw materials required to fulfill these contracts is specifically assigned, and the average cost of these raw materials is accounted for separately throughout the duration of the contract.

Income taxes

The tax expense for the year comprises current and deferred tax is recognized in the consolidated statement of earnings, except to the extent that it relates to items recognized in other comprehensive loss or directly in equity. In which case, the tax expense is also recognized in other comprehensive loss or directly in equity, respectively.

a) Current tax

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the date of the consolidated statement of financial position in the countries where the Company and its subsidiaries operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

b) Deferred tax

Deferred income tax is recognized using the liability method on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill; deferred income tax is not accounted for, if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that are enacted or substantively enacted at the date of the consolidated statement of financial position and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred income tax assets are recognized only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be used.

Deferred income tax is presented to provide impact of temporary differences arising on investments in subsidiaries and joint ventures, except for deferred income tax liability where the timing of the reversal of the temporary difference is controlled by the Company and it is probable that the temporary difference will not be reversed in the foreseeable future.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities, and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority, on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

Provisions

A provision is recognized when the Company has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated. Restructuring provisions comprise mainly employee termination payments. Provisions are not recognized for future operating losses.

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole. A provision is recognized even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessment of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognized as interest expense.

Restructuring provisions, consisting of severance and other related costs to sites closure, are recognized when a detailed formal plan identifies the business or part of the business concerned, the location and number of employees affected, detailed estimates of the associated costs, and an appropriate timelines which has been communicated to those affected by it.

Research and development expenses

Research expenses are charged to the consolidated statement of earnings in the period they are incurred and are included under other expenses. Development expenses which are directly attributable expenses, either internal or external, are charged to the consolidated statement of earnings, except if the Company can demonstrate all of the following (in that case capitalised as an intangible assets – development costs):

- The technical feasibility of completing the intangible asset so that it will be available for use or sale;
- Its intention to complete the intangible asset and use or sell it;
- Its ability to use or sell the intangible asset;
- How the intangible asset will generate probable future economic benefits. Among other things, the Company can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset;
- The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- Its ability to measure reliably the expenditure attributable to the intangible asset during its development.

Employee future benefits

The Company contributes to a defined benefit pension plan. The significant policies related to employee future benefits are as follows:

- The cost of pension and other post-retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service, market interest rates and management's best estimate of expected plan investment performance, retirement age of employees and expected health care costs;
- Fair value is used to value the plan assets for the purpose of calculating the expected return on plan assets; and
- Actuarial gains and losses arising from experience adjustment and change in actuarial assumptions are charged or credited to equity in other comprehensive loss in the period in which they arise.

Share-based payments

The fair value of the equity-settled share-based payment plan is determined using the Black-Scholes model on the grant date. Measurement inputs include the share price on the measurement date, the exercise price of the instrument, expected volatility, weighted average expected life of the instrument, expected dividends, expected forfeiture rate, and the risk-free interest rate. The impact of service and non-market vesting conditions is not taken into account in determining fair value. The compensation expense of the equity-settled awards is recognized in the consolidated statement of earnings over the graded vesting period, where the fair value of each tranche is recognized over its respective vesting period.

For cash-settled share-based payment plans, the compensation expense is determined based on the fair value of the liability incurred at each reporting date until the award is settled. The fair value of compensation expense is calculated by multiplying the number of units expected to vest with the fair value of one unit as of grant date based on the market price of the Company's common shares. Until the liability is settled, the Company re-mesures the fair value of the liability at the end of each reporting period and at the date of settlement, with any changes in fair value recognized in income for the period.

Earnings per share

Basic earnings per share is calculated by dividing net earnings for the year attributable to equity owners of the Company by the weighted average number of common shares outstanding during the year.

Diluted earnings per share assume the conversion, exercise or contingent issuance of securities only when such conversion, exercise or issuance would have a dilutive effect on the income per share. The treasury stock method is used to determine the dilutive effect of share options and the if-converted method is used for convertible debentures.

Significant management estimation and judgment in applying accounting policies

The following are significant management judgments used in applying the accounting policies of the Company that have the most significant effect on the consolidated financial statements.

Estimation uncertainty

When preparing the consolidated financial statements, management undertakes a number of judgments, estimates and assumptions about recognition and measurement of assets, liabilities, revenues and expenses. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Information about the significant judgments, estimates and assumptions that have the most significant effect on the recognition and measurement of assets, liabilities, revenues and expenses are discussed below.

Impairment of non-financial assets

Non-financial assets are reviewed for an indication of impairment at each statement of financial position date upon the occurrence of events or changes in circumstances indicating that the carrying value of the assets may not be recoverable, which requires significant judgement.

An impairment loss is recognized for the amount by which an asset's or CGU's carrying amount exceeds its recoverable amount, which is the higher of fair value less cost of disposal and value in use.

An intangible asset and related equipment that are not yet available for their intended use are tested for impairment at least annually, which also requires significant judgement. To determine the recoverable amount (fair value less cost to dispose of these assets), management estimates expected future cash flows from the asset and determines a suitable interest rate in order to calculate the present value of those cash flows. In the process of measuring expected future cash flows, management makes assumptions about future operating results using the estimated forecasted prices obtained from various market sources including publically available metals information as at December 31, 2019. These key assumptions relate to future events and circumstances. The actual results will vary and may cause adjustments to the Company's intangible and tangible assets in future periods. In most cases, determining the applicable discount rate involves estimating the appropriate adjustment to market risk and to asset-specific risk factors.

By their nature, assets not yet available for intended use have a higher estimation uncertainty, as they depend on future market development and the Company's ability to commercialize and manufacture new products to realize forecasted earnings. For example new manufacturing processes may not be scalable to industrial level within expected timeframe and new products might not receive sufficient market penetration. Management believes that the following assumptions are the most susceptible to change and impact the valuation of these assets in time: a) expected significant growth of the market for different metal products (demand), b) selling prices which have an impact on revenues and metal margins (pricing), and c) the discount rate associated with new processes and products (after considering a premium over the Company's weighted average cost of capital (WACC) to reflect the additional uncertainty).

Inventories

Inventories are carried at the lower of cost and net realizable value, with cost determined using the average cost method. In estimating net realizable values, management takes into account the most reliable evidence available at the time the estimates are made. The Company's core business is subject to changes in foreign policies and internationally accepted metal prices which may cause future selling prices to change rapidly. The Company evaluates its inventories using a group of similar items basis and considers expected future prices as well as events that have occurred between the consolidated statement of financial position date and the date of the completion of the consolidated financial statements. Net realizable value for inventory to satisfy a specific sales contract is measured at the contract price.

Income taxes

The Company is subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the worldwide provision for income taxes. There are many transactions and calculations for which the ultimate tax determination is uncertain. The Company recognizes liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

The Company has deferred income tax assets that are subject to periodic recoverability assessments. Realization of the Company's deferred income tax assets is largely dependent on its achievement of projected future taxable income and the continued applicability of ongoing tax planning strategies. The Company's judgments regarding future profitability may change due to future market conditions, changes in tax legislation and other factors that could adversely affect the ongoing value of the deferred income tax assets. These changes, if any, may require a material adjustment of these deferred income tax asset balances through an adjustment to the carrying value thereon in the future. This adjustment would reduce the deferred income tax asset to the amount that is considered to be more likely than not to be realized and would be recorded in the period such a determination was to be made (Note 15).

Accounting policies applied until December 31, 2018

Leases (prior to the adoption of IFRS 16)

Leases were classified as finance leases if the Company bore substantially all risks and rewards of ownership of the leased asset. At inception of the lease, the related asset was recognized at the lower of the fair value and the present value of the minimum lease payments, and a corresponding amount was recognized as a finance lease obligation. Lease payments were split between finance charges and the reduction of the finance lease obligation to achieve a constant proportion of the capital balance outstanding. Finance charges were charged to net earnings over the lease term.

All other leases were classified as operating leases. Operating lease payments were recognized as an expense on a straight-line basis over the lease term.

3. Adoption of New Accounting Standards and Futures Changes in Accounting Policies

Adoption of new accounting standards

IFRS 16 - *Leases*
On January 1, 2019, the Company adopted the new accounting standard IFRS 16 using the modified retrospective approach.

Adjustments recognized on adoption of IFRS 16
On adoption of IFRS 16, the Company recognized lease liabilities in relation to leases which had previously been classified as operating leases under the principles of IAS 17 *Leases*. These liabilities were measured at the present value of the remaining lease payments, discounted using the Company's incremental borrowing rate as at January 1, 2019 of 4.45%.

	January 1 2019
	$
Operating lease commitments disclosed as at December 31, 2018	4,294
Effect of discounting those lease commitments	(260)
Effect of electing to account for short-term and low value leases off balance sheet	(80)
Adjustment as a result of a different treatment of extension options	3,198
Lease liability recognized as at January 1, 2019	**7,152**
Of which are:	
Current lease liabilities	1,554
Non-current lease liabilities	5,598

The associated right-of-use assets were measured at the amount equal to the lease liability and they relate to the following types of assets:

	January 1 2019
	$
Land and buildings	6,342
Production equipment	454
Office equipment and rolling stock	356
Total right-of-use assets	**7,152**

As noted above, the change in accounting policy resulted in the increase of right-of-use assets and lease liabilities by $7,152 in the balance sheet on January 1, 2019.

Practical expedients applied

In applying IFRS 16 for the first time, the Company has used the following practical expedients permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics;
- the accounting for operating leases with a remaining lease term of less than 12 months as at January 1, 2019 as short-term leases; and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

The Company has also elected not to reassess whether a contract is or contains a lease at the date of initial application. Instead, for contracts entered into before the transition date the Company relied on its assessment made applying IAS 17 and IFRIC 4 Determining whether an Arrangement contains a Lease.

The Company's leasing activities and how these are accounted for
The Company leases various production and warehouse locations, production equipment and furniture, office equipment and rolling stock. Rental contracts are typically made for fixed periods of 2 to 5 years but may have extension options as described below. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Until the 2018 financial year, leases of property, plant and equipment were classified as either finance or operating leases. Payments made under operating leases (net of any incentives received from the lessor) were charged to profit or loss on a straight-line basis over the period of the lease.

From January 1, 2019, leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

Extension options

Extension options are included in a number of property and equipment leases across the Company. These terms are used to maximise operational flexibility in terms of managing contracts. The majority of extension options held are exercisable only by the Company and not by the respective lessor.

IFRIC 23 – *Uncertainty over Income Tax Treatments*

On January 1, 2019, the Company also adopted the new accounting standard IFRIC 23. The interpretation provides guidance on the accounting for current and deferred tax liabilities and assets in circumstances in which there is uncertainty over income tax treatments. The Company has concluded that there is no significant impact resulting from the application of this new standard on its consolidated financial statements.

4. Accounts Receivable

	2019	2018
	$	$
Gross trade receivables	**24,837**	19,100
Loss allowance (Note 24)	**(120)**	(97)
Trade receivables	**24,717**	19,003
Sales taxes receivable	**3,261**	3,238
Other receivables	**499**	743
Total accounts receivable	**28,477**	22,984

All of the Company’s accounts receivable are short term. The net carrying value of accounts receivable is considered a reasonable approximation of fair value.

The Company’s exposure to credit risks and the calculation of the loss allowance related to accounts receivable are disclosed in Note 24.

Most of the accounts receivable are pledged as security for the revolving credit facility (Note 11).

5. Inventories

	2019	2018
	$	$
Raw materials	**27,228**	32,912
Finished goods	**56,139**	63,977
Total inventories	**83,367**	96,889

For the year ended December 31, 2019, a total of $85,922 of inventories was included as an expense in cost of sales (2018 – $97,598).

For the year ended December 31, 2019, no amount previously written down was recognized as a reduction of expenses in cost of sales concurrently with the related inventories being sold. For the year ended December 31, 2018, a total of $3,061 previously written down was recognized as a reduction of expenses in cost of sales concurrently with the related inventories being sold ($nil for the Eco-Friendly Materials segment and $3,061 for the Electronic Materials segment).

The majority of inventories are pledged as security for the revolving credit facility (Note 11).

6. Property, Plant and Equipment

	Land and buildings	Production equipment	Furniture, office equipment and rolling stock	Leasehold improvements	Total
	$	$	$	$	$
Net book value as at December 31, 2017	18,450	34,253	1,976	1,928	56,607
Additions	676	7,480	1,291	70	9,517
Disposals	(615)	-	-	-	(615)
Depreciation	(1,026)	(6,130)	(495)	(311)	(7,962)
Effect of foreign exchange and others	(144)	(98)	(8)	-	(250)
Net book value as at December 31, 2018	17,341	35,505	2,764	1,687	57,297
Additions	**535**	**8,765**	**690**	**-**	**9,990**
Disposals	**(32)**	**(9)**	**(7)**	**-**	**(48)**
Depreciation	**(1,055)**	**(6,585)**	**(649)**	**(360)**	**(8,649)**
Effect of foreign exchange and others	**891**	**(890)**	**(1)**	**-**	**-**
Net book value as at December 31, 2019	**17,680**	**36,786**	**2,797**	**1,327**	**58,590**
As at December 31, 2018					
Cost	22,640	60,319	3,100	3,334	89,393
Accumulated depreciation	(5,299)	(24,814)	(336)	(1,647)	(32,096)
Net book value	17,341	35,505	2,764	1,687	57,297
As at December 31, 2019					
Cost	**23,907**	**66,934**	**3,693**	**3,334**	**97,868**
Accumulated depreciation	**(6,227)**	**(30,148)**	**(896)**	**(2,007)**	**(39,278)**
Net book value	**17,680**	**36,786**	**2,797**	**1,327**	**58,590**

As at December 31, 2019, property, plant and equipment that were not depreciated until ready for their intended use amounted to $3,316 (2018 – $5,042) (mainly production equipment).

Most of the property, plant and equipment are pledged as security for the revolving credit facility (Note 11).

7. Leases

Right-of-use assets

	Land and buildings	Production equipment	Office equipment and rolling stock	Total
	$	$	$	$
Net book value as at January 1, 2019 (Note 3)	**6,342**	**454**	**356**	**7,152**
Additions	**-**	**187**	**185**	**372**
Modification to lease contracts	**-**	**(4)**	**-**	**(4)**
Depreciation	**(1,103)**	**(169)**	**(198)**	**(1,470)**
Net book value as at December 31, 2019	**5,239**	**468**	**343**	**6,050**
As at December 31, 2019				
Cost	**6,342**	**637**	**541**	**7,520**
Accumulated depreciation	**(1,103)**	**(169)**	**(198)**	**(1,470)**
Net book value	**5,239**	**468**	**343**	**6,050**

Lease liabilities

	2019
	$
Current portion	1,469
Non-current portion	4,767
Total lease liabilities as at December 31, 2019	**6,236**

Amounts recognised in profit or loss:

	2019
	$
Interest on lease liabilities(1)	296
Expenses relating to short-term leases(2)	114
Expenses relating to leases of low-value assets, excluding short-term leases of low-value assets(2)	258

(1) Included in financial expenses.

(2) Included in cost of sales and selling, general and administrative expenses.

8. Intangible Assets

	Technology	Software, intellectual property and development costs	Total
	$	$	$
Net book value as at December 31, 2017	2,189	8,667	10,856
Additions	-	1,198	1,198
Disposals and others	-	(7)	(7)
Amortization	(219)	(629)	(848)
Net book value as at December 31, 2018	1,970	9,229	11,199
Additions	**-**	**815**	**815**
Disposals and others	**-**	**(4)**	**(4)**
Amortization	**(219)**	**(801)**	**(1,020)**
Net book value as at December 31, 2019	**1,751**	**9,239**	**10,990**
As at December 31, 2018			
Cost	2,189	12,103	14,292
Accumulated amortization	(219)	(2,874)	(3,093)
Net book value	1,970	9,229	11,199
As at December 31, 2019			
Cost	**2,189**	**12,894**	**15,083**
Accumulated amortization	**(438)**	**(3,655)**	**(4,093)**
Net book value	**1,751**	**9,239**	**10,990**

As at December 31, 2019, intangible assets that were not depreciated until ready for their intended use amounted to nil (2018 – $5,814). The category of development costs which includes capitalized costs of $10,625 (2018 - $9,973), primarily consists of internally generated intangible assets.

9. Other Assets

	2019	2018
	$	$
Deferred costs	475	648
Other	699	756
Total other assets	**1,174**	1,404

10. Trade and Accrued Liabilities

	2019	2018
	$	$
Trade payables[1]	17,786	21,647
Accrued liabilities	14,280	17,602
Total trade and accrued liabilities	**32,066**	39,249

[1] In 2019, the Company proceeded with a reclassification of $ 6,320 from other liabilities to trade payables following new agreement with a customer.

11. Bank Indebtedness and Long-Term Debt

a) Bank indebtedness

The Company has a Chinese renminbi ("RMB") credit line with a financial institution in China. This credit line is guaranteed by certain assets of the Company in China. The credit line bears interest at RMB base rate plus 2%.

	2019		2018	
	Contractual Currency RMB	**Reporting Currency US$**	Contractual Currency RMB	Reporting Currency US$
Facility available	**10,000**	**1,431**	10,000	1,454
Amount drawn	-	-	-	-

b) Long-term debt

	2019	2018
	$	$
Senior secured revolving facility of $79,000 with a syndicate of banks, maturing in April 2022[1]	**30,000**	30,000
Unsecured subordinated term loan, maturing in March 2023[2]	**25,000**	-
Term loan, non-interest bearing, repayable under certain conditions, maturing in 2023. If the loan has not been repaid in full by the end of 2023, the balance will be forgiven[3]	**107**	175
	55,107	30,175
Less current portion of long-term debt	**107**	175
	55,000	30,000

[1] In April 2018, the Company signed a senior secured multi-currency revolving credit facility of $79,000 maturing in April 2022. At any time, the Company has the option to request that the credit facility be expanded through the exercise of an additional $30,000 accordion feature, subject to review and approval by the lenders. This revolving credit facility can be drawn in US dollars, Canadian dollars or Hong Kong dollars (up to $4,000). Drawings bear interest at either the Canadian prime rate, US base rate, Hong Kong base rate or LIBOR, plus a margin based on the Company's senior net debt to consolidated EBITDA ratio. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2019, the Company has met all covenants.

[2] In February 2019, the Company signed a five-year unsecured subordinated term loan with Investissement Québec. The loan was disbursed in two tranches: the first tranche of $5,000 on February 6, 2019 and the second tranche of $20,000 on March 22, 2019. The two tranches of the term loan bear interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%, which equals to 6.82% and 6.64% respectively. Under the terms of the loan, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2019, the Company has met all covenants.

[3] The term loan is classified as short-term debt since these amounts could become payable on demand.

12. Convertible Debentures

In June 2014, the Company issued convertible unsecured subordinated debentures for CA$60,000 (US$55,266) and an additional over-allotment option for CA$6,000 (US$5,580) for a total of CA$66,000 (US$60,846). The convertible unsecured subordinated debentures bared interest at a rate of 5.75% per annum, payable semi-annually on June 30 and December 31, commencing on December 31, 2014. The convertible debentures were convertible at the holder's option into the Company's common shares at a conversion price of CA$6.75 per share, representing a conversion rate of 148.1 common shares per CA$1,000 principal amount of convertible debentures. The convertible debentures matured on June 30, 2019 and could have been redeemed by the Company, in certain circumstances, after June 30, 2017.

The debenture conversion option was recorded as a derivative liability (Note 16). In accordance with IFRS, an obligation to issue shares for a price that is not fixed in the Company's functional currency must be classified as a derivative liability and measured at fair value, with changes recognized in change in fair value of debenture conversion option in the consolidated statement of earnings.

The fair value of the debenture conversion option, which consists of the holder's conversion option subject to the Company's early redemption options, was estimated based on a methodology for pricing convertible bonds using an approach based on partial differential equations or binomial lattices, with the following assumptions: average expected volatility of 40%; expected dividend per share of nil; entity-specific credit spread, and expected life of 5 years. As a result, the initial fair value of the liability representing the debenture conversion option for the two tranches of the issuance of the debenture was estimated at CA$10,484 (US$9,666). Assumptions were reviewed in the valuation as at December 31, 2018 and have not changed substantially. On December 7, 2015, the Company entered into a cross-currency swap to hedge the convertible debenture denominated in Canadian dollars to US dollars (Note 16).

Redemption on June 28, 2018

The Company partially redeemed its 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019 for an aggregate principal amount of CA$40,000. On the same date, the Company completed a drawdown on its senior revolving credit facility of $30,000 to partially redeem the debentures on favorable terms reducing the current cost of gross debt.

Consequently, the Company de-designated CA$40,000 of the nominal amount of the associated cross-currency swap and reclassified the net gain of $79, representing the accumulated net changes in cash flow hedges, from accumulated other comprehensive loss to realized gain on de-designation during 2018 as the related anticipated cash flows are no longer expected to occur.

Following the early redemption of the CA$40,000 convertible debentures, an accelerated imputed interest of $1,490 was recognized as an expense in 2018.

Redemption on March 28, 2019

The Company redeemed all its outstanding 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019 for an aggregate principal amount of CA$26,000. On March 22, 2019 the Company completed the withdrawal of the second tranche of its new term loan in the amount of $20,000 to redeem the outstanding debentures. As at December 31, 2019, there were no outstanding convertible debentures.

Consequently, the Company de-designated the remaining nominal amount of the associated cross-currency swap of CA$26,000 and reclassified the net loss of $145, representing the accumulated net changes in cash flow hedges, from accumulated other comprehensive loss to realized loss on de-designation within the consolidated statement of earnings.

Following the redemption of the CA$26,000 convertible debentures, an accelerated imputed interest of $267 was recognized as an expense in 2019.

13. Employee Benefit Plan Obligation

The Company operates a defined pension plan in Germany based on employee pensionable earnings and length of service. Former general and senior managers had been provided with direct benefit commitments. Employees had been provided with indirect benefit commitments via the Unterstützungseinrichtung der HEK GmbH e.V. Such promises had been made for employees with entry date of December 31, 1993 or earlier.

	2019	2018
	$	$
Present value of unfunded obligations	**15,398**	14,619

Movement in the defined benefit obligation is as follows:

	2019	2018
	$	$
Beginning of year	**14,619**	15,396
Current service cost	**86**	88
Interest cost	**265**	282
Effect of foreign exchange	**(277)**	(687)
Benefits paid	**(664)**	(660)
Actuarial losses	**1,369**	200
End of year	**15,398**	14,619

The principal actuarial assumptions as at December 31 were as follows:

	2019	2018
Discount rate	**1.2%**	1.9%
Salary growth rate	**2.0%**	2.0%
Pension growth rate	**1.8%**	1.8%

Assumptions regarding mortality are based on mortality tables "Richttafeln 2018 G" by Prof. Dr. Klaus Heubeck as biometrical basis in accordance with age of earliest retirement by law *RV-Altersgrenzenanpassungsgesetz*, dated April 20, 2007.

The sensitivity of the defined benefit obligation to changes in assumptions is set out below. The effects on each plan of a change in an assumption are weighted proportionately to the total plan obligations to determine the total impact for each assumption presented.

	Impact on defined benefit obligation		
	Change in assumption	**Increase in assumption**	**Decrease in assumption**
Discount rate	0.50%	(6.49%)	7.26%
Salary growth rate	0.50%	0.49%	(0.48%)
Pension growth rate	0.50%	6.02%	(5.51%)

	Increase by 1 year in assumption	**Decrease by 1 year in assumption**
Life expectancy	4.42%	(3.88%)

The weighted average duration of the defined benefit obligation is 13.67 years (2018 – 13.20 years).

Expected maturity analysis of undiscounted pension liability:

	2019	2018
	$	$
Less than a year	**695**	668
Between 1 and 5 years	**2,795**	2,772
Over 5 years	**14,824**	15,774
Total	**18,314**	19,214

Expected contributions to pension benefit plans for year ending December 31, 2020 are $695.

14. Other Liabilities

	Deferred revenues	**Other**	**Total**
	$	**$**	**$**
As at December 31, 2017	6,210	226	6,436
Additions	120	-	120
Utilized	-	(11)	(11)
As at December 31, 2018	6,330	215	6,545
Reclassification to trade and accrued liabilities (Note 10)	**(6,320)**	**-**	**(6,320)**
Utilized	**(10)**	**(20)**	**(30)**
As at December 31, 2019	**-**	**195**	**195**

15. Income Taxes

	2019	2018
	$	$
Current tax:		
Current tax for the year	**2,571**	3,723
Adjustment in respect of prior years' estimates	**(384)**	(2,875)
Total current tax	**2,187**	848
Deferred tax:		
Recognition and reversal of temporary differences	**402**	(125)
Recognition of previously unrecorded tax assets	**(541)**	(1,609)
Adjustment in respect of prior years' estimates	**-**	830
Total deferred tax	**(139)**	(904)
Income tax expense (recovery)	**2,048**	(56)

A reconciliation of income taxes at Canadian statutory rates with the reported income taxes is as follows:

	2019	2018
	$	$
Earnings before income tax	**3,833**	13,916
Canadian statutory income tax rates	**26.6%**	26.7%
Income tax on earnings at Canadian statutory rate	**1,020**	3,716
Increase (decrease) resulting from:		
Unrecorded losses carried forward	**1,013**	(258)
Recognition of previously unrecorded tax assets	**(541)**	(1,609)
Non-deductible expense (non-taxable gain) for tax purposes	**428**	217
Non-deductible (non-taxable) foreign exchange	**451**	(205)
Effect of difference of foreign tax rates compared to Canadian tax	**81**	135
Adjustment in respect of prior years' estimates	**(384)**	(2,045)
Other	**(20)**	(7)
Income tax expense (recovery)	**2,048**	(56)

The Company's applicable tax rate is the Canadian combined rates applicable in the jurisdiction in which the Company operates.

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The movement in deferred income tax assets and liabilities during the year, without taking into consideration the offsetting of balances within the same jurisdiction, is as follows:

Deferred tax assets	Property, plant and equipment	Inventories	Intangible assets	Loss carry forward	Retirement benefit obligation	Others	Total	Offset by jurisdiction	Total
	$	$	$	$	$	$	$	$	$
As at December 31, 2017	2,004	1,957	620	1,469	3,041	2,311	11,402	(4,511)	6,891
(Charged) credited to consolidated statements of earnings	(883)	(755)	(313)	1,523	502	(534)	(460)		
Credited to comprehensive income	-	-	-	-	63	-	63		
As at December 31, 2018	1,121	1,202	307	2,992	3,606	1,777	11,005	(3,133)	7,872
(Charged) credited to consolidated statements of earnings	**246**	**(415)**	**-**	**143**	**(180)**	**(745)**	**(951)**		
Credited to comprehensive income	**-**	**-**	**-**	**-**	**432**	**-**	**432**		
As at December 31, 2019	**1,367**	**787**	**307**	**3,135**	**3,858**	**1,032**	**10,486**	**(2,061)**	**8,425**

Deferred tax liabilities	Property, plant and equipment	Inventories	Intangible assets	Convertible debentures	Others	Total	Offset by jurisdiction	Total
	$	$	$	$	$	$	$	$
As at December 31, 2017	1,031	75	873	2,717	66	4,762	(4,511)	251
Charged (credited) to consolidated statements of earnings	747	64	(295)	(1,956)	76	(1,364)		
Charged to comprehensive income	-	-	-	1	-	1		
As at December 31, 2018	1,778	139	578	762	142	3,399	(3,133)	266
Charged (credited) to consolidated statements of earnings	**(285)**	**(47)**	**(12)**	**(783)**	**37**	**(1,090)**		
Charged to comprehensive income	**-**	**-**	**-**	**21**	**-**	**21**		
As at December 31, 2019	**1,493**	**92**	**566**	**-**	**179**	**2,330**	**(2,061)**	**269**

Movement in the deferred income tax amounts is as follows:

	2019	2018
	$	$
Beginning of year	**7,606**	6,640
Tax charge relating to components of other comprehensive income	**411**	62
Credited to consolidated statement of earnings	**139**	904
End of year	**8,156**	7,606

Deferred tax assets of $3,488 (2018 – $2,927), included in the consolidated statements of financial position, are dependent on projection of future taxable profits for entities that have suffered a loss in the current period.

Deferred income tax liabilities have not been recognized for the withholding tax and taxes that would be payable on the unremitted earnings of certain subsidiaries. Such amounts are permanently reinvested. Unremitted earnings totalled $25,793 as at December 31, 2019 (2018 - $16,343).

As at December 31, 2019, the Company had the following operating tax losses available for carry forward for which no deferred tax benefit has been recorded in the accounts:

	$	Expiry
United Kingdom	3,170	No limit
Belgium	41,765	No limit
United States	31,675	No limit
Hong Kong	14,144	No limit
China	3,976	2020-2024

As at December 31, 2019, the Company had other deductible temporary differences of $329 for which no deferred tax benefit has been recorded (2018 – $425).

16. Fair Value of Financial Instruments

The fair value of a financial instrument is determined by reference to the available market information at the reporting date. When no active market exists for a financial instrument, the Company determines the fair value of that instrument based on valuation methodologies as discussed below. In determining assumptions required under a valuation model, the Company primarily uses external, readily observable market data inputs. Assumptions or inputs that are not based on observable market data incorporate the Company's best estimates of market participant assumptions, and are used when external data is not available. Counterparty credit risk and the Company's own credit risk are taken into account in estimating the fair value of all financial assets and financial liabilities.

The following assumptions and valuation methodologies have been used to measure fair value of financial instruments:

- The fair value of its short-term financial assets and financial liabilities, including cash and cash equivalents, accounts receivable and trade and accrued liabilities approximates their carrying value due to the short-term maturities of these instruments;
- The fair value of derivative instruments, which include cross-currency swap and the equity swap agreement, is calculated as the present value of the estimated future cash flows using an appropriate interest rate yield curve, foreign exchange rate and the stock price. Assumptions are based on market conditions prevailing at each reporting date. Derivative instrument reflect the estimated amount that the Company would receive or pay to settle the contracts at the reporting date;
- The fair value of the debenture conversion option is described in Note 12;
- The fair value of long-term debt is estimated based on discounted cash flows using current interest rate for instruments with similar terms and remaining maturities; and
- The fair value of the convertible debentures is based on quoted prices observed in active markets.

The carrying values and fair values of financial instruments, by class, are as follows as at December 31, 2019 and 2018:

As at December 31, 2019					**Carrying value**	**Fair value**
	At fair value through profit or loss	**At amortized cost**	**Financial liabilities at amortized cost**	**Derivative designated in a hedge relationship**	**Total**	**Total**
	$	**$**	**$**	**$**	**$**	**$**
Financial assets						
Cash and cash equivalents	-	**20,065**	-	-	**20,065**	**20,065**
Accounts receivable	-	**28,477**	-	-	**28,477**	**28,477**
Other current assets	**4,862**	-	-	-	**4,862**	**4,862**
Total	**4,862**	**48,542**	-	-	**53,404**	**53,404**
Financial liabilities						
Trade and accrued liabilities	-	-	**32,066**	-	**32,066**	**32,066**
Current portion of long-term debt	-	-	**107**	-	**107**	**107**
Long-term debt	-	-	**55,000**	-	**55,000**	**55,000**
Total	-	-	**87,173**	-	**87,173**	**87,173**

As at December 31, 2018					Carrying value	Fair value
	At fair value through profit or loss	At amortized cost	Financial liabilities at amortized cost	Derivative designated in a hedge relationship	Total	Total
	$	$	$	$	$	$
Financial assets						
Cash and cash equivalents	-	26,724	-	-	26,724	26,724
Accounts receivable	-	22,984	-	-	22,984	22,984
Other current assets	5,835	-	-	-	5,835	5,835
Total	5,835	49,708	-	-	55,543	55,543
Financial liabilities						
Trade and accrued liabilities	-	-	39,249	-	39,249	39,249
Derivative financial liabilities	-	-	-	197	197	197
Current portion of long-term debt	-	-	175	-	175	175
Current portion of convertible debentures	-	-	18,571	-	18,571	19,062
Long-term debt	-	-	30,000	-	30,000	30,000
Total	-	-	87,995	197	88,192	88,683

Fair value hierarchy

The fair value hierarchy reflects the significance of the inputs used in making the measurements and has the following levels:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability,
- either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The following table presents the financial instruments, by level, which are recognized at fair value in the consolidated statements of financial position:

As at December 31, 2019	**Level 1**	**Level 2**	**Level 3**
	$	**$**	**$**
Financial assets (liabilities)			
At fair value through profit or loss			
Equity swap agreement (Note 21)[1]	**-**	**4,862**	**-**
Total	**-**	**4,862**	**-**

As at December 31, 2018	Level 1	Level 2	Level 3
	$	$	$
Financial assets (liabilities)			
At fair value through profit or loss			
Equity swap agreement (Note 21)[1]	-	5,835	-
Derivatives designated in a hedge relationship			
Cross-currency swap[2]	-	(197)	-
Total	-	5,638	-

(1) In June 2017, the Company has entered into a swap agreement with a major Canadian financial institution to reduce its income exposure to fluctuations in its share price relating to the DSU, PSU, RSU and SAR programs. Pursuant to the agreement, the Company receives the economic benefit of share price appreciation while providing payments to the financial institution for the institution's cost of funds and any share price depreciation. The net effect of the equity swaps partly offset movements in the Company's share price impacting the cost of the DSU, PSU, RSU and SAR programs. As at December 31, 2019, the equity swap agreement covered 2,571,569 common shares of the Company. The fair value of this indexed deposit is recorded under other current assets.

(2) On December 7, 2015, the Company entered into a cross-currency swap to hedge the convertible debenture denominated in Canadian dollars with a notional amount of CA$66,000 and bearing interest at a rate of 5.75% per annum, payable semi-annually on June 30 and December 31. Under this cross-currency swap, the Company exchanged interest payments and principal redemption on the same terms and designated the cross-currency as a cash flow hedge of the variability of the $US functional currency equivalent cash flows on the debt. The terms were such that on each interest payment date, the Company received 5.75% on a notional of CA$66,000 and payed 6.485% based on a notional of US$48,889.

On June 28, 2018, following the partial redemption of the convertible debentures, the Company de-designated and settled CA$40,000 of the nominal amount of the associated cross-currency swap.

On March 28, 2019, following the complete redemption of the convertible debentures, the Company de-designated the remaining nominal amount of the associated cross-currency swap of CA$26,000CA. (Note 12)

17. Operating Segments

The following tables summarize the information reviewed by the entity's chief operating decision maker when measuring performance:

	2019	2018
	$	$
Eco-Friendly Materials	114,690	136,981
Electronic Materials	81,281	81,014
Total revenue	195,971	217,995
Eco-Friendly Materials	10,993	12,517
Electronic Materials	19,581	29,226
Corporate and unallocated	(8,624)	(9,393)
Adjusted EBITDA[1]	21,950	32,350
Interest on long-term debt, imputed interest and other interest expense	4,079	6,295
Share-based compensation expense	2,583	3,298
Litigation and restructuring costs (Note 26)	-	316
Foreign exchange and derivative loss	316	225
Gain on disposal of property, plant and equipment	-	(510)
Depreciation and amortizations	11,139	8,810
Earnings before income tax	3,833	13,916

[1] Earnings before income tax, depreciation and amortization, share-based compensation expense, gain on disposal of property, plant and equipment, litigation and restructuring costs (income) and financial expense (revenues).

Capital expenditures	2019	2018
	$	$
Eco-Friendly Materials	5,284	4,850
Electronic Materials	4,000	5,248
Corporate and unallocated	163	-
Total	9,447	10,098

Assets excluding the deferred tax asset	2019	2018
	$	$
Eco-Friendly Materials	90,771	96,856
Electronic Materials	112,023	113,995
Corporate and unallocated	18,723	18,334
Total	221,517	229,185

The geographic distribution of the Company's revenues based on the location of the customers for the years ended December 31, 2019 and 2018, and the identifiable non-current assets as at December 31, 2019 and 2018 are summarized as follows:

Revenues	**2019**	2018
	$	$
Asia		
China	**6,305**	5,592
Japan	**3,361**	4,590
Other[1]	**44,063**	52,015
Americas		
United States	**53,220**	50,751
Other	**13,446**	19,083
Europe		
Germany	**22,300**	29,097
France	**6,600**	7,691
United Kingdom	**3,955**	4,805
Other[1]	**35,871**	37,110
Other	**6,850**	7,261
Total	**195,971**	217,995

Non-current assets (other than deferred tax assets)	**2019**	2018
	$	$
Asia[1]	**15,447**	15,942
United States	**15,159**	9,896
Canada	**18,119**	18,543
Europe		
Belgium	**9,796**	8,159
Germany	**18,283**	17,360
Total	**76,804**	69,900

[1] None exceeding 10%

For the year ended December 31, 2019, one customer represented approximately 24 % (2018 – 22%) of the revenues, and is included in the Electronic Materials revenues.

18. Supplemental Cash Flow Information

a) Net change in non-cash working capital balances related to operations consists of the following:

	2019	2018
	$	$
Decrease (increase) in assets:		
Accounts receivable	**(5,516)**	2,684
Inventories	**13,522**	(6,242)
Income tax receivable	**(542)**	1,254
Other current assets	**(582)**	796
(Decrease) increase in liabilities:		
Trade and accrued liabilities	**(15,567)**	(21,333)
Income tax payable	**(4,358)**	(3,607)
Net change	**(13,043)**	(26,448)

b) The reconciliation of assets/liabilities arising from financing activities consists of the following:

	December 31 2018	Cash flows	Non-Cash changes: Imputed interest	Foreign exchange movement	Fair value changes	Non-cash working capital	**December 31 2019**
	$	$	$	$	$	$	**$**
Long-term debt	30,175	24,925	-	7	-	-	**55,107**
Convertible debenture[(1)]	18,571	(19,259)	496	192	-	-	**-**
Cross-currency swap[(1)]	197	-	-	-	(197)	-	**-**
Lease liabilities	-	(1,605)	296	41	-	7,504[(2)]	**6,236**
Deferred revenues	6,330	-	-	-	-	(6,330)	**-**
Total net liabilities from financing liabilities	55,273	4,061	792	240	(197)	1,174	**61,343**

	December 31 2017	Cash flows	Non-Cash changes: Imputed interest	Foreign exchange movement	Fair value changes	December 31 2018
	$	$	$	$	$	$
Long-term debt	271	29,922	-	(18)	-	30,175
Convertible debenture[(1)]	48,768	(29,714)	3,146	(3,629)	-	18,571
Cross-currency swap[(1)]	(3,602)	-	-	-	3,799	197
Deferred revenues	6,210	120	-	-	-	6,330
Total net liabilities from financing liabilities	51,647	328	3,146	(3,647)	3,799	55,273

(1) Interest settlement were reflected as cash flows from operating activities in the consolidated statements of cash flows.
(2) Included an amount of $7,152 following the adoption of the new standard IFRS 16 as at January 1, 2019 (Note 3).

c) The consolidated statements of cash flows exclude or include the following transactions:

	2019	2018
	$	$
Excluded additions unpaid at end of the year: Additions to property, plant and equipment	**1,012**	469
Included additions unpaid at beginning of year: Additions to property, plant and equipment	**469**	1,050
Excluded a reclassification from other liabilities to trade and accrued liabilities following new agreement with a customer (Notes 10 and 14)	**6,320**	-
Excluded adjustment recognized on adoption of IFRS 16: Adjustment to right-of-use assets (Note 3)	**7,152**	-

19. Share Capital

Authorized:

- An unlimited number of common shares, participating, with no par value, entitling the holder to one vote per share; and
- An unlimited number of preferred shares, issuable in one or more series with specific terms, privileges and restrictions to be determined for each class by the Board of Directors. As at December 31, 2019 and 2018, no preferred shares were issued.

On February 11, 2019, the Company's shareholders approved a special resolution by which the stated capital of the common shares of the Company be reduced to $5,000 and the amount of the reduction be added to the contributed surplus of the Company pursuant to Section 38(1) of the *Canada Business Corporation Act* (the "Stated Capital Reduction"). Therefore, the share capital was reduced, and the contributed surplus was increased by the amount of $338,478. No change in shareholders' equity resulted by this transaction.

On February 27, 2019, the TSX has approved the Company's normal course issuer bid. Under this normal course issuer bid, the Company has the right to purchase for cancellation, from March 1, 2019 to February 29, 2020, a maximum of 3,515,926 common shares.

In 2019, the Company had repurchased and cancelled 1,696,733 common shares at an average price of $2.35 for a total amount of $3,990. An amount of $101 has been applied against share capital, and an amount of $3,889 has been applied against the deficit.

20. Earnings per Share

The following table reconciles the numerators and denominators used for the computation of basic and diluted earnings per share:

Numerators	2019	2018
	$	$
Net earnings attributable to equity holders of 5N Plus	**1,785**	13,972
Net earnings for the year	**1,785**	13,972

Denominators	2019	2018
Basic weighted average number of shares	**83,777,410**	84,243,976
Dilutive effect:		
Stock options	**181,689**	446,764
Diluted weighted average number of shares	**83,959,099**	84,690,740

As at December 31, 2019, a total number of 391,791 stock options was excluded from the diluted weighted average number of shares due to their anti-dilutive effect because of the Company's stock price.

As at December 31, 2018, a total number of 379,291 stock options was excluded from the diluted weighted average number of shares due to their anti-dilutive effect because of the Company's stock price. The same applies to the convertible debentures.

21. Share-Based Compensation

Restricted Share Unit Plan

On June 7, 2010, the Company adopted a Restricted Share Unit ("RSU") Plan (the "Old RSU Plan") to complement the stock option plan. Minor amendments to the Old RSU Plan were adopted by the Board of Directors in May 2013. However, on November 4, 2015, the Board of Directors terminated the Old RSU Plan and replaced it with the New RSU & PSU Plan (as defined hereinafter), thus no additional RSUs shall be credited to the accounts of participants under the Old RSU Plan. Only previously granted RSUs shall continue to vest and be settled as per the terms of the Old RSU Plan. The Old RSU Plan enabled the Company to award to eligible participants phantom share units that vest after a three-year period. The RSU is settled in cash and is recorded as a liability. The measurement of the compensation expense and corresponding liability for these awards is based on the fair value of the award, and is recorded as an expense over the vesting period of 3 years. At the end of each financial period, changes in the Company's payment obligation due to changes in the market value of the common shares on the TSX are recorded as an expense.

As at December 31, 2019, nil RSUs were outstanding (2018 – nil). For the year ended December 31, 2018, the Company granted nil RSUs, 215,167 of RSUs were paid and 833 RSUs were forfeited.

Restricted Share Unit and Performance Share Unit Plan

On November 4, 2015, the Company adopted a new Restricted Share Unit ("RSU") and Performance Share Unit ("PSU") Plan (the "New RSU & PSU Plan") to replace the Old RSU Plan, for the purpose of enhancing the Company's ability to attract and retain talented individuals to serve as employees, officers and executives of the Company and its affiliates and promoting a greater alignment of interests between such employees, officers and executives and the shareholders of the Company. The New RSU & PSU Plan enables the Company to award eligible participants: (i) phantom RSUs that vest no later than three years following the grant date; and (ii) phantom PSUs that vest after certain periods of time, not exceeding three years, and subject to the achievement of certain performance criteria as determined by the Board of Directors. Such plan provides for the settlement of RSUs and PSUs through either cash or the issuance of common shares of the Company from treasury, for an amount equivalent to the volume weighted average of the trading price of the common shares of the Company on the TSX for the five trading days immediately preceding the applicable RSU vesting determination date or PSU vesting determination date.

In the case of a participant's termination by the Company for cause or as a result of a voluntary resignation by the participant before the end of a performance cycle, all RSUs and PSUs will be forfeited immediately as of the date on which the participant is advised of his termination or resigns.

In the case of a participant's termination by the Company other than for cause, if such participant is deemed to be on long-term disability or if such participant retires before the end of a performance cycle, the number of RSUs which will vest at such event will be pro-rated based on the number of months worked at the end of the performance cycle and all PSUs will be forfeited immediately.

In the case of a participant's death before the end of a performance cycle, the number of RSUs which will vest will be pro-rated based on the number of months worked at the end of the fiscal year preceding the participant's death and all PSUs will be forfeited immediately.

The maximum number of common shares which may be issued under the New RSU & PSU Plan is 5,000,000. Common shares in respect of RSUs or PSUs to be settled through the issuance of common shares but that have been forfeited, cancelled or settled in cash shall be available for RSUs or PSUs to be granted thereafter pursuant to this plan. No RSUs or PSUs to be settled through the issuance of common shares may be granted to any participant unless the number of common shares: (a) issued to "Insiders" within any one-year period; and (b) issuable to "Insiders" at any time, under the plan, or when combined with all of the Company's other security-based compensation arrangements, could not exceed 10% of the total number of issued and outstanding common shares, respectively.

For the year ended December 31, 2019, the Company granted 248,543 New RSUs (2018 – 393,897), 1,157,099 New RSUs were paid (2018 – 28,361) and 81,042 New RSUs were forfeited (2018 – 67,370). As at December 31, 2019, 864,428 New RSUs were outstanding (2018 – 1,854,026).

For the year ended December 31, 2019, the Company granted 430,000 PSUs (2018 – nil) and 166,667 PSUs were paid (2018 – nil). As at December 31, 2019, 763,333 PSUs were outstanding (2018 – 500,000).

Stock Appreciation Rights Plan

On June 7, 2010, the Company adopted a Restricted Share Unit for Foreign Employees Plan (the "RSUFE Plan") which was slightly amended on November 7, 2012 by the Company to become the Stock Appreciation Rights plan (the "SAR Plan") which replaced the RSUFE Plan. The SAR Plan enables the Company to award eligible participants phantom stock options to foreign directors, officers and employees. SARs usually have a six-year term and vest equally over a four-year period at an annual rate of 25% per year beginning one year following the SARs grant date. The amount of cash payout is equal to the sum of the positive differences between the volume weighted average trading price of the common shares of the Company on the TSX in the last twenty (20) trading days immediately preceding the exercise date and the grant price of each SAR redeemed.

At the end of each financial period, changes in the Company's payment obligations due to changes in the market value of the common shares on the TSX are recorded as an expense. For the year ended December 31, 2019, the Company granted 177,849 SARs (2018 – 223,762), 31,651 of SARs were paid (2018 – 46,500), 15,000 SARs were expired (2018 – 14,995) and 67,502 SARs were forfeited (2018 – 106,500). As at December 31, 2019, 842,158 SARs were outstanding (2018 – 778,462).

Deferred Share Unit Plan

On May 7, 2014, the Company adopted a Deferred Share Unit ("DSU") Plan (the "DSU Plan") which enables the Company to provide Board directors and key officers and employees designated by the Board with phantom share units to enhance the Company's ability to attract and retain individuals with the right combination of skills and experience to serve on the Company's Board or as Company's executives. DSUs vest entirely at their date of grant (with the exception of the 400,000 DSUs granted to the Company's CEO on March 2, 2016 which vested on March 2, 2019) and become payable in cash upon termination of services of a director, designated officer or employee with the Company. The amount of cash payout is equal to the volume weighted average trading price of the common shares of the Company on the TSX of the twenty (20) trading days immediately preceding the date of payment of the DSU. For the year ended December 31, 2019, the Company granted 529,985 DSUs (2018 – 199,823) and nil DSUs were paid (2018 – nil). As at December 31, 2019, 2,034,380 DSUs were outstanding (2018 – 1,504,395).

Stock Option Plan

On April 11, 2011, the Company adopted a new stock option plan replacing the previous plan (the "Old Plan"), in place since October 2007, with the same features as the Old Plan with the exception of a maximum number of options granted which cannot exceed 5,000,000. The aggregate number of shares which could be issued upon the exercise of options granted under the Old Plan could not exceed 10% of the issued shares of the Company at the time of granting the options. Options granted under the Stock Option Plan may be exercised during a period not exceeding ten years from the date of grant. The stock options outstanding as at December 31, 2019 may be exercised during a period not exceeding six years from their date of grant. Options vest at a rate of 25% (100% for directors) per year, beginning one year following the grant date of the options. Any unexercised options will expire one month after the date a beneficiary ceases to be an employee, director or officer and one year for retired directors.

The following table presents information concerning all outstanding stock options:

	2019		2018	
	Number of options	**Weighted average exercise price**	Number of options	Weighted average Exercise price
		CA$		CA$
Outstanding, beginning of year	**1,490,541**	**2.32**	2,224,747	2.20
Granted	**123,016**	**3.43**	143,335	2.71
Exercised	**(488,500)**	**1.98**	(708,750)	1.92
Forfeited	**(193,016)**	**2.61**	(137,704)	2.54
Expired	**-**	**-**	(31,087)	3.61
Outstanding, end of year	**932,041**	**2.58**	1,490,541	2.32
Exercisable, end of year	**632,360**	**2.65**	726,750	2.75

The outstanding stock options as at December 31, 2019 are as follows:

	Exercise price		Number of options	
	Low	High	Exercisable	Outstanding
	CA$	CA$		
March to August 2020	3.33	4.29	212,000	212,000
March 2021	2.40	2.40	124,500	124,500
March 2022	1.65	1.65	202,500	258,750
February 2023	1.75	1.75	68,000	157,000
February 2024	2.71	2.71	25,360	95,271
March 2025	3.43	3.43	-	84,520
			632,360	932,041

The fair value of stock options at the grant date was measured using the Black-Scholes option pricing model. The historical share price of the Company's common shares is used to estimate expected volatility, and government bond rates are used to estimate the risk-free interest rate.

The following table illustrates the inputs used in the average measurement of the fair values of the stock options at the grant date granted during the years ended December 31, 2019 and 2018:

	2019	2018
Expected stock price volatility	**48%**	53%
Dividend	**None**	None
Risk-free interest rate	**1.81%**	2.03%
Expected option life	**4 years**	4 years
Fair value – weighted average of options issued	**CA$1.35**	CA$1.16

The following table shows the share-based compensation expense recorded in the consolidated statements of earnings for the years ended December 31, 2019 and 2018:

Expense	**2019**	2018
	$	$
RSUs	**759**	1,395
PSUs	**495**	575
SARs	**(49)**	241
DSUs	**(23)**	866
Stock options	**152**	345
Equity swap	**1,249**	(124)
Total	**2,583**	3,298

In June 2017, the Company entered into an equity swap agreement to reduce its earnings exposure on the fluctuation in the Company's share price since this has an effect on the evaluation of the DSU, PSU, RSU and SAR plans. The fair value of this indexed deposit is recorded under other current assets. Any futher change in the fair value is recorded against the share-based compensation expense (Note 16).

The following amounts were recorded:

Liability	**2019**	2018
	$	$
RSUs	**1,040**	3,144
PSUs	**1,109**	995
SARs	**560**	585
DSUs	**3,515**	3,369
Total	**6,224**	8,093
Intrinsic value of vested units	**4,599**	4,064

22. Commitments and Contigencies

Commitments

As at December 31, 2019, in the normal course of business, the Company contracted letters of credit for an amount of $430 (2018 – $422).

Contingencies

In the normal course of operations, the Company is exposed to events that could give rise to contingent liabilities or assets. As at the date of issue of the consolidated financial statements, the Company was not aware of any significant events that would have a material effect on its consolidated financial statements.

23. Related Party Transactions

The Company's related parties are its directors and executive members.

Unless otherwise stated, none of the transactions incorporated special terms and conditions and no guarantees were given or received. Outstanding balances are settled in cash.

Key management compensation

Key management includes directors (executive and non-executive) and certain senior management. The compensation expense paid or payable to key management for employee services is as follows:

	2019	2018
	$	$
Wages and salaries	**2,121**	3,148
Share-based compensation and others	**1,153**	3,503
Total	**3,274**	6,651

24. Financial Risk Management

In the normal course of operations, the Company is exposed to various financial risks. These risk factors include market risk (foreign currency risk, interest rate risk and other price risk), credit risk and liquidity risk.

Market risk

Market risk is the risk that changes in market price, such as foreign exchange rates, equity prices and interest rates, will affect the Company's net earnings or the value of financial instruments.

The objective of market risk management is to mitigate exposures within acceptable limits, while maximizing returns.

a) Foreign currency risk

Foreign currency risk is defined as the Company's exposure to a gain or a loss in the value of its financial instruments as a result of fluctuations in foreign exchange rates. The Company is exposed to foreign exchange rate variability primarily in relation to certain sale commitments, expected purchase transactions, certain local operating expenses and debt denominated in a foreign currency. In addition, these operations have exposure to foreign exchange rates primarily through cash and cash equivalents and other working capital accounts denominated in currencies other than their functional currencies.

The following table summarizes in US dollar equivalents the Company's major currency exposures as at December 31, 2019:

						2019
	CA	EUR	GBP	RMB	MYR	Other
	$	$	$	$	$	$
Cash and cash equivalents	605	3,122	1,136	724	161	59
Accounts receivable	1,007	6,558	-	1,315	3	251
Other current assets	4,862	-	-	-	-	-
Trade and accrued liabilities	(9,202)	(7,496)	(65)	(62)	(242)	(411)
Long-term debt	(107)	-	-	-	-	-
Lease liabilities	(756)	(746)	-	-	(25)	(93)
Net financial assets (liabilities)	(3,591)	1,438	1,071	1,977	(103)	(194)

The following table shows the impact on earnings before income tax of a five-percentage point strengthening or weakening of foreign currencies against the US dollar as at December 31, 2019 for the Company's financial instruments denominated in non-functional currencies:

	CA	EUR	GBP	RMB	MYR	Other
	$	$	$	$	$	$
5% Strengthening	(180)	72	54	99	(5)	(10)
5% Weakening	180	(72)	(54)	(99)	5	10

The Company will occasionally enter into foreign exchange forward contracts to sell US dollars in exchange for Canadian dollars and Euros. These contracts would hedge a portion of ongoing foreign exchange risk on the Company's cash flows since much of its non-US dollar expenses are incurred in Canadian dollars and Euros. The Company may also enter into foreign exchange contracts to sell Euros for US dollars. As at December 31, 2019, the Company has no foreign exchange contracts outstanding.

b) Interest rate risk

Interest rate risk refers to the risk that future cash flows will fluctuate as a result of changes in market interest rates. The Company's policy is to limit its exposure to interest rate risk fluctuation by ensuring that a reasonable portion of its current portion and long-term debt, made of subordinated debts at fixed rate. The Company is exposed to interest rate fluctuations on its revolving credit facility, which bears a floating interest rate. A 1% increase/decrease in interest rates would have an impact of approximately $300 on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2019.

c) Other price risk

Other price risk is the risk that fair value or future cash flows will fluctuate because of changes in market prices, other than those arising from interest rate risk or currency risk.

Credit risk

Credit risk refers to the possibility that a customer or counterparty will fail to fulfill its obligations under a contract and, as a result, create a financial loss for the Company. The Company has a credit policy that defines standard credit practice. This policy dictates that all new customer accounts be reviewed prior to approval and establishes the maximum amount of credit exposure per customer. The creditworthiness and financial well-being of the customer are monitored on an ongoing basis.

The Company applies the IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss allowance for trade receivables.

The expected loss rates are based on the Company's historical credit losses experienced over the three-year period prior to the period end. The historical loss rates are then adjusted for current and forward-looking information on macroeconomic factors affecting the Company's customers.

As at December 31, 2019, the lifetime expected loss allowance for trade receivables was determined as follows:

				2019
	Current	**More than 30 days past due**	**More than 60 days past due**	**Total**
Expected loss rate	**-**	**1.9%**	**7.5%**	
Gross carrying amount	**20,475**	**3,679**	**683**	**24,837**
Loss allowance	**-**	**69**	**51**	**120**

The following table summarizes the changes in the loss allowance for trade receivables:

	2019	2018
	$	$
Beginning of year	**97**	126
Increase during the year	**26**	26
Trade receivables written off during the year as uncollectible	**(3)**	-
Unused amounts reversed	**-**	(55)
End of year	**120**	97

The loss allowance is included in selling, general and administrative expenses in the consolidated statement of earnings, and is net of any recoveries that were provided for in prior periods.

Amounts charged to the loss allowance account are generally written off when there is no reasonable expectation of recovery.

Counterparties to financial instruments may also expose the Company to credit losses in the event of non-performance. Counterparties for derivative and cash transactions are limited to high credit quality financial institutions, which are monitored on an ongoing basis. Counterparty credit assessments are based on the financial health of the institutions and their credit ratings from external agencies, therefore no impairment loss was identified as at December 31, 2019.

Liquidity risk

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. The Company manages liquidity risk through the management of its capital structure. It also manages liquidity risk by continually monitoring actual and projected cash flows, taking into account the Company's sales and receipts and matching the maturity profile of financial assets and financial liabilities. The Board of Directors reviews and approves the Company's annual operating and capital budgets as well as any material transactions out of the ordinary course of business, including proposals on acquisitions and other major investments.

The following table reflects the contractual maturity of the Company's financial liabilities as at December 31, 2019:

							2019
	Carrying amount	1 year	2 years	3 years	4 years	Over 5 years	Total
	$	$	$	$	$	$	$
Trade and accrued liabilities	32,066	32,066	-	-	-	-	32,066
Long-term debt	55,107	2,790	2,683	32,008	25,418	-	62,899
Lease liabilities	6,236	1,539	1,248	567	410	4,202	7,966
Total	93,409	36,395	3,931	32,575	25,828	4,202	102,931

25. Capital Management

The Company's objective when managing capital is to safeguard its ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

The Company requires the approval of its lenders on some of the capital transactions such as the payment of dividends and capital expenditures over a certain level.

The Company monitors capital on the basis of the debt-to-equity ratio. This ratio is calculated as net debt divided by total equity. Net debt is calculated as total borrowings (comprising long-term debt, convertible debentures and cross-currency swap in the consolidated statement of financial position) less cash and cash equivalents. Any newly introduced IFRS 16 reporting measures in reference to lease liabilities are excluded from the calculation. Total equity is the equity attributable to equity holders of 5N Plus Inc. in the consolidated statement of financial position.

Debt-to-equity ratios as at December 31, 2019 and 2018 are as follows:

	2019	2018
	$	$
Long-term debt including current portion	**55,107**	30,175
Convertible debentures	**-**	18,571
Cross-currency swap (Note 16)	**-**	197
Total debt	**55,107**	48,943
Less: Cash and cash equivalents	**(20,065)**	(26,724)
Net debt	**35,042**	22,219
Shareholders' equity	**117,297**	119,703
Debt-to-equity ratio	**30%**	19%

26. Expenses by Nature

Expenses by nature include the following:

	2019	2018
	$	$
Wages and salaries	**35,610**	38,018
Share-based compensation expense (Note 21)	**2,583**	3,298
Depreciation of property, plant and equipment and amortization of intangible assets (Notes 6 and 8)	**9,669**	8,810
Depreciation of right-of-use assets (Note 7)	**1,470**	-
Amortization of other assets	**173**	163
Gain on disposal of property, plant and equipment	**(32)**	(510)
Research and development, net of tax credit	**1,822**	1,328
Litigation and restructuring costs	-	316[1]

[1] During 2018, the Company sold its participation in the joint venture, Zhuhai Gallium Industry Co. for an amount of $417 and recognized a loss of $360. In addition, following the liquidation of its other joint venture, Ingal Stade GmbH which had closed its manufacturing activities in 2016, the Company received an amount of $238 in cash.

Also, included is a non-recurring income of $588 relating to an amount receivable from an inactive legal entity for which no receivable had been recorded given the uncertainty attached to it, as well as severance costs of $782 associated with workforce optimization initiatives implemented throughout the year in line with our strategic plan.

Board of Directors

Luc Bertrand
Chairman of the Board

Jean-Marie Bourassa
Chairman of the Audit and Risk Management Committee

James T. Fahey
Member of the Governance and Compensation Committee – Member Audit and Risk Management

Jennie S. Hwang
Member of the Governance and Compensation Committee – Member Audit and Risk Management

Nathalie Le Prohon
Chair of the Governance and Compensation Committee

Donald F. Osborne
Board Member

Arjang J. (AJ) Roshan
President and Chief Executive Officer

Executive Committee

Arjang J. (AJ) Roshan
President and Chief Executive Officer

Richard Perron
Chief Financial Officer

Nicholas Audet
Executive Vice President, Electronic Materials

Paul Tancell
Executive Vice President, Eco-Friendly Materials

Corporate Information

Stock Exchange
5N Plus is listed on the Toronto Stock Exchange, under the symbol VNP.

Transfer Agent and Registrar
Computershare Investor Services Inc.

Auditors
PricewaterhouseCoopers LLP

Head Office
4385 Garand Street, Montreal, Quebec H4R 2B4

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Aussi disponible à l'adresse www.5nplus.com

Annual Meeting Update

Wednesday, May 20, 2020 at 10:00 a.m.

Recognizing the widespread cancellation of public events for the protection of individuals and public safety in the face of the ongoing COVID-19 pandemic, this year, we will hold our annual meeting in a virtual only format, which will be conducted via a live webcast online at http://web.lumiagm.com/287802746.

Photo of solar panels on cover courtesy of First Solar, Inc.

Enabling Performance™

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