

**OUR STRATEGIC PLAN 5N21**

# Reaching the Halfway Point and delivering compelling results



**5N PLUS**  
Enabling Performance

**2018 Annual Report**

# 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 a reliable link 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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# Dear Shareholders

On February 26<sup>th</sup>, 2019, our company, 5N Plus, reported its third financial year under the guidance of its strategic plan 5N21. I am pleased to report yet another year of solid earnings growth, tangible progress toward 5N21 deliverables, and further advances in growth initiatives, all of which will positively transform 5N Plus. Perhaps the most notable achievement in 2018 was that 5N Plus delivered growth despite stiff headwinds from metal markets impacting key metals the company consumes in the manufacture of its products. This is in stark contrast to the company's performance prior to the implementation of 5N21, when similar headwinds would have caused adverse earnings volatility and derailed performance. Following this highly revealing test, we are pleased to declare that one of the three key objectives under our strategic plan, namely reducing earnings volatility by 50%, has been completed one year ahead of plan.

## Third financial year under 5N21 was characterized by yet another 12 months of solid growth in earnings.

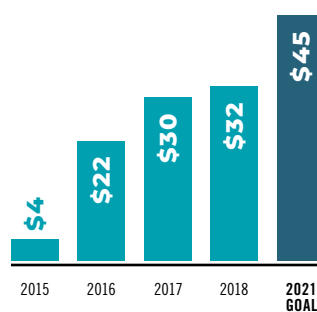
Since 2015, Adjusted EBITDA has grown from \$4 million to over \$32 million, while return on capital employed moved from negative territory to 15% in 2018. Our upstream teams continued to make great progress in 2018, as they further diversified our source of upstream metal-continuing feed materials, reducing our dependence on any specific region or supplier. We also initiated investments in Asia and Europe to expand capacity and capability with respect to competitively valorizing key metals from secondary streams. We believe we are positioning 5N Plus as a unique industry player — the only one to operate refining and recycling assets on three continents, while maintaining proximity to customers and key markets. This greater flexibility will enable 5N Plus to competitively procure key consumable metals from sources across the globe and enhance our ability to serve customers. Moreover, during 2018 we continued to selectively implement commercial hedging across our product portfolio to reduce volatility risks associated with minor metals.

With respect to downstream activities during 2018, 5N Plus was awarded a number of sizable long-term contracts within:

- Renewable Energy Materials
- Catalytic & Extractive Materials
- Security Aerospace Sensing & Imaging (SASI) Materials

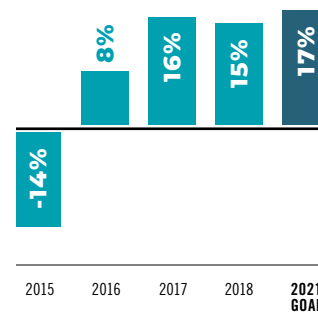
These awards significantly bolstered our orderbook. The growth in Catalytic and Extractive Materials has been brisk and pleasantly surprising, with strong pull from a market seeking our products. We have nearly sold out our 2019 capacity and are looking for options to address production demands while improving margins for this sector.

**Adjusted EBITDA**  
In millions of USD



See Non-IFRS Measures

**Return on Capital Employed**  
In %



## Investments to Fuel Growth

During the year, we invested to double the capacity of our specialty semiconductor plant on the Montreal campus, to keep pace with market demand for our specialty semiconductor materials. Also in 2018, 5N Plus initiated and completed an investment to build a high-purity additive plant in Germany to support the company's entry into the feed additive market. By year end, this investment had been completed on time and on budget.

## Value-Added Products

During 2018, our downstream teams continued to expand their reach into products with higher value-added content, thereby moving away from commodity businesses vulnerable to earnings volatility. We therefore wound down a joint venture in China and a partnership in Korea, both of which were in the Technical Materials sector. Instead, we concentrated efforts on growing our Micro-Powders business, which is characterized by a high level of value-added materials and has received significant market interest, with over two dozen customer certification programs in various stages of completion. We are positioning this business to replace and revitalize our former activities in Technical Materials, with markedly higher profit margins to deliver greater sustainability.

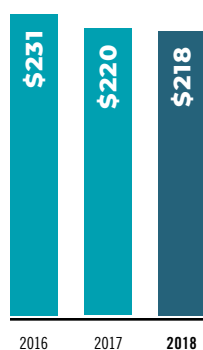
## Higher Efficiencies and Margins

In the initial phase of 5N21, management focused efforts on optimizing core activities to streamline operations and increase efficiencies across various sites around the globe. These efforts translated into substantial performance improvements, and we announced more benefits to follow, given the lag-time associated with these efficiencies. Indeed, these benefits materialized in 2018, particularly in SG&A.

The implementation of 5N21 and its associated new business model have also introduced some side-effects, among them an overall reduction in revenue and metal content. This reduction is owed to a substantial contraction in pass-through metal revenue, as 5N Plus products increasingly require less metal. In parallel, however, the company's value-added revenue has continued to grow, year-over-year, during the past three years. While the growth in value-added revenue has not been large enough to offset the drop in pass-through metal revenue, the considerably higher margins explain the substantial improvement in earnings over this period and are a key feature of our business model under 5N21.

**Products manufactured by 5N Plus today require less metal than in the past. While the growth in value-added revenue has not been large enough to offset the drop in pass-through metal revenue, the considerably higher margins explain the substantial improvement in earnings.**

**Total Revenue Including Metal**  
In millions of USD



**Net Earnings**  
In millions of USD



## Looking Forward to 2019

In 2019, we will focus greater attention and resources on two priorities:

- Develop 5N Plus' three downstream growth opportunities (Semiconductors, Micro-Powders, and Feed Additives) and continue to grow upstream activities
- Build financial sustainability into our core businesses by exercising margin management based on investments in process technology and efficiency enhancement

With respect to new growth initiatives, we view 2019 as a staging year, as we position these businesses for the growth needed to meet our 5N21 goal by 2021. We expect a busy year of customer qualifications and product certifications across all three growth sectors. Our operations teams will focus on mass-scaling products, while our commercial teams will continue to develop the new markets.

In addition to our growth priority, in 2018 our teams identified select investment opportunities in our core businesses. These are expected to enhance our competitiveness, delivering rapid payback and global leadership in key sectors. Most of the investments are in new process technology and are expected to be launched in 2019 with anticipated benefits harvested in 2020 and beyond. Our overall investment plans continue to respect the \$50 million investment envelope over the five years of the plan, which is about the rate of depreciation over this time.

As we close 2018, it is worthwhile noting that we are reaching the midpoint of our strategic plan. All signs suggest that we are well positioned to deliver on the plan's objectives. The next half of 5N21 requires greater contributions from growth opportunities, and we are very excited about the prospect of these businesses and the markets they will enable. That being said, timing remains a key variable, which we do not control. Nevertheless, we remain committed to ensuring that when these markets move forward, 5N Plus will be ideally positioned to benefit its shareholders, employees and other stakeholders.

In the meantime, I would like to thank our shareholders and Board of Directors for their continued support and constructive feedback. I would also like to thank our employees for their dedication, commitment and drive over the past several years. As we move to the next half of 5N21, I look forward to working closely with our employees

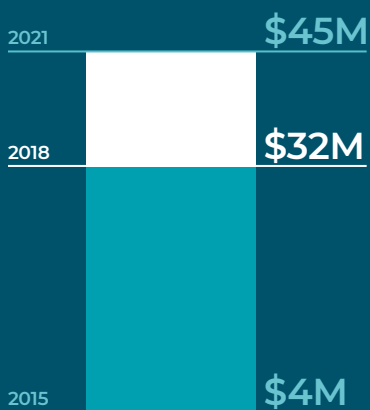
and our Board to realize the full potential of our plan and transition 5N Plus to become a leading global material technology company.



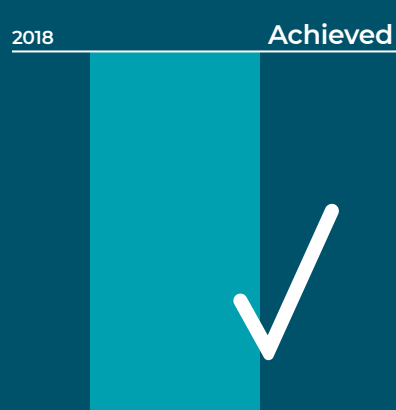
**Arjang J. (AJ) Roshan**

President and Chief Executive Officer

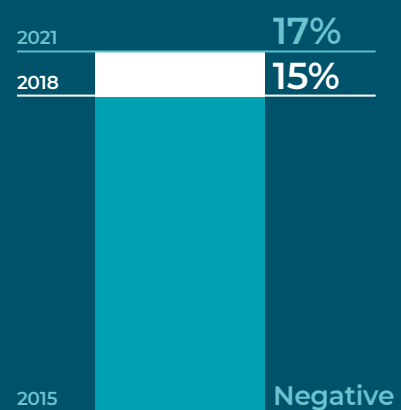
### Where we are at the Midpoint of our Strategic Plan 5N21



**Deliver \$45M Adjusted EBITDA**



**Reduce Earnings Volatility by 50%**



**Deliver 17% Return on Capital Employed**

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# Electronic Materials

The 5N21 strategic plan has been a rewarding and eventful journey for the Electronics Materials business unit, setting the stage for several high-potential developments between now and the end of 2021.



Medical imaging is experiencing surging demand for scanners based on new detector technologies, enabled by 5N Plus products, that emit far less radiation and provide enhanced resolution for more accurate diagnoses.

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

In this sector, our semiconductor products are integral to next-generation detectors for medical imaging, high efficiency solar cells for space satellites, and focal plane array cameras for infrared imaging. The SASI semiconductor business is growing, and we have successfully captured a number of long-term contracts. To support this business, we have invested to double production

capacity at our specialty semiconductor plant on the Montreal campus, securing our position as the only viable and global large-scale supplier of semiconductor ultra-purity compounds. We have expanded our role as a strategic partner to the United States government and won a multi-year contract to support key national security programs.



## Micro-Powders

We have made great strides in replacing our former activities in the Technical Materials sector with our high value-added and high-growth Micro-Powders business. 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 specification requirements for markets of the future. As one of the very few companies capable of producing, at scale, high quality powders in the 1-to-10-micron range, we are eliciting impressive market interest with a number of potential customers certifying our products for their future product development road-map.

## Looking Forward

We are encouraged by prospects in the second half of 5N21, particularly for our two growth businesses, SASI and Micro-Powders.

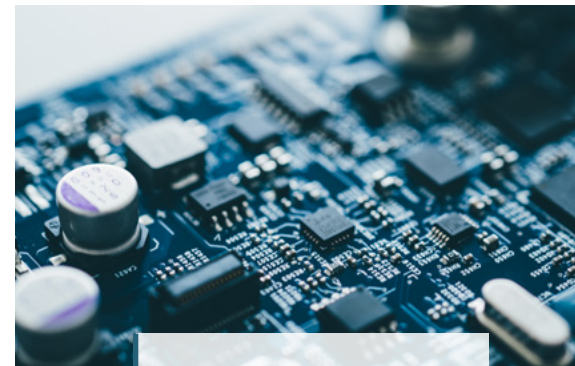
We expect SASI semiconductor materials to see a significant increase in the size of its addressable market. Medical imaging is experiencing surging demand for scanners based on new detector technologies, enabled by 5N Plus products, that emit far less radiation and enhanced resolution for more accurate diagnoses. In aerospace, our recent contract awards position us well for the duration of the plan. Given the need to periodically replace satellites, and the number of constellation programs in various stages of development, we anticipate healthy and prolonged demand growth. Finally, infrared imaging is undergoing increased demand for more sensitive and higher-definition detectors and imaging technologies. These are enabled by the engineered materials for which 5N Plus products offer unmatched performance.

As for our Micro-Powders business, we anticipate even stronger demand. Global macro-trends such as miniaturization, additive manufacturing and heat management will drive the need for 5N Plus micro-powders, which feature high sphericity, high purity, and ultrafine and customizable particle size distribution. In the electronics industry, advanced solder paste dispensing and jetting systems, increased functionality in smart phones and wearable devices, and new interconnect paradigms for next generation components such as micro-LEDs, will sharpen interest in our unique products. We also believe our powders will play a key role in the high-growth 3D printing sector, which will require varied combinations of alloys in much finer particle sizes, specific morphologies and higher purity levels.

Everything is therefore in place for the Electronic Materials business unit to successfully deliver on its 5N21 goals.

## Renewable Energy

We secured a series of multi-year supply and service contracts in Renewable Energy, as we continue to streamline operations, expand capabilities and increase efficiencies to sustainably support this business for years to come.



**In the electronics industry, increased functionality in smart phones and wearable devices will sharpen interest in our unique products.**

# Eco-Friendly Materials

At the midpoint of our five-year 5N2I strategic plan, the Eco-Friendly Materials business unit has already achieved a great deal. All the elements are now in place to meet our strategic goals.

## Health and Pharmaceuticals

We remain committed to growing this business and consolidating our position as a leading global supplier of active pharmaceutical ingredient to the pharma industry. Indeed, we have achieved both ambitions. Our outstanding product quality and reliability of supply continue to create a compelling value proposition for customers.

## Industrial Materials

We're now taking a more selective approach to market opportunities, prioritizing product margins over market share. Going forward, margins in this sector will further benefit from substantial investments aimed at improving production efficiencies and ratcheting up operational capacity and flexibility.

Some of our products in the Industrial Materials are used as alternatives to Lead to produce environmentally friendly yellow pigments.







## Catalytic and Extractive Materials

We have seen year-on-year increased demand for these products, which are used by the mining and petrochemical industries, and fully expect this positive trend to continue.

## New Growth Initiative

Moving into the next phase of our 5N21 plan, we look forward to growth initiatives driving the business forward. One exciting development is our entry into the feed additive market and the production of pre-mixes containing trace elements essential for good human and animal health. Our state-of-the-art production facility in Germany is now fully commissioned and has begun to produce high-purity additives, marketed under the brand name *Nutritive*. We believe our product quality, consistency and purity will enable our growth in this area and we look forward to this journey, as it has already attracted keen interest from the market.

Looking to 2019 and beyond, the Eco-Friendly business unit is well positioned to deliver on its 5N21 commitments.



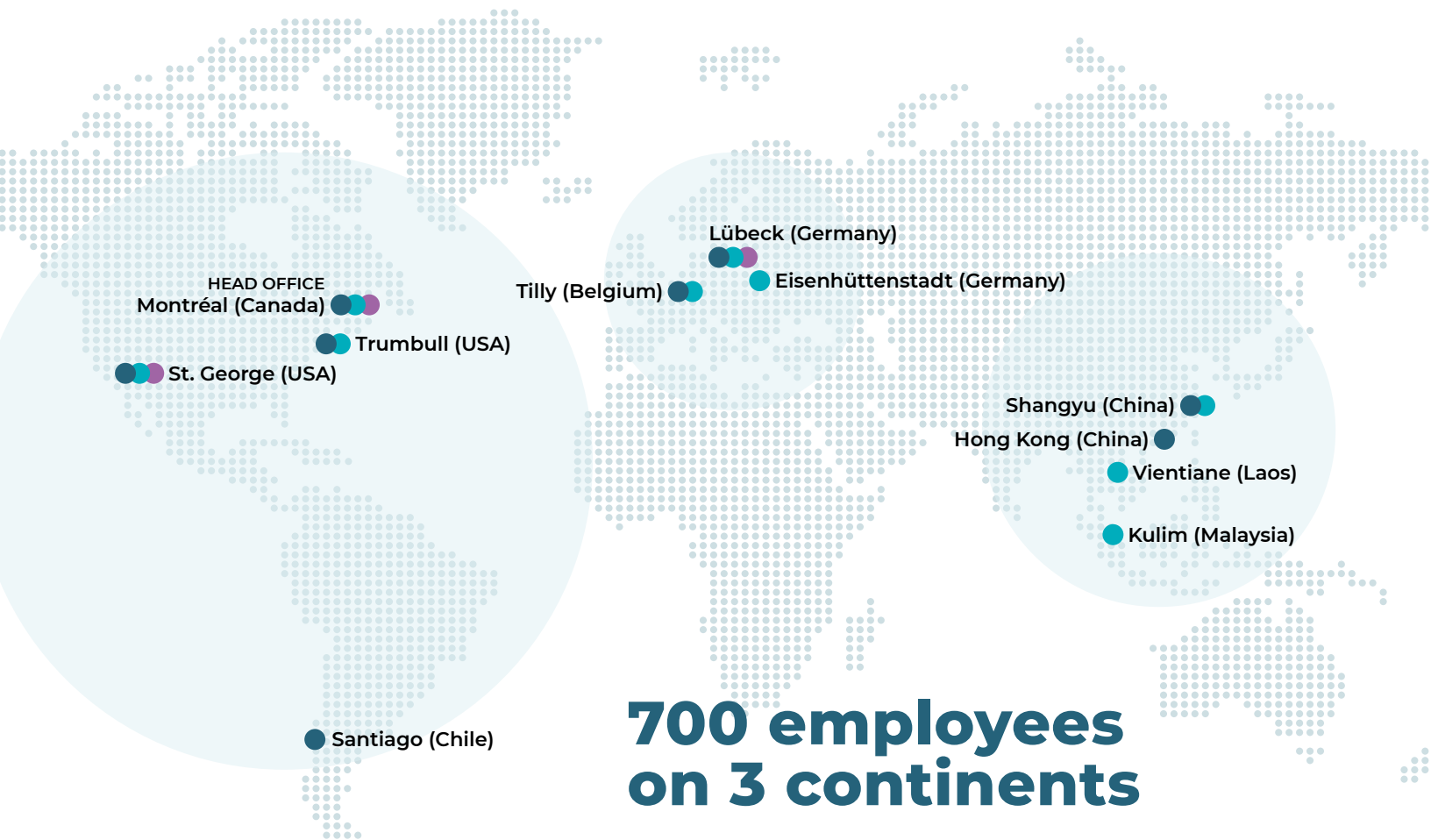
**Our entry into the feed additive market is an exciting new development. The 5N Plus state-of-the-art production facility in Germany is now fully commissioned.**

# Sustainability

As a leading global materials technology company committed to sustainability, 5N Plus uses process technologies to recycle and recover valuable resources from waste, by-products and secondary streams generated both in its own plants and from other sources. In addition, 5N Plus continues to diversify the source of its feed material. Throughout, the company uses best industry practices in addition to respecting local laws in order to manage the by-products generated from its own refining activity.

5N Plus also provides resource management and recycling services to its customers. 5N Plus is uniquely positioned and qualified to lead in this area, as the company has assets, capabilities and essential permits on three continents to refine and recycle key metals. Its customers therefore keenly rely on 5N Plus' expertise and service.

All of this enables 5N Plus to sustainably procure and recycle vital metals essential for its business and its customers, which ultimately paves the way for financial sustainability and responsible corporate citizenship.



## 700 employees on 3 continents

- Commercial Activities
- Manufacturing
- Research & Development

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**We encourage every member of our team to embody the 5N Plus mission statement in everything we do.**



**Earn and retain the privilege to be:**

- essential to our customers
- preferred by our employees
- trusted among our shareholders

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## **Conflict-free Procurement**

5N Plus 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.

## **Waste Water Treatment**

5N Plus sites around the globe continue to invest in new process development and employ advanced technologies to minimize water consumption. These sites have been investing in assets and processes to treat waste water and minimize discharges, often ahead of local standards. Moreover, our sites engage with local communities and actively work with them for the benefit of the environment. Within its 5N21 strategic plan, 5N Plus has allocated sizable investments to further reduce discharges over the next several years.

## **Environment Health and Safety**

5N Plus has allocated resources from both local and corporate functions to promote, monitor and advance the company's Environmental, Health & Safety practices. The company continues to invest in this area and treats these files with utmost priority — ahead of all other issues. At 5N Plus, we believe good performance in EHS can translate to financial sustainability. The company views compliance with local laws and regulations as a minimum requirement and often strives to exceed these measures.

## **Ethical Conduct**

5N Plus has published and institutionalized a Code of Ethics. Strict ethical standards are enshrined in the Code, and adherence is obligatory, covering everyone within the company regardless of their position or tenure. The management of the company promotes a safe environment in which violation of the Code can be disclosed and the matter dealt with in a responsible manner.

## **Sound Governance**

5N Plus adheres to the highest standards of governance. Six out of seven members of our Board of Directors are independent. We actively encourage diversity across the organization and on our Board of Directors.

# Finance

Our strategic plan, 5N21, has never been more vital to the company and its prospects. In 2018 we addressed fresh opportunities and challenges requiring financial leadership to execute over multiple time horizons. By year end, we had made significant progress in realizing key internal growth initiatives and increasing the share of high added-value products — both critical to our transformation.

Among key success factors: our ability to align long-term strategic options while managing the impact of volatility in our industry. By leveraging these realities into effective tactical and strategic actions, since 2016 we have improved gross margin by more than 17% to 26.1%, and adjusted EBITDA margin by 54% to 14.8%.

## Where We Stand

In absolute terms, financial results continued to trend positively over 2017, with adjusted EBITDA reaching \$32.4 million versus \$29.6 million a year ago. This performance reflects robust demand, improved product mix, higher asset utilization, and delivery on business improvement initiatives. Indeed, it's now fair to say the strategic mindset behind 5N21 differentiates us from our peers. We're seeing increased evidence of this in return on capital employed, now reaching 15.1%, and in a sharper focus on generating sustainable value independent of metal prices and production volumes.

Strategically, management is looking beyond the near term to anticipate opportunities and risks, without distracting us from our course.

## A Solid Balance Sheet

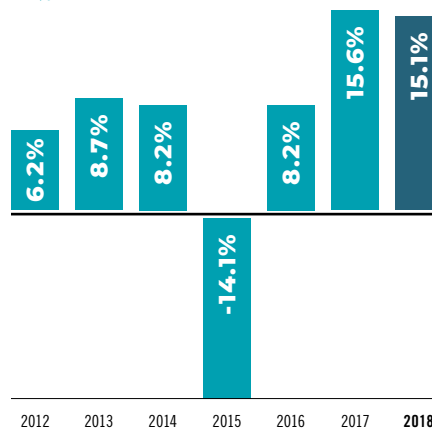
Determined to keep all options open to finance growth, we have transformed the balance sheet, supported by a competitive senior credit facility renewed in April 2018, and a subordinated term loan raised in February 2019. This gives us additional flexibility. While we favour deploying surplus cash to fund internal growth initiatives, we are investing with focus and discipline to improve future shareholder returns. In the absence of further working capital investment for commercial hedging purposes, we will continue to prioritize a low net debt target and expect to accelerate progress in this regard. In 2019, we will continue to invest in projects that support our transition toward higher added-value products and those that will significantly enhance the cost structure of our operations.

**Adjusted EBITDA**  
In millions of USD



See Non-IFRS Measures

**ROCE**  
In %



## Good Reasons for Optimism

While there is still much to do, we remain optimistic that our progress is sustainable. Our strategy to drive structurally higher returns through the delivery of 5N21 remains sound. We now operate from a more efficient, resized footprint on three continents, and are well positioned to deliver sustainable value to shareholders. Given the improved performance and market outlook, the company has resumed its normal course issuer bid (NCIB) and is committed to increasing capital returns to shareholders while maintaining growth investments.

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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, 2018. 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 26, 2019, 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 2018" and "Q4 2017" refer to the three-month periods ended December 31, 2018 and 2017 respectively, and "FY 2018" and "FY 2017" refer to the years ended December 31, 2018 and 2017 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.

## **Restatement of Comparatives Results**

Certain comparative results in this MD&A have been restated to reflect a change in our definition of Adjusted Operating Expenses, Adjusted EBITDA and Adjusted Net Earnings. Please refer to the "Selected Quarterly Financial Information" and "Selected Yearly Financial Information" sections.

## **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, protection of intellectual property, international operations including China, international trade regulations, collective agreements and being a public issuer. 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 26, 2019. 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<sup>1</sup> 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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<sup>1</sup> See Non-IFRS Measures

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Highlights of Q4 2018 and Fiscal Year 2018

#### Reaching midpoint of 5N21 and delivering results ahead of plan

Fiscal year 2018 was the third year in which 5N Plus grew its earnings. This performance was delivered despite unfavorable movement of metal notations associated with the Company's business throughout 2018 as compared to stable or favorable movement of the same notations in 2016 and 2017. The Company's performance in 2018 is a clear proof that the new business model is delivering on its commitments and the Company is well on track to deliver 5N21 targets.

During 2018, the demand for the Company's products remained strong and the diversity of the markets in which 5N Plus participates remained an asset. During the same period, the Company continued to invest on its growth initiatives which aim to further improve quality and sustainability of the Company's earnings. Moreover, in 2018, 5N Plus remained somewhat unaffected by the trade and tariff related themes mainly due to the positioning of its assets, with emphasis on local entities supporting local markets and optimizing the Company's supply chain to become more diverse and agile.

- During the year, Adjusted EBITDA<sup>1</sup> and EBITDA<sup>1</sup> reached \$32.4 million and \$29.0 million, compared to \$29.6 million and \$26.9 million in 2017. This performance reflects strong demand for our products, improved product mix and tangible reduction in earnings volatility.
- The Adjusted EBITDA and EBITDA for the fourth quarter reached \$6.9 million and \$5.6 million in 2018 compared to \$6.8 million and \$4.4 million in 2017. The fourth quarter results are historically marked by cyclical pattern.
- Net earnings for the year 2018 reached \$14.0 million or \$0.17 per share, compared to \$12.0 million or \$0.14 per share for the year 2017, the highest level reached in recent years.
- Revenue in 2018 reached \$218.0 million compared to \$220.0 million in 2017. The lower sales figure is mainly driven by the lower sales of lower margin products with high content of metal and lower pass-through revenue from metals which are used as consumables in the Company's products. Consistent with the Company's strategic plan, over the past three years, the amount of metals utilized in the Company's products have reduced markedly which in turn has reduced earnings volatility considerably.
- Return on Capital Employed (ROCE)<sup>1</sup> reached 15.1% in 2018, similar to 2017, while compared to 8.2% in 2016 reflecting the overall margin expansion associated with the Company's products and services, and better management of capital employed.
- Net debt<sup>1</sup> stood at \$22.2 million as at December 31, 2018 from \$11.4 million for the same period last year, impacted by working capital, more specifically due to a decrease in trade and accrued liabilities and an increase in inventory aimed at hedging commercial positions.
- Backlog<sup>1</sup> reached as at December 31, 2018 a level of 217 days of sales outstanding, higher than previous quarter, and last year ending at a level of 187 days. Bookings<sup>1</sup> in Q4 2018 reached 105 days compared to 86 days in Q3 2018 and 108 days in Q4 2017.
- In Q4 2018, 5N Plus completed the construction of its high purity additive plant in Germany on time and in line with the budget envelop of its strategic plan. During the same period, the commissioning of the plant began with the aim to commence certification and qualification campaigns in early 2019.
- On April 11, 2018, 5N Plus announced expansion of capacity and capability in its upstream activities across South East Asia and Europe to further enhance the Company's competitive access to specialty metals.
- On April 24, 2018, 5N Plus announced the closing of a \$79.0 million senior secured multi-currency revolving syndicated credit facility. Subject to lenders' approval, 5N Plus can exercise its option to request an expansion of the credit facility through a \$30.0 million accordion feature which would increase the total size of the facility to \$109.0 million.

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<sup>1</sup> See Non-IFRS Measures



- On April 30, 2018, 5N Plus announced that it has secured a series of multi-year contracts for the supply of semiconductor materials and ancillary services associated with the manufacturing of thin film photovoltaic (PV) modules by First Solar, Inc.
- On May 2, 2018, 5N Plus announced the nomination of Mr. Donald F. Osborne with over 30 years of experience in Satellite Communications, Space and Defence, as a Director of 5N Plus.
- On July 3, 2018, 5N Plus announced partial redemption of its 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019, redeeming debentures in an aggregate principal amount of CA\$40.0 million.
- On July 31, 2018, 5N Plus announced that it is doubling the capacity of its ultra-high purity Semiconductor plant located on its Montreal campus to enable its Electronic Materials division to satisfy the growing demand for the Company's specialty semiconductor materials.
- On February 6, 2019, 5N Plus announced the closing of a \$25.0 million unsecured subordinated term loan with Investissement Québec.
- On February 11, 2019, 5N Plus announced that at a special meeting of its shareholders held in Montreal, Quebec, shareholders approved that the stated capital of the common shares of 5N Plus be reduced to \$5.0 million 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, providing more flexibility to pay dividends and repurchase common shares.
- On February 20, 2019, 5N Plus announced that its U.S. based subsidiary, 5N Plus Semiconductors, has 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 hundred 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 February 25, 2019, 5N Plus announced that it has exercised its right to redeem all of its outstanding 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019. On March 28, 2019 the Company will redeem the debentures in an aggregate principal amount of CA\$26 million.

With the closing of 2018 fiscal year, the Company has reached the midpoint milestone of its strategic plan 5N21. The basic premise of this plan has been to significantly reduce 5N Plus' earnings volatility attributed to the fluctuations in commodity markets while growing the Company's profitability and enhancing return on capital employed. Over the past two years, Adjusted EBITDA<sup>1</sup> has grown by 45% while return on capital employed has nearly doubled. Moreover, 2018 provided an opportunity to test the Company's progress with respect to reducing earnings volatility stemmed from adverse changes in the metal markets. During the year, nearly all notations associated with metals utilized by 5N Plus as consumables experienced unfavorable movement. Accounting for this and the fact that the same notations moved favorably in 2017, the growth in Adjusted EBITDA as compared to 2017 is a clear sign that the new business model is working. Also, these results confirm that 5N Plus is well on track to deliver two of the three goals defined by its strategic plan, namely \$45.0 million Adjusted EBITDA and 17% ROCE by 2021. As with the third goal of reducing earnings volatility by 50%, the Company has achieved this objective nearly a year earlier than anticipated.

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<sup>1</sup> See Non-IFRS Measures

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Summary of Results

	Q4 2018	Q4 2017	FY 2018	FY 2017
	\$	\$	\$	\$
Revenue	47,710	52,492	217,995	219,916
Adjusted operating expenses <sup>1</sup> *	(40,798)	(45,729)	(185,645)	(190,329)
Adjusted EBITDA <sup>1</sup>	6,912	6,763	32,350	29,587
Impairment of inventory	-	-	-	-
Share-based compensation expense	(721)	(712)	(3,298)	(4,470)
Litigation and restructuring (costs) income	(766)	(415)	(316)	2,953
Gain on disposal of property, plant and equipment (PPE)	-	1,497	510	1,887
Impairment of non-current assets	-	(3,100)	-	(3,100)
Change in fair value of debenture conversion option	-	67	-	85
Foreign exchange and derivative gain (loss)	164	320	(225)	(79)
EBITDA <sup>1</sup>	5,589	4,420	29,021	26,863
Interest on long-term debt, imputed interest and other interest expense	886	1,372	6,295	6,097
Depreciation and amortization	2,469	2,434	8,810	8,226
Earnings before income taxes	2,234	614	13,916	12,540
Income tax (recovery) expense				
Current	(2,955)	243	848	3,595
Deferred	1,143	(1,851)	(904)	(3,068)
	(1,812)	(1,608)	(56)	527
Net earnings	4,046	2,222	13,972	12,013
Basic earnings per share	\$0.05	\$0.03	\$0.17	\$0.14
Diluted earnings per share	\$0.05	\$0.03	\$0.17	\$0.14

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

### Revenue by Segment and Gross Margin

	Q4 2018	Q4 2017	Change	FY 2018	FY 2017	Change
	\$	\$		\$	\$	
Electronic Materials	19,368	17,917	8%	81,014	73,448	10%
Eco-Friendly Materials	28,342	34,575	(18%)	136,981	146,468	(6%)
<b>Total revenue</b>	<b>47,710</b>	<b>52,492</b>	<b>(9%)</b>	<b>217,995</b>	<b>219,916</b>	<b>(1%)</b>
Cost of sales	(37,916)	(41,035)	(8%)	(169,061)	(170,514)	(1%)
Depreciation on PPE	2,256	2,363	(5%)	7,962	7,908	1%
<b>Gross margin<sup>1</sup></b>	<b>12,050</b>	<b>13,820</b>	<b>(13%)</b>	<b>56,896</b>	<b>57,310</b>	<b>(1%)</b>
<b>Gross margin percentage<sup>1</sup></b>	<b>25.3%</b>	<b>26.3%</b>		<b>26.1%</b>	<b>26.1%</b>	

During Q4 2018 and FY 2018, revenue decreased by 9% and 1% respectively compared to the same periods of 2017. Gross margin reached 25.3% in Q4 2018 compared to 26.3% in Q4 2017, tracking an average gross margin of 26.1% for both years, or \$56.9 million in 2018 compared to \$57.3 million in 2017. Both revenue and gross margin were negatively impacted by adverse movements in the underlying metal notations, especially in the second half of 2018. The stability of revenue and gross margin in 2018, despite adverse impacts from the commodity markets, is congruent with the Company's new business model under its strategic plan to reduce earnings volatility from notable movements in the metal notations.

<sup>1</sup> See Non-IFRS Measures

## Operating earnings, EBITDA and Adjusted EBITDA

	Q4 2018	Q4 2017	Change	FY 2018	FY 2017	Change
	\$	\$		\$	\$	
Electronic Materials	7,142	5,642	27%	29,226	24,835	18%
Eco-Friendly Materials	1,115	3,667	(70%)	12,517	14,976	(16%)
Corporate	(1,345)	(2,546)	47%	(9,393)	(10,224)	8%
<b>Adjusted EBITDA<sup>1</sup></b>	<b>6,912</b>	<b>6,763</b>	<b>2%</b>	<b>32,350</b>	<b>29,587</b>	<b>9%</b>
<b>EBITDA<sup>1</sup></b>	<b>5,589</b>	<b>4,420</b>	<b>26%</b>	<b>29,021</b>	<b>26,863</b>	<b>8%</b>
<b>Operating earnings</b>	<b>2,956</b>	<b>1,599</b>	<b>85%</b>	<b>20,436</b>	<b>18,631</b>	<b>10%</b>

In Q4 2018, Adjusted EBITDA<sup>1</sup> was \$6.9 million compared to \$6.8 million in Q4 2017. In FY 2018, Adjusted EBITDA increased by \$2.8 million, from \$29.6 million in FY 2017 to \$32.4 million, supported by a favorable sales mix, strong product demand and overall performance of operating activities.

In Q4 2018, EBITDA<sup>1</sup> was \$5.6 million compared to \$4.4 million in Q4 2017. In FY 2018, EBITDA was \$29.0 million compared to \$26.9 million in FY 2017. The improvement in FY 2018 is mainly due to the increase in Adjusted EBITDA mentioned above combined with lower shared-based compensation expense and less significant one-time items recorded in the current period.

Operating earnings in Q4 2018 were \$3.0 million compared to \$1.6 million in Q4 2017 and \$20.4 million in FY 2018 compared to \$18.6 million in FY 2017.

**Electronic Materials Segment**

Adjusted EBITDA in Q4 2018 increased by \$1.5 million to \$7.1 million representing an Adjusted EBITDA margin<sup>1</sup> of 37% compared to 31% in Q4 2017. Adjusted EBITDA increased by \$4.4 million to \$29.2 million in FY 2018 representing an Adjusted EBITDA margin of 36% compared to 34% in FY 2017.

**Eco-Friendly Materials Segment**

Adjusted EBITDA decreased by \$2.6 million representing an Adjusted EBITDA margin of 4% in Q4 2018 compared to 11% in Q4 2017. Adjusted EBITDA decreased by \$2.5 million representing an Adjusted EBITDA margin of 9% in FY 2018 compared to 10% in FY 2017. The figures in both periods were adversely impacted by the decrease in the underlying metal notations. The Company's strategic plan has significantly reduced the impact of earnings volatility due to fluctuations in the metal markets. The structure of contracts in this segment makes it nearly impossible to completely eliminate such volatility.

## Net Earnings and Adjusted Net Earnings

	Q4 2018	Q4 2017	FY 2018	FY 2017
	\$	\$	\$	\$
Net earnings	4,046	2,222	13,972	12,013
Basic earnings per share	\$0.05	\$0.03	\$0.17	\$0.14
Reconciling items:				
Share-based compensation expense	721	712	3,298	4,470
Accelerated imputed interest	-	-	1,490	-
Litigation and restructuring costs (income)	766	415	316	(2,953)
Gain on disposal of PPE	-	(1,497)	(510)	(1,887)
Impairment of non-current assets	-	3,100	-	3,100
Change in fair value of debenture conversion option	-	(67)	-	(85)
Income tax expense on taxable items above	(126)	(1,001)	(1,082)	(769)
<b>Adjusted net earnings<sup>1</sup></b>	<b>5,407</b>	<b>3,884</b>	<b>17,484</b>	<b>13,889</b>
<b>Basic adjusted net earnings per share<sup>1</sup></b>	<b>\$0.06</b>	<b>\$0.05</b>	<b>\$0.21</b>	<b>\$0.17</b>

<sup>1</sup> See Non-IFRS Measures

## MANAGEMENT'S DISCUSSION AND ANALYSIS

Net earnings reached \$4.0 million or \$0.05 per share in Q4 2018 compared to \$2.2 million or \$0.03 per share in Q4 2017. Adjusted net earnings<sup>1</sup> increased by \$1.5 million and reached \$5.4 million in Q4 2018, compared to \$3.9 million in Q4 2017. Excluding the income tax expense, the main items reconciling the Adjusted net earnings in Q4 2018 are the share-based compensation expense and litigation and restructuring costs.

In FY 2018, net earnings reached \$14.0 million or \$0.17 per share compared to \$12.0 million or \$0.14 per share in FY 2017. Adjusted net earnings increased by \$3.6 million and reached \$17.5 million compared to \$13.9 million in FY 2017. Excluding the income tax expense, the main items reconciling the Adjusted net earnings in FY 2018 are the share-based compensation expense, the litigation and restructuring costs, the gain on the disposal of a redundant PPE as well as the accelerated imputed interest recognized as an expense following the early redemption of the CA\$40.0 million convertible debentures in June 2018.

### Bookings and Backlog

	BACKLOG <sup>1</sup>			BOOKINGS <sup>1</sup>		
	Q4 2018	Q3 2018	Q4 2017	Q4 2018	Q3 2018	Q4 2017
	\$	\$	\$	\$	\$	\$
Electronic Materials	61,771	62,175	59,705	18,964	22,409	20,032
Eco-Friendly Materials	51,493	43,830	47,681	36,005	28,060	41,922
<b>Total</b>	<b>113,264</b>	<b>106,005</b>	<b>107,386</b>	<b>54,969</b>	<b>50,469</b>	<b>61,954</b>

(number of days based on annualized revenues) *	BACKLOG <sup>1</sup>			BOOKINGS <sup>1</sup>		
	Q4 2018	Q3 2018	Q4 2017	Q4 2018	Q3 2018	Q4 2017
Electronic Materials	291	289	304	89	104	102
Eco-Friendly Materials	166	118	126	116	76	111
Weighted average	217	181	187	105	86	108

\*Bookings and backlog are also presented in number of days to normalize the impact of commodity prices.

#### Q4 2018 vs Q3 2018

Backlog<sup>1</sup> as at December 31, 2018 reached a level of 217 days of annualized revenue, representing an increase of 36 days compared to the previous quarter.

Backlog as at December 31, 2018 for the Electronic Materials segment represented 291 days of annualized segment revenue, an increase of 2 days over the backlog ended September 30, 2018. The backlog for the Eco-Friendly Materials segment represented 166 days of annualized segment revenue, an increase of 48 days or 41% over the backlog ended September 30, 2018.

Bookings<sup>1</sup> for the Electronic Materials segment decreased by 15 days, from 104 days in Q3 2018 to 89 days in Q4 2018. Bookings for the Eco-Friendly Materials segment increased by 40 days, from 76 days in Q3 2018 to 116 days in Q4 2018.

#### Q4 2018 vs Q4 2017

Backlog as at December 31, 2018 for the Electronic Materials segment decreased by 13 days and increased by 40 days for the Eco-Friendly Materials segment compared to December 31, 2017.

Bookings decreased by 13 days for the Electronic Materials segment and increased by 5 days for the Eco-Friendly Materials segment compared to the previous year quarter.

<sup>1</sup> See Non-IFRS Measures

## Expenses

	Q4 2018	Q4 2017	FY 2018	FY 2017
	\$	\$	\$	\$
Depreciation and amortization	2,469	2,434	8,810	8,226
SG&A	4,713	6,678	23,940	26,220
Share-based compensation expense	721	712	3,298	4,470
Litigation and restructuring costs (income)	766	415	316	(2,953)
Impairment of non-current assets	-	3,100	-	3,100
Financial expenses	722	985	6,520	6,091
Income tax (recovery) expense	(1,812)	(1,608)	(56)	527
<b>Total expenses</b>	<b>7,579</b>	<b>12,716</b>	<b>42,828</b>	<b>45,681</b>

**Depreciation and Amortization**

Depreciation and amortization expenses in Q4 2018 and FY 2018 amounted to \$2.5 million and \$8.8 million respectively, compared to \$2.4 million and \$8.2 million for the same periods of 2017. The increase is primarily attributable to the completion of specific capital expenditures late 2017 and early 2018.

**SG&A**

For Q4 2018 and FY 2018, SG&A expenses were \$4.7 million and \$23.9 million respectively, compared to \$6.7 million and \$26.2 million for the same periods of 2017, positively impacted by various initiatives to control the overhead expenses.

**Share-Based Compensation Expense**

Share-based compensation expense in Q4 2018 and FY 2018 amounted to \$0.7 million and \$3.3 million, compared to \$0.7 million and \$4.5 million for the same periods of 2017. The decrease in FY 2018 is mainly due to the important rise in the Company's share price during the second and third quarter of 2017.

**Litigation and Restructuring Costs (Income)**

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 our strategic plan. 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.

In Q4 2017, the Company recorded litigation and restructuring costs of \$0.4 million related to an incident delaying the consolidation of US operations into a new updated and scaled facility, an initiative announced in 2016. The Company recognized in Q1 2017, an income resulting from contract amendments for securing higher margins in the short term versus higher market share in the downstream business mitigated by costs related to the termination of non-core commercial activities in the upstream business activities, for a net income of \$3.0 million.

**Impairment of non-current assets**

No impairment of non-current assets was recognized in Q4 2018 and for FY 2018. In Q4 2017, the Company recorded an impairment charge on non-current assets of \$3.1 million (\$1.1 million for production equipment, \$0.8 million for technology and \$1.1 million for development costs), included in the Electronic Materials segment, reflecting recent development to assumptions used in assessing the carrying value of specific product development assets. The change in assumptions was from an active decision to alter the market penetration strategy, other factors remaining constant. It was motivated by intentional delays in increasing production level in order to prioritize products with higher premiums in niche applications requiring longer market development cycle compared to other products. A discount rate of 17.5% was used to determine the recoverable amount of these non-current assets.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Financial Expenses

Financial expenses for Q4 2018 amounted to \$0.7 million compared to \$1.0 million for the same period last year. The decrease in financial expenses of \$0.3 million is mainly due to the favorable cost of gross debt resulting from the partial redemption of the convertible unsecured subordinated debentures in Q2 2018 using the Company's senior credit facility.

Financial expenses in FY 2018 amounted to \$6.5 million compared to \$6.1 million in the same period last year. The increase in financial expenses of \$0.4 million is mainly due to the accelerated imputed interest of \$1.5 million recognized as a non-cash expense following the early redemption of the CA\$40.0 million convertible debentures in June 2018 mitigated by the lower cost associated with the drawdown on the senior credit facility as well as lower imputed interest on the outstanding debentures during Q3 and Q4 2018. In FY 2018, no charge related to the fair value of the debenture conversion option was recognized while in FY 2017 a minimal favorable charge was recognized.

### Income Taxes

The Company reported earnings before income taxes of \$2.2 million in Q4 2018 and \$13.9 million in FY 2018. Income tax recovery in Q4 2018 was \$1.8 million and \$0.1 million in FY 2018 compared to \$1.6 million and an income tax expense of \$0.5 million in the same periods last year. These amounts were favorably impacted by deferred tax assets applicable in certain jurisdictions as well as adjustment in respect of prior years where the outcome was different than initially estimated.

### Liquidity and Capital Resources

	Q4 2018	Q4 2017	FY 2018	FY 2017
	\$	\$	\$	\$
Funds from operations <sup>1</sup>	8,641	5,398	28,643	26,336
Net changes in non-cash working capital items	(5,374)	(7,511)	(26,448)	(13,226)
Operating activities	3,267	(2,113)	2,195	13,110
Investing activities	(3,085)	137	(9,754)	(4,788)
Financing activities	(26)	807	693	884
Effect of foreign exchange rate changes on cash and cash equivalents	(231)	129	(434)	517
<b>Net (decrease) increase in cash and cash equivalents</b>	<b>(75)</b>	<b>(1,040)</b>	<b>(7,300)</b>	<b>9,723</b>

Cash generated by operating activities amounted to \$3.3 million in Q4 2018 compared to cash used of \$2.1 million in Q4 2017. In FY 2018, cash provided by operating activities amounted to \$2.2 million compared to \$13.1 million in FY 2017. The negative change in non-cash working capital in FY 2018 resulted mainly from a decrease in trade and accrued liabilities of \$21.3 million combined with an increase of \$6.2 million in inventory aimed at hedging commercial positions.

In Q4 2018, cash used in investing activities totaled \$3.1 million compared to cash generated of \$0.1 million in Q4 2017. This decrease is mainly explained by proceeds from the disposal of redundant PPE in Q4 2017. In FY 2018, cash used in investing activities increased by \$5.0 million explained by higher investment in PPE and less proceeds from disposal of redundant PPE.

No net cash was generated or used from financing activities in Q4 2018 compared to cash provided of \$0.8 million in Q4 2017. In FY 2018, cash provided by financing activities amounted to \$0.7 million compared to \$0.9 million in FY 2017. The decrease is associated with the timing of contributions from a product development partnership program combined with the impact of the drawdown on the Company's senior credit facility to partially redeem the debentures in Q2 2018 mitigated by more cash from issuance of common share, while in YTD 2017, the Company had repurchased a certain number of shares under the common share repurchase program which ended in October 2017.

<sup>1</sup> See Non-IFRS Measures

## Working Capital

	As at December 31, 2018	As at December 31, 2017
	\$	\$
Inventories	96,889	90,647
Other current assets	62,396	74,581
Current liabilities	(65,924)	(68,653)
<b>Working capital<sup>1</sup></b>	<b>93,361</b>	<b>96,575</b>
<b>Working capital current ratio<sup>1</sup></b>	<b>2.42</b>	<b>2.41</b>

The decrease in working capital<sup>1</sup> compared to December 31, 2017 was mainly attributable to decrease in cash and cash equivalents mitigated by higher inventory, as the Company is protecting specific commercial positions.

## Net Debt

	As at December 31, 2018	As at December 31, 2017
	\$	\$
Bank indebtedness	-	-
Long-term debt including current portion	30,175	271
Convertible debentures	18,571	48,768
Cross-currency swap	197	(3,602)
<b>Total Debt</b>	<b>48,943</b>	<b>45,437</b>
Cash and cash equivalents	(26,724)	(34,024)
<b>Net Debt<sup>1</sup></b>	<b>22,219</b>	<b>11,413</b>

Total debt, including the cross-currency swap, increased by \$3.5 million to \$48.9 million as at December 31, 2018, compared to \$45.4 million as at December 31, 2017.

Net debt<sup>1</sup>, after considering cash and cash equivalents, increased by \$10.8 million, from \$11.4 million as at December 31, 2017 to \$22.2 million as at December 31, 2018, mostly impacted by non-cash working capital requirements.

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\$40.0 million. On the same day, the Company completed a drawdown on its senior credit facility of US\$30.0 million to partially redeem the debentures on favorable terms reducing the current cost of gross debt. As at December 31, 2018, the aggregate principal amount of debentures currently outstanding was CA\$26.0 million.

Consequently, during the second quarter of 2018, the Company de-designated CA\$40.0 million of the nominal amount of the associated cross-currency swap and reclassified the net gain of \$0.1 million, representing the accumulated net changes in cash flow hedges, from accumulated other comprehensive loss to realized gain on de-designation within the condensed interim consolidated statement of earnings.

Following the early redemption of the CA\$40.0 million convertible debentures, an accelerated imputed interest of \$1.5 million was recognized during Q2 2018 as an expense in the condensed interim consolidated statement of earnings.

## Available Short-Term Capital Resources

	As at December 31, 2018	As at December 31, 2017
	\$	\$
Cash and cash equivalents	26,724	34,024
Available bank indebtedness	1,454	1,530
Available revolving credit facility	49,000	52,998
<b>Available short-term capital resources</b>	<b>77,178</b>	<b>88,552</b>

<sup>1</sup> See Non-IFRS Measures

## MANAGEMENT'S DISCUSSION AND ANALYSIS

In April 2018, the Company signed a senior secured multi-currency revolving credit facility of \$79.0 million maturing in April 2022 to replace its existing \$50.0 million senior secured revolving facility maturing in August 2018. 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, 2018, the Company has met all covenants.

On February 6, 2019, 5N Plus announced the closing of a \$25.0 million unsecured subordinated term loan with Investissement Québec. As 5N Plus nears the halfway point of its strategic plan, more emphasis will be placed on the development of its growth initiatives along with further investment in efficiency gains from its core businesses. To that end, it is expected that the proceeds from the unsecured term loan will be utilized to support these programs along with the repayment of the balance of the unsecured convertible debentures issued by the Company in 2014; which will mature on June 30, 2019. The new loan has a five-year term and will be disbursed in two tranches: the first tranche of \$5.0 million was disbursed on February 6, 2019 and the second tranche of \$20.0 million will be disbursed by no later than March 29, 2019. The new term loan will bear an interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%.

### Share Information

	As at February 26, 2019	As at December 31, 2018
Issued and outstanding shares	84,622,291	84,609,791
Stock options potentially issuable	1,478,041	1,490,541
Convertible debentures potentially issuable	3,851,851	3,851,851

### 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 2018, the Company granted 393,897 New RSUs, 28,361 New RSUs were paid and 67,370 New RSUs were forfeited. In FY 2017, the Company granted 368,360 New RSUs, none were paid and 37,500 were forfeited. As at December 31, 2018, 1,854,026 New RSUs were outstanding compared to 1,555,860 as at December 31, 2017.

No PSUs were granted in FY 2018 and FY 2017 and 500,000 PSUs were outstanding as at December 31, 2018 and 2017.

### 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, 2018 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:

	2018		2017	
	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
		CA\$		CA\$
Outstanding, beginning of year	2,224,747	2.20	2,860,648	2.63
Granted	143,335	2.71	288,000	1.75
Exercised	(708,750)	1.92	(597,500)	1.75
Forfeited	(137,704)	2.54	(116,476)	2.50
Expired	(31,087)	3.61	(209,925)	8.59
Outstanding, end of year	1,490,541	2.32	2,224,747	2.20
Exercisable, end of year	726,750	2.75	1,001,497	2.59

### Off-Balance Sheet Arrangements

The Company has certain off-balance sheet arrangements, consisting of leasing certain premises and equipment under the terms of operating leases and contractual obligations in the normal course of business.

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, 2018.

The following table reflects the contractual maturity of the Company's financial liabilities as at December 31, 2018:

	Carrying amount	1 year	2 years	3 years	4 years	Total
	\$	\$	\$	\$	\$	\$
Trade and accrued liabilities	39,249	39,249	-	-	-	39,249
Long-term debt	30,175	1,394	1,219	1,219	31,219	35,051
Convertible debentures	18,571	19,884	-	-	-	19,884
<b>Total</b>	87,995	60,527	1,219	1,219	31,219	94,184

### Commitments

The Company rents certain premises and equipment under the terms of operating leases. Future minimum payments excluding operating costs are as follows:

	2018
	\$
No later than 1 year	1,598
Later than 1 year but no later than 5 years	2,635
Later than 5 years	61
<b>Total</b>	4,294

As at December 31, 2018, in the normal course of business, the Company contracted letters of credit for an amount of \$0.4 million and \$0.4 million as at December 31, 2017.

### 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.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Subsequent events

On February 6, 2019, the Company announced the closing of a \$25.0 million unsecured subordinated term loan with Investissement Québec. The new loan has a five-year term and will be disbursed in two tranches: the first tranche of \$5.0 million was disbursed on February 6, 2019 and the second tranche of \$20.0 million will be disbursed by no later than March 29, 2019. The new term loan will bear an interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%.

On February 11, 2019, the Company's shareholders voted to approve a special resolution by which the stated capital of the common shares of the Company be reduced to \$5.0 million 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 reduction of stated capital will not result in any change to shareholders' equity.

On February 25, 2019, 5N Plus announced that it has exercised its right to redeem all of its 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019. On March 28, 2019 the Company will redeem its convertible debentures in an aggregate principal amount of CA\$26 million. Following the redemption, no outstanding convertible debentures will remain.

### 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, 2018 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 2018 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, 2018.

#### Changes in accounting policies

##### IFRS 15 – Revenues from Contracts with Customers

On January 1, 2018, the Company has adopted the new accounting standard IFRS 15 to all contracts using the modified retrospective approach. The adoption of IFRS 15 did not result in significant changes in the accounting for revenue from contracts with customers and the Company has concluded that there was no significant impact on its consolidated financial statements nor would there have been any significant effect on the 2018 consolidated statement of earnings had the prior accounting policies continued to be applied.

##### IFRS 9 – Financial Instruments

On January 1, 2018, the Company has also adopted the new accounting standard IFRS 9 and elected to apply prospectively. The adoption of the new classification requirements under IFRS 9 did not result in a change in the carrying value of any of Company's financial instruments on the transition date.

#### Future changes in accounting policies

The following standards have been issued but are not yet effective:

##### IFRS 16 – Leases

In January 2016, IASB issued IFRS 16 – Leases, which specifies how an IFRS reporter will recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognise assets and liabilities for all leases unless the lease term is 12 months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. The standard will be mandatory for annual periods beginning on or after January 1, 2019.

Effective January 1, 2019, the Company will adopt IFRS 16 using the modified retrospective approach and will chose the option under which the amount of the right-of-use assets will be equal to the amount of the lease liabilities. The expected impact in the consolidated statement of financial position of this new standard is noted below.

For contracts entered into before January 1, 2019, the Company determined whether the arrangement contained a lease under IAS 17 and IFRIC 4. Prior to the adoption of IFRS 16, these leases were classified as operating or finance leases based on an assessment of whether the lease transferred significantly all the risks and rewards of ownership of the underlying asset. The Company leases production and warehouse locations, production equipment and furniture, office equipment and rolling stock.

On transition, the Company will elect to apply the practical expedient to grandfather the determination of which contract is or contains a lease and will apply IFRS 16 to those contracts that were previously identified as leases. Upon transition to the new standard, right-of-use assets and lease liabilities will be measured at the present value of the remaining lease payments discounted by the Company's incremental borrowing rate as at January 1, 2019.

At transition, right-of-use assets and lease liabilities of approximately \$7.0 million will be recognized in the consolidated statement of financial position.

The Company will elect not to recognize right-of-use assets and lease liabilities for leases with a lease term of less than 12 months and low value assets and will continue to recognize the lease payments associated with these leases as an expense on a straight-line basis over the lease term, as permitted by IFRS 16.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### IFRIC 23 – Uncertainty over Income Tax Treatments

In June 2017, the IFRS Interpretations Committee of the IASB issued IFRIC 23, Uncertainty over Income Tax Treatments (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 interpretation is effective for the annual period beginning on January 1, 2019. The Company has concluded that no impact will result from the application of IFRIC 23 on its 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, 2018. 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 measured 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.

**Debenture conversion option**

The convertible debentures issued by the Company included conversion and early redemption options, which are considered as Level 3 financial instruments. The derivative is measured at fair value through profit or loss, and its fair value must be measured at each reporting period, with subsequent changes in fair value recorded in the consolidated statement of earnings. A derivative valuation model is used and includes assumptions to estimate the fair value. Detailed assumptions used in the model to determine the fair value of the embedded derivative are provided in note 12 of the 2018 consolidated financial statements of the Company.

**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 2018 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 Notes 8 and 23 in the 2018 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 2018 consolidated financial statements of the Company.

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

	2018	2017
	\$	\$
Debenture conversion option	-	-
Cross-currency swap	(197)	3,602
Equity swap agreement	5,835	6,141

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### 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 2018 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, currently as convertible debentures are 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 \$0.2 million on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2018.

#### 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\$ convertible debentures, applying hedge accounting principles to the transaction. 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, 2018, 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, 2018:

	CA\$	EUR	GBP	RMB	MYR	Other
	\$	\$	\$	\$	\$	\$
Cash and cash equivalents	3,462	3,555	1,126	652	582	433
Accounts receivable	196	6,197	170	1,169	-	754
Other current assets	5,835	-	-	-	-	-
Trade and accrued liabilities	(11,703)	(8,726)	-	(659)	(407)	(566)
Long-term debt	(175)	-	-	-	-	-
Net financial assets (liabilities)	(2,385)	1,026	1,296	1,162	175	621

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, 2018 for the Company's financial instruments denominated in non-functional currencies:

	CA\$	EUR	GBP	RMB	MYR	Other
	\$	\$	\$	\$	\$	\$
5% Strengthening	(119)	51	65	58	9	31
5% Weakening	119	(51)	(65)	(58)	(9)	(31)

#### 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, 2018 and 2017, 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 labour 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.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

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 the stated positions of the U.S. administration (expressed through its withdrawal from the Trans-Pacific Partnership Agreement and the renegotiation of the North American Free Trade Agreement) and the 2016 vote in favour of the exit of the United Kingdom from the European Union, 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 the leading producer of specialty metal and chemical products and have 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.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### 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 lock-outs, potentially affecting our performance.

### Litigation Risks

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

### 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 (loss) before interest expenses (revenues), 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 (loss) 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 (loss) 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 (loss) per share means adjusted net earnings (loss) divided by the weighted average number of outstanding shares. We use basic adjusted net earnings (loss) 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 of property, plant and equipment 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 or net cash is a measure we use to monitor how much debt we have after taking into account cash and cash equivalents. We use it as an indicator of our overall financial position, and calculate it by taking our total debt, including the current portion and the cross-currency swap related to the convertible debenture, and subtracting cash and cash equivalents.

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 and amortization (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](http://www.sedar.com).

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Selected Quarterly Financial Information

(in thousands of United States dollars except per share amounts)	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	March 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017
	\$	\$	\$	\$	\$	\$	\$	\$
Revenue	47,710	53,379	58,359	58,547	52,492	50,325	56,229	60,870
EBITDA <sup>1</sup>	5,589	7,772	7,860	7,800	4,420	6,427	6,341	9,675
Adjusted EBITDA <sup>1</sup>	6,912	8,581	8,972	7,885	6,763	6,942	9,236	6,646
Net earnings attributable to equity holders of 5N Plus	4,046	3,457	3,417	3,051	2,229	2,224	3,416	4,154
Basic earnings per share attributable to equity holders of 5N Plus	\$0.05	\$0.04	\$0.04	\$0.04	\$0.03	\$0.03	\$0.04	\$0.05
Net earnings	4,046	3,458	3,420	3,048	2,222	2,223	3,415	4,153
Basic earnings per share	\$0.05	\$0.04	\$0.04	\$0.04	\$0.03	\$0.03	\$0.04	\$0.05
Diluted earnings per share	\$0.05	\$0.04	\$0.04	\$0.04	\$0.03	\$0.03	\$0.04	\$0.05
Adjusted net earnings <sup>1</sup>	5,407	3,919	5,344	2,814	3,884	2,572	5,409	2,024
Basic adjusted net earnings per share <sup>1</sup>	\$0.06	\$0.05	\$0.06	\$0.03	\$0.05	\$0.03	\$0.06	\$0.02
Funds from operations <sup>1</sup>	8,641	6,582	7,194	6,226	5,398	4,263	7,945	8,730
Backlog <sup>1</sup>	217 days	181 days	170 days	172 days	187 days	178 days	135 days	128 days

### Selected Yearly Financial Information

As at and for the years ended December 31 (in thousands of United States dollars except per share amounts)	2018	2017	2016
	\$	\$	\$
Revenue	217,995	219,916	231,498
EBITDA	29,021	26,863	15,111
Adjusted EBITDA	32,350	29,587	22,323
Net earnings (loss) attributable to equity holders of 5N Plus	13,972	12,023	(5,895)
Basic earnings(loss) per share attributable to equity holders of 5N Plus	\$0.17	\$0.14	(\$0.07)
Net earnings (loss)	13,972	12,013	(5,896)
Basic earnings (loss) per share	\$0.17	\$0.14	(\$0.07)
Diluted earnings (loss) per share	\$0.17	\$0.14	(\$0.07)
Adjusted net earnings	17,484	13,889	3,454
Basic adjusted net earnings per share	\$0.21	\$0.17	\$0.04
Funds from operations	28,643	26,336	12,486
Backlog	217 days	187 days	136 days
Balance Sheet			
Total assets	237,057	244,932	219,057
Total non-current liabilities	51,430	70,851	64,415
Net debt <sup>1</sup>	22,219	11,413	18,992
Shareholders' equity	119,703	105,446	88,522

(in thousands of United States dollars)	2017	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017	2016
	\$	\$	\$	\$	\$	\$
Adjusted operating expenses – previous definition	194,799	46,441	44,170	49,390	54,798	211,387
Share-based compensation expense	(4,470)	(712)	(787)	(2,397)	(574)	(2,212)
Adjusted operating expenses <sup>1</sup> – current definition	190,329	45,729	43,383	46,993	54,224	209,175

(in thousands of United States dollars)	2017	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017	2016
	\$	\$	\$	\$	\$	\$
Adjusted EBITDA – previous definition	25,117	6,051	6,155	6,839	6,072	20,111
Share-based compensation expense	4,470	712	787	2,397	574	2,212
Adjusted EBITDA <sup>1</sup> – current definition	29,587	6,763	6,942	9,236	6,646	22,323

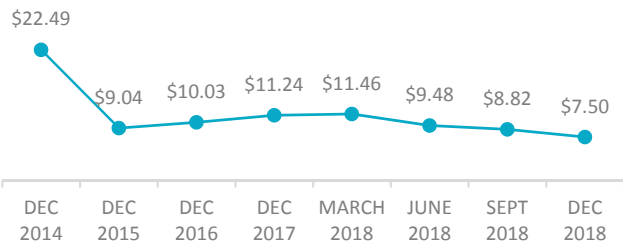
(in thousands of United States dollars, except per share amounts)	2017	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017	2016
	\$	\$	\$	\$	\$	\$
Adjusted net earnings – previous definition	10,604	3,361	1,994	3,647	1,602	1,838
Basic adjusted net earnings per share – previous definition	\$0.13	\$0.04	\$0.02	\$0.04	\$0.02	\$0.02
Share-based compensation expense	4,470	712	787	2,397	574	2,212
Income tax expense on taxable items above	(1,185)	(189)	(209)	(635)	(152)	(596)
Adjusted net earnings <sup>1</sup> – current definition	13,889	3,884	2,572	5,409	2,024	3,454
Basic adjusted net earnings per share <sup>1</sup> – current definition	\$0.17	\$0.05	\$0.03	\$0.06	\$0.02	\$0.04

<sup>1</sup> See Non-IFRS Measures

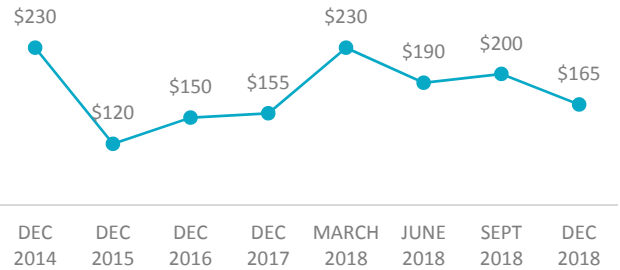
**Metal Prices**

(in U.S. dollars per kilo)

Bismuth



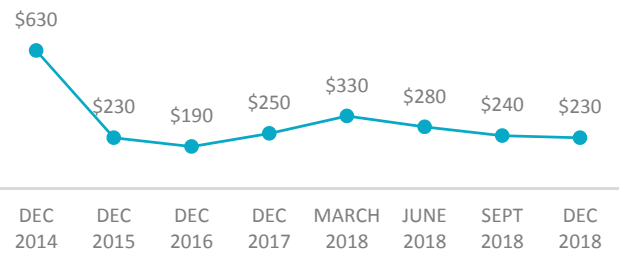
Gallium



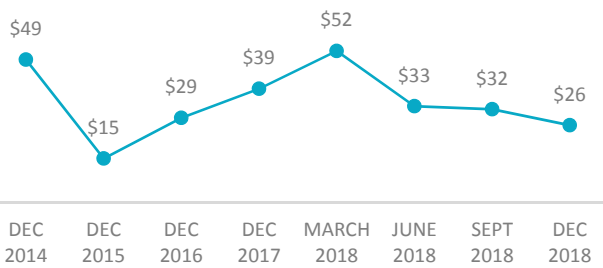
Germanium



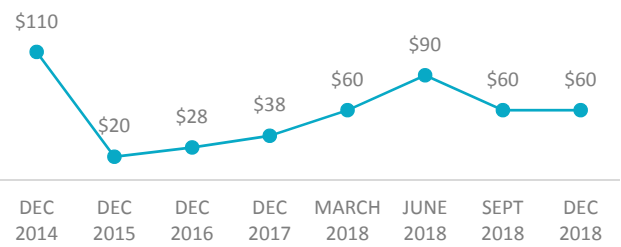
Indium



Selenium



Tellurium



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. \_\_\_\_\_

Arjang J. Roshan  
President and Chief Executive Officer

*(signed)* Richard Perron \_\_\_\_\_

Richard Perron  
Chief Financial Officer

Montréal, Canada  
February 26, 2019



## *Independent auditor's report*

To the Shareholders of  
5N Plus Inc.

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### *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, 2018 and 2017, and its financial performance and its cash flows for the years then ended in accordance with IFRS 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, 2018 and 2017;
- 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.

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### *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.

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*PricewaterhouseCoopers LLP/s.r.l./s.e.n.c.r.l.*  
*1250 René-Lévesque Boulevard West, Suite 2500, Montréal, Québec, 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.



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### *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.

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### *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.





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### *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<sup>1</sup>*

Montréal, Quebec  
February 26, 2019

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<sup>1</sup> CPA auditor, CA, public accountancy permit No. A123642

## CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(in thousands of United States dollars)

	Notes	December 31 2018	December 31 2017
		\$	\$
<b>Assets</b>			
<b>Current</b>			
Cash and cash equivalents		26,724	34,024
Accounts receivable	4	22,984	25,639
Inventories	5	96,889	90,647
Income tax receivable	15	4,891	6,145
Other current assets	16	7,797	8,773
<b>Total current assets</b>		<b>159,285</b>	<b>165,228</b>
Property, plant and equipment	6, 26	57,297	56,607
Intangible assets	7, 26	11,199	10,856
Deferred tax assets	15	7,872	6,891
Investment accounted for using the equity method	8	-	718
Derivative financial assets	16	-	3,602
Other assets	9	1,404	1,030
<b>Total non-current assets</b>		<b>77,772</b>	<b>79,704</b>
<b>Total assets</b>		<b>237,057</b>	<b>244,932</b>
<b>Liabilities</b>			
<b>Current</b>			
Trade and accrued liabilities	10	39,249	57,043
Income tax payable	15	7,732	11,339
Derivative financial liabilities	16	197	-
Current portion of long-term debt	11	175	271
Current portion of convertible debentures	12	18,571	-
<b>Total current liabilities</b>		<b>65,924</b>	<b>68,653</b>
Long-term debt	11	30,000	-
Convertible debentures	12	-	48,768
Deferred tax liabilities	15	266	251
Employee benefit plan obligation	13	14,619	15,396
Other liabilities	14	6,545	6,436
<b>Total non-current liabilities</b>		<b>51,430</b>	<b>70,851</b>
<b>Total liabilities</b>		<b>117,354</b>	<b>139,504</b>
<b>Equity</b>			
Equity holders of 5N Plus Inc.		119,703	105,446
Non-controlling interest		-	(18)
<b>Total equity</b>		<b>119,703</b>	<b>105,428</b>
<b>Total liabilities and equity</b>		<b>237,057</b>	<b>244,932</b>

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	2018	2017
		\$	\$
<b>Revenue</b>		<b>217,995</b>	219,916
Cost of sales	26	169,061	170,514
Selling, general and administrative expenses	26	23,940	26,220
Other expenses (income), net	26	4,536	4,441
Share of loss from joint ventures	8	22	110
		<b>197,559</b>	201,285
<b>Operating earnings</b>		<b>20,436</b>	18,631
<b>Financial expenses</b>			
Interest on long-term debt		2,873	3,261
Imputed interest and other interest expense	12	3,422	2,836
Changes in fair value of debenture conversion option	16	-	(85)
Foreign exchange and derivative loss		225	79
		<b>6,520</b>	6,091
<b>Earnings before income taxes</b>		<b>13,916</b>	12,540
Income tax expense (recovery)			
Current	15	848	3,595
Deferred	15	(904)	(3,068)
		<b>(56)</b>	527
<b>Net earnings</b>		<b>13,972</b>	12,013
<b>Attributable to:</b>			
Equity holders of 5N Plus Inc.		13,972	12,023
Non-controlling interest		-	(10)
		<b>13,972</b>	12,013
<b>Earnings per share attributable to equity holders of 5N Plus Inc.</b>	20	<b>0.17</b>	0.14
<b>Basic earnings per share</b>	20	<b>0.17</b>	0.14
<b>Diluted earnings per share</b>	20	<b>0.17</b>	0.14

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

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

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

	Notes	2018	2017
		\$	\$
<b>Net earnings</b>		<b>13,972</b>	12,013
<b>Other comprehensive (loss) income</b>			
<b>Items that may be reclassified subsequently to net earnings</b>			
Net changes in cash flow hedges			
Effective portion of changes in fair value of cash flow hedges	16	(2,384)	3,413
Reclassification to net earnings		2,461	(3,643)
De-designation of cash flow hedges	12	(79)	-
Income taxes		(1)	30
		(3)	(200)
Currency translation adjustment		(964)	1,121
		(967)	921
<b>Items that will not be reclassified subsequently to net earnings</b>			
Remeasurement of employee benefit plan obligation	13	(200)	1,062
Income taxes		63	2,374
		(137)	3,436
<b>Other comprehensive (loss) income</b>		<b>(1,104)</b>	4,357
<b>Comprehensive income</b>		<b>12,868</b>	16,370
Attributable to equity holders of 5N Plus Inc.		12,868	16,380
Attributable to non-controlling interest		-	(10)

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						
	Number of shares	Share capital	Contributed surplus	Accumulated comprehensive loss	Deficit	Total shareholders' equity	Non-controlling interest
<b>2018</b>							
<b>Balances at beginning of year</b>	83,901,041	\$ 341,949	4,586	(4,570)	(236,519)	\$ 105,446	\$ (18)
Net earnings for the year	-	-	-	-	13,972	13,972	-
Other comprehensive loss	-	-	-	(3)	-	(3)	-
Net changes in cash flow hedges	-	-	-	(964)	-	(964)	-
Currency translation adjustment	-	-	-	(137)	-	(137)	-
Net remeasurement of employee benefit plan obligation	-	-	-	(1,104)	13,972	12,868	-
Comprehensive (loss) income	-	-	-	(1,104)	13,972	12,868	-
Repurchase of non-controlling interest	-	-	-	-	-	-	18
Exercise of stocks options (Note 21)	708,750	1,531	(487)	-	-	1,044	-
Share-based compensation (Note 21)	-	-	345	-	-	345	-
<b>Balances at end of year</b>	<b>84,609,791</b>	<b>343,480</b>	<b>4,444</b>	<b>(5,674)</b>	<b>(222,547)</b>	<b>119,703</b>	<b>-</b>
<b>2017</b>							
<b>Balances at beginning of year</b>	83,778,557	\$ 342,684	4,596	(8,927)	(249,831)	\$ 88,522	\$ (8)
Net earnings (loss) for the year	-	-	-	-	12,023	12,023	(10)
Other comprehensive income (loss)	-	-	-	(200)	-	(200)	-
Net changes in cash flow hedges	-	-	-	1,121	-	1,121	-
Currency translation adjustment	-	-	-	3,436	-	3,436	-
Net remeasurement of employee benefit plan obligation	-	-	-	4,357	12,023	16,380	(10)
Comprehensive income (loss)	-	-	-	4,357	12,023	16,380	(10)
Common shares repurchased and cancelled (Note 19)	(475,016)	(1,943)	-	-	1,289	(654)	-
Exercise of stocks options (Note 21)	597,500	1,208	(396)	-	-	812	-
Share-based compensation (Note 21)	-	-	386	-	-	386	-
<b>Balances at end of year</b>	<b>83,901,041</b>	<b>341,949</b>	<b>4,586</b>	<b>(4,570)</b>	<b>(236,519)</b>	<b>105,446</b>	<b>(18)</b>

## CONSOLIDATED STATEMENTS OF CASH FLOWS

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

	Notes	2018 \$	2017 \$
<b>Operating activities</b>			
Net earnings		13,972	12,013
Adjustments to reconcile net earnings to cash flows			
Depreciation of property, plant and equipment and amortization of intangible assets		8,810	8,226
Impairment of non-current assets	26	-	3,100
Amortization of other assets		163	221
Reversal for loss allowance	4, 24	(29)	-
Share-based compensation expense	21	3,422	4,390
Deferred income taxes	15	(904)	(3,068)
Share of loss from joint ventures	8	22	110
Loss on disposal of investment in joint venture	8	360	-
Imputed interest	12	3,146	2,541
Employee benefit plan obligation	13	(291)	(312)
Change in fair value of debenture conversion option	16	-	(85)
Gain on disposal of property, plant and equipment		(510)	(1,887)
Unrealized (gain) loss on non-hedge financial instruments		(124)	80
Unrealized foreign exchange loss on assets and liabilities		370	1,007
Realized loss on non-hedge financial instruments		670	-
Realized foreign exchange gain on assets and liabilities		(355)	-
Gain on de-designation of cash flow hedges	12	(79)	-
<b>Funds from operations before the following :</b>		<b>28,643</b>	<b>26,336</b>
Net change in non-cash working capital balances	18	(26,448)	(13,226)
<b>Cash from operating activities</b>		<b>2,195</b>	<b>13,110</b>
<b>Investing activities</b>			
Additions to property, plant and equipment	6, 18	(10,098)	(6,769)
Additions of intangible assets	7	(1,198)	(2,006)
Proceeds on disposal of investment in joint venture	8	417	-
Proceeds on disposal of property, plant and equipment	6	1,125	3,987
<b>Cash used in investing activities</b>		<b>(9,754)</b>	<b>(4,788)</b>
<b>Financing activities</b>			
Repayment of long-term debt		(78)	(74)
Proceeds from issuance of long term debt	11	30,000	-
Expenses related to issuance of long-term debt		(679)	-
Repayment of convertible debentures	12	(29,714)	-
Common shares repurchased	19	-	(654)
Issuance of common shares	19	1,044	812
Increase in other liabilities	14	120	800
<b>Cash from financing activities</b>		<b>693</b>	<b>884</b>
<b>Effect of foreign exchange rate changes on cash and cash equivalents</b>		<b>(434)</b>	<b>517</b>
<b>Net (decrease) increase in cash and cash equivalents</b>		<b>(7,300)</b>	<b>9,723</b>
Cash and cash equivalents, beginning of year		34,024	24,301
<b>Cash and cash equivalents, end of year</b>		<b>26,724</b>	<b>34,024</b>
<b>Supplemental information<sup>(1)</sup></b>			
Income tax paid		1,190	280
Interest paid		2,714	3,094

<sup>(1)</sup> 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

### 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 26, 2019.

### 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 IFRS as issued by 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.



## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

	Country of incorporation	% Equity interest	
		2018	2017
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) income.

### 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 (gain)".

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### 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) income. 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. Distinct operating and financial information are available for these segments and are used to determine the operating performance of each segment and to allocate resources.

The Electronic Materials segment is associated with products used in a number of applications such as security, aerospace, sensing, imaging, renewable energy and various technical materials.

The Eco-Friendly Materials segment is associated with products used in a number of applications, including pharmaceutical, healthcare, animal feed, 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 (revenues) 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 (since January 1, 2018)

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.

A receivable is 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years ended December 31  
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### 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

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

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

### 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

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### 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 (since January 1, 2018)

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:

- a) 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.
- b) 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 <sup>(1)</sup> Derivative financial liabilities <sup>(1)</sup>
Financial assets and liabilities at amortized cost	Cash and cash equivalents Accounts receivable Trade and accrued liabilities Long-term debt Convertible debentures

<sup>(1)</sup> 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### 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.

As permitted by IFRS 9, the Company has elected to continue to apply all the hedge accounting requirements of IAS 39. As a result, there is no change in the Company's previous accounting policy.

### 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 stated 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) income or directly in equity. In which case, the tax expense is also recognized in other comprehensive (loss) income 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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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) income 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-measures 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, 2018. 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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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 measured 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.

### ***Debenture conversion option***

The convertible debentures issued by the Company included conversion and early redemption options, which are considered as Level 3 financial instruments. The derivative is measured at fair value through profit or loss, and its fair value must be measured at each reporting period, with subsequent changes in fair value recorded in the consolidated statement of earnings. A derivative valuation model is used, and includes assumptions, to estimate the fair value. Detailed assumptions used in the model to determine the fair value of the embedded derivative are provided in note 12.

### ***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, 2017****Revenue recognition (prior to the adoption of IFRS 15)**

Revenue comprises the sale of manufactured products and the rendering of services and is measured at the fair value of the sale of manufactured products, net of value-added tax, estimated customer returns and allowances at the time of recognition. The estimates of fair value are based on the Company's historical experience with each customer and the specifics of each arrangement.

Revenue from the sale of manufactured products is recognized when the risks and rewards of ownership have been transferred to the buyer (which generally occurs upon shipment) and collectibility of the related receivables is reasonably assured. Revenue is recognized when (i) it can be measured reliably; (ii) it is probable that the economic benefits associated with the transaction will flow to the Company; and (iii) the costs incurred or to be incurred can be measured reliably. Revenue from custom refining activities is recognized when services are rendered. 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.

**Financial instruments (prior to the adoption of IFRS 9)**

## a) Financial assets at fair value through profit or loss

A financial asset is classified in this category if acquired principally for the purpose of selling or repurchasing in the short term.

Financial instruments in this category are recognized initially and subsequently at fair value. Transaction costs are expensed in the consolidated statement of earnings. Financial assets at fair value through profit or loss are classified as current assets except for the portion expected to be realized or paid beyond twelve months of the consolidated statements of financial position date, which is classified as non-current asset.

## b) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market.

Loans and receivables are recognized initially at the amount expected to be received, less, when material, a discount to reduce the loans and receivables to fair value. Subsequently, loans and receivables are measured at amortized cost using the effective interest method less a provision for impairment. Loans and receivables are included in current assets, except for instruments with maturities greater than twelve months after the end of the reporting period, which are classified as non-current assets.

## c) Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories.

Available-for-sale financial assets are recognized initially at fair value plus transaction costs and are subsequently carried at fair value. Gains or losses arising from changes in fair value are recognized in other comprehensive income. When an available-for-sale financial asset is sold or impaired, the accumulated gains or losses are moved from accumulated other comprehensive income to the consolidated statement of earnings.

Available-for-sale financial assets are classified as non-current assets, unless the investment matures within twelve months, or management expects to dispose of them within twelve months.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### d) Financial liabilities at amortized cost

Financial liabilities at amortized cost are initially recognized at the amount required to be paid, less, when material, a discount to reduce the liabilities to fair value. Subsequently, they are measured at amortized cost using the effective interest method.

Financial liabilities are classified as current liabilities if payment is due within twelve months. Otherwise, they are presented as non-current liabilities.

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 Derivative financial liabilities
Loans and receivables	Cash and cash equivalents Accounts receivable
Financial liabilities at amortized cost	Trade and accrued liabilities Long-term debt Convertible debentures

### Transaction costs

Transaction costs related to financial instruments that are not classified as assets and liabilities at fair value through profit or loss, are recognized in consolidated statement of financial position as an adjustment to the cost of the financial instrument upon initial recognition and amortized using the effective interest rate method. Fees paid on the establishment of loan facilities are recognized as deferred costs under non-current assets and are amortized over the term of the facility.

### Impairment of financial assets

At each reporting date, the Company assesses whether there is objective evidence that a financial asset is impaired. A financial asset is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that occurred after initial recognition (a "loss event") and that loss event has an impact on the estimated cash flows of the financial assets that can be reliably estimated. If such evidence exists, the Company recognizes an impairment loss for its financial assets carried at amortized cost, as follows:

The impairment loss is the difference between the amortized cost of the loan or receivable and the present value of the estimated future cash flows, discounted using the instrument's original effective interest rate. The carrying amount of the asset is reduced by this amount either directly or indirectly through the use of an allowance account.

Impairment losses on financial assets carried at amortized cost are reversed in subsequent periods if the amount of the loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized.

Impairment losses as well as reversals are recognized in the consolidated statement of earnings.

### 3. Changes in Accounting Policies and Futures Changes in Accounting Policies

#### Changes in accounting policies

##### IFRS 15 – Revenues from Contracts with Customers

On January 1, 2018, the Company has adopted the new accounting standard IFRS 15 to all contracts using the modified retrospective approach. The adoption of IFRS 15 did not result in significant changes in the accounting for revenue from contracts with customers and the Company has concluded that there was no significant impact on its consolidated financial statements nor would there have been any significant effect on the 2018 consolidated statement of earnings had the prior accounting policies continued to be applied.

##### IFRS 9 – Financial Instruments

On January 1, 2018, the Company has also adopted the new accounting standard IFRS 9 and elected to apply prospectively. The adoption of the new classification requirements under IFRS 9 did not result in a change in the carrying value of any of Company's financial instruments on the transition date.

#### Future changes in accounting policies

The following standards have been issued but are not yet effective:

##### IFRS 16 – Leases

In January 2016, IASB issued IFRS 16 – Leases, which specifies how an IFRS reporter will recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognise assets and liabilities for all leases unless the lease term is 12 months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. The standard will be mandatory for annual periods beginning on or after January 1, 2019.

Effective January 1, 2019, the Company will adopt IFRS 16 using the modified retrospective approach and will chose the option under which the amount of the right-of-use assets will be equal to the amount of the lease liabilities. The expected impact in the consolidated statement of financial position of this new standard is noted below.

For contracts entered into before January 1, 2019, the Company determined whether the arrangement contained a lease under IAS 17 and IFRIC 4. Prior to the adoption of IFRS 16, these leases were classified as operating or finance leases based on an assessment of whether the lease transferred significantly all the risks and rewards of ownership of the underlying asset. The Company leases production and warehouse locations, production equipment and furniture, office equipment and rolling stock.

On transition, the Company will elect to apply the practical expedient to grandfather the determination of which contract is or contains a lease and will apply IFRS 16 to those contracts that were previously identified as leases. Upon transition to the new standard, right-of-use assets and lease liabilities will be measured at the present value of the remaining lease payments discounted by the Company's incremental borrowing rate as at January 1, 2019.

At transition, right-of-use assets and lease liabilities of approximately \$7,000 will be recognized in the consolidated statement of financial position.

The Company will elect not to recognize right-of-use assets and lease liabilities for leases with a lease term of less than 12 months and low value assets and will continue to recognize the lease payments associated with these leases as an expense on a straight-line basis over the lease term, as permitted by IFRS 16.

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### IFRIC 23 – Uncertainty over Income Tax Treatments

In June 2017, the IFRS Interpretations Committee of the IASB issued IFRIC 23, Uncertainty over Income Tax Treatments (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 interpretation is effective for the annual period beginning on January 1, 2019. The Company has concluded that no impact will result from the application of IFRIC 23 on its financial statements.

### 4. Accounts Receivable

	2018	2017
	\$	\$
Gross trade receivables	19,100	21,673
Loss allowance (Note 24)	(97)	(126)
Trade receivables	19,003	21,547
Sales taxes receivable	3,238	3,104
Other receivables	743	988
<b>Total accounts receivable</b>	<b>22,984</b>	<b>25,639</b>

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

	2018	2017
	\$	\$
Raw materials	32,912	27,924
Finished goods	63,977	62,723
<b>Total inventories</b>	<b>96,889</b>	<b>90,647</b>

For the year ended December 31, 2018, a total of \$97,598 of inventories was included as an expense in cost of sales (2017 – \$111,661).

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) (2017 – \$7,532 [\$890 for the Eco-Friendly Materials segment and \$6,642 for the Electronic Materials segment]).

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

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### 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, 2016	20,491	35,586	1,722	2,146	59,945
Additions	765	5,903	665	78	7,411
Disposals	(2,100)	-	-	-	(2,100)
Depreciation	(1,147)	(5,997)	(467)	(297)	(7,908)
Impairment (Note 26)	-	(1,116)	-	-	(1,116)
Effect of foreign exchange and others	441	(123)	56	1	375
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)
<b>Net book value as at December 31, 2018</b>	<b>17,341</b>	<b>35,505</b>	<b>2,764</b>	<b>1,687</b>	<b>57,297</b>
As at December 31, 2017					
Cost	23,888	54,951	2,234	3,264	84,337
Accumulated depreciation	(5,438)	(20,698)	(258)	(1,336)	(27,730)
Net book value	18,450	34,253	1,976	1,928	56,607
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)
<b>Net book value</b>	<b>17,341</b>	<b>35,505</b>	<b>2,764</b>	<b>1,687</b>	<b>57,297</b>

As at December 31, 2018, property, plant and equipment that were not depreciated until ready for their intended use amounted to \$5,042 (2017 – \$4,315) (mainly production equipment).

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

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### 7. Intangible Assets

	Technology	Software, intellectual property and development costs	Total
	\$	\$	\$
Net book value as at December 31, 2016	3,026	8,083	11,109
Additions	-	2,006	2,006
Disposals and others	-	43	43
Impairment (Note 26)	(837)	(1,147)	(1,984)
Amortization	-	(318)	(318)
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)
<b>Net book value as at December 31, 2018</b>	<b>1,970</b>	<b>9,229</b>	<b>11,199</b>
As at December 31, 2017			
Cost	2,189	10,983	13,172
Accumulated amortization	-	(2,316)	(2,316)
Net book value	2,189	8,667	10,856
As at December 31, 2018			
Cost	2,189	12,103	14,292
Accumulated amortization	(219)	(2,874)	(3,093)
<b>Net book value</b>	<b>1,970</b>	<b>9,229</b>	<b>11,199</b>

As at December 31, 2018, intangible assets that were not depreciated until ready for their intended use amounted to \$5,814 (2017 – \$10,020). The category of development costs which includes capitalized costs of \$9,973 (2017 - \$8,951), primarily consists of internally generated intangible assets.



## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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### 8. Investments Accounted for Using the Equity Method

	2018	2017
	\$	\$
<b>Beginning of year</b>	<b>718</b>	779
Share of loss from joint ventures	(22)	(110)
Disposal	(777)	-
Effect of foreign exchange	81	49
<b>End of year</b>	<b>-</b>	718

During the third quarter of 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.

### 9. Other Assets

	2018	2017
	\$	\$
Deferred costs	648	132
Other	756	898
<b>Total other assets</b>	<b>1,404</b>	1,030

### 10. Trade and Accrued Liabilities

	2018	2017
	\$	\$
Trade payables	21,647	38,834
Accrued liabilities	17,602	18,209
<b>Total trade and accrued liabilities</b>	<b>39,249</b>	57,043

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### 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%.

	2018		2017	
	Contractual Currency RMB	Reporting Currency US\$	Contractual Currency RMB	Reporting Currency US\$
Facility available	10,000	1,454	10,000	1,530
Amount drawn	-	-	-	-

#### b) Long-term debt

	2018	2017
	\$	\$
Senior secured revolving facility of \$79,000 with a syndicate of banks, maturing in April 2022 <sup>(1)</sup>	30,000	-
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 <sup>(2)</sup>	175	271
	30,175	271
Less current portion of long-term debt	175	271
	30,000	-

<sup>(1)</sup> In April 2018, the Company signed a senior secured multi-currency revolving credit facility of \$79,000 maturing in April 2022 to replace its existing \$50,000 senior secured revolving facility maturing in August 2018. 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, 2018, the Company has met all covenants.

<sup>(2)</sup> 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 bear 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 are 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 will mature on June 30, 2019 and may be 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 December 31, 2017 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).

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 US\$30,000 to partially redeem the debentures on favorable terms reducing the current cost of gross debt. As at December 31, 2018, the aggregate principal amount of debentures currently outstanding is CA\$26,000.

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 the second quarter of the year 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 the second quarter of the year.

## 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.

	2018	2017
	\$	\$
Present value of unfunded obligations	14,619	15,396

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Movement in the defined benefit obligation is as follows:

	2018	2017
	\$	\$
<b>Beginning of year</b>	<b>15,396</b>	14,813
Current service cost	88	87
Interest cost	282	266
Effect of foreign exchange	(687)	1,957
Benefits paid	(660)	(665)
Actuarial losses (gains)	200	(1,062)
<b>End of year</b>	<b>14,619</b>	15,396

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

	2018	2017
Discount rate	1.9%	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%	(6.27%)	6.99%
Salary growth rate	0.50%	0.54%	(0.52%)
Pension growth rate	0.50%	6.29%	(5.77%)
		Increase by 1 year in assumption	Decrease by 1 year in assumption
Life expectancy		4.15%	(3.66%)

The weighted average duration of the defined benefit obligation is 13.20 years (2017 – 13.45 years).

Expected maturity analysis of undiscounted pension liability:

	2018	2017
	\$	\$
Less than a year	668	687
Between 1 and 5 years	2,772	2,925
Over 5 years	15,774	16,734
<b>Total</b>	<b>19,214</b>	20,346

Expected contributions to pension benefit plans for year ending December 31, 2019 are \$668.

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### 14. Other Liabilities

	Deferred revenues	Other	Total
	\$	\$	\$
As at December 31, 2016	5,419	243	5,662
Additions	800	-	800
Utilized	(9)	(17)	(26)
As at December 31, 2017	6,210	226	6,436
Additions	120	-	120
Utilized	-	(11)	(11)
<b>As at December 31, 2018</b>	<b>6,330</b>	<b>215</b>	<b>6,545</b>

### 15. Income Taxes

	2018	2017
	\$	\$
Current tax:		
Current tax for the year	3,723	3,306
Adjustment in respect of prior years' estimates	(2,875)	289
<b>Total current tax</b>	<b>848</b>	<b>3,595</b>
Deferred tax:		
Recognition and reversal of temporary differences	(125)	(3,068)
Recognition of previously unrecorded tax assets	(1,609)	-
Adjustment in respect of prior years' estimates	830	-
<b>Total deferred tax</b>	<b>(904)</b>	<b>(3,068)</b>
<b>Income tax (recovery) expense</b>	<b>(56)</b>	<b>527</b>

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

	2018	2017
	\$	\$
Earnings before income tax	13,916	12,540
Canadian statutory income tax rates	26.7%	26.8%
Income tax on earnings at Canadian statutory rate	3,716	3,361
Increase (decrease) resulting from:		
Unrecorded losses carried forward	(258)	(2,298)
Recognition of previously unrecorded tax assets	(1,609)	-
Non-deductible expense (non-taxable gain) for tax purposes	217	(163)
Non-taxable foreign exchange	(205)	(1,099)
Effect of difference of foreign tax rates compared to Canadian tax	135	265
Adjustment in respect of prior years' estimates	(2,045)	289
Other	(7)	172
<b>Income tax (recovery) expense</b>	<b>(56)</b>	<b>527</b>

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, 2016	1,217	1,840	663	4,159	-	633	8,512	(6,629)	1,883
Credited (charged) to consolidated statements of earnings	787	117	(43)	(2,690)	667	1,648	486		
Credited to comprehensive income	-	-	-	-	2,374	30	2,404		
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		
<b>As at December 31, 2018</b>	<b>1,121</b>	<b>1,202</b>	<b>307</b>	<b>2,992</b>	<b>3,606</b>	<b>1,777</b>	<b>11,005</b>	<b>(3,133)</b>	<b>7,872</b>
	<b>Property, plant and equipment</b>	<b>Inventories</b>	<b>Intangible assets</b>	<b>Convertible debentures</b>	<b>Others</b>	<b>Total</b>	<b>Offset by jurisdiction</b>	<b>Total</b>	
	\$	\$	\$	\$	\$	\$	\$	\$	
As at December 31, 2016	1,906	350	814	3,105	1,169	7,344	(6,629)	715	
(Credited) charged to consolidated statements of earnings	(875)	(275)	59	(388)	(1,103)	(2,582)			
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			
<b>As at December 31, 2018</b>	<b>1,778</b>	<b>139</b>	<b>578</b>	<b>762</b>	<b>142</b>	<b>3,399</b>	<b>(3,133)</b>	<b>266</b>	

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Movement in the deferred income tax amounts is as follows:

	2018	2017
	\$	\$
<b>Beginning of year</b>	<b>6,640</b>	1,168
Tax charge relating to components of other comprehensive income	62	2,404
Credited to consolidated statement of earnings	904	3,068
<b>End of year</b>	<b>7,606</b>	6,640

Deferred tax assets of \$2,927 (2017 – \$2,060), 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 \$16,343 as at December 31, 2018 (2017 - \$1,285).

As at December 31, 2018, 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	45,281	No limit
United States	30,196	No limit
Hong Kong	17,196	No limit
China	4,188	2019-2023

As at December 31, 2018, the Company had other deductible temporary differences of \$425 for which no deferred tax benefit has been recorded (2017 – \$451).

### 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:

- (i) 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;
- (ii) 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;

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- (iii) The fair value of the debenture conversion option is described in Note 12;
- (iv) 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
- (v) 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, 2018 and 2017:

As at December 31, 2018					Carrying value	Fair value
	At fair value through profit or loss	At amortized cost (loans and receivables in 2017)	Financial liabilities at amortized cost	Derivative designated in a hedge relationship	Total	Total
	\$	\$	\$	\$	\$	\$
<b>Financial assets</b>						
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
<b>Total</b>	<b>5,835</b>	<b>49,708</b>	<b>-</b>	<b>-</b>	<b>55,543</b>	<b>55,543</b>
<b>Financial liabilities</b>						
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
<b>Total</b>	<b>-</b>	<b>-</b>	<b>87,995</b>	<b>197</b>	<b>88,192</b>	<b>88,683</b>

As at December 31, 2017					Carrying value	Fair value
	At fair value through profit or loss	Loans and receivables	Financial liabilities at amortized cost	Derivative designated in a hedge relationship	Total	Total
	\$	\$	\$	\$	\$	\$
<b>Financial assets</b>						
Cash and cash equivalents	-	34,024	-	-	34,024	34,024
Accounts receivable	-	25,639	-	-	25,639	25,639
Other current assets	6,141	-	-	-	6,141	6,141
Derivative financial assets	-	-	-	3,602	3,602	3,602
<b>Total</b>	<b>6,141</b>	<b>59,663</b>	<b>-</b>	<b>3,602</b>	<b>69,406</b>	<b>69,406</b>
<b>Financial liabilities</b>						
Trade and accrued liabilities	-	-	57,043	-	57,043	57,043
Current portion of long-term debt	-	-	271	-	271	271
Convertible debentures	-	-	48,768	-	48,768	52,766
<b>Total</b>	<b>-</b>	<b>-</b>	<b>106,082</b>	<b>-</b>	<b>106,082</b>	<b>110,080</b>



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### 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, 2018	Level 1	Level 2	Level 3
	\$	\$	\$
Financial assets (liabilities)			
At fair value through profit or loss			
Debenture conversion option (Note 12) <sup>(1)</sup>	-	-	-
Equity swap agreement (Note 21) <sup>(2)</sup>	-	5,835	-
Derivative designated in a hedge relationship			
Cross-currency swap <sup>(3)</sup>	-	(197)	-
<b>Total</b>	-	5,638	-

As at December 31, 2017	Level 1	Level 2	Level 3
	\$	\$	\$
Financial assets (liabilities)			
At fair value through profit or loss			
Debenture conversion option (Note 12) <sup>(1)</sup>	-	-	-
Equity swap agreement (Note 21) <sup>(2)</sup>	-	6,141	-
Derivatives designated in a hedge relationship			
Cross-currency swap <sup>(3)</sup>	-	3,602	-
<b>Total</b>	-	9,743	-

<sup>(1)</sup> This instrument is classified as a Level 3 financial instrument, since the implied volatility is an unobservable input. The change in fair value of debenture conversion option was nil and no amount was recognized in the consolidated statement of earnings for the year ended December 31, 2018 (\$85 as income for the year ended December 31, 2017).

<sup>(2)</sup> 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, 2018, 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.

<sup>(3)</sup> 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 exchange interest payments and principal redemption on the same terms and designates the cross-currency as a cash flow hedge of the variability of the \$US functional currency equivalent cash flows on the debt. The terms are such that on each interest payment date, the Company will receive 5.75% on a notional of CA\$66,000 and pay 6.485% based on a notional of US\$48,889.

Following the partially redemption of the convertible debentures in the second quarter of the year, the Company de-designated and settled CA\$40,000 of the nominal amount of the associated cross-currency swap (Note 12).

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### 17. Operating Segments

The following tables summarize the information reviewed by the Company's management when measuring performance:

For the year ended December 31, 2018	Eco-Friendly Materials	Electronic Materials	Corporate and unallocated	Total
	\$	\$	\$	\$
Segment revenues	136,981	81,014	-	217,995
Adjusted EBITDA <sup>(1)</sup>	12,517	29,226	(9,393)	32,350
Interest on long-term debt, imputed interest and other interest expense				6,295
Shared based compensation expense (Note 21)				3,298
Litigation and restructuring costs (income) (Note 26)				316
Foreign exchange and derivative loss				225
Gain on disposal of property, plant and equipment				(510)
Depreciation and amortization				8,810
Earnings (loss) before income tax				13,916
Capital expenditures	4,850	5,248	-	10,098

For the year ended December 31, 2017	Eco-Friendly Materials	Electronic Materials	Corporate and unallocated	Total
	\$	\$	\$	\$
Segment revenues	146,468	73,448	-	219,916
Adjusted EBITDA <sup>(1) (2)</sup>	14,976	24,835	(10,224)	29,587
Interest on long-term debt, imputed interest and other interest expense				6,097
Shared based compensation expense <sup>(2)</sup> (Note 21)				4,470
Litigation and restructuring costs (income) (Note 26)				(2,953)
Change in fair value of debenture conversion option				(85)
Foreign exchange and derivative loss				79
Gain on disposal of property, plant and equipment				(1,887)
Impairment of non-current assets (Note 26)				3,100
Depreciation and amortization				8,226
Earnings (loss) before income tax				12,540
Capital expenditures	4,091	2,678	-	6,769

<sup>(1)</sup> Earnings (loss) before income tax, depreciation and amortization, impairment of non-current assets, share-based compensation expense, gain on disposal of property, plant and equipment, litigation and restructuring costs (income) and financial expense (revenues).

<sup>(2)</sup> Restated to reflect the change in the definition of Adjusted EBITDA which now excludes the share-based compensation expense.

As at December 31, 2018	Eco-Friendly Materials	Electronic Materials	Corporate and unallocated	Total
	\$	\$	\$	\$
Total assets excluding the deferred tax asset:	96,856	113,995	18,334	229,185

As at December 31, 2017	Eco-Friendly Materials	Electronic Materials	Corporate and unallocated	Total
	\$	\$	\$	\$
Total assets excluding the deferred tax asset:	106,631	104,945	26,465	238,041

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The geographic distribution of the Company's revenues based on the location of the customers for the years ended December 31, 2018 and 2017, and the identifiable non-current assets as at December 31, 2018 and 2017 are summarized as follows:

Revenues	2018	2017
	\$	\$
Asia		
China	5,592	10,754
Japan	4,590	4,450
Other <sup>(1)</sup>	52,015	47,856
Americas		
United States	50,751	43,934
Other	19,083	12,626
Europe		
France	7,691	9,705
Germany	29,097	33,713
United Kingdom	4,805	8,285
Other <sup>(1)</sup>	37,110	37,940
Other	7,261	10,653
<b>Total</b>	<b>217,995</b>	<b>219,916</b>

Non-current assets (other than deferred tax assets)	2018	2017
	\$	\$
Asia <sup>(1)</sup>	15,942	16,166
United States	9,896	8,180
Canada	18,543	21,609
Europe		
Belgium	8,159	8,454
Germany	17,360	18,404
<b>Total</b>	<b>69,900</b>	<b>72,813</b>

<sup>(1)</sup> None exceeding 10%

For the year ended December 31, 2018, one customer represented approximately 22 % (2017 – 12%) 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:

	2018	2017
	\$	\$
Decrease (increase) in assets:		
Accounts receivable	2,684	4,134
Inventories	(6,242)	(10,338)
Income tax receivable	1,254	674
Other current assets	796	(6,177)
(Decrease) increase in liabilities:		
Trade and accrued liabilities	(21,333)	(4,436)
Income tax payable	(3,607)	2,917
<b>Net change</b>	<b>(26,448)</b>	<b>(13,226)</b>

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

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

	December 31 2016	Cash flows	Non-Cash changes			December 31 2017
			Imputed interest	Foreign exchange movement	Fair value changes	
	\$	\$	\$	\$	\$	\$
Long-term debt	325	(74)	-	20	-	271
Convertible debenture <sup>(1)</sup>	43,157	-	2,171	3,440	-	48,768
Debenture conversion option	68	-	-	17	(85)	-
Cross-currency swap <sup>(1)</sup>	(189)	-	-	-	(3,413)	(3,602)
Deferred revenues	5,419	791	-	-	-	6,210
<b>Total net liabilities from financing liabilities</b>	<b>48,780</b>	<b>717</b>	<b>2,171</b>	<b>3,477</b>	<b>(3,498)</b>	<b>51,647</b>

<sup>(1)</sup> Interest settlement were reflected as cash flows from operating activities in the consolidated statements of cash flows.

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

	2018	2017
	\$	\$
i) Excluded additions unpaid at end of year: Additions to property, plant and equipment	469	1,050 <sup>(1)</sup>
ii) Included additions unpaid at beginning of year: Additions to property, plant and equipment	1,050	3,741

<sup>(1)</sup> In 2017, the Company agreed with a customer to net a trade receivable against a payable for the purchase of property, plant and equipment.

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### 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, 2018 and 2017, no preferred shares were issued.

On February 21, 2017, the TSX approved an amendment to the Company's normal course issuer bid implemented on October 11, 2016. Under this normal course issuer bid amendment, the Company had the right to purchase for cancellation, from October 11, 2016 to October 10, 2017, a maximum of 2,100,000 (previously 600,000) common shares. The Company's normal course issuer bid program expired on October 10, 2017 and has not been renewed.

In 2017, the Company had repurchased and cancelled 475,016 common shares at an average price of \$1.38 for a total amount of \$654. An amount of \$1,943 has been applied against share capital, and a negative amount of \$1,289 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	2018	2017
	\$	\$
<b>Net earnings attributable to equity holders of 5N Plus</b>	<b>13,972</b>	12,023
<b>Net earnings for the year</b>	<b>13,972</b>	12,013
Denominators	2018	2017
<b>Basic weighted average number of shares</b>	<b>84,243,976</b>	83,676,315
Dilutive effect:		
Stock options	446,764	336,979
<b>Diluted weighted average number of shares</b>	<b>84,690,740</b>	84,013,294

As at December 31, 2018, a total number of 379,291 stock options were 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.

As at December 31, 2017, a total number of 501,747 stock options were 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.

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### 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. For the year ended December 31, 2018, the Company granted nil RSUs (2017 – nil), 215,167 of RSUs were paid (2017 – 171,000) and 833 RSUs were forfeited (2017 – 53,000). As at December 31, 2018, nil RSUs were outstanding (2017 – 216,000).

#### 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, 2018, the Company granted 393,897 New RSUs (2017 – 368,360), 28,361 New RSUs were paid (2017 – nil) and 67,370 New RSUs were forfeited (2017 – 37,500). As at December 31, 2018, 1,854,026 New RSUs were outstanding (2017 – 1,555,860).

For the year ended December 31, 2018, the Company granted nil PSUs (2017 – nil) and, as at December 31, 2018, 500,000 PSUs were outstanding (2017 – 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, 2018, the Company granted 223,762 SARs (2017 – 542,700), 46,500 of SARs were paid (2017 – 25,000), 14,995 SARs were expired (2017 – 30,156) and 106,500 SARs were forfeited (2017 – 30,000). As at December 31, 2018, 778,462 SARs were outstanding (2017 – 722,695).

#### **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 will vest 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, 2018, the Company granted 199,823 DSUs (2017 – 290,408) and nil DSUs were paid (2017 – nil). As at December 31, 2018, 1,504,395 DSUs were outstanding (2017 – 1,304,572).

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### 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, 2018 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:

	2018		2017	
	Number of options	Weighted average exercise price	Number of options	Weighted average Exercise price
		CA\$		CA\$
Outstanding, beginning of year	2,224,747	2.20	2,860,648	2.63
Granted	143,335	2.71	288,000	1.75
Exercised	(708,750)	1.92	(597,500)	1.75
Forfeited	(137,704)	2.54	(116,476)	2.50
Expired	(31,087)	3.61	(209,925)	8.59
Outstanding, end of year	1,490,541	2.32	2,224,747	2.20
Exercisable, end of year	726,750	2.75	1,001,497	2.59

The outstanding stock options as at December 31, 2018 are as follows:

	Exercise price		Number of options	
	Low	High	Exercisable	Outstanding
	CA\$	CA\$		
March and May 2019	2.20	2.22	275,000	275,000
March to August 2020	3.33	4.29	242,000	242,000
March 2021	2.40	2.40	91,500	130,750
March 2022	1.65	1.65	62,500	445,000
February 2023	1.75	1.75	55,750	260,500
February 2024	2.71	2.71	-	137,291
			726,750	1,490,541

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, 2018 and 2017:

	2018	2017
Expected stock price volatility	53%	59%
Dividend	None	None
Risk-free interest rate	2.03%	0.98%
Expected option life	4 years	4 years
Fair value – weighted average of options issued	CA\$1.16	CA\$0.79



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The following table shows the share-based compensation expense recorded in the consolidated statements of earnings for the years ended December 31, 2018 and 2017:

Expense	2018	2017
	\$	\$
RSUs	1,395	1,709
PSUs	575	356
SARs	241	322
DSUs	866	1,617
Stock options	345	386
Equity swap	(124)	80
<b>Total</b>	<b>3,298</b>	<b>4,470</b>

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 further change in the fair value is recorded against the share-based compensation expense (note 16).

The following amounts were recorded:

Liability	2018	2017
	\$	\$
RSUs	3,144	2,475
PSUs	995	485
SARs	585	418
DSUs	3,369	2,748
<b>Total</b>	<b>8,093</b>	<b>6,126</b>
Intrinsic value of vested units	4,064	3,652

## 22. Commitments and Contingencies

### Commitments

The Company rents certain premises and equipment under the terms of operating leases. Future minimum payments excluding operating costs are as follows:

	2018
	\$
No later than 1 year	1,598
Later than 1 year but no later than 5 years	2,635
Later than 5 years	61
<b>Total</b>	<b>4,294</b>

As at December 31, 2018, in the normal course of business, the Company contracted letters of credit for an amount of \$422 (2017 – \$432).

### 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.

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### 23. Related Party Transactions

The Company's related parties are its joint ventures, 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:

	2018	2017
	\$	\$
Wages and salaries	3,148	3,016
Share-based compensation and others	3,503	4,027
<b>Total</b>	<b>6,651</b>	<b>7,043</b>

### 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.

#### (i) 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.

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The following table summarizes in US dollar equivalents the Company's major currency exposures as at December 31, 2018:

						2018
	CA	EUR	GBP	RMB	MYR	Other
	\$	\$	\$	\$	\$	\$
Cash and cash equivalents	3,462	3,555	1,126	652	582	433
Accounts receivable	196	6,197	170	1,169	-	754
Other current assets	5,835	-	-	-	-	-
Trade and accrued liabilities	(11,703)	(8,726)	-	(659)	(407)	(566)
Long-term debt	(175)	-	-	-	-	-
<b>Net financial assets (liabilities)</b>	<b>(2,385)</b>	<b>1,026</b>	<b>1,296</b>	<b>1,162</b>	<b>175</b>	<b>621</b>

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, 2018 for the Company's financial instruments denominated in non-functional currencies:

	CA	EUR	GBP	RMB	MYR	Other
	\$	\$	\$	\$	\$	\$
5% Strengthening	(119)	51	65	58	9	31
5% Weakening	119	(51)	(65)	(58)	(9)	(31)

The Company entered into a cross-currency swap to hedge cash flows under the CA\$ convertible debentures. 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, 2018, the Company has no foreign exchange contracts outstanding.

### (ii) 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, currently as convertible debentures are 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 \$220 on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2018.

### (iii) 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

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, 2018, the lifetime expected loss allowance for trade receivables was determined as follows:

	2018			Total
	Current	More than 30 days past	More than 60 days past	
Expected loss rate	-	5.7%	41.6%	
Gross carrying amount	18,355	594	151	19,100
Loss allowance	-	34	63	97

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

	2018	2017
<b>Beginning of year (no change on the adoption of IFRS 9)</b>	\$ 126	\$ 126
Increase during the year	26	50
Trade receivables written off during the year as uncollectible	-	(38)
Unused amounts reversed	(55)	(12)
<b>End of year</b>	<b>97</b>	<b>126</b>

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, 2018.

### Previous accounting policy for impairment of trade receivables

In the prior year, the impairment of trade receivables was assessed based on the incurred loss model and determined by management in accordance with its assessment of recoverability. Receivables for which an impairment provision was recognised were written off against the provision when there was no expectation of recovering additional cash.

### 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.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

The following table reflects the contractual maturity of the Company's financial liabilities as at December 31, 2018:

	2018					
	Carrying amount	1 year	2 year	3 year	4 year	Total
	\$	\$	\$	\$	\$	\$
Trade and accrued liabilities	39,249	39,249	-	-	-	39,249
Long-term debt	30,175	1,394	1,219	1,219	31,219	35,051
Convertible debentures	18,571	19,884	-	-	-	19,884
<b>Total</b>	<b>87,995</b>	<b>60,527</b>	<b>1,219</b>	<b>1,219</b>	<b>31,219</b>	<b>94,184</b>

### 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. 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, 2018 and 2017 are as follows:

	2018	2017
	\$	\$
Long-term debt including current portion	30,175	271
Convertible debentures	18,571	48,768
Cross-currency swap (Note 16)	197	(3,602)
<b>Total debt</b>	<b>48,943</b>	<b>45,437</b>
Less: Cash and cash equivalents	(26,724)	(34,024)
<b>Net debt</b>	<b>22,219</b>	<b>11,413</b>
Shareholders' equity	119,703	105,446
<b>Debt-to-equity ratio</b>	<b>19%</b>	<b>11%</b>

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

### 26. Expenses by Nature

Expenses by nature include the following:

	2018	2017
	\$	\$
Wages and salaries	38,018	38,388
Share-based compensation expense (Note 21)	3,298	4,470
Depreciation of property, plant and equipment and amortization of intangible assets (Notes 6 and 7)	8,810	8,226
Impairment of non-current assets	-	3,100 <sup>(2)</sup>
Amortization of other assets	163	221
Gain on disposal of property, plant and equipment	(510)	(1,887)
Research and development, net of tax credit	1,328	1,761
Litigation and restructuring costs (income)	316 <sup>(1)</sup>	(2,953) <sup>(3)</sup>

- (1) During the third quarter, 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.

- (2) During the fourth quarter of 2017, the Company recorded an impairment charge on non-current assets of \$3,100 (\$1,116 for Production equipment, \$837 for Technology and \$1,147 for Development costs), included in Electronic materials segment, reflecting recent development to assumptions used in assessing the carrying value of specific product development assets. The change in assumptions is from an active decision to alter the market penetration strategy, other factors remaining constant. It is motivated by intentional delays in increasing production levels in order to prioritize products with higher premiums in niche applications, requiring longer market development cycle compared to other products. The discount rate of 17.5% was used to determine the recoverable amount of these non-current assets.
- (3) Including an income resulting from an amendment to optimize commercial agreements mitigated by cost related to termination of a non-core activity.

### 27. Subsequent events

On February 6, 2019, the Company announced the closing of a \$25,000 unsecured subordinated term loan with Investissement Québec. The new loan has a five-year term and will be disbursed in two tranches: the first tranche of \$5,000 was disbursed on February 6, 2019 and the second tranche of \$20,000 will be disbursed by no later than March 29, 2019. The new term loan will bear an interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%.

On February 11, 2019, the Company's shareholders voted to approve 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"). The reduction of stated capital will not result in any change to shareholders' equity.

On February 25, 2019, 5N Plus announced that it has exercised its right to redeem all of its outstanding 5.75% convertible unsecured subordinated debentures maturing on June 30, 2019. On March 28, 2019 the Company will redeem its convertible debentures in an aggregate principal amount of CA\$26 million. Following the redemption, there will remain no outstanding convertible debentures.

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# 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

## **Nicholas Audet**

Executive Vice President, Electronic Materials

## **Evelyne Bundock**

Vice President, Human Resources

## **Pascal Coursol**

Vice President, Recycling, Refining and Corporate R&D

## **Richard Perron**

Chief Financial Officer

## **Paul Tancell**

Executive Vice President, Eco-Friendly Materials

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# 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

## Annual Meeting

The annual shareholders meeting will be held on:

**Wednesday, May 1<sup>st</sup>, 2019**  
**at 10:00 a.m.**

**Stikeman Elliott LLP**  
**Room Mont-Royal**  
**1155 René-Lévesque Blvd. West**  
**4<sup>th</sup> floor**  
**Montreal, Quebec**

**For more information, please contact:**

## Investor Relations

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Si vous souhaitez obtenir une copie en français de ce rapport annuel, communiquez avec :

## Relations avec les investisseurs

5N Plus inc.  
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Montréal (Québec)  
H4R 2B4

Aussi disponible à l'adresse  
[www.5nplus.com](http://www.5nplus.com)





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