



BALLARD POWER SYSTEMS INC.

ANNUAL INFORMATION FORM

For the year ended December 31, 2018

Dated March 6, 2019

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*This Annual Information Form and the documents incorporated by reference herein contain forward-looking statements that are based on the beliefs of management and reflect our current expectations as contemplated under the safe harbor provisions of Section 21E of the United States Securities Exchange Act of 1934, as amended. When used in this Annual Information Form, the words “estimate”, “project”, “believe”, “anticipate”, “intend”, “expect”, “plan”, “predict”, “may”, “could”, “should”, “will”, the negatives of these words or other variations thereof and comparable terminology are intended to identify forward-looking statements. Such statements reflect our current views with respect to future events based on currently available information and are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated in those forward-looking statements, including, without limitation, the following risks and uncertainties which are discussed in the section of this Annual Information Form entitled “Risk Factors”: we may not be able to successfully execute our business plan; we depend on a limited number of customers for a majority of our revenues and are subject to risks associated with early stage market activities related to fuel cell bus, truck, rail and marine applications; in our Heavy-Duty Motive market, we depend on a limited number of Chinese customers for a majority of our revenues. Macro-economic conditions, including government subsidy programs and significant and recent volatility in China’s capital markets, may adversely impact our Chinese customers’ access to capital and program plans which could adversely impact our business. Furthermore, successful large-scale deployment of zero-emission vehicles will require adequate investment in hydrogen fueling infrastructure and competitive pricing of hydrogen. Inadequate hydrogen fueling infrastructure and/or excessive hydrogen fuel costs could negatively impact deployment of zero-emission vehicles and may negatively impact our business, financial condition and results of operations. Our performance in China is dependent on our business model of localization, including the strength and performance of our localization partners. A key part of our strategy is based on the localization of stack and module production with joint venture partners, where we do not control the joint venture; in our Heavy-Duty Motive market a significant amount of operations are conducted by a joint ventures in China that we cannot operate solely for our benefit; in our Technology Solutions market, we depend on a single customer for the majority of our revenues and are subject to risks related to that customer’s continued commitment to the commercialization of fuel cell passenger cars; in our Material Handling market, we depend on a single customer for the majority of our revenues and are subject to risks from that customer’s internal fuel cell stack development and commercialization plans; we expect our cash reserves will be reduced due to future operating losses, working capital requirements and capital contributions to our joint ventures in China, and we cannot provide certainty as to how long our cash reserves will last or that we will be able to access additional capital when necessary; potential fluctuations in our financial and business results make forecasting difficult and may restrict our access to funding for our commercialization plan; we are dependent upon Original Equipment Manufacturers and Systems Integrators to purchase certain of our products; Our technology and products may not meet the market requirements, including requirements*

*relating to performance and/or cost; we may not be able to achieve commercialization of our products on the timetable we anticipate, or at all; a mass market for our products may never develop or may take longer to develop than we anticipate; we are subject to risks inherent in international operations, including restrictions on the conversion of currencies and restrictions on repatriation of funds; we have limited experience manufacturing fuel cell products on a commercial basis; warranty claims, product performance guarantees, or indemnification claims could negatively impact our gross margins and financial performance; we could be adversely affected by risks associated with acquisitions; we depend on our intellectual property, and our failure to protect that intellectual property could adversely affect our expected future growth and success; we may experience cybersecurity threats to our information technology infrastructure and systems, and unauthorized attempts to gain access to our proprietary or confidential information, as may our customers, suppliers, subcontractors and joint venture partners; global macro-economic conditions are beyond our control and may have an adverse impact on our business or our key suppliers and/or customers; we currently face and will continue to face significant competition; we could lose or fail to attract the personnel necessary to operate our business; public policy and regulatory changes could hurt the market for our products and services; we are dependent on third party suppliers for the supply of key materials and components for our products and services; exchange rate fluctuations are beyond our control and may have a material adverse effect on our business, operating results, financial condition and profitability; commodity price fluctuations are beyond our control and may have a material adverse effect on our business, operating results, financial condition and profitability; we could be liable for environmental damages resulting from our research, development or manufacturing operations; if completed, potential merger and acquisition activity may fail to achieve the expected benefits of the transaction, including potential disruptions to operations, higher than anticipated costs and efforts to integrate, and loss of key personnel; our products use flammable fuels and some generate high voltages, which could subject our business to product liability and other claims; and the other risks and uncertainties discussed elsewhere in this Annual Information Form.*

*The forward-looking statements contained in this Annual Information Form speak only as of the date of this Annual Information Form. Except as required by applicable legislation, Ballard does not undertake any obligation to release publicly any revisions to these forward-looking statements to reflect events or circumstances after the date of this Annual Information Form, including the occurrence of unanticipated events.*

In this Annual Information Form, references to “Corporation”, “Ballard”, “we”, “us” and “our” refers to Ballard Power Systems Inc. and, as applicable, its subsidiaries. All dollar amounts are in United States dollars unless otherwise indicated. Canadian dollars are indicated by the symbol “C\$”, and euros by the symbol “€”.

Except where otherwise indicated, all information presented is as of December 31, 2018.

## CORPORATE STRUCTURE

### Name, Address and Incorporation

Ballard was incorporated on November 12, 2008 under the *Canada Business Corporations Act* (Canada), under the name “7076991 Canada Inc.” Ballard changed its name to “Ballard Power Systems Inc.” on December 31, 2008. On August 24, 2016, Ballard continued into British Columbia under the *Business Corporations Act* (British Columbia). Ballard’s head office is located at 9000 Glenlyon Parkway, Burnaby, British Columbia, Canada V5J 5J8, and its registered office is located at Suite 1700, 666 Burrard Street, Vancouver, British Columbia, Canada V6C 2X8.

Previously, Ballard Power Systems Inc. was a British Columbia company incorporated on May 30, 1989. The original predecessor to Ballard was founded in 1979 under the name Ballard Research Inc. to conduct research and development on high-energy lithium batteries. In the course of investigating environmentally-clean energy systems with commercial potential, we began to develop fuel cells and have been developing fuel cell products since 1983.

### Our Mission, Vision and Values

Our vision is to deliver fuel cell power for a sustainable planet, and our mission is to use our fuel cell expertise to deliver innovative, valuable solutions to our customers globally, create rewarding opportunities for our team, provide extraordinary value to our shareholders, and power the hydrogen society.

Our values represent our core beliefs, and underpin how we carry on our business: Listen and Deliver – We listen to our customers, understand their business, and deliver innovative and valuable solutions for lasting partnerships; Quality. Always – We deliver quality in everything we do; Inspire Excellence – We live with integrity, passion, urgency, agility and humility; Row Together – We achieve success through respect, trust and collaboration; and Own It – We step up, take ownership for our results, and trust others to do the same.

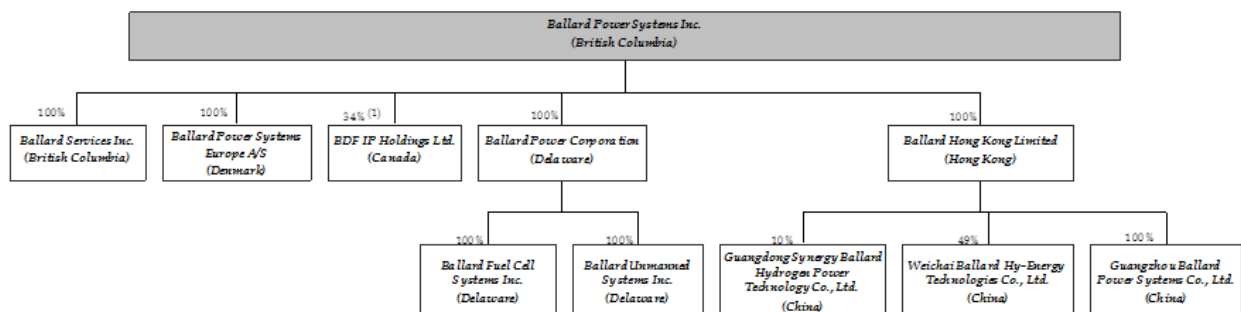
### Intercorporate Relationships

We have six principal subsidiaries and affiliates: Ballard Fuel Cell Systems Inc., a Delaware corporation that provides certain services to customers in the U.S. and internationally and does certain development work; Ballard Power Systems Europe A/S (formerly Dantherm Power A/S) (“**Ballard Europe**”), a Danish corporation; BDF IP Holdings Ltd. (“**IP Holdings**”), a Canadian corporation that holds intellectual property assets; Ballard Services Inc., a British Columbia company that provides engineering services; Ballard Unmanned Systems Inc. (formerly Protonex Technology Corporation) (“**Ballard Unmanned Systems**”), a Delaware corporation that provides complete unmanned vehicle fuel cell solutions; and Guangzhou Ballard Power Systems Co., Ltd.,

a Chinese wholly foreign-owned entity that serves as our initial operations center in China, with China management, sales and business development, technical, quality, supply chain, after-sales and administrative support personnel.

We also have a non-controlling, 49% interest, in the newly established Weichai Ballard Hy-Energy Technologies Co., Ltd. (“**Weichai-Ballard JV**”), located in China. Weichai Ballard JV is intended to manufacture Ballard’s next-generation FCgen®-LCS fuel cell stack and FCgen®LCS-based power modules for bus, commercial truck and forklift applications with exclusive rights in China. In addition, we retain a non-controlling 10% interest in Guangdong Synergy Ballard Hydrogen Power Technology Co., Ltd. (“**Synergy-Ballard JV**”), also located in China. The Synergy-Ballard JV is intended to manufacture fuel cell stacks utilizing our existing FCvelocity®-9SSL fuel cell stack technology for use primarily in fuel cell engines assembled in China to provide propulsion power for zero-emission fuel cell electric buses and commercial vehicles in China.

The following chart shows these principal subsidiaries and affiliates, their respective jurisdictions of incorporation and our percentage of share ownership in each of them, all as of March 6, 2019:



Notes

- (1) The Corporation holds all of the non-voting, participating shares of IP Holdings and 34% of the voting, non-participating shares of IP Holdings, with each of Daimler AG and Ford Motor Company holding 33% of the voting, non-participating shares.

**Recent History**

Over the past three years, we have continued to focus on building a clean energy business and expanding our recognized leadership in proton exchange membrane (“PEM”) fuel cell development and commercialization. The following are key recent developments:

*Strategic Collaboration with Weichai Power Co., Ltd. (“Weichai”)*

On November 13, 2018, we closed a strategic collaboration transaction with Weichai. The strategic collaboration included an equity investment in Ballard,

formation of a joint venture company and a development program each of which is discussed in more detail below.

Weichai, through its wholly-owned subsidiary Weichai Power Hong Kong International Development Co., Limited ("**Weichai HK**"), made an equity investment in Ballard in the amount of approximately \$163.6 million, representing a 19.9% interest in Ballard, through the purchase of shares from treasury.

In addition, Zhongshan Broad-Ocean Motor Co., Ltd. ("**Broad-Ocean**") – a current Ballard strategic investor and licensee – invested a further approximately \$20.2 million, to maintain its 9.9% ownership position in Ballard through the subscription and purchase of shares from treasury via a wholly-owned subsidiary.

The Weichai investment and the Broad-Ocean incremental investment are subject to 2-year "standstill" and resale restrictions (subject to customary exceptions). For so long as Weichai directly or indirectly holds at least 15% of Ballard's outstanding shares, it has the right to nominate two directors to Ballard's board of directors. If there is a third-party offer to buy Ballard, Weichai has the right to make a superior proposal or otherwise it must vote its shares in accordance with the recommendation of Ballard's board of directors.

Weichai and Ballard established a joint venture company, named Weichai Ballard Hy-Energy Technologies Co., Ltd., on November, 26, 2018 in Shandong Province to support China's Fuel Cell Electric Vehicle market. Ballard holds a 49% ownership position and Weichai holds a 51% ownership position. In December 2018, Weichai made its initial capital contribution of RMB 102 million and Ballard made its initial capital contribution of \$14.3 million (RMB 98 million equivalent). In February 2019, Weichai made its planned second capital contribution of RMB 102 million and Ballard made its planned second capital contribution of \$14.5 million (RMB 98 million equivalent). Weichai and Ballard will fund pro rata shares of the Weichai-Ballard JV based on an agreed business plan. Weichai holds three of five Weichai-Ballard JV board seats and Ballard holds two, with Ballard having certain minority shareholder protections.

The Weichai-Ballard JV is planning on manufacturing Ballard's next-generation FCgen<sup>®</sup>-LCS fuel cell stack and FCgen<sup>®</sup>-LCS-based power modules for bus, commercial truck and forklift applications with exclusive rights in China. The Weichai-Ballard JV will pay Ballard \$90 million under the Research and Development Agreement to develop and transfer technology to the Weichai-Ballard JV in order to enable these manufacturing activities. In December 2018, Ballard received an initial 10%, or \$9.0 million prepayment from the Weichai-Ballard JV for this program. The Weichai-Ballard JV will purchase Membrane Electrode Assemblies ("**MEAs**") for FCgen<sup>®</sup>-LCS fuel cell stacks exclusively from Ballard under a long-term supply agreement. Ballard will grant the Weichai-Ballard JV a non-exclusive royalty-free licence to Ballard's background technology incorporated into the products it develops for the Weichai-Ballard JV.



Ballard will also retain an exclusive right to the transferred technologies outside of China.

Weichai intends to build and supply at least 2,000 fuel cell modules using Ballard technology by 2021 for commercial vehicles in China. Specific terms related to the source and scope of supply, product mix, pricing and timing of shipments are subject to future agreement between the parties and the Weichai-Ballard JV.

***Transaction to Divest Power Manager Business***

On October 5, 2018, we announced that we had closed an asset purchase agreement to divest certain assets related to the Power Manager business of Ballard Unmanned Systems to Revision Military, a private U.S.-based company. Ballard retained certain assets related to fuel cell propulsion systems for unmanned vehicles.

Terms of the transaction include upfront consideration of \$4.1 million to Ballard – payable in cash and note – and up to a further \$11.25 million, based on achievement of specific sales objectives during a 12-month earn-out period.

***Ballard Acquires Fuel Cell Assets from AFCC Automotive Fuel Cell Cooperation Corporation (“AFCC”)***

On July 3, 2018, we announced that we had acquired certain strategic assets of AFCC, a private company owned by Daimler AG and Ford Motor Company for approximately Canadian \$6 million. The assets included testing equipment, prototype production equipment and lab and quality inspection equipment.

This asset acquisition supports and accelerates our growth plans in two key respects. It immediately provides needed expansion of our product and material testing capabilities that will be used to support new and existing programs, products, as well as customers. In addition, we have acquired key production equipment that provides much of the incremental capacity needed to meet forecasted growth over the next five years. With these assets already in place and functioning within Ballard’s existing facilities, this transaction accelerates the expansion of our fuel cell testing, production and lab capacity at a lower cost, compared to acquiring new equipment. The acquired assets include testing equipment, prototype production equipment, and lab and quality inspection equipment.

***Ballard and Audi Sign 3.5-Year Extension to Long-Term Program for Fuel Cell Passenger Cars***

On June 11, 2018, we announced that we had signed a 3.5-year extension to our current Technology Solutions contract with AUDI AG (“**Audi**”), part of the Volkswagen Group, extending the HyMotion program to August 2022. The aggregate value of the contract extension is expected to be C\$80 to 130 million (approximately US\$62 to \$100 million). The program will support Audi through its small series production launch.

Ballard signed an initial 4-year contract with Volkswagen AG in March 2013, followed by a 2-year extension in February 2015. AUDI AG assumed leadership of the

program in 2016. The agreement signed June 11, 2018 replaces the prior technology development agreements, except for certain key surviving provisions of the prior agreements.

***Ballard Receives Purchase Order for 40 Fuel Cell Modules to Power Van Hool Buses in Germany***

On April 30, 2018, we announced we had received a purchase order from Van Hool NV (“**Van Hool**”), a bus OEM partner in Belgium, for 40 FCveloCity®-HD fuel cell modules to power buses under the Joint Initiative for hydrogen Vehicles across Europe (JIVE) funding programs.

***Supply and Collaboration Agreement for Air-Cooled Fuel Cell Stacks for Class 3 Lift Trucks***

On April 30, 2018, we announced that we had signed a Master Supply Agreement with Hyster-Yale Group, Inc. (“**Hyster-Yale**”). The agreement provides for the supply of minimum annual volumes of Ballard FCgen®-1020 air-cooled fuel cell stacks for use in powering Class 3 lift trucks and Ballard support on the design of a fuel cell electric propulsion system to power these lift trucks.

***Development Program for Next-Gen Air-Cooled Fuel Cell Stack for Forklift Trucks***

On February 14, 2018, we announced that we had signed a Technology Solutions program with an unnamed strategic customer to develop a next generation air-cooled fuel cell stack. The multi-year program has an initial value to Ballard of approximately \$4.2 million.

A key objective of the Technology Solutions program is to design and validate an ultra-high durability, high performance air-cooled fuel cell stack for uses in a number of target market applications, including certain material handling applications, with a target operating lifetime of 20,000 hours.

***Ballard Unmanned Systems Cost Reductions***

On January 3, 2018, we announced further cost reductions in the solid oxide fuel cell (“**SOFC**”) business at Ballard Unmanned Systems. In 2017 we determined that Ballard Unmanned Systems’ small-scale SOFC stationary power products assets were not core to our PEM fuel cell business, and we decided to divest these non-core assets. As a result, certain SOFC assets were transferred to a private, start-up company, Upstart Power Inc., effective December 31, 2017, for nominal consideration.

***Multi-Year Development Agreement with Siemens AG***

On November 14, 2017, we announced we had entered into a Development Agreement with Siemens AG for the development of a zero-emission fuel cell engine to power Siemens’ Mireo light rail train. The Development Agreement has a contemplated value of approximately \$9.0 million over three years. Under the terms of the Development Agreement, we will develop a 200 kilowatt fuel cell engine for

integration into Siemens' new Mireo train platform. Initial deployments of the fuel cell-powered Mireo train are planned for 2021.

***Supply Agreements with Zhongshan Broad-Ocean Motor Co., Ltd.***

On April 6, 2017, we announced the entering into of an \$11 million supply contract with strategic partner Broad-Ocean for the supply and delivery of 200 FCveloCity® fuel cell engines expected to be used in demonstrations of clean energy buses and commercial vehicles in key Chinese cities. The engines were manufactured and supplied by Ballard from its operations in British Columbia. The 200 fuel cell engines were shipped to Broad-Ocean in 2017.

On June 5, 2017, we announced that an \$18 million supply contract with Broad-Ocean to support the expected deployment of an additional 400 FCveloCity® fuel cell engines integrated into clean energy buses and trucks in key Chinese cities. The 400 fuel cell engines were shipped to Broad-Ocean in 2017.

All 600 fuel cell engines and related components were delivered by Ballard in 2017.

***Licensing and Local Assembly Transaction with Broad-Ocean***

On February 16, 2017, we announced that we had signed a definitive agreement relating to technology transfer, licensing and supply arrangements with Broad-Ocean for the assembly and sale of FCveloCity® 30-kilowatt ("kW") and 85kW fuel cell engines in China. Under the agreement, Broad-Ocean can manufacture fuel cell modules in three strategic regions in China, including Shanghai. The definitive agreement and future amounts payable to Ballard are dependent on the attainment of certain commissioning milestones by Broad-Ocean.

***Strategic Collaboration and Equity Investment Transaction with Broad-Ocean***

On July 26, 2016, Broad-Ocean and Ballard entered into a strategic collaboration that included a \$28.3 million equity investment in Ballard. On August 18, 2016, the investment by Broad-Ocean was completed through a subscription and purchase of 17,250,000 common shares of Ballard issued from treasury at a price per share of \$1.64, and representing approximately 9.9% of Ballard's then-outstanding common shares. As noted above, on November 13, 2018 Broad-Ocean invested a further \$20.2 million, through the subscription and purchase of 5.7 million shares from treasury, to maintain its 9.9% ownership position in Ballard

In connection with the completion of the investment, Broad-Ocean and Ballard also entered into an Investor Rights Agreement under which Broad-Ocean: agreed to a two-year hold period on the common shares purchased, which has since expired; provided Ballard with a right of first refusal to sell Broad-Ocean additional treasury shares if Broad-Ocean wishes to increase its ownership position up to 20%; was granted anti-dilution rights to maintain its 9.9% ownership interest; and agreed to a two-year

“standstill” under which it will not purchase more than 19.9% of Ballard’s outstanding common shares without receiving approval of Ballard’s board of directors.

In connection with the purchase of additional common shares of Ballard in connection with the investment by Weichai discussed above, Broad-Ocean and Ballard amended the existing investor rights agreement to extend each of Broad-Ocean’s covenants referred to in the paragraph above, except the two-year hold period applies only to the shares purchased in connection with the Weichai transaction.

Broad-Ocean has also expressed an interest in acquiring a 10% ownership position in the Weichai-Ballard JV, which if transacted, would correspondingly reduce Ballard’s ownership position from 49% to 39%. Discussions regarding this investment are currently underway between the parties.

### *Local Production of Fuel Cell Stacks in China*

In 2017, our joint venture for the production of FCveloCity®-9SSL fuel cell stacks in the City of Yunfu in Guangdong Province, named Guangdong Synergy Ballard Hydrogen Power Co., Ltd., commenced operations.

The Synergy-Ballard JV has the exclusive right to manufacture and sell FCveloCity®-9SSL fuel cell stacks in China. The fuel cell stacks will be packaged into locally-assembled fuel cell engines and integrated into zero-emission buses and commercial vehicles in China.

Exclusivity is subject to certain performance criteria of the Synergy-Ballard JV, including compliance with a code of ethics, compliance with Ballard’s quality policies, compliance with Ballard’s branding policies, achievement of the minimum annual “take or pay” MEA volumes, compliance with payment terms, and compliance with certain intellectual property covenants. Ballard has the exclusive right to purchase fuel cell stacks and sub-components from the Synergy-Ballard JV for sale outside China.

Ballard received approximately \$18.4 million in Technology Solutions revenue for technology transfer services, test equipment, production equipment specification and procurement services, training and commissioning support in relation to the establishment of an FCveloCity®-9SSL fuel cell stack production line in Yunfu, with the majority of this revenue recognized in 2017.

Ballard is the exclusive supplier of MEA for each fuel cell stack manufactured by the Synergy-Ballard JV, with minimum annual MEA volume commitments on a “take or pay” basis. As a result of various Chinese market circumstances, including dynamic new energy vehicle subsidies, slower than anticipated build-out and operation of hydrogen refueling infrastructure and slower than anticipated market adoption, as well as a result of inventory build-up, liquidity and other challenges at Synergy-Ballard JV, Synergy-Ballard JV did not meet its “take or pay” purchase commitments under the MEA supply agreement in the third and fourth quarters of 2018, nor did it make the contractual pre-payments required to enable any significant fourth quarter of 2018 and first quarter of 2019 MEA shipments. Our Order Backlog and our 12-month Order

Book, which had prior to the end of the third quarter of 2018 included certain contractual commitments under the MEA supply agreement with the Synergy-Ballard JV, are subject to risk including risks related to market demand for the Synergy-Ballard JV's products, and risks related to the ability of the Synergy-Ballard JV to finance its operations including fulfilling its purchase commitments to us under the MEA supply agreement. As a result, there continues to be no reasonable assurance that the Synergy-Ballard JV will be able to meet the "take or pay" purchase commitment going forward. Accordingly, we have continued to remove all remaining purchase commitments in the MEA supply agreement from the Order Backlog and 12-month Order Book.

The Synergy-Ballard JV was formed with Guangdong Nation Synergy Hydrogen Power Technology Co. Ltd. ("**Nation-Synergy**"). The Synergy-Ballard JV is 90% owned by Nation-Synergy and 10% owned by Ballard Hong Kong Limited. Pursuant to the Equity Joint Venture Agreement Ballard contributed RMB 6.7 million (approximately \$1.0 million) for its non-controlling 10% joint venture interest, appointed one of the three members of the Synergy-Ballard JV board of directors, has veto rights over certain key Synergy-Ballard JV decisions, must agree with Nation-Synergy on the Synergy-Ballard JV marketing strategy, and has no obligation to provide additional funding to the Synergy-Ballard JV.

#### *Technology Solutions Transaction for Hydrogen Backup Power Systems in China*

On July 11, 2016, we announced that we had signed a definitive agreement with Nation-Synergy for a Technology Solutions transaction to enable Nation-Synergy to exclusively manufacture and sell Ballard's direct hydrogen FCgen®-H2PM fuel cell backup power systems in China.

Under the agreement Ballard licensed the designs of its 1.7 kW and 5 kW FCgen®-H2PM systems to Nation-Synergy for manufacture in the City of Yunfu in Guangdong Province and exclusive sales in China. Nation-Synergy has paid Ballard an upfront technology solutions fee of \$2.5 million for the license and related technology services and is required to make additional recurring payments to Ballard for each unit sold. Ballard will also be the exclusive supplier of air-cooled fuel cell stacks to Nation-Synergy for use in the FCgen®-H2PM systems that it produces and sells.

#### *Sale of Methanol Telecom Backup Power Business*

On May 17, 2016, we announced that we has entered into a definitive agreement to sell certain of the Corporation's methanol Telecom Backup Power business assets to Chung-Hsin Electric & Machinery Manufacturing Corporation ("**CHEM**"), a major Taiwanese power equipment company, for a purchase price of up to \$6.1 million.

The sale closed on May 31, 2016 and at the closing CHEM made an upfront payment of \$3 million. The remaining potential purchase price of up to \$3.1 million consisted of an earn-out arising from sales of methanol Telecom Backup Power systems by CHEM during the 18-month period to November 2017 derived from the sales

pipeline transferred to CHEM on closing. During 2017, we collected approximately \$1.0 million on this potential earn-out and impaired the residual value.

In addition to the purchase price, CHEM agreed to purchase fuel cell stacks exclusively from the Corporation over the earnout period, with a minimum spend of \$2 million (\$2 million purchased to date).

### *Equipment Supply Agreement with Nation-Synergy*

On January 21, 2016, we announced the signing of an equipment supply agreement, valued at \$12 million, with Nation-Synergy to provide FCveloCity®-9SSL fuel cell stacks for range extension applications in commercial vehicles in China. The majority of the fuel stacks were delivered in 2016 with the balance delivered in 2017. Nation-Synergy was expected to collaborate with Dongfeng Xiangyang Touring Car Co., Ltd., which is part of Dongfeng Motor Corporation, a Chinese state-owned automobile manufacturer headquartered in Wuhan, China.

## **OUR BUSINESS**

At Ballard, our vision is to deliver fuel cell power for a sustainable planet. We are recognized as a world leader in PEM fuel cell and power system development and commercialization.

Our principal business is the design, development, manufacture, sale and service of PEM fuel cell products for a variety of applications, focusing on our power product markets of Heavy-Duty Motive (consisting of bus, truck, rail and marine applications), Portable Power / UAV, Material Handling, and Backup Power, as well as the delivery of Technology Solutions, including engineering services, technology transfer, and the license and sale of our extensive intellectual property portfolio and fundamental knowledge for a variety of fuel cell applications.

A fuel cell is an environmentally clean electrochemical device that combines hydrogen fuel with oxygen (from the air) to produce electricity. The hydrogen fuel can be obtained from natural gas, kerosene, methanol or other hydrocarbon fuels, or from water through electrolysis. Ballard's clean-energy fuel cell products feature high fuel efficiency, low operating temperature, low noise and vibration, compact size, quick response to changes in electrical demand and modular design. Embedded in each Ballard PEM fuel cell product lies a stack of unit cells designed with Ballard's proprietary technology, which include membrane electrode assemblies, catalysts, plates, and other key components, and which draw on intellectual property from our patent portfolio together with our extensive experience and know-how, in key areas of fuel cell stack design, operation, production processes and system integration.

We plan to build value for our shareholders by developing, manufacturing, selling and servicing zero-emission, industry-leading PEM fuel cell technology products and services to meet the needs of our customers in select target markets.

## Strategy

We are pursuing a corporate strategy and business model that leverages growth and mitigates risk by diversifying our business across a portfolio of market opportunities that are enabled by substantially the same core competencies, technology, products and intellectual property. Our business model includes two growth platforms (power products and technology solutions), multiple markets within each of these platforms, geographic diversification and customer diversification.

We are also pursuing a strategy that supports commercialization, revenue and profitability, while also enabling future value based on longer-term market opportunities for our technology, products and intellectual property, such as the global automotive fuel cell market and the unmanned aerial vehicle (“UAV”) or drone market.

Our two-pronged approach is to build shareholder value through the sale and service of power products and the delivery of technology solutions. In power product sales, our focus is on meeting the power needs of our customers by delivering high value, high reliability, high quality and innovative PEM fuel cell products. Through technology solutions, our focus is on enabling our customers to solve their technical and business challenges or address new business opportunities and accelerate the adoption of fuel cell technology by delivering customized, high value, bundled technology solutions, including specialized engineering services, access to our deep intellectual property portfolio and know-how through licensing or sale, and by providing technology component supply.

Starting in 2015, we increased our efforts on growing our business in China. China represents a potentially unique opportunity for zero and low-emission motive solutions, given the convergence of macro trends that include:

- continued urbanization of China’s population;
- continued infrastructure development and build-out of mass urban transportation;
- the large size and continued growth of the Chinese vehicle market;
- rapid adoption of electric vehicles in China;
- serious air quality challenges in a number of Chinese cities;
- a Chinese government mandate to address climate change; and
- strong national and local government commitment supporting the adoption and commercialization of fuel cells in new-energy vehicle transportation applications, including the implementation of supporting subsidy programs.

As part of our strategy, we have been working to develop a local fuel cell supply chain and related ecosystem to address the new-energy bus and commercial vehicle markets in China. We believe this strategy aligns with current and expected local

content requirements for government subsidies supporting the adoption of fuel cell electric vehicles (FCEVs). Key elements of our strategy include adopting a business model in which we seek to mitigate market adoption risk and capital investment by engaging partnerships with local companies that market our products and invest in manufacturing operations and supply chain localization.

As part of our strategy, we are pursuing technology transfer and licensing opportunities with Chinese partners in order to localize the manufacture of Ballard-designed fuel cell modules and fuel cell stacks for heavy-duty motive applications in China, including bus, commercial vehicles, material handling and light-rail applications. We typically seek to structure our arrangements in a way that provide us with payments from our partners of significant value for technology transfer early in the transfer process, requirements for ongoing purchases by our partners of components from us, and requirements for our partners to comply with certain performance conditions and reporting requirements, including quality, branding, and intellectual property protections. We believe these typical transaction structures provide for near-, mid- and long-term revenue and cash flow streams by building in program phases, technology transfer payments, license payments, required supply purchases, and recurring royalty or other long-term cash generating structures. We also typically structure our commercial transaction in China to restrict sales to that country and to position Ballard as the exclusive purchaser of fuel cell modules or fuel cell stacks manufactured by our partners in China for sale outside of China. We believe this structure provides us with additional flexibility in satisfying global market demand for our modules and stacks by supplementing or mitigating our mid- and long-term manufacturing strategy.

We also structure our business model in China to protect our core intellectual property. For example, we currently do not provide technology transfer and licensing relating to the manufacture of our proprietary MEAs, a key high value technology component in our fuel cell stacks. We currently plan to continue to manufacture our MEAs in our facilities in Burnaby, Canada.

We continue to make significant investment in next-generation products and technology, including MEAs, stacks, modules and systems integration.

### **Revenues from Market Segments**

We report our results in the single operating segment of Fuel Cell Products and Services. Our Fuel Cell Products and Services segment consists of the sale and service of PEM fuel cell products for our power product markets of Heavy-Duty Motive (consisting of bus, truck, rail and marine applications), Portable Power / UAV, Material Handling and Backup Power, as well as the delivery of Technology Solutions, including engineering services, technology transfer and the license and sale of our extensive intellectual property portfolio and fundamental knowledge for a variety of fuel cell applications.



As a result of our sale of the Power Manager assets in the fourth quarter of 2018, we have renamed the former Portable Power market as the Portable Power / UAV market. As the sale of the Power Manager assets is not presented as a discontinued operation, the Portable Power / UAV market includes revenues associated with our power manager business prior to the sale to Revision, and product and service revenues generated from the retained Protonex assets related primarily to fuel cell propulsion systems for unmanned systems.

The following chart shows the percentage of total revenues which arises from sales to investees and sales of products and services to other customers, for the years 2018 and 2017:

	2018	2017
<b>Revenues from Fuel Cell Products and Services</b>		
Percentage of total revenues	100%	100%
Portion representing sales to investees <sup>(1)</sup>	19.5%	25.6%
Portion representing sales to customers other than investees	80.5%	74.4%

(1) In this table, “investees” means Guangdong Synergy Ballard Hydrogen Power Co., Ltd., a joint venture formed in China of which we hold a 10% equity interest and Weichai Ballard Hy-Energy Technologies Co., Ltd., a joint venture formed in China, of which we hold a 49% equity interest.

## Our Markets, Products and Services

### *Product & Service Overview*

Ballard’s product offering provides for a cost effective and flexible set of fuel cell power solutions. Ballard provides products in four distinct product classes:

- (1) **Fuel cell stacks:** We provide FCgen<sup>®</sup> and FCveloCity<sup>®</sup> fuel cell stacks to OEM customers and system integrators that use the stacks to produce fuel cell systems for power solutions. As the fuel cell stack provider, we are the power inside the system.
- (2) **Fuel cell modules:** We build the fuel cell stacks into self-contained FCveloCity<sup>®</sup> motive modules that are plug-and-play into commercial vehicle powertrains. As a fuel cell module provider, we make it easier for OEMs and system integrators to create fuel cell powertrains.
- (3) **Fuel cell systems:** We also build complete fuel cell systems for stationary power markets that are designed to solve certain energy needs of our customers, including back-up for critical infrastructure. Through Ballard Unmanned Systems, we build fuel cell systems for UAVs.
- (4) **Power management systems:** Through Ballard Unmanned Systems, we built power management devices for military customers that allowed them to

optimize their energy use. The assets used to design, build and sell these products were divested in October 2018 as discussed above.

Our technology solutions offerings primarily involve the provision of engineering services and customer access through licensing to our deep intellectual property portfolio and know-how.

The following table lists the key fuel cell and non-fuel cell products we currently produce, have under development or are testing:

<b><u>Motive Power Product Family:</u></b>		
<b>Product Name</b>	<b>Application</b>	<b>Status</b>
FCgen®-LCS	Buses, commercial vehicles, light rail, and material handling	Latest generation of product offered – currently in final testing and validation
FCveloCity®-9SSL	Buses, commercial vehicles, light rail, and material handling	Sales to OEMs and system integrators
FCgen®-1020ACS	Material handling	Sales to OEMs and system integrators
FCveloCity® modules	Buses, commercial vehicles, and light rail	Sales to OEMs and system integrators
FCmove™ modules	Buses, commercial vehicles, and light rail	Latest generation of product offered – currently in final testing and validation

<b><u>Stationary Power Product Family:</u></b>		
<b>Product Name</b>	<b>Application</b>	<b>Status</b>
FCgen®-1020ACS	Backup power	Sales to OEMs and system integrators
FCgen®-H2PM	Backup power systems	Sales to customers
ClearGen®	Distributed Generation systems	Sales to customers

<b><u>UAV and Portable Power Product Family:</u></b>		
<b>Product Name</b>	<b>Application</b>	<b>Status</b>
FCair®-600 and FCair®-1200	UAV power system	Prototype testing

## Fuel Cell Products and Services

### *Power Products Markets*

#### **Heavy Duty Motive**

We provide fuel cell modules for public transit systems, including buses and light rail, and for commercial trucks. These fuel cell buses, fuel cell commercial trucks and light rail systems rely on centralized fuelling depots that simplify the hydrogen infrastructure requirements and are government-subsidized, thus enabling the purchase of pre-commercial fleets.

We design and manufacture the FCveloCity® fuel cell module platform, which in various forms is capable of delivering 30 kW to 200 kW of power for use in the Heavy Duty Motive market. We supply the fuel cell modules to hybrid drive, bus and light rail manufacturer customers that deliver zero-emission fuel cell-powered vehicles to transit operators around the world. The demand for zero-emission mass transit systems is driven in many jurisdictions by the requirement to reduce greenhouse gases and other harmful emissions that are impacting urban areas.

FCveloCity® power module platform cost reduction efforts have focused on unit cell design enhancements, including improved durability and lifetime. This ongoing effort was partially funded by a C\$4.8 million award announced in January 2010 (revised to C\$6.9 million in June 2012) from Sustainable Development Technology Canada (“SDTC”), and was successfully completed in 2014 to further develop fuel cell power module technology for the transit bus market. Product cost reductions continued with the launch in 2015 of our seventh generation motive module FCveloCity® platform, which reduced the total cost of the module by 25%. This new platform is available in various configurations ranging in power from 30 kW to 200 kW to address different levels of battery/fuel cell hybridization and a variety of applications. The FCveloCity®-MD series is optimized for smaller buses (less than 12 meters in length), the FCveloCity®-HD module is the workhorse of the standard-size (12-18 meter) fuel cell bus industry, and the FCveloCity®-XD series is aimed at light rail.

To date, Ballard-powered fuel cell buses have accumulated more than 14 million kilometres in service, with several fuel cell buses having passed the 30,000 operating hour threshold.

In 2015, Ballard FCveloCity® power modules were used to power the world’s first fuel cell light rail system in Foshan, China opening up a new market for the FCveloCity® heavy duty power modules.

In 2016, we expanded the use of FCveloCity® to more heavy duty applications such as commercial trucks, where products have been integrated into class 8 drayage trucks and delivery trucks.

In 2017, we shipped over 600 FCveloCity®-MD30 modules to China which were integrated locally in delivery trucks in 2018.

In 2018 we have expanded our heavy duty market coverage to the marine sector through a number of government funded projects in Europe aiming at developing hydrogen ferries and barges. We also launched our next-generation high performance liquid-cooled fuel cell stack FCgen®-LCS at the IAA Hanover tradeshow in Germany.

In 2019 we expect to launch our eighth generation of power module portfolio for use in heavy-duty applications using FCgen®-LCS stacks.

### **Competition**

Diesel-powered buses and commercial trucks currently dominate the market today. Compressed natural gas (“CNG”) and diesel electric hybrid powertrains are lower-emission alternatives to diesel engines, but are in limited service today. Other variants available today include gasoline hybrid buses and CNG hybrid buses. Electric trolley buses provide a zero-emission alternative; however, their purchase price is high and the overhead catenary power infrastructure is expensive to maintain and is considered aesthetically undesirable in many urban centres. The recent developments in battery-powered powertrain vehicles have created a zero emission alternative to fuel cell buses in the form of battery electric buses and commercial trucks. These battery-powered heavy-duty vehicles will continue to offer a viable zero emission bus for applications where long range and extended operating hours between recharges are not a requirement.

We believe that fuel cells are the best zero-emission alternative for transit applications. They offer much greater fuel efficiency than conventional diesel buses, reduce greenhouse gas and other harmful emissions and eliminate the need for unsightly overhead catenary wires. Fuel cell buses are the most flexible zero-emissions option. Unlike other electric solutions, fuel cell buses can be operated like diesel buses providing longer daily driving distances and faster refuelling.

Companies developing fuel cell systems for heavy-duty applications include Hydrogenics Corporation (“**Hydrogenics**”) and Powercell Sweden AB. We have accumulated far more operating hours in real world heavy-duty operations than any other fuel cell manufacturer. We believe this experience has enabled us to produce more reliable, more durable and easier to integrate products than those of our competitors.

### **Portable Power / UAV**

On October 5, 2018 we completed the sale of assets related to the Power Manager business of Ballard Unmanned Systems. On December 31, 2017 we divested our non-core SOFC business at Ballard Unmanned Systems. Details of the SOFC and Power Manager transactions are discussed above in the Recent History Section.

Ballard Unmanned Systems has a decade of experience developing fuel cell based power systems for UAVs for the defense industry. Ballard Unmanned Systems has integrated its fuel cells onto UAV platforms from leading platform providers

including Insitu (a Boeing company), Lockheed-Martin, Aerovironment, and others. As UAV technology has transitioned from defense to commercial use, Ballard has developed commercial variants of 600 watt and 1,200 watt UAV fuel cell systems, and is now supplying these systems to leading commercial platform integrators.

In UAV markets, flight duration (and hence range) is a critical limiting factor for many applications. Airspace regulators across the globe are actively developing rules to allow operation of UAVs in beyond visual line of sight (BVLOS) missions, and as these rules are issued and operators are able to address applications that require long distances or areas to be covered, range limitations due to battery capacity will become more and more critical. Many integrators and operators have already accepted that fuel cells provide the logical next step from battery power for commercial UAVs, and Ballard is positioning itself to be the leader in this space.

Ballard Unmanned Systems has also developed portable fuel cells focused on low power applications for use in extended surveillance applications, including vehicle auxiliary power units (APUs), unmanned aerial (UAV), unmanned ground (UGV), and underwater (UUV) vehicle propulsion.

### **Competition**

Several other companies have developed fuel cell systems for UAVs, including Intelligent Energy, EnergyOR, and MicroMultiCopter Aero Technology Co., Ltd. (MMC) and Doosan. Ballard fuel cell systems are the most reliable and proven systems on the market, due to their long history in the defense UAV sector. At this point, with commercial fuel cell UAV power in its infancy, no provider has established a clear leadership position. However, Ballard's leadership position in the defense UAV market, as well as robust technology and field experience give us an enviable head-start on establishing this industry leadership.

Non-fuel-cell competition includes traditional lithium-polymer battery systems and internal combustion engines. Batteries have been consistently identified as the most significant limitation in commercial UAV operations, and there is general acceptance in the industry that battery technology will not develop fast enough to meet present flight duration requirements. Internal combustion engines can provide mission durations comparable with fuel cells, but the audible noise and continued cost of ownership associated with internal combustion engines makes them a less desirable solution.

### **Material Handling**

The material handling market includes industrial vehicles such as forklifts, automated guided vehicles ("AGVs") and ground support equipment. Our initial focus is on battery-powered Class 1 counterbalance lift trucks, Class 2 reach trucks and Class 3 pallet forklifts and AGVs. Our products for the material handling market are the FCveloCity®-9SSL stack, which is applicable to Class 1, Class 2 and Class 3 forklift truck solutions, the FCveloCity®-1020ACS stack for Class 3 material handling applications,

and the FCgen<sup>®</sup>-LCS stack which is expected to be applicable to Class 1, Class 2 and Class 3 forklift truck solutions.

Our main customer and partner in North America is Plug Power, a specialized system integrator achieving early market penetration deploying its GenDrive™ battery pack replacement fuel cell systems. Ballard's current equipment supply agreement with Plug Power continues through 2020 with the potential for two 1-year extensions.

As noted in the Recent History section above, in 2018 we entered into a Master Supply Agreement with the Hyster-Yale for the supply of Ballard FCgen<sup>®</sup>-1020 air-cooled fuel cell stacks for use in powering Class 3 lift trucks.

### **Competition**

Class 2 and Class 3 forklift trucks are currently dominated by lead-acid battery-powered solutions, as are Class 1 forklift trucks intended for indoor applications. Internal combustion engine power is typically seen as the solution for forklift trucks in Class 1 for outdoor applications. Compared to batteries, fuel cell systems in Class 1, Class 2 and Class 3 forklift trucks can provide extended run time without frequent and lengthy battery replacement and recharging cycles. For high-throughput, multi-shift warehouse or manufacturing operations, fuel cell powered forklift trucks can provide a lower life-cycle cost when compared with traditional lead-acid battery solutions.

Companies developing fuel cell systems for material handling applications include Nuvera, which was acquired by Hyster-Yale in 2014. We seek to gain a competitive advantage through our engineering know-how and fuel cell designs that provide superior performance, efficiency, durability and cost. Plug Power is the only company currently offering a full suite of Class 1, 2 and 3 forklift solutions to the material handling market. We currently sell and supply fuel cell stacks to Plug Power. Plug Power has developed its own air-cooled and liquid-cooled fuel cell stacks to vertically integrate into their material handling solutions. Plug Power's own fuel cell stacks compete with our fuel cell stacks for supply in Plug Power's business. Ballard is also engaged with other companies to increase potential sales beyond Plug Power for the forklift market, including Hyster-Yale as discussed above.

Advanced battery technology continues to make progress in the material handling market. However, the high up-front cost of advanced batteries continues to be a barrier to broad market adoption. Furthermore, advanced battery technologies still requires significant time for recharging and, in many cases, cannot meet desired run times without requiring spare batteries and substantial space for battery charging and storage.

## **Backup Power**

The backup power market includes stationary applications for telecommunications equipment and other critical infrastructure. In May 2016, we sold our methanol ElectraGen®-ME assets to CHEM for an upfront payment of \$3 million.

We continue to supply the backup power market through the sale and licensing of our hydrogen backup power product, the FCgen®-H2PM. The FCgen®-H2PM is manufactured by Ballard Europe. In addition to manufacturing products for sale in the backup power market, we also look for opportunities to exploit our systems-based intellectual property and, in July 2016, entered into a licensing arrangement with Nation-Synergy for the FCgen®-H2PM.

We provide fuel cell systems to back-up critical communication infrastructure following the sale of the methanol back-up product line to CHEM with a focus on fibre optics network backbones, critical hub sites and emergency communication networks (police, fire, ambulance and other emergency response services) in Europe with our FCgen®-H2PM product. Several Scandinavian countries have passed regulations to impose extended backup time (more than 12 hours) for critical infrastructure. Fuel cell technology provides an alternative power solution with a compelling value proposition to ensure site power availability during unexpected power outages to harden critical telecommunication networks.

The FCgen®-H2PM fuel cell system has been designed to integrate easily with existing power equipment and can be installed at low cost in many environments including dense urban areas and rooftop sites. Using the FCgen®-H2PM backup power solution allows operators to harden their network while reducing operating costs.

### **Competition**

The backup power market is currently dominated by diesel generators and batteries. Advanced battery technology continues to make modest progress in the backup power generation market. However, advanced battery technologies still require lengthy recharging and, in many cases, cannot meet desired run times without requiring substantial space. We believe that PEM fuel cell products are superior to batteries in some applications, because of their ability to provide extended run time without frequent or lengthy recharging, as well as their ability to offer lower life cycle costs, given that batteries require periodic replacement. Fuel cell backup power offers a strong value proposition against diesel generators with lower operating cost, low emission and noise, and less risk of theft.

Companies developing PEM fuel cell systems for backup power applications include Alteryg, Hydrogenics and Serenergy. We seek to gain competitive advantage through fuel cell designs that provide superior performance, efficiency, durability and cost.

### *Technology Solutions*

This division (formerly named Engineering Services) was established in late 2011 to leverage our expertise in fuel cell design, prototyping, manufacturing and servicing. The mandate of the Technology Solutions division is to help customers solve difficult technical and business challenges in their PEM fuel cell programs or address new business opportunities. We offer customized, bundled technology solutions, including world-class, specialized engineering services, access to our intellectual property portfolio and know-how, as well as the supply of test equipment and technology components.

Our current Technology Solutions efforts are predominantly in support of multiple automotive research and product development programs; however, in 2018 we also executed on contracts in bus, light rail, marine, stationary, material handling and unmanned vehicles applications.

As noted in the Recent History section above, in 2018 we signed a 3.5-year extension to its current Technology Solutions contract with AUDI AG, part of the Volkswagen Group, extending the HyMotion program to August 2022.

In addition to our work with the Volkswagen Group, throughout 2018 we have also continued to execute engineering services projects for other automotive customers.

Also noted in the Recent History section, in 2016, we signed and closed definitive agreements with Nation-Synergy for the establishment of an FCveloCity®-9SSL fuel cell stack production operation in the City of Yunfu, in Guangdong Province, China. Ballard received \$18.4 million in Technology Solutions revenue for technology transfer services, production equipment specification and procurement services, training and commissioning support in relation to the establishment of a production line in Yunfu for the manufacture and assembly of FCveloCity®-9SSL fuel cell stacks, with most of this revenue recognized in 2017.

### **Competition**

In the automotive sector, our main competition for engineering services is the automakers' 'in-house' capabilities or specialized automotive engineering companies like AVL. Companies providing fuel cell test equipment include FuelCon and Greenlight Innovation. Fuel cell development companies, like Hydrogenics and Powercell, offer competing fuel cell development programs for emerging **markets** like rail and marine.

### **Impact of Regulations and Public Policy**

Public funding for hydrogen and fuel cells in China, Japan, Germany, the rest of Europe, South Korea and the United States each exceed \$100 million per year, with the worldwide total exceeding \$1 billion per year. This funding has, and is expected to continue to, help drive demand for fuel cell products.



The U.S. Federal Transit Agency manages the competitive Low or No Emission Vehicle Program which provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities. Under the FAST Act, \$55 million per year is available until fiscal year 2020.

The California Air and Resource Board (“**CARB**”) Low Carbon Transportation and AQIP programs provide mobile source incentives to reduce greenhouse gas (GHG) emissions, criteria pollutants, and air toxics through the development of advanced technology and clean transportation. Low Carbon Transportation investments are supported by California Cap-and-Trade auction proceeds projects. AQIP, established by the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 is a voluntary incentive program administered by CARB to fund clean vehicle and equipment projects, research of biofuels production. Each year, the legislature appropriates funding to CARB for low carbon transportation and the air quality impacts of alternative fuels, and workforce training. On August 31, 2016, the California Legislature appropriated \$363 million to CARB for Low Carbon Transportation projects and provided direction on how these funds will be used. Among the funded projects in 2016 were the Zero-Emission Truck and Bus Pilot Commercial Deployment Project which will fund the deployment of 25 fuel cell electric buses in California. On September 15, 2017, the California legislature passed AB 134, which gives significant funding to zero emission buses in fiscal years 2017-18. The package provides \$895 million to vehicles in total, with \$560 million for ARB’s Low Carbon Transportation Program, and \$180 million to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (“**HVIP**”), including a \$300,000 voucher for fuel cell electric buses. The proposed project allocations for the HVIP fiscal year 2018-19 funding plan includes \$208.6 million dedicated to heavy-duty vehicles with \$125 million for clean truck and bus vouchers.

In Europe, the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) – a partnership of the European Commission with industry and the research community under the framework of the Fuel Cells and Hydrogen Joint Technology Initiative – supports research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe. The FCH JU’s aim is to accelerate the market introduction of these technologies. In May 2014, the Council of the European Union formally agreed to continue the Fuel Cells and Hydrogen Joint Technology Initiative under the EU Horizon 2020 Framework Program. The current phase (2014 – 2020), will have a total budget of €1.33 billion, provided on a matched basis. Calls for proposals under Horizon 2020 have occurred for 2014, 2015, 2016, 2017, and 2018 with 2019 calls for proposals open through April 2019. FCH-JU had a budget of €73.2m for the 2018 call and €80.8m for the 2019 call. On February 26, 2017 the Joint Initiative for hydrogen Vehicles across Europe – commonly known as the JIVE project – was officially launched. This collaborative initiative is set to deploy 139 fuel cell electric

buses across Europe. A phase 2 program with the deployment of 152 additional buses was approved as part of the 2017 call.

In 2018 the European Union Connecting Europe Facility program (CEF) awarded €40 million for the deployment of a large scale fleet of fuel cell buses and supporting infrastructure in selected region in Europe.

In China, the Ministry of Finance proposed in April 2015 and confirmed in January 2017, extended subsidies for new energy vehicles (low emission vehicles) to 2020, with subsidies for battery electric vehicles being reduced by 20 percent by 2018 and by 40 percent by 2020. The new energy vehicle subsidy policy does not currently provide for subsidy reductions for fuel cell vehicles. Subsidies will be granted to buyers of pure electric, highly electrified plug-in hybrid and fuel-cell vehicles, including both cars and buses.

In Japan, incentives focus on fuel cell systems for residential co-generation systems and transportation. A cumulative total of 130,000 co-generation systems were installed in Japan between 2009 and 2014, with more than 50,000 of those in 2014 alone. The current government subsidy for the purchase of a hydrogen fuel cell car is approximately \$20,000. In 2015, the Japanese government announced that it plans to spend 45.2 billion yen (more than \$350 million) on fuel-cell vehicle subsidies and hydrogen stations for the 2020 Olympics as part of a plan to reduce Japan's reliance on nuclear power. In 2017, the Cabinet of Japan adopted a plan to decide on a basic strategy that allows the government to be united in promoting initiatives that will ensure Japan becomes the first country in the world to realize a hydrogen-based society.

In Canada, SDTC operates the SD Tech Fund which supports the late-stage development and pre-commercial demonstration of clean technology solutions. These solutions being products and processes that contribute to clean air, clean water and clean land, that address climate change and improve the productivity and the global competitiveness of the Canadian industry.

The Strategic Innovation Fund announced in July 2017 by Innovation, Science and Economic Development Canada, allocates repayable and non-repayable contributions to firms of all sizes across all of Canada's industrial and technology sectors. The program has a budget of \$1.26 billion over five years. It consolidates and simplifies the Strategic Aerospace and Defence Initiative, Technology Demonstration Program, Automotive Innovation Fund and Automotive Supplier Innovation Program.

## **Research and Product Development**

Ballard's research activities are primarily focused on the MEA and its sub-components, aimed at improving the overall cost, durability, and reliability of our products. Material development for other unit cell components, such as bipolar plates, frames, seals and adhesives, is another area of research focus. Product development activities have been primarily directed at module development and cost reduction.

Progress is driven by leveraging stack component designs, materials, and manufacturing processes across multiple product platforms. In addition, warranty cost reduction is enabled through improved durability and reliability growth.

## **Intellectual Property**

Ballard's technical strengths lay in our proprietary MEA design, combined with our extensive stack and system integration capabilities, which enables development of complete end-user systems that meet or exceed customer specifications, across a wide range of market applications.

Our intellectual property covers multiple aspects of our technology, including: materials and components; cell, stack and systems architecture; stack/system operation and control; and manufacturing processes. Our intellectual property portfolio is not limited to our patents and patent applications; it also includes know-how and trade secrets developed over more than 30 years of research and product development.

As of March 6, 2019, Ballard owns or controls through IP Holdings: 59 United States granted patents; 102 non-United States granted patents; 6 United States published patent applications; and 32 published non-United States patent applications. Our patents will expire between June 2019 and August 2038.

Ballard Unmanned Systems' intellectual property comprises approximately 12 United States granted patents, 20 non-US granted patents, no United States published patent applications and 2 published non-United States patent applications.

We hold licence rights to additional intellectual property from a number of third parties. We have a royalty-free license to approximately 900 issued patents and pending patent applications from Audi for bus and non-automotive applications as well as for certain limited pre-commercial purposes in automotive applications. In addition, these licences include non-exclusive, royalty-free access to all of the intellectual property rights held by NuCellSys GmbH, a Daimler subsidiary, and to all of the intellectual property rights relating to fuel cells developed by Daimler, Ford and their subsidiaries (either directly or through AFCC), including any intellectual property rights developed by them to January 31, 2013. As of March 6, 2019, of the approximately 2,000 patents and patent applications that were included in these licenses, approximately 275 of them are currently granted or pending.

## **Manufacturing**

Our fuel cell products and clean energy solutions are produced in six facilities – three in Burnaby, British Columbia, one in Bend, Oregon, one in Southborough, Massachusetts, and one in Hobro, Denmark. Along with these facilities, the Synergy-Ballard JV, of which Ballard is a 10% owner, operates an FCveloCity®-9SSL fuel cell stack assembly line in Yunfu, China. The Burnaby facilities are focused on our core fuel cell competencies, which include the production of MEAs, integration and testing of

fuel cell stacks, assembly and testing of motive modules, as well as support of other products required through our engineering services contracts. The Weichai-Ballard JV is planning to manufacture Ballard's next-generation FCgen®-LCS fuel cell stack and FCgen®-LCS-based power modules for bus, commercial truck and forklift applications.

We continue to make investments in our manufacturing process, equipment and capabilities and processes which are targeted at supporting higher volume production and automated processing to support future growth. Ballard Unmanned Systems develops, tests, and manufactures its UAV products in Southborough, Massachusetts. Ballard Europe develops, tests, and manufactures backup power systems in Hobro, Denmark.

Many of the materials and components used in the production of MEAs, fuel cell stacks, and balance of plant are proprietary in nature and have been developed in joint collaboration between Ballard and our key supply base. Strategic supply agreements have been executed with these suppliers to ensure security of supply, protection of our intellectual property, and adherence to our strict quality and reliability standards.

## **Safety**

Our products are designed and manufactured with the safety of our employees, customers, and end-users in mind. All equipment and processes that are introduced into our working environment are evaluated using a rigorous Preliminary Hazard Assessment procedure to ensure they are safe to use.

In 2018 we continued to work diligently to continue to strengthen the culture of safety across our entire global footprint. We launched a "Step up to Safety" campaign that all employees participated in, and focused on core safety awareness through training programs such as "Behavioural Based Safety" and "Due Diligence for Supervisors and Managers". We have updated our WHMIS training as well as to launch an online platform, passed a recertification audit for the Occupational Safety Standard of Excellence, and enhanced the robustness of our safety protocols for visitors and contractors.

## **Quality**

Quality is an integral part of the Ballard culture. Our processes and systems are focused on ensuring that every product that is shipped to our customers conforms to their expectations and contractual requirements while being produced in a safe and environmentally conscious manner. We adhere to our Quality Policy Statement, which reads, "At Ballard, Quality is intrinsic to our identity. Our team is empowered to do things right – the first time – to satisfy customer needs and deliver on our promise. We will accomplish this by:

- Satisfying the requirements and addressing the Quality concerns of all stakeholders in pursuit of our strategic objectives;

- Providing the necessary resources to ensure our employees are able to fulfill their responsibilities;
- Establishing & communicating effective Quality metrics and targets;
- Monitoring the performance of our products and processes to discover improvement opportunities; and
- Continually improving our Quality Management System.

We will measure our success through the satisfaction of our customers.”

In 2018 we certified to automotive standard IATF16949 while maintaining ISO9001:2015 in our Burnaby facilities. In addition, we passed supplier audits conducted by Audi and Siemens in 2018 as well. Conformance to these quality systems is ensured through our Integrated Management System. We also strive for continuous improvements in our manufacturing processes through such practices as Lean Manufacturing, 5-S and Six Sigma. The Synergy-Ballard JV in Yunfu, China carries the IATF16949 and ISO9001:2015 certifications.

## **Facilities**

We, or our wholly-owned subsidiaries, currently have the following principal facilities: (a) a leased 116,797 ft<sup>2</sup> (10,850 m<sup>2</sup>) facility in Burnaby, British Columbia that houses our corporate headquarters and our fuel cell development, manufacturing, assembly and testing activities; (b) a leased 112,000 ft<sup>2</sup> (10,405 m<sup>2</sup>) facility in Burnaby that houses some of our manufacturing facilities, as well as manufacturing facilities of Mercedes-Benz Canada Inc. through a sublease; (c) approximately 10,000 ft<sup>2</sup> (930 m<sup>2</sup>) of assembly space in Burnaby that is used to support motive module assembly; (d) a leased 4,100 ft<sup>2</sup> (381 m<sup>2</sup>) facility in Hobro, Denmark; (e) a subleased 1,150 ft<sup>2</sup> (107 m<sup>2</sup>) facility in Southborough, Massachusetts that houses all of Ballard Unmanned Systems’ operations. The Synergy-Ballard JV’s operations in Yunfu, China occupies approximately 40,000 ft<sup>2</sup> of a purpose built 120,000 ft<sup>2</sup> facility dedicated to fuel cell stack and module assembly.

As per our Quality Statement, we are committed to ensuring that each of these facilities is operated in full compliance with all applicable laws, as well as all health, safety, and regulatory standards.

## **Sustainability**

In 2017 we successfully completed our registration to the environmental policy standard ISO14001:2015. We take this initiative very seriously, not only in producing clean energy products and solutions for a global market, but also by ensuring that we will manufacture them in an environmentally conscious manner. It is our goal to act as corporate leaders with respect to environmental sustainability and stewardship and to ensure that, across our footprint, we will not adversely impact the environment.

## Human Resources

As of December 31, 2018, we had 443 employees in Canada, 16 in the United States, 41 in the European Union, and 14 in China, representing such diverse disciplines as electrochemistry, polymer chemistry, chemical, mechanical, electronic and electrical engineering, manufacturing, marketing, sales, business development, legal, finance, human resources, information technology and business management. Our employees in Canada and the United States are not represented by any labour union. Each employee must agree to confidentiality provisions as part of the terms of his or her employment, and certain employees have also executed non-competition agreements with us.

## SHARE CAPITAL AND MARKET FOR SECURITIES

Our authorized share capital consists of an unlimited number of common shares and an unlimited number of preferred shares. As of March 6, 2019, our issued share capital consisted of 231,929,309 common shares. Our common shares are listed and trade on the Toronto Stock Exchange (“TSX”) and on the National Association of Securities Dealers Automated Quotation Global Market (“NASDAQ”) and trade under the symbol “BLDP” on both exchanges. Prior to January 1, 2017 our common shares traded on the TSX under the symbol “BLD”.

The following table shows the monthly trading activity for our common shares on the TSX and NASDAQ during 2018:

	TSX		NASDAQ	
	Price Range (C\$)	Average Daily Volume (#)	Price Range (US\$)	Average Daily Volume (#)
January	3.71 - 5.49	509,905	3.01 - 4.40	3,062,243
February	3.90 - 4.82	423,379	3.10 - 3.74	1,935,747
March	3.84 - 4.61	363,276	2.98 - 3.60	1,630,614
April	4.21 - 4.70	177,657	3.21 - 3.70	687,600
May	3.87 - 4.26	122,673	2.97 - 3.29	702,264
June	3.56 - 4.04	172,405	2.65 - 3.13	873,000
July	3.70 - 4.08	104,043	2.80 - 3.11	556,048
August	3.78 - 4.66	214,855	2.94 - 3.54	781,848
September	4.37 - 5.86	421,337	3.37 - 4.55	1,601,563

	TSX		NASDAQ	
	Price Range (C\$)	Average Daily Volume (#)	Price Range (US\$)	Average Daily Volume (#)
October	4.39 - 5.81	236,955	3.38 - 4.33	818,439
November	3.70 - 4.05	230,713	2.74 - 3.06	922,964
December	3.06 - 3.90	142,505	2.26 - 2.97	588,663

The holders of our common shares are entitled to one vote for each share held on all matters to be voted on by such shareholders and, subject to the rights and priorities of the holders of preferred shares, are entitled to receive such dividends as may be declared by our Board out of funds legally available therefor and, in the event of liquidation, wind-up or dissolution, to receive our remaining property, after the satisfaction of all outstanding liabilities.

Our preferred shares are issuable in series and our Board is entitled to determine the designation, preferences, rights, conditions, restrictions, limitations and prohibitions to be attached to each series of such shares. Currently there are no preferred shares outstanding.

#### **DIVIDEND RECORD AND POLICY**

To date, we have not paid any dividends on our shares and, because it is anticipated that all available cash will be needed to implement our business plans, we have no plans to pay dividends in the immediate future.

#### **ESCROWED SECURITIES AND SECURITIES SUBJECT TO CONTRACTUAL RESTRICTIONS ON TRANSFER**

The following tables sets out the number of common shares in escrow or subject to contractual restrictions on transfer and the percentage that number represents of the outstanding securities of that class.

Designation of Class	Number of Securities Held in Escrow or that are Subject to a Contractual Restriction on Transfer	Percentage of Class
Common	51,831,659	22.35%

Pursuant to the investor rights agreement dated November 13, 2018 between Ballard and Weichai HK with respect to the 46,131,712 common shares of Ballard purchased that date and the investor rights agreement amendment dated November 13, 2018 between Ballard and Broad-Ocean Motor (Hong Kong) Co. Limited (“**Broad-**

Ocean HK”) with respect to the 5,699,947 common shares of Ballard purchased that date, neither Weichai HK nor Broad-Ocean HK may trade such shares of Ballard before November 13, 2020 unless:

- (1) in connection with a sale, transfer or disposition pursuant to any plan of arrangement, re-organization, amalgamation, takeover bid, merger or other similar combination transaction where an offer to purchase or exchange or reorganize the voting shares has been made to all shareholders of Ballard by a third party or involves all the voting shares;
- (2) in connection with a sale, transfer or disposition to an affiliate of the shareholder, provided that the shareholder causes such affiliate to whom such voting shares are transferred to expressly agree in writing to be bound by the terms of the particular Investor Rights Agreement, and provided further that such sale, transfer or disposition is made in accordance with applicable securities laws;
- (3) if a proceeding is commenced against or involving Ballard under the *Bankruptcy and Insolvency Act* (Canada) or the *Companies’ Creditors Arrangement Act* (Canada) or any similar legislation; or
- (4) if Ballard has received notice from any securities regulatory authority that the voting shares will be permanently cease-traded within a specified period.

## DIRECTORS AND OFFICERS

### Board of Directors

The following chart provides the following information as of March 6, 2019: the name and province or state of residence of each of our directors; each director’s respective positions and offices held with Ballard, their principal occupation during the past five years; the period of time each has served as a director; and the number of shares and deferred share units (the “DSUs”) beneficially owned or controlled by each of them.

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
Douglas P. Hayhurst  British Columbia,	Corporate Director of Ballard. Previously, Mr. Hayhurst was an executive with IBM Canada Business	2012	5,000 / 0.002%	195,943 / 26.22%



Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
Canada	Consulting Services ( <i>consulting services</i> ) and a partner with PricewaterhouseCoopers Management Consultants ( <i>consulting services</i> ). Prior to that, Mr. Hayhurst held various senior executive management roles with Pricewaterhouse including National Deputy Managing Partner (Toronto) and Managing Partner for British Columbia (Vancouver).			
Jiang Kui (Kevin)  Shandong, China	Mr. Jiang is President of Shandong Heavy Industry Group Co., Ltd. ( <i>heavy machinery and automotive manufacturing</i> ). He is also a non-executive director of Weichai Power Co., Ltd, ( <i>diesel engine, powertrain and hydraulic products manufacturing</i> ), a director of the Power Solutions International Inc. ( <i>cleantech engine and powertrain manufacturing</i> ), and a director of Ferretti International Holdings S.p.A. ( <i>engineering and construction</i> ). Previously, Mr. Jiang was deputy general manager of Assembly Department of Shandong Bulldozer General Factory ( <i>heavy machinery manufacturing</i> ); deputy general manager of Shantui	2019	0 / 0%	0 / 0%

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
Duy-Loan Le Texas, USA	<p>Construction Machinery Import and Export Company (<i>heavy machinery</i>); a director and senior officer of Shantui Engineering Machinery Co., Ltd. (<i>heavy machinery</i>); deputy general manager of Shandong Engineering Machinery Group Co., Ltd. (<i>heavy machinery</i>); executive deputy general manager and vice chairman of Weichai Group Holdings Limited, (<i>diesel engine, powertrain and hydraulic products manufacturing</i>); and chairman of Shanzhong Jianji Co., Ltd. (<i>heavy machinery</i>). Mr. Jiang's principal business is acting as the General Manager of Shandong Heavy Industry Group Co., Ltd. (<i>heavy machinery and automotive manufacturing</i>)).</p>	2017	50,000 / 0.022%	20,390 / 2.73%

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
	Fellow from 1998 to 2002; and Design Engineer and Manager from 1982 to 1998.			
R. Randall MacEwen  California, USA	Mr. MacEwen is President and Chief Executive Officer of Ballard, a position he has held since October 2014. Previously, Mr. MacEwen was the founder and Managing Partner at NextCleanTech LLC ( <i>consulting services</i> ) from 2010 to 2014; and President & CEO and Executive Vice President, Corporate Development at Solar Integrated Technologies, Inc. ( <i>solar</i> ) from 2006 to 2009 and 2005 to 2006, respectively. Prior to that, Mr. MacEwen was Executive Vice President, Corporate Development at Stuart Energy Systems Corporation ( <i>onsite hydrogen generation systems</i> ) from 2001 to 2005; and an associate at Torys LLP ( <i>law firm</i> ) from 1997 to 2001.	2014	161,821 / 0.070%	148,046 / 19.81%
Marty T. Neese  California, USA	Corporate Director of Ballard. Previously, he was Chief Operating Officer of Velodyne LiDAR, Inc. ( <i>autonomous vehicles</i> ) from February 2017 to October 2017. Prior to that, Mr. Neese was Chief Operating Officer of SunPower	2015	0 / 0%	55,414 / 7.42%

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
James Roche  Ontario, Canada	<p>Corporation (<i>solar power equipment and services</i>) from 2008 to 2017; responsible for Global Operations at Flextronics (<i>electronics manufacturing services</i>) from 2007 to 2008 following its acquisition of Solectron Corporation (<i>electronics manufacturing services</i>) where he was Executive Vice President from 2004 to 2007.</p> <p>Corporate Director of Ballard. Mr. Roche is currently President and CEO of Stratford Managers Corporation, and was a founding member and executive at Newbridge Networks Corporation. He subsequently co-founded Tundra Semiconductor Corporation, and was President and CEO of the publicly-traded company. Mr. Roche has also served as President and CEO of CMC Microsystems and ThinkRF Corp.</p>	2015	50,000 / 0.022%	64,573 / 8.64%
Sun Shaojun (Sherman)  Shandong, China	<p>Mr. Sun is a director of Weichai Group Holdings Limited and Weichai Heavy-duty Machinery Co., Ltd., and chairman of Power Solutions International Inc. (<i>cleantech engine and powertrain manufacturing</i>). Previously, Mr. Sun was</p>	2019	0 / 0%	0 / 0%

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
Ian Sutcliffe Ontario, Canada	supervisor and chief engineer at Weifang Diesel Engine Factory ( <i>diesel engine manufacturing</i> ) director of Torch Automobile Group Co., Ltd. ( <i>heavy machinery and automotive manufacturing</i> ). Mr. Sun's principal business is acting as the Executive President of Weichai Power Co., Ltd. ( <i>diesel engine, powertrain and hydraulic products manufacturing</i> ).	2013	10,000 / 0.004%	87,100 / 11.66%
	Corporate Director of Ballard. Mr. Sutcliffe has been a partner at Sutcliffe & Associates Management Consultants ( <i>management consulting services</i> ) since June 1985. Previously, Mr. Sutcliffe was Executive Chair of PureFacts Financial Solutions ( <i>financial software services</i> ) from May 2013 to November 2016. Prior to that, he was co-CEO of PHeMI, Inc. ( <i>medical software and IT infrastructure</i> ) from July 2010 to November 2012; CEO, Chairman and independent director of BluePoint Data ( <i>IT services</i> ) from Sept 2001 to June 2011; and Vice Chair and CEO of BCS Global ( <i>video conferencing services</i> ) from January 2003 to March 2004. Mr. Sutcliffe was President			

Name, Province/State and Country of Residence <sup>(1)</sup>	Principal Occupation <sup>(1)</sup>	Director Since	Shares Beneficially Owned or Controlled or Directed <sup>(1)</sup> (#/% of Class)	Deferred Share Units Owned or Controlled <sup>(2)</sup> (#/% of Class)
Janet Woodruff British Columbia, Canada	<p>of Mediconsult.com (<i>public internet health services</i>) from June 1995 to June 1999 and President and CEO from 1999 to 2001.</p> <p>Corporate Director of Ballard. Previously, Ms. Woodruff served as acting CEO to the Transportation Investment Corporation (<i>transportation infrastructure management</i>) from 2014 to 2105, advisor to the Board (2013-2014) and interim Chief Financial Officer (2012-2013). Prior to that, she was Vice President and Special Advisor to BC Hydro (<i>public utility</i>) from 2010 to 2011; Interim President (2009-2010) and Vice President, Corporate Services and Chief Financial Officer (207-2008) of BC Transmission Corporation (<i>electricity transmission infrastructure</i>); and Chief Financial Officer and Vice President, Systems Development and Performance of Vancouver Coastal Health from 2003 to 2007.</p>	2017	0 / 0%	18,881 / 2.53%

Notes

- (1) The information as to place of residence, principal occupation, business or employment of, and shares beneficially owned, or controlled or directed, directly or indirectly, by a director is not within the knowledge of our management and has been furnished by the director.
- (2) Rounded to the nearest whole number.

Directors are elected yearly at our annual shareholders’ meeting and serve on the Board until the following annual shareholders’ meeting, at which time, they either stand for re-election or leave the Board. If no meeting is held, each director serves until his or her successor is elected or appointed, unless the director resigns earlier.

The Board has formed three committees: the Corporate Governance & Compensation Committee; the Audit Committee; and the Commercial Committee. The Corporate Governance & Compensation Committee members are Mr. Hayhurst, Ms. Le, Mr. Sun, and Ms. Woodruff. The Audit Committee members are Mr. Hayhurst, Mr. Sutcliffe and Ms. Woodruff. The Commercial Committee members are Ms. Le, Mr. Neese and Mr. Sutcliffe. The chair of the Board is an *ex officio* member of each committee.

In 2012 Mr. Hayhurst was a director of Catalyst Paper Corporation during the time it restructured its debt under the *Companies’ Creditors Arrangement Act* (Canada). In 2012, Mr. Sutcliffe was a director of BluePoint Data Inc. when the B.C. Securities Commission issued a cease trade order against BluePoint Data Inc. for failure to file its financial statements and management’s discussion and analysis related thereto for the year ended December 31, 2011. The order remains in effect. Mr. Sutcliffe resigned as a director on June 27, 2012, subsequent to which BluePoint Data Inc. sold its business and distributed the proceeds to its shareholders. Mr. Roche was Chair of Aonix Advanced Materials Corp. (a private company) when a bankruptcy order was issued against it under the *Bankruptcy and Insolvency Act* (Canada) on October 13, 2017

**Conflicts of Interest**

Mr. Sun and Mr. Jiang are directors and officers of Weichai or affiliates of Weichai and as a result have potential material conflicts of interest with Ballard as a result of the contractual relationships between and amongst Ballard, Weichai and the Weichai-Ballard JV as discussed above in the Recent History section and below in the Material Contracts section of this Annual Information Form.

**Senior Officers**

As of March 6, 2019, we had five senior officers. The name and province or state of residence of each executive officer, the offices held by each officer and each officer’s principal occupation during the last five years are as follows:

Name and Province / State of Residence	Position	Principal Occupation
R. Randall MacEwen California, USA	President and Chief Executive Officer	Executive of Ballard. Formerly the founder and Managing Partner at NextCleanTech LLC from 2010 to 2014, and President & CEO

Name and Province / State of Residence	Position	Principal Occupation
Anthony Guglielmin British Columbia, Canada	Vice President and Chief Financial Officer	and Executive Vice President, Corporate Development at Solar Integrated Technologies, Inc. from 2006 to 2009 and 2005 to 2006, respectively.  Executive of Ballard. Formerly SVP Finance and Chief Financial Officer of Canada Line Rapid Transit Inc. (2005 to 2009).
Sarbjot Sidhu British Columbia, Canada	Vice President, Operations	Senior officer of Ballard. Formerly Director, Quality of Ballard.
Kevin Colbow British Columbia, Canada	Vice President , Technology & Product Development	Senior officer of Ballard. Formerly Vice President, Technology Solutions of Ballard.
Robert Campbell British Columbia, Canada	Vice President and Chief Commercial Officer	Senior officer of Ballard. Formerly President and CEO of SoloPower Systems, Inc. (2013 - 2017).

In 2013, Mr. Campbell was the President and CEO of SoloPower Systems, Inc. during a financial restructuring with its secured creditors.

### Shareholdings of Directors and Senior Officers

As of March 6, 2019, our directors and executive officers, as a group, beneficially owned, or controlled or directed, directly or indirectly, 443,614 of our common shares, being 0.191% of our issued and outstanding common shares, and 732,057 DSUs.

## AUDIT COMMITTEE MATTERS

### Audit Committee Mandate

The Audit Committee operates under a mandate that is approved by the Board and which outlines the responsibilities of the Audit Committee. A copy of the Audit Committee's mandate is attached as Appendix "A" and posted on our website. This mandate is reviewed annually and the Audit Committee's performance is assessed.



## Composition of the Audit Committee

The following table sets forth the name of each of the current members of the Audit Committee, whether such member is independent, whether such member is financially literate and the relevant education and experience of such member.

Name	Independent?	Financially Literate?	Relevant Education and Experience
Douglas P. Hayhurst	Yes	Yes	Mr. Hayhurst was an executive with IBM Canada Business Consulting Services and a Partner with PricewaterhouseCoopers Management Consultants. Prior to that, Mr. Hayhurst held various senior executive management roles with Price Waterhouse including National Deputy Managing Partner (Toronto) and Managing Partner for British Columbia (Vancouver). Mr. Hayhurst received a Fellowship (FCA) from the Institutes of Chartered Accountants of British Columbia and of Ontario. He has completed the Directors Education Program of the Institute of Corporate Directors and has received his ICD.D designation.
James Roche <i>(ex officio)</i>	Yes	Yes	Corporate Director of Ballard. Mr. Roche is currently President and CEO of Stratford Managers Corporation, and was a founding member and executive at Newbridge Networks Corporation. He subsequently co-founded Tundra Semiconductor Corporation, and was President and CEO of the publicly-traded company. Mr. Roche has also served as President and CEO of CMC Microsystems and ThinkRF Corp.
Ian Sutcliffe	Yes	Yes	Mr. Sutcliffe has been a partner at Sutcliffe & Associates Management Consultants since June 1985. Previously, he was CEO, Chairman and independent director of BluePoint Data from September 2001 to June 2011 and Vice Chair and CEO of BCS Global from January 2003 to March 2004. Mr. Sutcliffe was President of Mediconsult.com from June 1995 to June 1999 and President and CEO from 1999 to 2001. Prior to that, he was with Coopers & Lybrand in Vancouver and London, England from June 1979 to June 1985.

Name	Independent?	Financially Literate?	Relevant Education and Experience
Janet Woodruff	Yes	Yes	Ms. Woodruff was acting CEO to the Transportation Investment Corporation from 2014 to 2015, advisor to the board (2013-2014) and interim Chief Financial Officer (2012-2013). Formerly Vice President and Special Advisor to BC Hydro from 2010 to 2011; Interim President (2009-2010) and Vice President, Corporate Services and Chief Financial Officer (2007-2008) of BC Transmission Corporation. Formerly, Chief Financial Officer and Vice President, Systems Development and Performance of Vancouver Coastal Health from 2003 to 2007.

The Audit Committee is responsible for recommending the appointment of our external auditors (for shareholder approval at our annual general meeting), monitoring the external auditors' qualifications and independence, and determining the appropriate level of remuneration for the external auditors. The external auditors report directly to the Audit Committee. The Audit Committee also approves in advance, on a case-by-case basis, any services to be provided by the external auditors that are not related to the audit. The following table shows the costs incurred with KPMG LLP in 2018 and 2017 for audit and non-audit related work, all of which were approved by the Audit Committee:

Type of Audit Fees	2018 (C\$)	2017 (C\$)
Audit Fees	\$516,800	\$543,000
Audit-Related Fees	Nil	Nil
Tax Fees	\$18,000	Nil
All Other Fees	Nil	Nil

### Audit Fees

Audit fees were for professional services rendered by KPMG LLP for the audit of the annual financial statements, quarterly reviews and services provided in connection with statutory and regulatory filings or engagements relating to prospectuses and other offering documents.

### Audit-Related Fees

Audit-related fees would be for assurance and related services reasonably related to the performance of the audit or review of the annual statements and are not reported

under the heading audit fees above. There were no fees paid to KPMG LLP that would be considered “Audit-Related Fees” in 2018 and 2017.

### **Tax Fees**

Tax fees paid to KPMG LLP in 2018 related to specialized customs and duties advice. There were no fees paid to KPMG LLP that would be considered “Tax Fees” in 2017.

### **All Other Fees**

All other fees to be disclosed under this category would be for products and services other than those described under the headings audit fees, audit-related fees and tax fees above. There were no fees paid to KPMG LLP that would be considered “All Other Fees” in 2018 or 2017.

## **TRANSFER AGENT AND REGISTRAR**

Our transfer agent and registrar is Computershare Trust Company of Canada, 100 University Avenue, 9<sup>th</sup> Floor, Toronto, Ontario, M5J 2Y1.

## **LEGAL PROCEEDINGS**

In January, February and April 2018, certain related class action complaints were filed in U.S. Federal Court alleging violations of U.S. federal securities laws with respect to the statements of Ballard) about its business partnerships and deployment of hydrogen fuel cell technology in China. In April the plaintiffs voluntarily dismissed all but one of the cases, *Porwal v. Ballard Power Systems Inc., et al.* (S.D. N.Y.). On August 21, 2018 we filed a notice of motion to dismiss and are awaiting a hearing of the motion. We will continue vigorously contest, and defend against, the complaint and believe the complaint is without merit.

In addition to the legal proceedings noted above, from time to time, we may be involved in litigation relating to claims arising out of our operations in the normal course of business.

## **INTERESTS OF EXPERTS**

KPMG LLP, our independent auditors, has audited our consolidated financial statements for the years ended December 31, 2018 and 2017. As at the date hereof, KPMG LLP has confirmed that they are independent with respect to the Corporation within the meaning of the relevant rules and related interpretations prescribed by the relevant professional bodies in Canada and any applicable legislation or regulations

and also that they are independent accountants with respect to the Corporation under all relevant U.S. professional and regulatory standards.

## **INTERESTS OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS**

The Weichai-Ballard JV is 51% owned by Weichai and Weichai's wholly-owned subsidiary, Weichai HK, owns 19.9% of Ballard's common shares.

We expect the technology services provided to the Weichai-Ballard JV pursuant to the Research and Development Agreement dated November 13, 2018, the Joint Venture Agreement between Weichai and Ballard related to the Weichai-Ballard JV, and the ancillary agreements between Ballard and the Weichai-Ballard JV to have a material effect on Ballard in 2019 and following years.

As noted above, two of Ballard's directors, Mr. Sun and Mr. Jiang, are directors and officers of Weichai or affiliates of Weichai.

Except as described above, none of our insiders, directors or executive officers, nor any associate or affiliate of such persons, has had any material interest, direct or indirect, in any transaction of ours within our three most recently completed financial years, nor in any transaction or proposed transaction within our current financial year that has materially affected or would materially affect us or any of our subsidiaries.

## **MATERIAL CONTRACTS**

Particulars of every contract that is material to Ballard, other than a contract entered into in the ordinary course of business that is not required to be disclosed under *National Instrument 51-102 – Continuous Disclosure Obligations*, and that was entered into within the most recently completed financial year, or before the most recently completed financial year but is still in effect, are listed below.

### **Weichai Strategic Collaboration Transaction**

On November 13, 2018 we entered into a strategic collaboration transaction with Weichai that included the following material agreements:

1. A Subscription Agreement between Weichai and Ballard dated August 29, 2018. The Subscription Agreement resulted in an equity investment in Ballard by Weichai in the amount of approximately \$163.6 million, representing 19.9% of the outstanding common shares of the capital of Ballard.
2. An Investor Rights Agreement between Weichai HK and Ballard dated November 13, 2018. The key terms of Investor Rights Agreement are set out in the Recent History section of this Annual Information Form.

3. A Joint Venture Agreement between Weichai and Ballard HK dated November 13, 2018. The key terms of Joint Venture Agreement are set out in the Recent History section of this Annual Information Form.

The Subscription Agreement was filed on SEDAR on September 3, 2018 and the Investor Rights Agreement and Joint Venture Agreement were filed on SEDAR on November 23, 2018.

### **Power Manager Asset Sale**

On August 31, 2018, our wholly-owned subsidiary Ballard Unmanned Systems entered into an asset purchase agreement to sell the Power Manager business of Protonex to Revision Military. The particulars of the Asset Purchase Agreement are described above in the Recent History section of this Annual Information Form.

We filed the Asset Purchase Agreement on SEDAR on September 7, 2018.

### **Technology Development Agreement with Audi**

On June 11, 2018 we entered into a 3.5-year extension to its current Technology Solutions contract with AUDI extending the HyMotion program to August 2022. The aggregate value of the contract extension is expected to be C\$80 – 130 million (US\$62 – 100 million). The program will support Audi through its small series production launch. The particulars of the Technology Development Agreement are described in above in this Annual Information Form.

We filed the Technology Development Agreement on SEDAR on June 21, 2018. The preceding technology development agreement and associated amending agreement with AUDI and VW were filed on SEDAR on February 20, 2015 and March 15, 2013, respectively.

### **Broad-Ocean Licensing Transaction**

On February 16, 2017, we announced that we had signed a definitive agreement relating to technology transfer, licensing and supply arrangements with strategic partner Broad-Ocean for the assembly and sale of FCveloCity® 30kW and 85kW fuel cell engines in China. The particulars of the Fuel Cell Module Assembly Framework Agreement and Module Assembly License Agreements are described above in the Recent History section of this Annual Information Form.

Ballard filed the Fuel Cell Module Assembly Framework Agreement and Module Assembly License Agreements on SEDAR on April 25, 2017 in conjunction with the filing of a Material Change Report in respect of the transaction.

## **FCveloCity®-9SSL Fuel Cell Stack Production Operation**

On July 18, 2016 we entered definitive agreements in Foshan, China with Nation-Synergy for the establishment of an FCveloCity®-9SSL fuel cell stack production operation in the City of Yunfu, in Guangdong Province. The transaction completed on October 25, 2016.

Ballard filed the 9SSL Production Line Master Agreement and form of Equity Joint Venture Agreement on SEDAR on July 27, 2016 in conjunction with the filing of a Material Change Report in respect of the transaction. On November 4, 2016, we filed the final Equity Joint Venture Agreement and Sales and Marketing Agreement in conjunction with the filing of a Material Change Report in respect of the closing of the transaction. The particulars of the 9SSL Production Line Master Agreement, Equity Joint Venture Agreement, and Sales and Marketing Agreement are described above in the Recent History section of this Annual Information Form.

## **Ballard Unmanned Systems Acquisition**

On June 29, 2015, Ballard entered into an agreement and plan of merger with BPC Subco Inc. (“**MergerCo**”), a wholly-owned subsidiary of Ballard, and Protonex Technology Corporation (the “**Merger Agreement**”) under which MergerCo merged with Protonex Technology Corporation. Pursuant to the Merger Agreement, Ballard Power Corporation, a wholly-owned subsidiary of Ballard, became the sole stockholder of the post-merger corporation, also named Protonex Technology Corporation (now Ballard Unmanned Systems).

The merger occurred on October 1, 2015 and as consideration for the merger Ballard assumed and paid certain of Ballard Unmanned Systems’ debt obligations and transaction costs at closing, being approximately \$3.8 million, and paid the balance of the consideration through the issuance of approximately 11.4 million Ballard shares.

On June 29, 2015 Ballard filed the Merger Agreement on SEDAR in conjunction with the filing of a Material Change Report in respect of the transaction.

## **Audi IP Asset Transfer**

On February 11, 2015, we entered into an agreement with Audi (the “**IP Transfer and License Agreement**”) under which we agreed to transfer to Audi certain of the transportation-related fuel cell intellectual property assets we previously acquired from United Technologies Corporation. These assets consist of approximately 900 patents and patent applications as well as know-how primarily related to PEM fuel cell technology.

As consideration for the patents and patent applications, Ballard received \$40 million from Audi, of which \$10 million was paid to UTC as a royalty under the terms

of our prior acquisition from UTC. As consideration for the know-how, Ballard received \$10 million from Audi on transfer thereof, of which \$900,000 was paid to UTC.

In addition, we retain the sole right to use the patents, patent applications and know-how transferred to Audi for all non-automotive purposes, as well as a non-exclusive right for use in buses, and a non-exclusive right for use in certain limited pre-commercial automotive purposes, all on a royalty-free basis. We also retain the right to provide technology solutions services to other automotive OEMs.

In connection with the transaction, Volkswagen extended its existing technology development agreement with us as described below.

Ballard filed the IP Transfer and License Agreement on SEDAR on February 20, 2015 in conjunction with the filing of a Material Change Report in respect of the transaction.

## RISK FACTORS

An investment in our common shares involves risk. Investors should carefully consider the risks and uncertainties described below and the other information contained in, and incorporated into, this Annual Information Form, including “Management’s Discussion and Analysis” and our financial statements for the year ended December 31, 2018. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties, including those that we do not know about now or that we currently deem immaterial, may also adversely affect our business.

### **We may not be able to successfully execute our business plan.**

The execution of our business plan poses many challenges and is based on a number of assumptions. We may not be able to successfully execute our business plan. If we experience significant cost overruns on our programs, or if our business plan is more costly than we anticipate, certain research and development activities may be delayed or eliminated, resulting in changes or delays to our commercialization plans, or we may be compelled to secure additional funding (which may or may not be available) to execute our business plan. We cannot predict with certainty our future revenues or results from our operations. If the assumptions on which our revenue or expenditure forecasts are based change, the benefits of our business plan may change as well. In addition, we may consider expanding our business beyond what is currently contemplated in our business plan. Depending on the financing requirements of a potential acquisition or new product opportunity, we may be required to raise additional capital through the issuance of equity or debt. If we are unable to raise additional capital on acceptable terms, we may be unable to pursue a potential acquisition or new product opportunity.

**In our Heavy-Duty Motive market, we depend on a limited number of customers for a majority of our revenues and are subject to risks associated with early stage market activities related to fuel cell bus, truck, rail and marine applications.**

In our Heavy-Duty Motive market, we depend on a limited number of customers for a majority of our revenues and are subject to risks associated with early stage market activities related to fuel cell bus, truck, rail and marine applications. While we continually seeking to expand our customer base, we expect the limited number of customers will continue for the next several years. Our future success is dependent upon the continued purchases of our products by these customers. Any fluctuations in anticipated demand from these customers may negatively impact our business, financial condition and results of operations.

If we are unable to broaden our customer base and expand relationships with other potential customers, our business in the Heavy-Duty Motive market will continue to be impacted by unanticipated demand fluctuations due to our dependence on these customers. Unanticipated demand fluctuations may have a negative impact on our revenues and business, and an adverse effect on our business, financial condition and results of operations.

In addition, our dependence on a small number of customers in our Heavy-Duty Motive market exposes us to numerous other risks, including: (i) a slowdown or delay in the customers' deployment of our products could significantly reduce demand for our products as well as increase pricing pressure on our products due to increased purchasing leverage; (ii) customer-specific factors resulting in a choice to pursue an alternative technology or supplier; (iii) reductions in a few customers' forecasts and demand could result in excess inventories; (iv) the current or future economic conditions could negatively affect our major customers and cause them to significantly reduce operations or file for bankruptcy; (v) concentration of accounts receivable credit risk, which could have a material adverse effect on our liquidity and financial condition if one of our major customers declared bankruptcy or delayed payment of their receivables; and (vi) changes in government support for zero-emission vehicles could adversely affect the end-user cost of vehicles incorporating our heavy-duty motive products.



In our Heavy-Duty Motive market, we depend on a limited number of Chinese customers for a majority of our revenues. Macro-economic conditions, including government subsidy programs and significant and recent volatility in China's capital markets, may adversely impact our Chinese customers' access to capital and program plans which could adversely impact our business. Furthermore, successful large-scale deployment of zero-emission vehicles will require adequate investment in hydrogen fueling infrastructure and competitive pricing of hydrogen. Inadequate hydrogen fueling infrastructure and/or excessive hydrogen fuel costs could negatively impact deployment of zero-emission vehicles and may negatively impact our business, financial condition and results of operations. Our performance in China is dependent on our business model of localization, including the strength and performance of our localization partners. A key part of our strategy is based on the localization of stack and module production with joint venture partners, where we do not control the joint venture.

We sell most of our products in the Heavy-Duty Motive market to a limited number of Chinese customers, and while we are continually seeking to expand our customer base, we expect this will continue for the next several years. The risks and uncertainties described above apply equally to Chinese customers. In addition, any significant economic slowdown in China, change in Chinese government policy around subsidies for zero-emission vehicles or hydrogen fueling infrastructure could have an adverse impact on our business, financial condition and results of operations.

**In our Heavy-Duty Motive market a significant amount of operations are conducted by joint ventures in China that we cannot operate solely for our benefit.**

Stack manufacturing in the Heavy-Duty Motive market in China will be carried out by the Synergy-Ballard JV. The Weichai-Ballard JV is planning to manufacture our next-generation FCgen<sup>®</sup>-LCS fuel cell stack and FCgen<sup>®</sup>-LCS-based power modules for bus, commercial truck and forklift applications. We share ownership and management of the Synergy-Ballard JV with one or more parties who may not have the same goals, strategies, priorities or resources as we do and may compete with us outside the joint venture. Similarly, we share ownership and management of the Weichai-Ballard JV with one or more parties who may not have the same goals, strategies, priorities or resources as we do and may compete with us outside the joint venture.

Joint ventures are intended to be operated for the equal benefit of all co-owners, rather than for our exclusive benefit. Operating a business as a joint venture often requires additional organizational formalities as well as time-consuming procedures for sharing information and making decisions. If a co-owner changes or relationships deteriorate, our success in the joint venture may be materially adversely affected. In addition, because we have a minority share ownership, we have limited control over the actions of each of the Synergy-Ballard JV and the Weichai-Ballard JV. As a result, we may be unable to prevent misconduct or other violations of applicable laws by the Synergy-Ballard JV and the Weichai-Ballard JV. To the extent another party makes decisions that negatively impact the Synergy-Ballard JV or the Weichai-Ballard JV or

internal control issues arise within either joint venture, we may have to take responsive or other action or we may be subject to penalties, fines or other related actions for these activities.

**In our Technology Solutions market, we depend on a single customer for the majority of our revenues and are subject to risks related to that customer's continued commitment to the commercialization of fuel cell passenger cars.**

We provide most of our services in the Technology Solutions market to a single customer, the Volkswagen Group, and while we are continually seeking to expand our customer base, we expect this will continue for the next several years. Our future success in this market is dependent upon the continued demand by this customer and expansion of our customer base. Any decline in or loss of demand from this customer or other customers for any reason may have a negative impact on our revenues, and an adverse effect on our business, financial condition and results of operations. In addition, our dependence on a single customer in this market exposes us to numerous other risks, including: the current or future economic conditions could negatively affect our major customer and cause them to significantly reduce operations or file for bankruptcy.

**In our Material Handling market, we depend on a single customer for the majority of our revenues and are subject to risks from that customer's internal fuel cell stack development and commercialization plans.**

We sell most of our products in the Material Handling market to a single customer, Plug Power, and while we are continually seeking to expand our customer base, we expect this will continue for the next several years. Plug Power has developed its own fuel cell stacks to integrate into their material handling products. If Plug Power decides to solely use its own fuel cell stacks, then these fuel cell stacks may compete directly with our fuel cell stacks. Any decline in business with this customer could have an adverse impact on our business, financial condition and results of operations. Our future success is dependent upon the continued purchases of our products by this customer. Any fluctuations in demand from this customer or other customers may negatively impact our business, financial condition and results of operations. If we are unable to broaden our customer base and expand relationships with other potential customers, our business in this market will continue to be impacted by unanticipated demand fluctuations due to our dependence on a single customer. Unanticipated demand fluctuations can have a negative impact on our revenues and business, and an adverse effect on our business, financial condition and results of operations. In addition, our dependence on a single customer in this market exposes us to numerous other risks, including: (i) a slowdown or delay in the customer's deployment of our products could significantly reduce demand for our products as well as increase pricing pressure on our products due to increased purchasing leverage; (ii) reductions in the customer's forecasts and demand could result in excess inventories; (iii) the current or future economic conditions could negatively affect the customer and cause it to

significantly reduce operations or file for bankruptcy; (iv) concentration of accounts receivable credit risk, which could have a material adverse effect on our liquidity and financial condition if the customer declared bankruptcy or delayed payment of their receivables; and (v) reductions in the customer's demand as a result of their own strategic action to dual source their supply of fuel cell stacks.

**We expect our cash reserves will be reduced due to future operating losses and working capital requirements and capital contributions to our joint ventures in China, and we cannot provide certainty as to how long our cash reserves will last or that we will be able to access additional capital when necessary.**

We expect to incur continued losses and generate negative cash flow until we can produce sufficient revenues to cover our costs. Further, we are obligated to fund our pro rata share of the Weichai-Ballard JV based on an agreed business plan. We may never become profitable. Even if we do achieve profitability, we may be unable to sustain or increase our profitability in the future. For the reasons discussed in more detail below, there are substantial uncertainties associated with our achieving and sustaining profitability. We expect our cash reserves will be reduced due to future operating losses, working capital requirements and funding obligations to the Weichai-Ballard JV, and we cannot provide certainty as to how long our cash reserves will last or that we will be able to access additional capital if and when necessary.

**Potential fluctuations in our financial and business results make forecasting difficult and may restrict our access to funding for our commercialization plan.**

We expect our revenues and operating results to vary significantly from quarter to quarter. As a result, quarter-to-quarter comparisons of our revenues and operating results may not be meaningful. Due to the stage of development of our business, it is difficult to predict our future revenues or results of operations accurately. We are also subject to normal operating risks such as credit risks, foreign currency risks and fluctuations in commodity prices. As a result, it is possible that in one or more future quarters, our operating results may fall below the expectations of investors and securities analysts. Not meeting investor and security analyst expectations may materially and adversely impact the trading price of our common shares and restrict our ability to secure required funding to pursue our commercialization plans.

**We are dependent upon Original Equipment Manufacturers and Systems Integrators to purchase certain of our products.**

To be commercially useful, our fuel cell products must be integrated into products manufactured by Systems Integrators and OEMs. We can offer no guarantee that Systems Integrators or OEMs will manufacture appropriate, durable or safe products or, if they do manufacture such products, that they will choose to use our fuel cell products. Any integration, design, manufacturing or marketing problems encountered by Systems Integrators or OEMs could adversely affect the market for our fuel cell products and our financial results.

We, directly or through joint ventures that we are party to, sell a significant portion of our products in the Heavy Duty Motive market in China and to relatively small System Integrator customers with limited experience developing fuel cell system products on a commercial basis. We do not know whether these customers will be able to successfully develop, manufacture or market products to their customers. In addition, our dependence on such customers in this market increases the risks of difficulties in integration, design, manufacturing or marketing of their products; and that current or future macro-economic conditions in China could negatively affect them and cause them to significantly reduce operations or file for bankruptcy.

**Our technology and products may not meet the market requirements, including requirements relating to performance and / or cost.**

The market requirements for our products and, by extension, our technology changes rapidly. Our existing and planned products may not meet the market requirements for any number of characteristics, including performance, cost, freeze-protection, ingress protection, and durability.

**We may not be able to achieve commercialization of our products on the timetable we anticipate, or at all.**

We cannot guarantee that we will be able to develop commercially viable fuel cell products on the timetable we anticipate, or at all. The commercialization of our fuel cell products requires substantial technological advances to improve the durability, reliability and performance of these products, and to develop commercial volume manufacturing processes for these products. It also depends upon our ability to significantly reduce the costs of these products, since they are currently more expensive than products based on existing technologies, such as internal combustion engines and batteries. We may not be able to sufficiently reduce the cost of these products without reducing their performance, reliability and durability, which would adversely affect the willingness of consumers to buy our products. We cannot guarantee that we will be able to internally develop the technology necessary for commercialization of our fuel cell products or that we will be able to acquire or license the required technology from third parties.

In addition, before we release any product to market, we subject it to numerous field tests. These field tests may encounter problems and delays for a number of reasons, many of which are beyond our control. If these field tests reveal technical defects or reveal that our products do not meet performance goals, our commercialization schedule could be delayed, and potential purchasers may decline to purchase our products.

**A mass market for our products may never develop or may take longer to develop than we anticipate.**

Our fuel cell products represent emerging markets, and we do not know whether end-users will want to use them in commercial volumes. In such emerging markets,

demand and market acceptance for recently introduced products and services are subject to a high level of uncertainty and risk. The development of a mass market for our fuel cell products may be affected by many factors, some of which are beyond our control, including the emergence of newer, more competitive technologies and products, the cost of fuels used by our products, regulatory requirements, consumer perceptions of the safety of our products and related fuels, and end-user reluctance to buy a new product.

If a mass market fails to develop, or develops more slowly than we anticipate, we may never achieve profitability. In addition, we cannot guarantee that we will continue to develop, manufacture or market our products if sales levels do not support the continuation of the product.

**We are subject to risks inherent in international operations, including restrictions on the conversion of currencies and restrictions on repatriation of funds.**

Our success depends on our ability to secure international customers and receive payments from international customers and joint ventures we are participants in.

We face numerous challenges in our international business activities, including restrictions on the conversion of currencies, restrictions on repatriation of funds, war, insurrection, civil unrest, strikes and other political risks, negotiation of contracts with government entities, unexpected changes in regulatory and other legal requirements, fluctuations in exchange rates, longer accounts receivable requirements and collections, difficulties in managing international operations, potentially adverse tax consequences, and the burdens of complying with a wide variety of international laws.

Trade disputes and trade barriers, whether tariff or non-tariff, could prevent us from selling our products in key geographical markets, make our products uncompetitive with local competitors, and prevent us from sourcing key components of our products.

We have limited experience developing and manufacturing products that meet foreign regulatory and commercial requirements in our target markets.

Any of the above factors could have a material adverse effect on our business, results of operations and financial performance.

**We have limited experience manufacturing fuel cell products on a commercial basis.**

To date, we have limited experience manufacturing fuel cell products on a commercial basis. We cannot be sure that we will be able to develop efficient, low-cost, high-volume automated processes that will enable us to meet our cost goals and profitability projections. While we currently have sufficient production capacity to fulfill customer orders in the near-term, we expect that we will increase our production capacity based on market demand. We cannot be sure that we will be able to achieve any planned increases in production capacity or that unforeseen problems relating to our manufacturing processes will not occur. Even if we are successful in developing

high-volume automated processes and achieving planned increases in production capacity, we cannot be sure that we will do so in time to meet our product commercialization schedule or to satisfy customer demand. If our business does not grow as quickly as anticipated, our existing and planned manufacturing facilities would, in part, represent excess capacity for which we may not recover the cost, in which case our revenues may be inadequate to support our committed costs and planned growth, and our gross margins and business strategy would be adversely affected. Any of these factors could have a material adverse effect on our business, results of operations and financial performance.

**Warranty claims, product performance guarantees, or indemnification claims could negatively impact our gross margins and financial performance.**

There is a risk that our warranty accrual estimates are not sufficient and we may recognize additional expenses, including those related to litigation, as a result of warranty claims in excess of our current expectations. Such warranty claims may necessitate changes to our products or manufacturing processes and/or a product recall, all of which could hurt our reputation and the reputation of our products and may have an adverse impact on our financial performance and/or on future sales. While we attempt to mitigate these risks through product development, quality assurance and customer support and service processes, there can be no assurance that these processes are adequate. Even in the absence of any warranty claims, a product deficiency such as a design or manufacturing defect could be identified, necessitating a product recall or other corrective measures, which could hurt our reputation and the reputation of our products and may have an adverse impact on our financial performance and/or on future sales.

New products may have different performance characteristics from previous products. In addition, we have limited field experience with existing commercial products from which to make our warranty accrual estimates.

**We could be adversely affected by risks associated with acquisitions.**

We may in future, seek to expand our business through acquisitions. Any such acquisitions will be in part dependent on management's ability to identify, acquire and develop suitable acquisition targets in both new and existing markets. In certain circumstances, acceptable acquisition targets might not be available. Acquisitions involve a number of risks, including: (i) the possibility that we, as successor owner, may be legally and financially responsible for liabilities of prior owners; (ii) the possibility that we may pay more than the acquired company or assets are worth; (iii) the additional expenses associated with completing an acquisition and amortizing any acquired intangible assets; (iv) the difficulty of integrating the operations and personnel of an acquired business; (v) the challenge of implementing uniform standards, controls, procedures and policies throughout an acquired business; (vi) the inability to integrate, train, retrain and motivate key personnel of an acquired business; and (vii) the potential

disruption of our ongoing business and the distraction of management from our day-to-day operations. These risks and difficulties, if they materialize, could disrupt our ongoing business, distract management, result in the loss of key personnel, increase expenses and otherwise have a material adverse effect on our business, results of operations and financial performance.

**We depend on our intellectual property, and our failure to protect that intellectual property could adversely affect our expected future growth and success.**

Failure to protect our existing intellectual property rights may result in the loss of our exclusivity regarding, or the right to use, our technologies. If we do not adequately ensure our freedom to use certain technology, we may have to pay others for rights to use their intellectual property, pay damages for infringement or misappropriation, or be enjoined from using such intellectual property. We rely on patent, trade secret, trademark and copyright laws to protect our intellectual property. Some of our intellectual property is not covered by any patent or patent application, and the patents to which we currently have rights expire between 2019 and 2038. Our present or future-issued patents may not protect our technological leadership, and our patent portfolio may not continue to grow at the same rate as it has in the past. Moreover, our patent position is subject to complex factual and legal issues that may give rise to uncertainty as to the validity, scope and enforceability of a particular patent. Accordingly, there is no assurance that: (i) any of the patents owned by us or other patents that third parties license to us will not be invalidated, circumvented, challenged, rendered unenforceable or licensed to others; or (ii) any of our pending or future patent applications will be issued with the breadth of claim coverage sought by us, if issued at all. In addition, effective patent, trade secret, trademark and copyright protection may be unavailable, limited or not applied for in certain countries.

We also seek to protect our proprietary intellectual property, including intellectual property that may not be patented or patentable, in part by confidentiality agreements and, if applicable, inventors' rights agreements with our strategic partners and employees. We can provide no assurance that these agreements will not be breached, that we will have adequate remedies for any breach, or that such persons or institutions will not assert rights to intellectual property arising out of these relationships.

Certain of our intellectual property have been licensed to us on a non-exclusive basis from third parties who may also license such intellectual property to others, including our competitors. If necessary or desirable, we may seek further licences under the patents or other intellectual property rights of others. However, we may not be able to obtain such licences or the terms of any offered licences may not be acceptable to us. The failure to obtain a licence from a third party for intellectual property we use could cause us to incur substantial liabilities and to suspend the manufacture or shipment of products or our use of processes requiring the use of such intellectual property.

We may become subject to lawsuits in which it is alleged that we have infringed the intellectual property rights of others or commence lawsuits against others who we believe are infringing upon our rights. Our involvement in intellectual property litigation could result in significant expense to us, adversely affecting the development of sales of the challenged product or intellectual property and diverting the efforts of our technical and management personnel, whether or not such litigation is resolved in our favour.

**We may experience cybersecurity threats to our information technology infrastructure and systems, and unauthorized attempts to gain access to our proprietary or confidential information, as may our customers, suppliers, subcontractors and joint venture partners.**

We depend on information technology infrastructure and systems (“IT Systems”), hosted internally and outsourced, to process, transmit and store electronic data and financial information (including proprietary or confidential information), and manage business operations. Our business requires the appropriate and secure utilization of sensitive, confidential or personal data or information belonging to our employees, customers and partners. In addition, Ballard proprietary or confidential information may be stored on IT Systems of our suppliers, customers and partners. Increased global cybersecurity vulnerabilities, threats and more sophisticated and targets cyber-related attacks pose a risk to the security of Ballard’s and its customers’, partners’, suppliers’ and third-party service providers’ IT Systems and the confidentiality, availability and integrity of Ballard’s and its customers’ and partners’ data or information. While we have made investments seeking to address these threats, including monitoring of networks and systems, hiring of experts, employee training and security policies for employees, we may face difficulties in anticipating and implementing adequate preventative measures and remain potentially vulnerable. We must rely on our own safeguards as well as the safeguards put in place by our suppliers, customers and partners to mitigate the threats. Our internal systems are audited for cybersecurity vulnerabilities by third party security firms to ensure we are prepared for new and emerging threats. Our suppliers, customers and partners have varying levels of cybersecurity expertise and safeguards, most have yearly compliance audits that are available upon request.

An IT System failure or non-availability, cyber-attack or breach of systems security could disrupt our operations, cause the loss of, corruption of, or unauthorized access to sensitive, confidential or personal data or information or expose us to regulatory investigation, litigation or contractual penalties. Our customers, partners or governmental authorities may question the adequacy of cybersecurity processes and procedures and this could have a negative impact on existing business or future opportunities. Furthermore, given the highly evolving nature of cybersecurity threats or disruptions and their increased frequency, the impact of any future incident cannot be easily predicted or mitigated, and the costs related to such threats or disruptions may not be fully insured or indemnified by other means.



**Global macro-economic conditions are beyond our control and may have an adverse impact on our business or our key suppliers and/or customers.**

Current global economic conditions, including volatility in China, may adversely affect the development of sales of our products, and thereby delay the commercialization of our products. Customers and/or suppliers may not be able to successfully execute their business plans; product development activities may be delayed or eliminated; new product introduction may be delayed or eliminated; end-user demand may decrease; and some companies may not continue to be commercially viable.

**We currently face and will continue to face significant competition.**

As fuel cell products have the potential to replace existing power products, competition for our products will come from current power technologies, from improvements to current power technologies, and from new alternative energy technologies, including other types of fuel cells. Each of our target markets is currently serviced by existing manufacturers with existing customers and suppliers. These manufacturers use proven and widely accepted technologies such as internal combustion engines and batteries as well as coal, oil and nuclear powered generators.

Additionally, there are competitors working on developing technologies other than PEM fuel cells (such as other types of fuel cells and advanced batteries) in each of our targeted markets. Some of these technologies are as capable of fulfilling existing and proposed regulatory requirements as the PEM fuel cell.

Within the PEM fuel cell market, we also have a large number of competitors. Across the world, corporations, national laboratories and universities are actively engaged in the development and manufacture of PEM fuel cell products and components. Each of these competitors has the potential to capture market share in each of our target markets.

Many of our competitors have substantial financial resources, customer bases, manufacturing, marketing and sales capabilities, and businesses or other resources, which give them significant competitive advantages over us.

**We could lose or fail to attract the personnel necessary to operate our business.**

Our success depends in large part on our ability to attract and retain key management, engineering, scientific, marketing, manufacturing and operating personnel. As we develop additional manufacturing capabilities and expand the scope of our operations, we will require more skilled personnel. Recruiting personnel for the fuel cell industry is highly competitive. We may not be able to continue to attract and retain qualified executive, managerial and technical personnel needed for our business. Our failure to attract or retain qualified personnel could have a material adverse effect on our business.

**Public policy and regulatory changes could hurt the market for our products and services.**

Changes in existing government regulations and the emergence of new regulations with respect to fuel cell products may hurt the market for our products and services. Environmental laws and regulations have driven interest in fuel cells. We cannot guarantee that these laws and policies including subsidies or incentives associated with the adoption of clean energy products, will not change. Changes in these laws and other laws and policies, or the failure of these laws and policies to become more widespread, could result in manufacturers abandoning their interest in fuel cell products or favouring alternative technologies. In addition, as fuel cell products are introduced into our target markets, governments may impose burdensome requirements and restrictions on the use of fuel cell products that could reduce or eliminate demand for some or all of our products and services.

Government budgetary constraints could reduce the demand for our products by restricting the funding available to public transportation agencies and militaries. We cannot guarantee that current government direct and indirect financial support for our products will continue.

**We are dependent on third party suppliers for the supply of key materials and components for our products and services.**

We have established relationships with third party suppliers, on whom we rely to provide materials and components for our products. A supplier's failure to supply materials or components in a timely manner, or to supply materials and components that meet our quality, quantity or cost requirements, or our inability to obtain substitute sources for these materials and components in a timely manner or on terms acceptable to us, could harm our ability to manufacture our products. In addition, to the extent that our product development plans rely on development of supplied materials or components, we cannot guarantee that we will be able to leverage our relationships with suppliers to support these plans. To the extent that the processes that our suppliers use to manufacture the materials and components are proprietary, we may be unable to obtain comparable materials or components from alternative suppliers, which could adversely affect our ability to produce viable fuel cell products or significantly raise our cost of producing such products.

**Exchange rate fluctuations are beyond our control and may have a material adverse effect on our business, operating results, financial condition and profitability.**

We report our financial results in United States dollars. Our operating expenditures are particularly affected by fluctuations in the exchange rate between the Canadian dollar and the United States dollar. We generate the majority of our revenues in United States dollars while the majority of our operating expenditures are incurred in Canadian dollars. As a result, any increase in the value of the Canadian dollar, relative to the United States dollar, increases the amount of reported operating expenditures in

excess of any corresponding increase in revenues and gross margins. Exchange rate fluctuations are beyond our control, and the Canadian dollar may appreciate against the United States dollar in the future, which would result in higher operating expenditures and lower net income. In order to reduce the potential negative effect of a strengthening Canadian dollar, we occasionally enter into various hedging programs. Regardless, if the Canadian dollar increases in value, it will negatively affect our financial results and our competitive position compared to other fuel cell product manufacturers in jurisdictions where operating costs are lower.

**Commodity price fluctuations are beyond our control and may have a material adverse effect on our business, operating results, financial condition and profitability.**

Commodity prices, in particular the price of platinum and palladium, affect our costs. Platinum and palladium are key components of our fuel cell products. Platinum and palladium are scarce natural resources and we are dependent upon a sufficient supply of these commodities. While we do not anticipate significant near or long-term shortages in the supply of platinum or palladium, such shortages could adversely affect our ability to produce commercially viable fuel cell products or significantly raise our cost of producing such products. In order to reduce the impact of platinum price fluctuations, we occasionally enter into various hedging programs.

**We could be liable for environmental damages resulting from our research, development or manufacturing operations.**

Our business exposes us to the risk of harmful substances escaping into the environment, resulting in personal injury or loss of life, damage to or destruction of property, and natural resource damage. Depending on the nature of the claim, our current insurance policies may not adequately reimburse us for costs incurred in settling environmental damage claims, and in some instances, we may not be reimbursed at all. Our business is subject to numerous laws and regulations that govern environmental protection and human health and safety. These laws and regulations have changed frequently in the past and it is reasonable to expect additional and more stringent changes in the future. Our operations may not comply with future laws and regulations, and we may be required to make significant unanticipated capital and operating expenditures. If we fail to comply with applicable environmental laws and regulations, governmental authorities may seek to impose fines and penalties on us, or to revoke or deny the issuance or renewal of operating permits, and private parties may seek damages from us. Under those circumstances, we might be required to curtail or cease operations, conduct site remediation or other corrective action, or pay substantial damage claims.

**If completed, potential merger and acquisition activity may fail to achieve the expected benefits of the transaction, including potential disruptions to operations, higher than anticipated costs and efforts to integrate, and loss of key personnel.**

Merger and acquisition activities are disruptive to management and the expected benefits of a merger or acquisition transaction are subject to numerous risks, including the disruption of our day-to-day operations, a failure to realize projected revenue gains, achieve expected cost savings within the assumed timeframe, and integration costs being higher than expected.

In addition, the actual integration may result in additional and unforeseen expenses, and the anticipated benefits of the integration plan may not be realized. An inability to realize the full extent of, or any of, the anticipated benefits of a merger or acquisition transaction, as well as any delays encountered in the integration process, could have a material adverse effect on our business and results of operations.

**Our products use flammable fuels and some generate high voltages, which could subject our business to product liability or other claims.**

Our business exposes us to potential product liability claims that are inherent in electrical products, and in products that use hydrogen or hydrogen-rich reformat fuels. High-voltage electricity poses potential shock hazards, and hydrogen is a flammable gas and therefore a potentially dangerous fuel. Any accidents involving our products or other hydrogen-based products could materially impede widespread market acceptance and demand for our fuel cell products. Involvement in litigation could result in significant expense to us, adversely affecting the development and sales of our products, and diverting the efforts of our technical and management personnel, whether or not the litigation is resolved in our favour. In addition, we may be held responsible for damages beyond the scope of our insurance coverage. We also cannot predict whether we will be able to maintain our insurance coverage on acceptable terms.

## ADDITIONAL INFORMATION

Additional information regarding Ballard may be found on SEDAR at [www.sedar.com](http://www.sedar.com). In particular, additional information regarding directors' and officers' remuneration and indebtedness, principal holders of our securities and securities authorized for issuance under security compensation plans is contained in our information circular for our most recent annual meeting of securityholders that involved the election of directors. Additional financial information is provided in our financial statements and Management's Discussion and Analysis for the most recently completed financial year.

Copies of this Annual Information Form and the documents incorporated by reference herein, our comparative financial statements (including the auditors' report) for the year ended December 31, 2018, each interim financial statement issued after



December 31, 2018, our management proxy circular and our Annual Report may be obtained upon request from our Corporate Secretary, 9000 Glenlyon Parkway, Burnaby, British Columbia, V5J 5J8, or on our website at [www.ballard.com](http://www.ballard.com).

## APPENDIX "A" AUDIT COMMITTEE MANDATE

The Board has established an Audit Committee (the "**Committee**") to assist the Board in fulfilling its oversight responsibilities regarding the integrity of the Corporation's accounting and financial reporting, the Corporation's systems of internal controls over financial reporting, the independence and performance of the Corporation's external and internal auditors, the identification and management of the Corporation's risks, the Corporation's Whistleblower Reporting processes, the Corporation's financial policies and the review and approval of related party transactions, as further described below.

In this Mandate, the "**Corporation**" means Ballard Power Systems Inc. and a "**director**" means a Board member. "**CGCC**" means the Corporation's Corporate Governance & Compensation Committee.

### **Composition and Eligibility**

- A) The Committee will have a minimum of three members, including the chair of the Committee. Following each annual meeting of shareholders of the Corporation the Board, upon the recommendation of the Corporate Governance & Compensation Committee, will appoint the members of the Committee, including the Committee chair. Any member may be removed or replaced at any time by the Board and will cease to be a member upon ceasing to be a director of the Corporation. Each member will hold office until the close of the next annual meeting of shareholders of the Corporation or until the member resigns or is replaced, whichever occurs first.
- B) Each member of the Committee will be an independent director as set out in applicable securities laws, rules and regulations, and standards of the stock exchanges on which the Corporation's securities are listed.
- C) All members of the Committee will be financially literate, as defined in accordance with applicable securities laws, rules and regulations, and standards of the stock exchanges on which the Corporation's securities are listed.
- D) At least one member of the Committee must be an audit committee "financial expert" as defined by securities laws, rules and regulations.
- E) Any member of the Committee who serves on more than three public company audit committees must inform the Chair of the Board, so that the Board may consider and discuss with such member any issues related to his or her effectiveness and time commitment.

### **Meetings & Quorum**

- A) The Committee will meet at least quarterly and otherwise as necessary. Any member of the Committee may request additional meetings.

- B) The CEO, CFO, Controller and internal auditor shall have direct access to the Committee. The CEO, CFO, Controller, internal and external auditors will receive notice of every meeting of the Committee and may request a meeting of the Committee be called by notifying the chair of the Committee.
- C) A majority of Committee members constitute a quorum necessary for the transaction of business at Committee meetings. A quorum once established is maintained even if members of the Committee leave the meeting prior to conclusion.
- D) All directors of the Company, including management directors, may attend meetings of the Committee provided, however, that no director is entitled to vote at such meetings and is not counted as part of the quorum for the Committee if he or she is not a member of the Committee.
- E) As part of every regularly-scheduled meeting, the Committee will hold in-camera sessions with: (1) the external auditors and the internal auditors; (2) with the external auditors only; and (3) of the Committee itself, without management or management directors present. The Committee may also hold other in-camera sessions with such members of management present as the Committee deems appropriate.
- F) The Corporate Secretary or his or her nominee will act as Secretary to the Committee.
- G) The Committee will report to the Board on its meetings and each member of the Board will have access to the minutes of the Committee's meetings, regardless of whether the director is a member of the Committee.

### **Duties and Responsibilities**

#### A) Financial Reporting Control Systems

The Committee is responsible for monitoring the quality and integrity of the Corporation's accounting and financial reporting process through discussions with management, the external auditors and the internal auditors.

In discharging this responsibility, the Committee will review:

- (i) with management and the external auditors, the Company's significant accounting policies, including the impact of alternative accounting policies, and any proposed changes thereto; and key management estimates, risks and judgments that could materially affect the financial results;
- (ii) emerging accounting issues and their potential impact on the Company's financial reporting;
- (iii) with management any significant changes in financial risks facing the Corporation;

- (iv) management's report assessing the adequacy and effectiveness of the Corporation's disclosure controls and procedures and systems of internal control; and
- (v) the evaluation by either the internal or external auditors of management's internal control systems, and management's responses to any identified deficiencies or weaknesses.

Prior to public disclosure, the Committee will review and approve (where authority has been delegated by Board to the Committee) or recommend to the Board for approval:

- (i) the audited annual consolidated financial statements and unaudited interim condensed consolidated financial statements of the Corporation;
- (ii) the interim and annual management's discussion and analysis of financial condition and results of operations (MD&A) of the Corporation; and
- (iii) all other material financial public disclosure documents of the Company and those of its subsidiaries that are reporting issuers, including prospectuses, material press releases with financial results, the Annual Information Form and management information circular.

B) External Auditors

The external auditors will report directly to the Committee and the Committee will:

- (i) recommend to the Board and the Corporation's shareholders the appointment of external auditors; determine their compensation; and monitor and evaluate their qualifications, resources, performance and independence;
- (ii) oversee the work of the external auditors and review and approve the annual audit plan of the external auditors, including the scope of the audit to be performed, and performance against the audit plan;
- (iii) pre-approve all audit, audit-related and non-audit services to be provided to the Corporation or any of its subsidiaries, by the external auditors (and its affiliates), in accordance with applicable securities laws, rules and regulations;
- (iv) discuss with the external auditors the quality and acceptability of the Corporation's accounting policies, including:
  - a) all critical accounting policies and practices;
  - b) all alternative treatments of financial information that have been discussed with management, implications of their use and the external auditors' "preferred treatment";



- c) any other material written communications between the external auditors and management;
- (v) review reports of the external auditors;
- (vi) review the quarterly and annual representation letters given by management to the external auditors;
- (vii) at least annually, obtain and review a report by the external auditors describing:
  - a) the firm's internal quality-control procedures;
  - b) any material issues raised by the most recent internal quality control review, or peer review of the firm, or by any inquiry or investigation by governmental, regulatory or professional authorities, within the preceding five years, respecting one or more independent audits carried out by the firm, and any steps taken to deal with such issues; and
  - c) all relationships between the external auditors and the Company;
- (viii) annually assess and confirm the independence of the external auditors and require the external auditors to deliver an annual report to the Committee regarding its independence, and hold discussions with the external auditors as to any relationship or services that may impact their objectivity or independence;
- (ix) ensure that the audit partners representing the external auditors meet the rotation requirements set out by applicable securities laws, rules and regulations, and standards of the stock exchanges on which the Corporation's securities are listed; and
- (x) review and approve hiring policies regarding partners, employees and former partners and employees of current and former external auditors in accordance with applicable securities laws, rules and regulations and the Corporation's policies.

C) Monitoring Internal Auditors

The internal auditors will report quarterly to the Committee on the results of internal audit activities and will also have direct access to the chair of the Committee when the internal auditors determine it is necessary. The Committee will:

- (i) annually approve the appointment of the internal auditor (or persons responsible for the function);
- (ii) review the scope of responsibilities and effectiveness of the internal audit team, its reporting relationships, activities, organizational structure and

resources, its independence from management and its working relationship with the external auditors;

- (iii) oversee the work of the internal auditors including reviewing and approving the annual internal audit plan and updates thereto; and
- (iv) review the reports of the internal auditors on the status of significant internal audit findings, recommendations and management's responses and review any other reports of the internal auditors.

D) Financial Management

The Committee will at least annually:

- (i) review with management and approve, or make recommendations to the Board to approve, the Corporation's capital structure strategy; financial policies and investment policies, including debt and equity components; current and expected financial leverage, interest rate and foreign exchange exposures; taking in consideration current and future business needs (including the Annual Operating Plan), capital markets and the Corporation's credit rating; and
- (ii) review compliance with financial policies.

E) Risk Management and Internal Controls

The Committee will:

- (i) at least annually, review the Corporation's risk assessment and risk management policies, including the Corporation's insurance coverage, and management's compliance with them;
- (ii) review with management, the external auditors and legal counsel, as necessary, any litigation, claim or other contingency, including any tax assessment, that could have a material effect upon the financial position or operating results of the Corporation and the appropriateness of the disclosure thereof in the documents reviewed by the Committee;
- (iii) review and recommend to the Board for approval of the Corporation's delegation of financial authority;
- (iv) while ensuring confidentiality and anonymity, ensure management has established procedures for the receipt, retention and treatment of complaints received by the Corporation regarding accounting, internal accounting controls or auditing matters or employee concerns regarding accounting or auditing matters or breaches of the Corporation's ethics policies ("Whistleblower Reporting");
- (v) review quarterly reports on any Whistleblower Reporting complaints received by the Corporation;

- (vi) at least annually, review management's compliance with the Corporation's ethics and Whistleblower Reporting policies;
- (vii) at least annually, review the Corporation's ethics and Whistleblower Reporting policies, and recommend changes to the Board for approval;
- (viii) review management's approach for safeguarding corporate assets, data and information systems, the adequacy of staffing of key financial functions (including succession plans for the Corporation's CFO and Controller) and their plans for improvements;
- (ix) review the appointment of the financial senior executives of the Corporation, prior to recommendation by the CGCC to the Board;
- (x) assist the Board with the oversight of the Corporation's compliance with applicable legal and regulatory requirements; and
- (xi) review other risk management matters from time to time as the Committee may consider suitable or the Board may specifically direct.

F) Related Party Transactions

A related party transaction is defined as a transaction or a series of transactions in which the Corporation or any of its subsidiaries is to be a party, which involves an amount exceeding U.S. \$60,000 in aggregate and in which any of the following persons have a direct or indirect material interest:

- a director or executive officer of the Corporation;
- any nominee for election as a director of the Corporation;
- any security holder of the Corporation known by the Corporation to own (of record or beneficially) more than 5% of any class of the Corporation's voting securities; and
- any member of the immediate family of any of the foregoing persons.

In carrying out its responsibilities in reviewing and approving related party transactions, the Committee will:

- (i) receive details of all related party transactions proposed by the Corporation, and actual and potential conflicts of interest relating thereto, to verify their propriety and that disclosure is appropriate;
- (ii) if a valuation or fairness opinion is required by any applicable statutes or regulations, supervise the preparation of such valuation or fairness opinion; and
- (iii) if approval of the Board of directors is necessary, provide a recommendation to the Board of directors with respect to the related party transaction.

G) Other

The Committee will:

- (i) annually review the audit of the expense reports of the Chair of the Board of Directors and the CEO;
- (ii) review the minutes of the Corporation's Disclosure Committee; and
- (iii) evaluate, at least annually, the adequacy of this Mandate and the Committee's performance, and report its evaluation and any recommendations for change to the Board.

**Authority**

- A) The Committee is authorized to request the presence, at any meeting, of senior management, legal counsel or anyone else who could contribute substantively to the subject of the meeting.
- B) The Committee is empowered to investigate any activity of the Corporation and all employees are to co-operate as requested by the Committee. The Committee may retain outside advisors having special expertise to assist it in fulfilling its responsibilities, and determine the appropriate level of remuneration for such outside advisors.
- C) The Committee may form and delegate authority to Committee members or subcommittees.
- D) Nothing contained in the above mandate is intended to assign to the Audit Committee the Board's responsibility to ensure the Corporation's compliance with applicable laws or regulations or to expand applicable standards of liability under statutory or regulatory requirements for the directors or the members of the Audit Committee.