

Hydrogenics Corporation

2018 Management's Discussion and Analysis

The following Management's Discussion and Analysis ("MD&A") of Hydrogenics Corporation ("Hydrogenics" or the "Company") should be read in conjunction with the Company's Audited Consolidated Financial Statements and related notes for the year ended December 31, 2018. The Company prepares its consolidated financial statements in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ("IFRS") applicable to the preparation of financial statements. On January 1, 2018, the Company was required to adopt IFRS 15 Revenue from Contracts with Customers ("IFRS 15") and IFRS 9 Financial Instruments ("IFRS 9"). Accordingly, the Company has commenced reporting on this basis in these consolidated financial statements. The term "IAS 18" refers to IFRS revenue recognition prior to the adoption of IFRS 15. While the adoption of IFRS 15 has not had an impact on the Company's reported net cash flows, there has been a material impact on its consolidated balance sheets and consolidated statements of operations and comprehensive loss, which is discussed further in Section 9 of this MD&A.

The Company uses certain non-IFRS financial performance measures in this MD&A. For a detailed reconciliation of each of the non-IFRS measures used in this MD&A, please see the discussion under "Non-IFRS Measures" below.

In this MD&A, all currency amounts (except per unit amounts) are in thousands and, unless otherwise stated, they are in thousands of United States dollars ("US Dollars"). The information presented in this MD&A is as of March 14, 2019, unless otherwise stated.

Additional information about Hydrogenics, including our 2018 Audited Consolidated Financial Statements and our Annual Report on Form 40-F, which is filed in Canada as our annual information form, is available on our website at www.hydrogenics.com, on the SEDAR website at www.sedar.com, and on the EDGAR filers section of the U.S. Securities and Exchange Commission website at www.sec.gov.

This document contains forward-looking statements, which are qualified by reference to, and should be read together with the "Forward-Looking Statements" cautionary notice on page 30 of this MD&A.

"Hydrogenics" or the "Company" or the words "our," "us" or "we" refer to Hydrogenics Corporation and its subsidiaries.

Management's Discussion and Analysis
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1 Our Business

Who We Are

Hydrogenics, together with its subsidiaries, is a globally recognized leader in the design, development and manufacture of hydrogen generation, energy storage and fuel cell products based on water electrolysis technology and proton exchange membrane (“PEM”), technology. Hydrogenics’ mission is to provide safe, secure, sustainable and emission free energy as a leading global provider of clean energy solutions based on hydrogen. We maintain operations in Belgium, Canada and Germany with a satellite office in the United States and branch offices in Russia and Indonesia.

We believe our intellectual property provides us with a strong competitive advantage and represents a significant barrier to entry. As part of our portfolio, we maintain a collection of innovative energy storage patents with broad and exclusive rights concerning the use of excess electrical power to produce hydrogen from water while simultaneously providing electric grid stabilization services. We believe these patents place Hydrogenics in the strongest possible position to build our company over the long term and will continue to strengthen our efforts as electric grid operators look to hydrogen as an important strategy for utility-scale energy storage.

How We Are Organized

We operate in various geographic markets and organize ourselves in two reportable segments being Onsite Generation and Power Systems.

Our OnSite Generation business segment is primarily based in Oevel, Belgium and develops products for industrial gas, hydrogen fueling and renewable energy storage markets. For the year ended December 31, 2018, our OnSite Generation business reported revenues of \$18.3 million and, at December 31, 2018, had 81 full-time employees.

Our Power Systems business segment is primarily based in Mississauga, Canada, with operations in Gladbeck, Germany, and a satellite facility in Carlsbad, California, USA, and develops products for energy storage, motive power and stationary applications. For the year ended December 31, 2018 our Power Systems business reported revenues of \$15.6 million and, at December 31, 2018 had 102 full-time employees.

Where applicable, corporate and other activities are reported separately as Corporate and Other. This is the provision of corporate services and administrative support. At December 31, 2018, our corporate segment had four full-time employees.

OnSite Generation

Our OnSite Generation business segment, is based on water electrolysis technology which involves the decomposition of water into oxygen and hydrogen gas by passing an electric current through a liquid electrolyte (“alkaline”) or a solid PEM. The resultant hydrogen gas is then captured and used for industrial gas applications, hydrogen fueling applications, and is used to store renewable and surplus energy in the form of hydrogen gas (commonly referred to as “Power-to-Gas”).

Historically the demand for onsite generation of hydrogen gas has been driven by relatively modest manufacturing market applications for industrial hydrogen. A typical unit for these applications would generate 20 to 60 normal cubic meters of hydrogen and consume 100 to 300 kilowatt (kW) of electrical energy. We serve this market with our HySTAT® and HyLYZER® branded alkaline electrolyzer products, which are based on 60 years of hydrogen experience, meet international standards, such as ASME, CE, Rostechnadzor and UL, and are certified ISO 9001 from design to delivery. We configure our HySTAT® products for both indoor and outdoor applications and tailor our products to accommodate various hydrogen gas requirements. Our OnSite Generation products are sold to leading merchant gas companies, such as Air Liquide and Linde Gas and end-users requiring high purity hydrogen produced on-site for industrial applications.

Hydrogenics is also one of the leaders in Power-to-Gas market, an innovative energy conversion and storage solution using PEM electrolysis. Our modular PEM stack electrolyzer is the most power dense unit in the market today and is ideally suited for large scale, multi megawatt energy storage applications. Power-to-Gas is the three-step process of integrating renewable sources of generation by load-following, converting the surplus electricity to hydrogen or renewable gas, and finally the gas is used for fuel, power generation or industrial purposes. An electrolyzer provides the rapid, dynamic response to the Independent System Operator’s signals to accurately load-follow the intermittent generation pattern of renewable sources such as wind turbines. Surplus electricity can be stored for consecutive days or even consecutive weeks

without the need to discharge; it is a seasonal storage capability. This energy storage solution bridges the power grid and the gas grid to unlock new options. It enhances the flexibility of managing the power grid and provides the means to capitalize on the vast potential of alternative sources of generation to produce a local source of renewable gas to decarbonize the gas system. Hydrogenics is working with global energy utilities such as Uniper and, most recently in a joint venture with Enbridge, to commercialize Power-to-Gas energy storage.

In addition to Power-to-Gas market, large-scale industrial applications are also appearing for the fueling market, which can be supported by the same PEM electrolysis technology we use for Power-to-Gas. Fueling market opportunities are being driven by the planned deployment of heavy mobility applications for trains, buses and trucks with fleet-based requirements. We also are promoting electrolysis in hydrogen fueling stations combined with possible Power-to-Gas solutions at a distributed storage level. The electrolyzer can be used to generate hydrogen during periods of surplus energy levels, thus absorbing the excess energy at lower cost to generate hydrogen. This hydrogen is then stored at site and can be used to fuel hydrogen cars, trains, trucks and buses. If the surplus power is generated from renewable energy sources such as wind and solar, the potential exists for a completely zero-emission “green” solution as hydrogen fuel cell vehicle emissions only produce water vapor.

During the past year, we have identified several large-scale applications which would consume 10 to 100 megawatts (“MW”) of power, which is 100 to 300 times larger than a typical industrial unit to date. On February 25, 2019, we announced the first award of such a project at 20 MW for Air Liquide Canada. On December 21, 2018, we announced the signing of a Technology and Business Development Agreement (“TBDA”) with The Hydrogen Company (“H2C”), a wholly-owned subsidiary of L’Air Liquide S.A. (“Air Liquide”). The terms of the TBDA provide for the joint development of a large scale PEM electrolysis solution focused on lowering the total cost of ownership and collaboration to bid this solution on large scale PEM electrolysis projects worldwide.

Engagement with other lead customers, such as Uniper and Enbridge, continues to suggest substantial long-term opportunity for Power-to-Gas, an application for energy conversion and storage. The ongoing commercialization of these applications will coincide with changes to legal and regulatory frameworks in countries that recognize the commercial importance of energy storage as a key factor in energy management and reducing a carbon footprint for electricity generation. A notable development in 2018 was the adoption of the Renewable Energy Directive, Part ii in June by the European union, which formally sanctioned hydrogen as a zero-emission solution across both motive and Power-to-Gas applications.

The business objectives for our OnSite Generation group are to: (i) continue to pursue opportunities for customers to convert otherwise wasted renewable energy, such as wind, solar or excess baseload energy, into hydrogen; (ii) further expand into global markets, such as Eastern Europe (including Russia), Asia, Australia, North America and the Middle East; (iii) grow our fueling station business; (iv) further increase the gross margins of existing product lines by improving our procurement and manufacturing processes; (v) reduce the total cost of ownership of our products through design and technology improvement; and (vi) further increase the reliability and durability of our products to exceed the expectations of our customers and improve the performance of our applications.

Power Systems

Our Power Systems business segment is based on PEM fuel cell technology, which transforms chemical energy liberated during the electrochemical reaction of hydrogen and oxygen into electrical energy. Our HyPM® branded fuel cell products are based on our extensive track record of on-bench testing and real-time deployments across a wide range of stationary and motive power profiles. We configure our HyPM® products into multiple electrical power outputs ranging from three kW to one MW with ease of integration, high reliability and operating efficiency, delivered from a highly compact fuel cell and balance of stack design.

Our target markets include motive power applications, such as trains, buses, trucks and heavy-duty utility vehicles and stationary power applications (including primary and back-up power). Our target future addressable markets (stationary power and mobility markets) are estimated to be in excess of \$2 billion specifically related to power systems now largely served by diesel power generation and other liquid fuels.

Our Power Systems products are sold to leading Original Equipment Manufacturers (“OEMs”) and drive systems integrators for motive power. Additionally, our products are sold for prototype field tests intended to be direct replacements for traditional lead-acid battery packs for motive applications. We also sell our power systems in stationary power applications such as

those employed for telecom applications. Finally, we also sell our Power Systems products to aerospace, military and other early adopters of emerging technologies.

The business objectives for our Power Systems group are to: (i) offer a standard fuel cell platform configurable for many markets, thereby enabling manufacturing efficiencies and reduced development spending; (ii) achieve further market penetration in the stationary power and motive power markets by tailoring our HyPM® fuel cell products to meet market specific requirements, including price, performance and features; (iii) reduce product cost while improving durability and reliability; (iv) invest in sales and market development activities in the backup power and motive power markets; (v) continue to target early adopters of emerging technologies as a bridge to future commercial markets; and (vi) secure the requisite people and processes to align our anticipated growth plans with our resources and capabilities.

Our Power Systems business competes with several well-established battery and internal combustion engine companies in addition to several other fuel cell companies. We compete on relative price to performance, design innovation and ease of integration. In the backup power market, we believe our HyPM® systems have an advantage over batteries and internal combustion engines for customers seeking extended run requirements, by offering more reliable and economical performance. In motive power markets, we believe our HyPM® products are well positioned against diesel generation and lead-acid batteries by offering increased productivity, lower operational costs and extended range.

There are four types of fuel cells other than PEM fuel cells that are generally considered to have possible commercial applications, including phosphoric acid fuel cells, molten carbonate fuel cells, solid oxide fuel cells and alkaline fuel cells. Each of these fuel cell technologies differs in their component materials and operating characteristics. While all fuel cell types may have potential environmental and efficiency advantages over traditional power sources, we believe PEM fuel cells can be manufactured less expensively and are more efficient and more practical in compact-scale stationary and motive power applications. Furthermore, most automotive companies have selected PEM technology for fuel cell powered automobiles. We expect this will help establish concentration around PEM technology and may result in a lower cost in the supply chain, as compared to the other fuel cell technologies.

How We Sell Our Products

Our products are sold worldwide to OEMs, systems integrators and end-users through a direct sales force and a network of distributors. Our sales method varies depending on the product offering, market and stage of technology adoption. As discussed above, the terms of the TBDA with Air Liquide provide for a joint collaboration to bid on large scale PEM electrolysis projects.

Intellectual Property

We protect our intellectual property by means of a combination of patents, copyrights, trademarks, trade secrets, licenses, non-disclosure agreements and contractual provisions. We generally enter into non-disclosure and confidentiality agreements with each of our employees, consultants and third parties that have access to our proprietary technology. We currently hold 175 patents in a variety of jurisdictions and have 45 patent applications pending. Additionally, we enter into commercial licenses and cross-licenses to access third party intellectual property.

We believe our intellectual property provides us with a strong competitive advantage and represents a significant barrier to entry into our industry for potential competitors. As part of our patent portfolio, we maintain a collection of innovative energy storage patents with broad and exclusive rights concerning the use of excess electrical power to produce hydrogen from water while simultaneously providing electric grid stabilization services. We believe these patents place Hydrogenics in the strongest possible position to build our Company over the long-term and will continue to strengthen our efforts across the target markets and applications described above.

We typically retain sole ownership of intellectual property developed by us. In certain situations, we provide for shared intellectual property rights. We have these rights in perpetuity, including subsequent improvements to the licensed technology.

Given the relative early stages of our industry, our intellectual property is and will continue to be important in providing differentiated products to customers.

Government Regulation

We are not subject to regulatory commissions governing traditional electric utilities and other regulated entities in any of the jurisdictions that we operate in. Our products are subject to oversight and regulation by governmental bodies in regards to building codes, fire codes, public safety, electrical and gas pipeline connections and hydrogen siting, among others.

2 Growth Strategy

Our strategy is to develop electrolyzer and fuel cell products for sale to OEMs, integrators, electric utilities, gas utilities, merchant gas companies, municipalities and other owners of mass transit applications (such as buses and trains) and end-users requiring highly reliable products offered at competitive prices. We believe our success will be substantially predicated on the following factors:

Increasing Market Penetration

At December 31, 2018, we had 17 full-time staff employed in sales functions. Five of our senior management team are also actively involved in sales initiatives, including maintaining close contact with our more significant customers. Our focus remains to strengthen the sales function by continually assessing responsibilities to permit dedicated sales leadership, obtaining detailed assessments of markets, and leveraging our strategic relationships with companies such as Enbridge, Air Liquide and Alstom. Notable in 2018 was the signing of the TBDA with Air Liquide noted in Section 1 above.

During 2018, we continued the focus prior years on developing several key markets and geographies. After a strong start in the Chinese market in 2017 for Power Systems, progress slowed in 2018. The integration and deployment of the earlier shipped volumes consumed the available execution capability to deploy more. We anticipate ongoing growth in demand in China and we continue our discussions with multiple existing and new partners to realize further sales and deliver on current backlog. Also on the mobility front, work continued on our 10 year contract to develop and supply hydrogen fuel cell propulsion systems for Alstom Transport for passenger rail in Europe. Notable in 2018 was the certification and subsequent commissioning into service of the Coradia iLint platform. This has provided Alstom with a significant catalyst in their sales efforts for the platform as it is now in service and production orders under our contract are expected in 2019. We are also actively investigating extending hydrogen rail opportunities into other markets; notably, in North America, Europe and Asia.

Additionally, we have developed or maintained relationships with third parties we believe are well positioned in our relevant markets to identify new opportunities for our products. In the industrial gas market, these third parties include leading merchant gas companies, such as Air Liquide. In the energy storage market, we are leveraging our strategic relationship with Enbridge. During 2018, the energy storage facility project was commissioned and accepted by the Independent Energy Service Operator ("IESO"). The facility began in-service operations under an IESO Regulation Services contract effective May 2018.

Please also refer to Section 1 Our Business under Power Systems and OnSite Generation for further discussion related to increasing our market penetration.

Future Markets

There are several drivers which will accelerate growth in our markets in the coming year. Electrification of transport, elimination of diesel fuel and ongoing concern about air quality are major themes. Increasingly around the world, governments are supporting these themes with policy and funding initiatives. Hydrogen is a versatile energy carrier which enables the "coupling" of sectors which depend on energy. Renewable power generation, efficient grid operations, industrial demand and transport can all be served in an integrated way with hydrogen. Accordingly, our combined competence in electrolysis (the fuel side) and fuel cells (the engine side) supports attractive future market optionality for the company.

Advancing Our Product Designs

Within our OnSite Generation business segment, we remain focused on two key areas. First, reducing the cost of our HySTAT® alkaline electrolyzer and improving its efficiency. Innovation in the design, elimination of non-value adding components, improved component sourcing and fundamental electrochemical improvements have all contributed to ongoing cost reduction initiatives in 2018 and beyond. We also recognize the opportunity for larger scale energy storage installations and are continuing to develop significantly scale-up products to better meet this market opportunity. Second, we are looking

at continuing the rollout of PEM electrolysis, particularly in the area of Power-to-Gas where PEM technology provides a more scalable solution than alkaline electrolysis at higher power levels. The terms of the TBDA announced with Air Liquide noted in Section 1 aligns with this focus area as it provides for the joint development of a large-scale PEM electrolysis solution focused on lowering the total cost of ownership.

Within our Power Systems business segment, we spent much of 2018 focusing on further reducing the cost of a fully integrated fuel cell system inclusive of its components and expanding our core product range to 50kW. We continue to leverage our integration capability in taking a standard fuel cell stack and finding multiple cost-effective applications. The result is a common building block such as our (HD30 30kW fuel cell) being used in multiple applications such as buses, stationary power and grid stabilization. We have achieved significant cost reduction milestones but will continue to further improve the financial viability of the product in the marketplace by looking at both scale (increased volume ordering from suppliers) as well as bringing components of the supply chain in-house to further reduce production cost.

3 Operating Results

Selected Financial information

(in thousands of US dollars, except per share amounts)

	Year ended December 31,			Favourable (Unfavourable)	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
OnSite Generation	\$ 18,308	\$ 25,268	\$ 17,510	(28)%	44 %
Power Systems	15,588	22,847	11,480	(32)%	99 %
Total revenue	33,896	48,115	28,990	(30)%	66 %
Gross profit	8,725	11,678	5,995	(25)%	95 %
Gross Margin %	26%	24%	21%		
Selling, general and administrative expenses	11,613	13,626	10,825	15 %	(26)%
Research and product development expenses, net	7,486	6,376	3,576	(17)%	(78)%
Loss from operations	(10,374)	(8,324)	(8,406)	(25)%	1 %
Loss from joint ventures	(1,637)	(334)	(156)	(390)%	(114)%
Finance loss, net	(1,028)	(2,108)	(1,295)	51 %	(63)%
Income tax expense	(300)	–	–	n/a	n/a
Net loss	\$ (13,339)	\$ (10,766)	\$ (9,857)	(24)%	(9)%
Net loss per share	\$ (0.86)	\$ (0.77)	\$ (0.79)	(12)%	2 %
Cash operating costs ¹	\$ 18,309	\$ 17,725	\$ 13,894	(3)%	(28)%
Adjusted EBITDA ¹	(9,387)	(5,960)	(7,555)	(57)%	21 %
Cash used in operating activities	(8,381)	(4,782)	(13,213)	(75)%	64 %
Cash and cash equivalents (including restricted cash)	8,737	22,414	11,278	(61)%	99 %
Total assets	49,924	66,215	49,273	(25)%	34 %
Total non-current liabilities (excluding contract liabilities and deferred funding)	\$ 6,521	\$ 9,492	\$ 10,103	31 %	6 %

1 Cash operating costs and Adjusted EBITDA are Non-IFRS measures. Refer to section 14 – Reconciliation of Non-IFRS Measures.

Highlights for the year ended December 31, 2018 compared to the year ended December 31, 2017

- Revenues decreased by \$14.2 million, or 30% to \$33.9 million for the year ended December 31, 2018 compared to \$48.1 million in the prior year. Power Systems business segment revenues declined by 32% primarily attributable to delayed customer orders against our backlog for the Chinese market due to the capacity of our existing integration partners to deploy and support more units beyond the large number of units they ordered in 2017. OnSite Generation business segment revenues declined by 28% due to reduced demand for our onsite industrial hydrogen solution.
- We received \$32.9 million in new orders for the year ended December 31, 2018 (2017 – \$75.9 million) consisting of \$19.4 million (2017 – \$21.7 million) for the OnSite Generation business and \$13.5 million (2017 – \$54.2 million) for the Power Systems business. The OnSite Generation business achieved a net positive order intake of \$1.1 million, whereas orders delivered exceeded orders received by \$2.1 million in Power Systems. As discussed in our Q2-2018 MD&A, we commenced discussions with Kolon Water and Energy Co. Ltd. with respect to dissolving our joint arrangement. Accordingly, \$7.5 million of backlog with the joint venture arrangement for Power Systems was cancelled at that time. Accumulated backlog otherwise remains strong and our sales pipeline remains very active across both lines of business.

	December 31, 2017	IFRS 15	Orders		Orders	Orders	December 31, 2018
	backlog	Adj.	Received	FX	Delivered/ Revenue Recognized	cancelled	backlog
OnSite Generation	\$ 19.9	\$ (0.8)	\$ 19.4	\$ 0.4	\$ 18.3	–	\$ 20.6
Power Systems	124.7	(0.3)	13.5	(2.7)	15.6	7.5	112.1
Total	\$ 144.6	\$ (1.1)	\$ 32.9	\$ (2.3)	\$ 33.9	\$ 7.5	\$ 132.7

- Of the above backlog of \$132.7 million, we expect to recognize approximately \$49.0 million as revenue in the following 12 months.
- Gross margin increased from 24% to 26% of revenue primarily due to product mix within the Power Systems segment, which saw an increase in gross margin from 35% to 39%. The OnSite Generation segment gross margin of 14% was the same as last year.
- Selling, general and administrative (“SG&A”) expenses for 2018 of \$11.6 million were lower by \$2.0 million, or 15%, compared to \$13.6 million for the year ended December 31, 2017. The decrease is attributable to non-cash gains realized on the revaluation of Deferred Share Units (“DSUs”) in 2018 due to changes in our stock price, a reconciliation of which is provided in Section 14 under Cash Operating Costs. Net of these non-cash gains, SG&A for the year decreased by \$0.4 million, or 3.3% as compared to last year.
- Net research and product development (“R&D”) expenses were \$7.5 million for the year ended December 31, 2018 compared to \$6.4 million in 2017, an increase of \$1.1 million, or 17%. Of the \$7.5 million spent on net R&D, \$1.3 million relates to construction of a hydrogen fueling station we will own and operate in the Greater Toronto Area, \$0.6 million relates to commissioning costs for the 2.5MW Power-to-Gas joint venture with Enbridge, \$1.8 million relates to our Fuel Cell Power Module (“FCPM”) manufacturing expansion and process improvement initiatives, \$2.2 million relates to expanding our FCPMs to new mobility use cases and furthering development on the next generation of our fuel cell stack platform, and \$1.6 million relates to product development within our OnSite Generation business.
- Loss from operations increased by \$2.1 million for the year ended December 31, 2018 to \$10.4 million as compared to \$8.3 million in 2017. The increase is attributable to lower revenue and reduced gross profit, higher net R&D expenses partially offset by lower SG&A for the year, as noted above.
- Loss from joint ventures increased by \$1.3 million for the year ended December 31, 2018 attributable to the loss of \$1.6 million recorded in the second quarter of 2018 to adjust the carrying value of our investment in our joint venture arrangement with Kolon Water and Energy Co. Ltd.
- Net finance loss decreased by \$1.1 million for the year ended December 31, 2018 due primarily to the non-cash gains on the change in fair value of outstanding warrants due to a lower share price.
- Net loss for the year ended December 31, 2018 was \$13.3 million, or \$0.86 per share, compared to a net loss of \$10.8 million, or \$0.77 per share, for the prior year. The increase in net loss in the current year is a result of lower revenue and gross profit, the increase in loss from joint ventures and higher net R&D partially offset by the decreases in SG&A expenses and net finance loss, as discussed above.
- Cash operating costs increased by \$0.6 million for the year ended December 31, 2018 compared to last year attributable to an increase in net R&D of \$1.1 million, partially offset by a \$0.4 million decrease in SG&A expenses.
- Adjusted EBITDA loss increased by \$3.4 million to \$9.4 million for the year ended December 31, 2018 from \$6.0 million for the prior year. The increase is primarily attributable to lower gross profit of \$3.0 million and higher cash operating costs of \$0.6 million.

Highlights for the previous year ended December 31, 2017 compared to the year ended December 31, 2016

- Revenues increased by \$19.1 million, or 66%, to \$48.1 million for the year ended December 31, 2017 compared to \$29.0 million in the prior year due primarily to increases in shipments in both of our segments. Specifically: i) an \$8.7 million increase in Power Systems revenue principally related to the delivery of fuel cell mobility orders to the Chinese mobility market; and ii) \$11.1 million in energy storage orders related to Power-to-Gas applications for EGAT Thailand, Doosan Babcock in Aberdeen, Scotland, and Brunsbuttel, Germany.
- The Company received new orders for \$21.7 million (2016 - \$21.2 million) for the OnSite Generation business and \$54.2 million (2016 - \$22.8 million) for the Power Systems business.

	December 31, 2016		Orders		Orders		December 31, 2017			
	backlog		Received		FX	Delivered/ Revenue Recognized	backlog			
OnSite Generation	\$	20.8	\$	21.7	\$	2.4	\$	25.0	\$	19.9
Power Systems		85.8		54.2		7.8		23.1		124.7
Total	\$	106.6	\$	75.9	\$	10.2	\$	48.1	\$	144.6

- Gross margin increased from 21% to 24% of revenue primarily due to product mix within the Power Systems segment, which saw an increase in gross margin from 22% to 35%. This was partially offset by several key first-of-a-kind projects having a lower margin profile within the OnSite Generation segment.
- SG&A expenses for 2017 of \$13.6 million were greater by \$2.8 million, or 26%, compared to \$10.8 million for the year ended December 31, 2016. Excluding the impact of the reversal of an indemnification liability of \$0.5 million associated with an acquisition in 2004 included within the year ended 2016 as well as the reversal of previously charged compensation expense for PSUs of \$0.2 million also included within the year ended 2016, SG&A expenses increased \$2.1 million. This increase was due to: i) mark-to-market expenses totaling \$1.2 million as a result of the increase in our share price for the year ended December 31, 2017 as compared to the year ended December 31, 2016 (to C\$14.00 from C\$5.75); ii) an increase of \$0.5 million in allowance for doubtful accounts related to the collectability of a receivable related to a energy storage project; and iii) an increase of \$0.4 million relating to increased business activity, such as compensation costs tied to the achievement of targets, legal fees and insurance costs.
- R&D expenses were \$6.4 million for the year ended December 31, 2017 compared to \$3.6 million in 2016, an increase of \$2.8 million, or 78%. In the Power Systems segment, the increase represents increased spending on R&D, primarily for multi-megawatt energy storage projects specifically for our Power-to-Gas facility with our Enbridge joint venture in Toronto, Canada, and mobility applications such as ongoing development on the next generation of our fuel cell stack platform for mobility applications such as rail, trucks and buses. While net R&D expenses also increased in the OnSite Generation segment, this increase was principally due to a decline in funded R&D as there was a significant Power-to-Gas demonstration project ongoing in Denmark in 2016. Overall gross R&D spending levels at OnSite Generation declined year-over-year.
- Adjusted EBITDA loss decreased to \$6.0 million for the year ended December 31, 2017 from \$7.6 million for the prior year, for the reasons noted above.
- Net loss for the year ended December 31, 2017 was \$10.8 million, or \$0.79 per share, compared to a net loss of \$9.9 million, or \$0.79 per share, for the prior year. While gross profit increased over \$5.7 million, the increase in SG&A expenses and R&D expenses, as discussed above, resulted in a consistent loss from operations when compared to the year ended December 31, 2016. The increase in net loss in the current period reflects an increase in other finance losses of \$1.0 million. There was a \$0.7 million loss on fair value adjustments relating to outstanding and exercised warrants in the year ended December 31, 2017, whereas the year ended December 31, 2016 included a \$0.8 million fair value gain related to outstanding warrants. This was offset by an increase in net foreign currency gains (losses) from a loss of \$0.3 million for the year ended December 31, 2016 to a gain of \$0.6 million in the current year.
- Cash operating costs increased 28% to \$17.8 million for the year ended December 31, 2017, compared to \$13.9 million for the year ended December 31, 2016, primarily reflecting the increase in SG&A and net R&D expenses above.

Business Segment Review

We report our results in two business segments: OnSite Generation and Power Systems. Our reporting structure reflects the way we manage our business and how we classify our operations for planning and measuring performance. The corporate office and administrative support is reported under Corporate and Other. Refer to Section 10 Strategy and Outlook for a more extensive discussion regarding our products, markets and our business segment strategy.

OnSite Generation

Selected Financial Information

	Years ended December 31,		Favourable (Unfavourable)
	2018	2017	2018 vs 2017
Revenues	\$ 18,308	\$ 25,268	(28)%
Gross profit	2,648	3,663	(28)%
Gross margin %	14%	14%	-
Selling, general and administrative expenses	2,959	3,381	12 %
Research and product development expenses, net	2,927	1,275	(130)%
Segment loss	\$ (3,238)	\$ (993)	(226)%

Revenues decreased by 28% for the year ended December 31, 2018 as compared to last year due to reduced demand for industrial hydrogen equipment. New orders awarded for the year ended December 31, 2018 amounted \$19.4 million (2017 – \$21.7 million), resulting in a net increase of \$0.7 million in our backlog during the year. Backlog at December 31, 2018 of \$20.6 million (2017 - \$19.9 million) is expected to be recognized as revenue in the next twelve months.

Gross margin remained consistent with last year despite the lower level of revenue available to absorb fixed production overheads.

SG&A expenses decreased by 12% in 2018 versus 2017 attributable to the write-off in 2017 of \$0.4 million for bad debts. Otherwise expenses were comparable year over year.

Net R&D expenses increased in 2018 versus 2017, primarily attributable to the construction of a hydrogen fueling station in the Greater Toronto Area that the Company will own and operate. These expenses amounted to \$1.3 million for the year ended December 31, 2018 with a further \$1.6 million spent related to product development activities.

Segment loss increased by \$2.2 million for the year ended December 31, 2018, as compared to the same period last year, reflecting lower gross profit of \$1.0 million and the increase in net R&D expenses of \$1.7 million, partially offset by the decrease in SG&A of \$0.4 million.

Power Systems

Selected Financial Information

	Years ended December 31,		Favourable (Unfavourable)
	2018	2017	2018 vs 2017
Revenues	\$ 15,588	\$ 22,847	(32)%
Gross Profit	6,077	8,015	(24)%
Gross margin %	39%	35%	11 %
Selling, general and administrative expenses	4,276	4,321	1 %
Research and product development expenses, net	4,495	4,996	10 %
Segment loss	\$ (2,694)	\$ (1,302)	(107)%

Revenues decreased \$7.3 million for the year ended December 31, 2018 as compared to the same period in 2017. The decrease in revenue is attributable to delayed customer orders against our existing backlog for the Chinese market due to the capacity of our existing integration partners to deploy and support more units beyond the larger number of units they ordered in 2017.

Orders awarded through 2018 amounted to \$13.5 million (2017– \$54.2 million) versus revenue of \$15.6 million over the same period, resulting in a \$2.1 million net decrease in backlog. As discussed in Section 3 Overall Performance and in our Q2-2018 MD&A, we commenced discussions in June 2018 with Kolon Water and Energy Co. Ltd. with respect to dissolving our joint venture arrangement. Accordingly, \$7.5 million of backlog with the joint venture was cancelled in the second quarter 2018. The balance of backlog reduction year over year relates to foreign exchange movements. Backlog otherwise remained strong and our sales pipeline remains very active. Specifically, at December 31, 2018, backlog was \$112.1 million (2017 – \$124.7 million) with approximately \$28.4 million of this backlog expected to be recognized as revenue in the next twelve months.

Gross margin of 39% was achieved in 2018, compared to 35% in 2017. The lower margin in 2017 was due in part to the initial production run of the Alstom commuter rail power modules. However, the improved margin in 2018 also reflects year-over-year progress towards product standardization, production process efficiencies and improved supply chain management.

SG&A expenses in 2018 were comparable with the prior year.

Net R&D expenses were down \$0.5 million for the year ended December 31, 2018 versus the comparative period in 2017 attributable to Canadian government funding received in 2018 towards manufacturing and product development initiatives. Year-to-date 2018 expenses of \$4.5 million reflect spending of \$0.6 million on the development of the multi-megawatt energy storage project using PEM fuel cell technology, \$1.7 million on government funded FCPM manufacturing expansion and process improvement initiatives, and \$2.2 million related to expanding our FCPMs to new mobility use cases, such as heavy duty commercial vehicles, and ongoing development on the next generation of our fuel cell stack platform. The Canadian government funding noted above was awarded in March 2018 and subsequently cancelled effective September 28, 2018, coinciding with a change in government and policy direction.

Segment loss increased \$1.4 million for the year ended December 31, 2018 compared to same period in 2017 due to lower revenue and lower gross profit of \$1.9 million offset by the decrease in R&D expenses of \$0.5 million.

Corporate and Other

Selected Financial Information

	Years ended December 31,		Favourable (Unfavourable)
	2018	2017	2018 vs 2017
Selling, general and administrative expenses	\$ 4,378	\$ 5,924	26 %
Research and product development expenses, net	64	105	39 %
Loss from joint ventures	1,637	334	(390)%
Interest expense, net	1,469	1,812	19 %
Foreign currency gains, net	(144)	(635)	(77)%
Other finance (gains) losses, net	(297)	931	n/a
Segment loss	\$ 7,107	\$ 8,471	16 %

SG&A expenses decreased \$1.5 million for the year ended December 31, 2018 versus the comparative period in 2017. The decrease is a result of a net \$1.6 million positive change in the non-cash fair value adjustments of DSUs (as reflected in the reconciliation of Cash Operating Costs in Section 14 Reconciliation of Non-IFRS measures). SG&A expenses for the year ended December 31, 2018 were otherwise comparable to same period in 2017.

Loss from joint ventures increased \$1.3 million for the year ended December 31, 2018 as compared to the prior year. The increase relates primarily to the loss of \$1.6 million recorded in the second quarter of 2018 to reflect a reduction of the carrying value of the assets of Kolon Hydrogenics to their estimated net recoverable amount based upon an assessment of fair values less costs of disposal. This write-down coincided with discussions commenced in June 2018 with Kolon Water and Energy Co. Ltd. with respect to dissolving our joint venture arrangement expected in 2019.

Net interest expense decreased \$0.3 million for the year ended December 31, 2018 as compared to last year due to lower debt outstanding year over year due to principal repayments.

Net foreign currency gains decreased as a result of principal repayments of Canadian dollar denominated loans during the year.

Other net finance gains (losses) improved \$1.2 million for the year ended December 31, 2018 compared to last year attributable to non-cash fair value adjustments for outstanding warrants. The improvement was driven by a lower share price as well as the effect of fewer warrants outstanding relative to the prior year.

4 Financial Condition

	December 31,		Increase (decrease)	
	2018	2017	\$	%
Cash, cash equivalents and restricted cash	\$ 8,737	\$ 22,414	\$ (13,677)	(61)%
Trade and other receivables	6,728	8,736	(2,008)	(23)%
Contract assets – (current and non-current)	6,223	7,223	(1,000)	(14)%
Inventories	17,174	15,048	2,126	14 %
Prepaid expenses	1,960	1,374	586	43 %
Operating borrowings	–	1,200	(1,200)	100 %
Trade and other payables	9,068	9,736	(668)	(7)%
Contract liabilities – (current and non-current)	16,001	14,044	1,957	14 %
Financial liabilities	3,359	4,913	(1,554)	(32)%
Provisions – (current and non-current)	2,851	2,720	131	5 %
Deferred funding – (current and non-current)	1,973	913	1,060	116 %
Other non-current liabilities	5,711	8,516	\$ (2,805)	(33)%

Cash, cash equivalents and restricted cash decreased \$13.7 million or 61% in 2018. \$5.8 million was used to pay principal and interest on long term debt and repay operating borrowings and \$8.4 million was used for operating activities. This was offset by net \$0.5 million of cash provided by investing activities attributable to government funding and proceeds on the disposal of equipment. Refer to Section 6 – Liquidity and Capital Resources for a more detailed discussion of the change in cash, cash equivalents and restricted cash.

Trade and other receivables decreased \$2.0 million consistent with lower revenue in current year versus last year.

Contract assets (current and non-current) decreased \$1.0 million due to the change in value of amounts recognized on performance obligations satisfied over time for a long-term Power Systems contract as well as revenue recognized for start-up and commissioning of equipment consistent with the application of IFRS 15, described in Section 9 Changes in Accounting Policies and Recent Accounting Pronouncements.

Inventories increased \$2.1 million attributable to work in progress and finished goods inventory build-up required to support the schedule of expected deliveries against our backlog for Power Systems and OnSite Generation products into Q1-2019.

Prepaid expenses increased \$0.6 million reflecting prepayment of purchasing commitments and transaction costs incurred for the subscription agreement with Air Liquide.

Trade and other payables decreased \$0.7 million as we reduced purchases for long lead items only given the availability of current inventory levels to support scheduled deliveries over the next quarter.

Contract liabilities (current and non-current) increased \$2.0 million primarily attributable to the net receipt of deposits on new contracts versus deposits applied to invoiced contracts as compared to the prior year.

Financial liabilities decreased \$1.6 million reflecting the revaluation to fair value of outstanding warrants and DSU liabilities compared to December 31, 2017 attributable to drop in our share price year over year.

Provisions include warranty and start-up and commissioning. Warranty provisions increased \$0.2 million mainly attributable to additional work required on projects delivered in the prior year offset by a \$0.1 million decrease in start-up and commissioning provisions mainly due to strengthening of U.S. dollar against Euro during the year.

Deferred funding increased \$1.1 million reflecting the receipt of funding for new energy storage projects in Europe.

Other non-current liabilities decreased \$2.8 million due to principal repayments made in the year on our long-term debt with Export Development Canada and the Province of Ontario.

5 Summary of Quarterly Results

The following table highlights selected financial information for the eight consecutive quarters ended December 31, 2018.

	2018		2018		2017		2017		2017	
	Q4		Q3		Q4		Q3		Q2	
Revenues	\$ 10,475	\$ 7,665	\$ 7,609	\$ 8,147	\$ 19,745	\$ 12,079	\$ 7,556	\$ 8,735		
Gross profit	1,915	1,471	2,101	3,238	5,668	2,897	440	2,673		
Gross margin %	18.3%	19%	28%	40%	29%	24%	6%	31%		
Adjusted EBITDA	(2,805)	(2,529)	(2,447)	(1,606)	175	(1,947)	(3,446)	(742)		
Net loss	(3,141)	(3,443)	(4,801)	(1,954)	(975)	(2,032)	(5,462)	(2,297)		
Net loss per share - basic and fully diluted	\$ (0.20)	\$ (0.22)	\$ (0.31)	\$ (0.13)	\$ (0.06)	\$ (0.13)	\$ (0.43)	\$ (0.18)		
Weighted average common shares outstanding	15,441,947	15,442,416	15,440,888	15,436,879	15,133,194	15,232,905	12,677,167	12,545,076		

When comparing the fourth quarter of 2018 to the fourth quarter of 2017, our net loss increased by \$2.2 million to \$3.1 million (\$0.20 per common share) compared to a net loss of \$1.0 million (\$0.06 per common share). This increase was driven by lower revenue of \$9.3 million and a decrease in gross profit of \$3.8 million. Adjusted EBITDA decreased by \$3.0 million to a loss of \$2.8 million from a profit of \$0.2 million reflecting the decrease in gross profit of \$3.8 million, offset by a decrease in cash operating costs of \$0.6 million. The decrease in cash operating costs is attributable to lower SG&A expenses of \$1.0 million offset by higher net R&D expenses of \$0.4 million attributable to FCPM manufacturing expansion and process improvement initiatives in the current quarter. The focus of our R&D activities in Q4-2018 also included expanding our FCPMs to new mobility use cases, such as heavy duty commercial vehicles, and furthering development on the next generation of our fuel cell stack platform and electrolyzer products.

When comparing the third quarter of 2018 to the third quarter of 2017, our net loss increased by \$1.4 million (70%) to \$3.4 million (\$0.22 per common share) compared to a net loss of \$2.0 million (\$0.13 per common share). This increase was driven by lower revenue of \$4.4 million and a decrease in gross profit of \$1.4 million. Adjusted EBITDA decreased by \$0.6 million to a loss of \$2.5 million from a loss of \$1.9 million reflecting the decrease in gross profit of \$1.4 million offset by an improvement in cash operating costs of \$0.9 million. The improvement in cash operating costs is attributable to reduced net R&D expenses; notably, an increase in government funded FCPM manufacturing expansion and process improvement initiatives in the current quarter. The focus of our R&D activities in Q3-2018 also included expanding our FCPMs to new mobility use cases, such as heavy duty commercial vehicles, and furthering development on the next generation of our fuel cell stack platform and electrolyzer products.

When comparing the second quarter of 2018 to the second quarter of 2017, our net loss decreased by \$0.7 million (12%) to \$4.8 million (\$0.31 per common share) compared to a net loss of \$5.4 million (\$0.43 per common share). This improvement was driven by the increase in gross profit of \$1.7 million reflecting a gross margin improvement to 28% from 6%, offset by an increase in losses from our joint venture with Kolon. Adjusted EBITDA improved by \$1.0 million to a loss of \$2.4 million from a loss of \$3.4 million. The improvement reflects additional gross profit of \$1.7 million offset by an increase of \$0.7 million in cash operating costs year-over-year. The increase in cash operating costs reflects \$0.3 million and \$0.4 million respectively of additional expenditures for SG&A and net R&D. The increase in SG&A is attributable to increased business development and marketing activities. The focus of our R&D activities in the quarter included commissioning the 2.5MW Power-to-Gas facility with Enbridge, government funded FCPM manufacturing expansion and process improvement initiatives, expanding our FCPMs to new mobility use cases, such as heavy duty commercial vehicles, and furthering development on the next generation of our fuel cell stack platform and electrolyzer products.

When comparing the first quarter of 2018 to the first quarter of 2017, our net loss decreased 15% to \$2.0 million (\$0.13 per common share) from \$2.3 million (\$0.18 per common share). An increase in gross profit of \$0.6 million was principally due to improved direct margins due to product mix. Finance loss improved from a loss of \$0.9 million to income of \$0.1 million primarily as a result of adjustments to the fair value of outstanding warrants related to the net decrease in the Company's share price in the current quarter as compared to a net increase in share price for the comparative quarter of March 31, 2017. SG&A expenses decreased \$0.2 million in the first quarter of 2018. Excluding mark to market expenses relating to our DSUs as a result of the increase in our share price for the three months ended March 31, 2018 as compared to the three months ended March 31, 2017, SG&A expenses increased \$0.4 million. The increase is the result of increased

advertising and marketing costs, facility costs, and information technology costs within the Company. These improvements were offset by an increase in net R&D expenses of \$1.1 million primarily due to increased spending on the 2.5MW energy storage project, and mobility applications such as the demonstration of the technical viability of our Celerity Plus™ product in heavy duty commercial vehicle applications, as well as furthering development on the next generation of our fuel cell stack platform.

In the fourth quarter of 2017, our net loss improved by \$1.5 million to a net loss of \$1.0 million (\$0.06 per common share) from a net loss of \$2.5 million (\$0.20 per common share) in the fourth quarter of 2016. An increase in gross profit of \$3.7 million was principally due to increased revenues and improved direct margins due to product mix through increased production and delivery of standardized fuel cells for the mobility market, as well as economies of scale, particularly within the Power Systems business segment. This was partially offset by an increase in net R&D spending during the quarter of \$1.0 million and an increase of \$1.4 million relating to SG&A expenses as compared to the fourth quarter of 2016. Excluding the impact of an increase in DSU expense of \$0.6 million for the three months ended December 31, 2017 as a result of the increase in the share price in the current quarter, SG&A expenses increased \$0.8 million. The improvement in gross profit was also partially offset by an increase in fair value adjustments (loss) relating to outstanding warrants (\$0.1 million) in the three months ended December 31, 2017 as a result of the increase in the share price in the current quarter, whereas the three months ended December 31, 2016 had a gain of \$0.2 million. This was offset by the movement in net foreign currency gains (losses), from a loss of \$0.2 million for the three months ended December 31, 2016 to a gain of \$0.1 million in the current year.

In the third quarter of 2017, our net loss was consistent at \$2.0 million (\$0.13 per common share from \$0.15 per common share), compared to the third quarter of 2016. An increase in gross profit of \$1.8 million was principally due to increased revenues and improved direct margins due to product mix. This was partially offset by an increase in net R&D spending during the quarter of \$1.9 million, and fair value adjustments (loss) relating to outstanding warrants (\$0.6 million) in the three months ended September 30, 2017, whereas the three months ended September 30, 2016 had a loss of \$0.1 million.

In the second quarter of 2017, our net loss increased to \$5.7 million from \$3.1 million (\$0.45 per common share) compared to the second quarter of 2016 (\$0.25 per common share). A decrease in gross profit of \$1.5 million was principally due to decreased revenues and reduced direct margins due to product mix. Also contributing to the decrease in gross margin was lower absorption of indirect overhead costs as a result of the decrease in revenue. There was also an increase in other finance losses of \$1.1 million in the three months ended June 30, 2017 compared to the same period of 2016 due to the fair value adjustments relating to outstanding warrants (a loss of \$0.8 million) in the three months ended June 30, 2017, whereas the three months ended June 30, 2016 included a gain of \$0.3 million.

In the first quarter of 2017, our net loss remained consistent at \$2.3 million (\$0.18 per common share) compared to the first quarter of 2016. An increase in gross profit of \$1.5 million was principally due to increased revenue and improved direct margins due to product mix. This was offset by: i) an increase in SG&A expenses related to the increased mark-to-market expenses due to the increase in our share price; ii) the absence of a reversal in SG&A expenses of \$0.5 million related to the indemnification liability in the first quarter of 2016; iii) an increase in other finance losses of \$0.7 million in the three months ended March 31, 2017 compared to the same period of 2016 due to the fair value adjustments relating to outstanding warrants in the three months ended March 31, 2017 compared to the three months ended March 31, 2016; and iv) a fair market value adjustment gain of \$0.1 million on unsettled foreign exchange contracts included in the 2016 quarter.

6 Liquidity and Capital Resources

Cash Used in Operating Activities

(Thousands of US dollars)	Years ended December 31,		\$ Change	% Change
	2018	2017		
Net loss	\$ (13,339)	\$ (10,766)	\$ (2,573)	(24)%
(Increase) decrease in restricted cash	(304)	134	(438)	n/a
Net change in non-cash operating assets	1,750	(223)	1,973	n/a
Other items not affecting cash	3,512	6,073	(2,561)	(42)%
Cash used in operating activities	\$ (8,381)	\$ (4,782)	\$ (3,599)	(75)%

Cash used in operating activities increased by \$3.6 million in 2018 compared to 2017 due primarily to lower gross profit of \$3.0 million and an increase in cash operating costs of \$0.7 million.

Cash Provided by Investing Activities

(Thousands of US dollars)	Years ended			
	December 31,		\$ Change	% Change
	2018	2017		
Investment in joint venture	\$ -	\$ (93)	\$ 93	n/a
Purchases of property, plant and equipment	(1,001)	(3,920)	2,919	74 %
Receipt of government funding	974	1,792	(818)	(46)%
Proceeds from disposals of property, plant and equipment	700	1,035	(335)	(32)%
Purchase of intangible assets	(125)	(25)	(100)	406 %
Cash provided by (used in) investing activities	\$ 548	\$ (1,211)	\$ 1,759	n/a

Cash provided by investing activities improved by \$1.8 million in 2018 over 2017 due primarily to reduced capital expenditures net of government funding.

Cash Used in Financing Activities

(Thousands of US dollars)	Years ended			
	December 31,		\$ Change	% Change
	2018	2017		
Proceeds from common shares issued and stock options exercised, net of issuance costs	\$ 40	\$ 19,745	\$ (19,705)	n/a
Principal repayment of long-term debt	(3,120)	(1,639)	(1,481)	(90)%
Exercise of warrants	-	1,374	(1,374)	n/a
Interest payment	(1,498)	(1,274)	(224)	(18)%
Repayment of operating borrowings	(1,193)	(873)	(320)	(37)%
Repayment of repayable government contributions	-	(171)	171	n/a
Cash provided by (used in) financing activities	\$ (5,771)	\$ 17,162	\$ (22,933)	n/a

Cash used in financing activities for 2018 amounted to \$5.8 million and related entirely to debt service and repayment of operating borrowings.

Credit and Loan Facilities

At December 31, 2018, the Company's subsidiary in Belgium (the "Borrower") had a joint credit and operating line facility of €7,000, which renews annually in April upon review. Under this facility, the Borrower may borrow up to a maximum of 75% of the value of awarded sales contracts, approved by the Belgian financial institution, to a maximum of €500; and may also borrow up to €1,500 for general business purposes, provided sufficient limit exists under the overall facility limit of €7,000. Of the €7,000 facility, €2,175 or approximately \$2,491 was drawn as standby letters of credit and bank guarantees and €Nil was drawn as an operating line. At December 31, 2018, the Company had availability of €6,321 or approximately \$7,234 (December 31, 2017 – \$4,377) under this facility totaling €4,321, or approximately \$4,945 for use as letters of credit and bank guarantees and totaling €2,000 or approximately \$2,289 as an operating line. The credit facility bears interest at EURIBOR plus 1.45% per annum and is secured by a €1,000 secured first charge covering all assets of the Borrower. The credit facility contains a negative pledge precluding the Borrower from providing security over its assets. Additionally, the Borrower is required to maintain a solvency covenant, defined as equity plus current account (intercompany account with the Corporate company), divided by total liabilities of not less than 25% and ensure that its intercompany accounts with Hydrogenics do not fall below a defined level. We were in compliance with these covenants at December 31, 2018.

At December 31, 2018, the Company also had a Canadian credit facility of \$2,199 with no expiration date for use only as letters of credit and bank guarantees. At December 31, 2018, \$399 was drawn as standby letters of credit and bank guarantees. At December 31, 2018, the Company had \$1,800 (December 31, 2017 – \$2,391) available under this facility for use only as letters of credit and bank guarantees.

These letters of credit and bank guarantees relate primarily to obligations in connection with the terms and conditions of the Company's sales contracts. The standby letters of credit and letters of guarantee may be drawn on by the customer if the Company fails to perform its obligations under the sales contracts.

On September 28, 2011, we entered into a loan agreement with the Province of Ontario's Ministry of Economic Development, Strategic Jobs and Investment Fund for funding up to C\$6.0 million. Eligible costs had to be incurred between October 1, 2010 and September 30, 2015. After this five-year period, the loan bears interest at a rate of 3.67% and requires annual repayment at a rate of 20% per year of the outstanding balance for the five years subsequent to the sixth anniversary of the first disbursement, which was November 30, 2011. There is no availability remaining under this facility at December 31, 2018.

The loan is collateralized by a general security agreement covering assets of Hydrogenics Corporation. Additionally, the Company is required to maintain a minimum balance of cash in Canadian dollars in a Canadian financial institution at all times. We were in compliance with this covenant at December 31, 2018.

In the fourth quarter of 2016, we entered into a loan agreement with Export Development Corporation for a five-year facility of \$9.0 million. The loan is structured as a five-year term loan with quarterly interest payments calculated at an annual interest rate of U.S. prime plus 10%, declining to U.S. prime plus 5% to 7% if certain annual earnings before interest, taxes, depreciation and amortization thresholds are met. The loan is secured by a second charge over the assets located within Canada. Commencing March 31, 2017, the loan principal is subject to four quarterly repayments of \$0.25 million followed by 16 quarterly repayments of \$0.5 million. There is an option to prepay a portion of or the entire loan at any time.

Capital Resources

We consider our capital employed to consist of shareholders' equity and total debt, net of cash and cash equivalents as follows:

At December 31,	2018		2017	
Total equity	\$ 10,961	\$	24,173	
Operating borrowings	–		1,200	
Long-term debt and repayable government contributions, including current portion	8,082		11,284	
Total	19,043		36,657	
Less Cash and cash equivalents and restricted cash	8,737		22,414	
Total capital employed	\$ 10,306	\$	14,243	

The Company's financial objective when managing capital is to make sure that we have the cash, debt capacity and financial flexibility to fund our ongoing business objectives including operating activities, research and product development, investments and growth in order to provide returns for our shareholders and other stakeholders.

We monitor our capital structure and make adjustments according to market conditions in an effort to meet our objectives given the Company's operating and financial performance and current outlook of the business and industry in general. The Company's alternatives to fund future capital needs include cash flows from operating activities, debt or equity financing, adjustments to research and product development priorities, capital spending and/or sale of assets. These alternatives, and our capital structure, are reviewed by management and the board of directors of the Company on a regular basis to ensure the best mix of capital resources to meet the Company's needs.

Financial Instruments, Long-term Debt, Commitments and Contingent Off-balance Sheet Arrangements

The Company's financial instruments and the nature of the risks, existing or potential, are as set out in the following table:

Financial Instruments	Risk			
	Credit	Liquidity	Market	
			Currency	Interest Rate
Cash and cash equivalents and restricted cash	X		X	X
Short-term investments	X		X	X
Trade and other receivables	X		X	
Contract assets	X		X	
Trade and other payables		X	X	
Contract liabilities		X	X	
Financial liabilities		X	X	
Non-current liabilities		X	X	

Credit risk

Credit risk arises from the potential that a counterparty will fail to perform its obligations. Credit risk associated with cash and cash equivalents and restricted cash is minimized by limiting net exposure to any one jurisdiction or financial institution and ensuring financial assets are placed for short periods of time, generally less than 90 days, with governments, well-capitalized financial institutions and other creditworthy counterparties. Ongoing reviews are performed by management to evaluate changes in the status of financial institutions and counterparties.

Credit risk associated with trade and other receivables is minimized by carrying out a detailed review and approval by senior management of credit extensions to customers taking into account customer history, any amounts that are past due and any available relevant information about the customers' liquidity and potential going concern problems. In addition, progress payments are generally required by customers as contracts are executed, which generally results in between 35% and 100% of a contract's value being collected before shipments are made. Where credit terms are extended beyond shipment, terms are generally not granted beyond 60 days. We also maintain provisions for expected credit losses, which we currently assess as insignificant.

Currency risk

Currency risk arises because of fluctuations in foreign exchange rates. We conduct a significant portion of our business activities in currencies other than the functional currency of the parent company (US dollars) and the functional currency of our self-sustaining subsidiaries (euro). This primarily includes Canadian dollar transactions at the parent company and US dollar transactions at our self-sustaining subsidiaries.

Our objective in managing foreign currency risk is to minimize our net exposures to foreign currency cash flows by converting cash balances into foreign currencies to the extent practical to match other foreign currency obligations. Our foreign exchange risk management program includes the potential use of foreign exchange currency forward contracts to fix the exchange rates on short-term Canadian dollar, euro and US dollar denominated transactions and commitments.

Interest rate risk

Interest rate risk arises because of the fluctuation in market interest rates. We are subject to interest rate risk on our cash and cash equivalents, restricted cash and variable rate long-term debt.

Liquidity risk

Liquidity risk arises from our general funding needs and in the management of our assets, liabilities and optimal capital structure. We manage liquidity risk to maintain sufficient liquid financial resources to fund our commitments and obligations in the most cost-effective manner possible.

We have sustained losses and negative cash flows from operations since our inception. At December 31, 2018, we had approximately \$8.7 million of cash, cash equivalents and restricted cash. The Company monitors its financial position on a monthly basis at minimum, and updates its expected use of cash resources based on the latest available data. Such forecasting takes into consideration the Company's financing plans and compliance with internal targets. On December 21, 2018, we entered into a subscription agreement with H2C to issue 3,537,931 common shares for gross proceeds of \$20.5 million. The transaction closed on January 24, 2019.

There are uncertainties related to the timing and use of our cash resources and working capital requirements. These uncertainties include, among other things, the timing and volume of commercial sales and associated gross margin of our existing products and the development of markets for, and customer acceptance of, new products. We do not expect our operations to generate sufficient cash flow to fund our obligations as they come due for the next several quarters. As such, these obligations will be funded out of existing and forecasted cash resources, such as proceeds from the private placement referred to above.

We may need to take additional measures to increase liquidity and capital resources, including obtaining additional debt or equity financing, pursuing joint-venture partnerships, equipment financings or other receivables financing arrangements. We may experience difficulty in obtaining satisfactory financing terms. Failure to obtain adequate financing on satisfactory terms could have a material adverse effect on Hydrogenics' results of operations or financial condition.

Contractual Obligations

	Total	Less than 1 year	1-3 years	4-5 years	After 5 years
Long-term debt ¹ , including current portion	\$ 10,225	\$ 3,753	\$ 6,472	\$ –	\$ –
Operating leases	3,934	1,088	1,608	678	560
Purchase obligations	14,145	13,982	163	–	–
Capital lease	33	7	21	5	–
Total contractual obligations^{2, 3}	\$ 28,337	\$ 18,830	\$ 8,264	\$ 683	\$ 560

1. Represents the undiscounted amounts payable as disclosed below under "Other Loan Facilities".

2. The table excludes the DSU liability of \$730 included in our current liabilities which relate to units that are only settled once a director resigns as a director.

3. The table excludes the warrant liability of \$11 included in our financial liabilities.

Contingent Off-balance Sheet Arrangements

We do not have any material obligations under forward foreign exchange contracts, guarantee contracts, retained or contingent interests in transferred assets, outstanding derivative instruments or non-consolidated variable interests.

In the normal course of operations, we occasionally provide indemnification agreements, other than those listed above, to counterparties that would require us to compensate them for costs incurred as a result of changes in laws and regulations or as a result of litigation claims or statutory sanctions that may be suffered by the counterparty as a consequence of the transaction. The terms of these indemnification agreements will vary. The nature of the indemnification agreements prevents us from making a reasonable estimate of the maximum potential amount we could be required to pay to counterparties. No amount has been recorded in the consolidated financial statements with respect to these indemnification agreements as we are not aware of any claims.

7 Outstanding Share Data

The authorized share capital of the Company consists of an unlimited number of common shares, with no par value, and an unlimited number of preferred shares in series, with no par value. We had 15,447,483 common shares outstanding at December 31, 2018.

	2018		2017	
	Number	Amount	Number	Amount
Balance at January 1,	15,436,879	\$ 387,746	12,544,960	\$ 365,923
Adjustment for partial shares on share consolidation	–	–	(1)	–
Issuance of common shares	–	–	2,682,742	19,725
Warrants exercised	–	–	200,575	1,966
Issuance of common shares on vesting of performance share units	4,204	96	4,203	96
Issuance of common shares on exercise of stock options	6,400	69	4,400	36
At December 31,	15,447,483	\$ 387,911	15,436,879	\$ 387,746

At December 31, 2018, there were 853,089 stock options outstanding to purchase our common shares. If these securities are exercised, our shareholders could incur dilution.

8 Critical Accounting Estimates

The Company's management make judgments in its process of applying the Company's accounting policies in the preparation of its consolidated financial statements. The preparation of financial information requires that we make assumptions and estimates of effects of uncertain future events on the carrying amounts of the Company's assets and liabilities at the end of the reporting period and the reported amounts of revenue and expenses during the reporting period. Actual results may differ from those estimates as the estimation process is inherently uncertain. Estimates are reviewed on an ongoing basis based on historical experience and other factors that are considered to be relevant under the circumstances. Revisions to estimates and the resulting effects on the carrying amounts of the Company's assets and liabilities are accounted for prospectively.

The critical judgments, estimates and assumptions applied in the preparation of Company's financial information are reflected in Note 4 of the Company's 2018 annual audited consolidated financial statements.

9 Changes in Accounting Policies and Recent Accounting Pronouncements

As described in Note 5 to our consolidated financial statements, effective January 1, 2018 we implemented IFRS 15 – Revenue from Contracts with Customers and IFRS 9 – Financial Instruments. IFRS 15 was applied retrospectively whereas IFRS 9 was applied using the modified retrospective approach. As required, we have restated the financial information for

all comparative periods presented within this MD&A to give effect to these policy changes, including the operating results in Section 3, financial condition in Section 4, the quarterly results in Section 5 and liquidity and capital resources in Section 6.

Impact of adoption of IFRS 15 and IFRS 9

The adoption of IFRS 15 did not impact our previously reported net cash flows. However, there has been a material impact on our consolidated balance sheets and consolidated statements of operations and comprehensive loss. The impact on our opening deficit and a description of the adjustments made to amounts previously recognized in our consolidated financial statements is as follows (in thousands of US dollars):

Restatement effect of the adoption of IFRS 15:	Note	December 31, 2017	December 31, 2016
Deficit		(\$382,313)	(\$371,173)
Recognition of contract asset for installation, start-up and commissioning services, net of provision for future costs to fulfill these obligations	(a)	270	12
Recognition of a prepaid asset for agent commissions related to long term contracts	(b)	396	280
Restated deficit		(\$381,647)	(\$370,881)

a) Installation, start-up and commissioning services

Under IAS 18, our previous revenue recognition policy, we applied the revenue recognition criteria to each separate identifiable component of a single transaction. Specifically, contracts containing installation and start-up and commissioning services were accounted for as a separate element from the initial product sale, and the revenue on those services were deferred until the associated work was performed.

Under IFRS 15, the performance of installation and start-up and commissioning services are not considered distinct from and are considered a single performance obligation where these costs are insignificant in the context of the total sales price of the equipment and where the customer expects they are buying a final installed working product. As a result, revenue attributable to the installation, start-up and commissioning is now recorded at the time control passes of the related equipment sale (typically upon shipment). At that time, we also accrue the estimated costs to fulfill these obligations.

The implementation of IFRS 15 does not affect the ultimate amount of revenues and expenses recognized related to installation, start-up and commissioning but rather the timing. These revenues and expenses are recorded sooner. Accordingly, we recognized additional gross profit of \$12 accumulated at December 31, 2016 and a further \$258 in 2017, thereby reducing the previously reported deficit by \$12 and \$270 respectively at December 31, 2016 and December 31, 2017.

b) Sales agent commissions

We incur sales agent commissions for obtaining contracts. Under IAS 18, these costs were expensed when they were earned or incurred.

Under IFRS 15, these incremental costs are deferred for contracts expected to be delivered after more than one year and expensed as the contract is delivered. Accordingly, we deferred \$280 of commissions in prepaid expenses as at December 31, 2016 and a further \$116 in 2017, thereby reducing the previously reported deficit and accumulated other comprehensive loss by \$280 and \$396 respectively at December 31, 2016 and December 31, 2017.

c) Contract assets and liabilities

Lastly, IFRS 15 distinguishes between contract assets and accrued receivables based on whether receipt of the consideration is conditional on something other than the passage of time. At December 31, 2017 there was \$5,556 (January 1, 2017 – \$4,658) of receivables outstanding where our right to consideration was not unconditional

(primarily relating to revenues accrued on long term contracts) which have been reclassified as a contract asset under IFRS 15.

Under IFRS 15, amounts received from customers before we have transferred the good or service are to be presented as contract liabilities. As a result, the amounts previously presented as deferred revenues have been reclassified as contract liabilities.

There was no impact to the Company's financial results as a consequence of the adoption of IFRS 9.

10 Strategy and Outlook

Our strategy is to profitably grow and lead hydrogen energy solutions for diverse applications across global markets. We continue to leverage the milestones and reference sites established in prior years to gain additional traction in the following target markets and applications:

Mobility Power – Our Power Systems business segment is based on PEM fuel cell technology, which transforms chemical energy liberated during the electrochemical reaction of hydrogen and oxygen into electrical energy. Our HyPM® branded fuel cell products are based on our extensive track record of on-bench testing and real-time deployments across a wide range of stationary and mobility power profiles. We configure our HyPM® products into multiple electrical power outputs ranging from 3kW to 1MW with ease of integration, high reliability and operating efficiency, delivered from a highly compact configuration. We feel our technology provides us with a competitive advantage based upon a design that supports a compact, integrated balance of plant and ease of modularity. Our design provides for robust cold weather reliability and a patented rapid start-up and shut down capability. Our low pressure and dry/dry design further differentiates our technology and eliminates the need for additional humidification and pump components.

Our target markets include mobility power applications, such as trains, buses, trucks, utility vehicles, air-craft and most recently, a product development contract was signed for a marine application as well as stationary power applications (including primary and back-up power). Our target future addressable markets (stationary power and mobility markets) are estimated to be in excess of \$2 billion specifically related to hydrogen power technology.

Our strategy in China is to work with integrators, companies that take our fuel cell technology and incorporate it into buses and other vehicles provided by original equipment manufacturers. We created a certified integrator program to execute this strategy and have established relationships with multiple parties in China to date. Despite a slowdown in production orders in 2018, we still have the largest fleet of buses on the road in China at over 300. As well, to date, more than ten bus models incorporating our fuel cells are listed in the official Chinese government catalogue (meaning these models are approved for commercial sale). Since inception of strategy, approximately 400 units have been shipped to date and we have outstanding orders for 1,000 more units at present.

During 2018, we continued to support the roll out of commercial units for the Company's ten-year commuter train propulsion system contract with Alstom Transport, which at €50 million, is the largest commercial order in our history. This order highlights the commercial maturity and strong competitive positioning of our fuel cell technology. Alstom Transport achieved certification of the train sets in July 2018 and placed the trains into active passenger service in September 2018. Alstom is actively working opportunities across Europe to aggregate train orders which will drive follow-on fuel cell orders envisioned under our contract including \$46 million in backlog. Our first production order under this agreement is expected in 2019.

Energy Storage – We continue to pursue several large-scale applications which would consume 10 to 100MW of power, which is 100 to 300 times larger than a typical industrial unit to date. Several third-party studies and internal analysis by lead customers such as Uniper and Enbridge suggest substantial long-term opportunity for Power-to-Gas, an application for energy conversion and storage. Our joint venture with Enbridge to build and operate a first of its kind 2.5MW energy storage facility, which was commissioned into service in May 2018, signals the rising importance of energy storage to one of North America's largest energy companies.

We continue our focus to improve and differentiate our PEM electrolyzer technology. Our HyLYZER 600 3MW PEM single stack electrolyzer is the smallest, most power dense unit in the market today and is ideally suited for large scale energy storage applications. Product development is underway to augment to a 5MW stack permitting cost effective modular scaling in 5MW capacity blocks including a focus on this technology within the TBDA referred to in Section 2 Growth Strategy.

We are experiencing a willingness on the part of utilities and regulatory agencies to increase spending in the growing problem areas related to energy storage and grid stabilization and our sales pipeline remains robust in this area. We are also seeing a gradual maturation around the regulatory framework needed to integrate energy storage into an overall energy framework to permit its cost-effective rollout. For example, on June 15, 2018, the European Union issued an update to its' Renewable Energy Directive, Part ii which explicitly includes hydrogen solutions towards attainment of EU transportation target attainment. In addition, we continue to witness governments in other jurisdictions showing a willingness to increase spending on alternative energy projects for the same purpose. We believe we continue to be well positioned to benefit from government initiatives in Canada, the European Union (particularly in Germany) and the United States (particularly in California), which we expect will positively impact our business. Since 2014, we installed over 16MW of capacity across 12 reference sites in Europe, Asia and North America. An increase in interest in our Power-to-Gas application and orders for energy storage and fueling stations in Europe, California, the UK and other geographies has signaled what we believe could be a significant increase in opportunities in the markets we serve.

Industrial Hydrogen – Historically, the demand for onsite generation of hydrogen gas has been driven by the manufacturing sector requiring hydrogen for industrial use and hydrogen gas resellers. A typical unit for these applications would generate 20 to 60 normal cubic meters of hydrogen and consume 100 to 300 kW of electrical energy. Our OnSite Generation products are sold to leading merchant gas companies, such as Air Liquide and Linde Gas, and end-users requiring high purity hydrogen produced on-site for industrial applications. We recently completed development of our sixth generation (Type 6) design, our lowest cost and most efficient alkaline product to date, which is critical to maintaining commercial success in this market.

Hydrogen Fueling – We also sell and service products for progressive oil and gas companies, requiring hydrogen fueling stations for transportation applications. Recently, the rollout of fuel cell motor vehicles and the increase in fuel cell buses and other mass transit applications, such as rail, has resulted in an increase in orders and interest for fueling stations in Europe, North America, California and elsewhere. The increasing consumption of hydrogen to support mobility applications will demand more hydrogen supply infrastructure. We have been involved with the construction of over 55 fueling stations globally and see increased demand for hydrogen fueling; particularly, when it can be linked to electrolyzed hydrogen coming from electricity that is generated from renewable sources such as wind and solar energy thus reducing the carbon footprint of the production of hydrogen. Serving both the mobility and generation markets, we believe there could be a major increase in size of both addressable markets.

Outlook Summary

The timing and full realization of the opportunities above, under the current market environment, cannot be assured or specifically established. It is, however, important to understand the magnitude of these opportunities and the transformative impact that any one of them can have on the business going forward as discussed above. Over the past several years, we have taken significant steps to reduce operating and product costs, streamline our operations and strengthen our consolidated financial position. We have tenaciously pursued research and product development to expand use cases across both our mobility and generation businesses. We have established significant commercial opportunities with large global companies such as Alstom, Enbridge and Air Liquide that we believe will support our trajectory to larger scale. We also continue to monitor evolving opportunities such as Hydrail.

While we may see volatility in our costs and revenues over the short-term, we expect our trend of improved cost efficiency to continue over the long term. At December 31, 2018, our order backlog was \$132.7 million (December 31, 2018 – \$144.6 million) spread across numerous geographical regions, of which approximately \$56.2 million is expected to be recorded as revenue in the following twelve months.

As a global company, we are subject to the risks arising from adverse changes in global economic and political conditions. Political conditions such as government commitments and policies towards environmental protection and renewable energy may change over time. Economic conditions in leading and emerging economies have been, and remain, unpredictable. In particular, currency fluctuations could have the impact of significantly reducing revenue and gross margin as well as the competitive positioning of our product portfolio. These macroeconomic and geopolitical changes could result in our current or potential customers reducing purchases or delaying shipment which could cause revenue recognition on these products to shift into 2020 or beyond.

11 Related Party Transactions

In the normal course of operations, the Company subcontracts certain manufacturing functions to a company owned by a family member of an executive officer and Director of the Company. During 2018, Hydrogenics made purchases of \$467 (2017 – \$646) from this related company. At December 31, 2018, the Company had an accounts payable balance due to this related party of \$21 (2017 – \$8).

The Company holds an equity investment in the joint venture 2562961 Ontario Ltd., related to the energy storage facility project with Enbridge Gas Distribution. During the year ended December 31, 2018 the Company had sales to the joint venture of \$1,372 (2017 – \$2,030) and at the end of December 31, 2018 the Company had a receivable of \$196 (2017 – \$nil) owing from the joint venture.

The Company holds an equity investment in the joint venture Kolon Hydrogenics. The Company had no transactions with the joint venture in 2018 or 2017 and we are in discussions to dissolve the joint venture in 2019.

All related party transactions involve the parent company. There are no related party transactions to disclose for the Company's subsidiaries.

12 Disclosure Controls

We have established disclosure controls and procedures that are designed to ensure that the information required to be disclosed by the Company in the reports that it files or submits under Canadian and US securities legislation is recorded, processed, summarized, and reported within the time periods specified in such rules and forms and that such information is accumulated and communicated to management, including our principal executive officer and principal financial officer (who are our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), respectively) as appropriate to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognized that disclosure controls and procedures can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met.

We have assessed and effected the necessary change to our current disclosure controls and procedures to reflect the impact of adopting IFRS 15 – Revenues from Contracts with Customers and IFRS 9 – Financial Instruments. Specifically, we have updated and implemented a new revenue recognition checklist that is completed for each new contract to assess the appropriate treatment under IFRS 15. There were no substantive changes to our current disclosure controls and procedures to give effect to IFRS 9 requirements.

Our management, including our CEO and CFO, evaluated the effectiveness of our disclosure controls and procedures. Based on this evaluation and as described below under "Internal Control over Financial Reporting", our CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2018.

13 Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, the CEO and the CFO and effected by the Board of Directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with IFRS.

Our management, including our CEO and CFO, believes that any disclosure controls and procedures or internal control over financial reporting, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, they cannot provide absolute assurance that all control issues and instances of fraud, if any, have been prevented or detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by unauthorized override of the control. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Accordingly, because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud might occur and not be detected.

Management assessed the effectiveness of the Company's internal control over financial reporting at December 31, 2018, based on the criteria set forth in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission as published in 2013. Based on this evaluation, management believes, at December 31, 2018, the Company's internal control over financial reporting is effective. Also, management determined there were no material weaknesses in the Company's internal control over financial reporting at December 31, 2018.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2018, has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included in the Company's annual audited financial statements

14 Reconciliation of Non-IFRS Measures

Non-IFRS financial measures, including earnings before interest, taxes, depreciation and amortization ("EBITDA"), "Adjusted EBITDA" and "cash operating costs" are used by management to provide additional insight into our performance and financial condition. We believe these non-IFRS measures are an important part of the financial reporting process and are useful in communicating information that complements and supplements the consolidated financial statements.

Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization

We believe Adjusted EBITDA assists investors in comparing a company's performance on a consistent basis excluding depreciation and amortization, stock-based compensation, including both share settled PSUs and stock options, equity settled restricted share units ("RSUs") and cash settled DSUs, which are non-cash in nature and can vary significantly due to stock price fluctuations. We believe that removing these expenses is a better measurement of operational performance. Investors should be cautioned that Adjusted EBITDA, as reported by us, may not be comparable in all instances to Adjusted EBITDA, as reported by other companies.

The following table provides a reconciliation of Adjusted EBITDA with net loss:

	Years ended December 31,	
	2018	2017
Net loss	\$ (13,339)	\$ (10,766)
Loss from joint ventures	1,637	334
Finance loss, net	1,028	2,108
Income tax expense	300	–
Amortization and depreciation	706	672
DSUs expense (recovery)	(676)	950
Stock-based compensation expense (including PSUs and RSUs)	957	742
Adjusted EBITDA	\$ (9,387)	\$ (5,960)

Cash Operating Costs

We report cash operating costs because management feels they are a key measurement of the normal operating costs required to operate the ongoing business units of the Company. Cash operating costs are regularly reported to the chief operating decision maker and correspond to the definition used in our historical quarterly discussions. Investors should be cautioned that cash operating costs as reported by us may not be comparable in all instances to cash operating costs as reported by other companies.

The following table provides a reconciliation of cash operating costs with total operating expenses consisting of SG&A and R&D expenses:

	Year ended December 31,	
	2018	2017
Selling, general and administrative expenses	\$ 11,613	\$ 13,626
Research and product development expenses	7,486	6,376
Total operating costs	\$ 19,099	\$ 20,002
Less: Amortization and depreciation	(520)	(454)
Less: Gain (loss) on disposal of assets	11	(131)
Less: DSUs (expense) recovery	676	(950)
Less: Stock-based compensation expense (including PSUs and RSUs)	(957)	(742)
Cash operating costs	\$ 18,309	\$ 17,725

15 Risk Factors

An investment in our common shares involves risk. Investors should carefully consider the risks and uncertainties described below and in our Annual Information Form. The risks and uncertainties described below and in our Annual Information Form 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. For a more complete discussion of the risks and uncertainties which apply to our business and our operating results (which are summarized below), please see our Annual Information Form and other filings with Canadian (www.sedar.com) and U.S. securities regulatory authorities (www.sec.gov/edgar.shtml).

Our business entails risks and uncertainties that affect our outlook and eventual results of our business and commercialization plans. The primary risks relate to meeting our product development and commercialization milestones, which require that our products exhibit the functionality, cost and performance required to be commercially viable against competing technologies and that we have sufficient access to capital to fund these activities. Another primary risk is that key markets for certain of our products may never develop, or that market acceptance might take longer to develop than anticipated – in particular for applications such as energy storage which require leadership at a government and regulatory level.

A summary of our identified risks and uncertainties are as follows:

Risk Factors Related to Our Financial Condition

- Our inability to generate sufficient cash flows, raise additional capital and actively manage our liquidity may impair our ability to execute our business plan, and result in our reducing or eliminating product development and commercialization efforts, reducing our sales and marketing efforts, and having to forego attractive business opportunities. There are uncertainties related to the timing and use of our cash resources and working capital requirements. These uncertainties include, among other things, the timing and volume of commercial sales and associated gross margins of our existing products and the development of markets for, and customer acceptance of new products.
- We may not be able to implement our business strategy and the price of our common shares may decline.
- The uncertain and unpredictable condition of the global economy could have a negative impact on our business, results of operations and consolidated financial condition, or our ability to accurately forecast our results, and it may cause a number of the risks that we currently face to increase in likelihood, magnitude and duration.
- Our operating results may be subject to currency fluctuation.
- Our mix of revenues in the recent past does not reflect our current business strategy, it may be difficult to assess our business and future prospects.
- Our quarterly operating results are likely to fluctuate significantly and may fail to meet the expectations of securities analysts and investors and may cause the price of our common shares to decline.
- We currently depend on a relatively limited number of customers for a majority of our revenues and a decrease in revenue from these customers could materially adversely affect our business, consolidated financial condition and results of operations.
- Our insurance may not be sufficient.

- Certain external factors may affect the value of goodwill, which may require us to recognize an impairment charge.

Risk Factors Related to Our Business and Industry

- Significant markets for fuel cell and other hydrogen energy products may never develop or may develop more slowly than we anticipate. This would significantly harm our revenues and may cause us to be unable to recover the losses we have incurred and expect to incur in the development of our products.
- Hydrogen may not be readily available on a cost-effective basis, in which case our fuel cell products may be unable to compete with existing power sources and our revenues and results of operations would be materially adversely affected.
- Changes in government policies and regulations could hurt the market for our products.
- Lack of new government policies and regulations for the energy storage technologies could hurt the development of the Power-to-Gas market for our hydrogen energy storage products.
- The development of uniform codes and standards for hydrogen powered vehicles and related hydrogen refueling infrastructure may not develop in a timely fashion, if at all.
- We could be liable for environmental damages resulting from our research, development or manufacturing operations.
- We currently face and will continue to face significant competition from other developers and manufacturers of fuel cell power products and hydrogen generation systems. If we are unable to compete successfully, we could experience a loss of market share, reduced gross margins for our existing products and a failure to achieve acceptance of our proposed products.
- We face competition for fuel cell power products from developers and manufacturers of traditional technologies and other alternative technologies.
- Our strategy for the sale of fuel cell power products depends on developing partnerships with OEMs, governments, systems integrators, suppliers and other market channel partners who will incorporate our products into theirs.
- We are dependent on third party suppliers for key materials and components for our products. If these suppliers become unable or unwilling to provide us with sufficient materials and components on a timely and cost-effective basis, we may be unable to manufacture our products cost-effectively or at all, and our revenues and gross margins would suffer.
- We may not be able to manage successfully the anticipated expansion of our operations.
- If we do not properly manage foreign sales and operations, our business could suffer.
- We will need to recruit, train and retain key management and other qualified personnel to successfully expand our business.
- We may acquire technologies or companies in the future, and these acquisitions could disrupt our business and dilute our shareholders' interests.
- We have no experience manufacturing our fuel cell products on a large-scale basis and if we do not develop adequate manufacturing processes and capabilities to do so in a timely manner, we will be unable to achieve our growth and profitability objectives.

Risk Factors Related to Our Products and Technology

- We may never complete the development of commercially viable fuel cell power products and/or commercially viable hydrogen generation systems for new hydrogen energy applications, and if we fail to do so, we will not be able to meet our business and growth objectives.
- We must lower the cost of our fuel cell and hydrogen generation products and demonstrate their reliability or consumers will be unlikely to purchase our products and we will therefore not generate sufficient revenues to achieve and sustain profitability.
- Any failures or delays in field tests of our products could negatively affect our customer relationships and increase our manufacturing costs.
- The components of our products may contain defects or errors that could negatively affect our customer relationships and increase our development, service and warranty costs.
- Rapid technological advances or the adoption of new codes and standards could impair our ability to deliver our products in a timely manner and, as a result, our revenues would suffer.
- We depend on intellectual property and our failure to protect that intellectual property could adversely affect our future growth and success.
- Our products use flammable fuels that are inherently dangerous substances and could subject us to product liabilities.

- 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.

Risk Factors Related to Ownership of Our Common Shares

- If at any time we are classified as a passive foreign investment company under United State tax laws, our US shareholders may be subject to adverse tax consequences.
- If we fail to maintain the requirements for continued listing on Nasdaq, our common shares could be delisted from trading on Nasdaq, which would materially adversely affect the liquidity of our common shares, the price of our common shares, and our ability to raise additional capital.
- US investors may not be able to enforce US civil liability judgments against us or our directors and officers.
- Our share price is volatile and we may continue to experience significant share price and volume fluctuations.
- Our issuance of warrants, options, RSUs and PSUs to investors and employees may have a negative effect on the trading prices of our common stock as well as a dilutive effect.

16 Forward-Looking Statements

This MD&A constitutes “forward-looking information,” within the meaning of applicable Canadian securities laws and “forward-looking statements” within the meaning of the United States Private Securities Litigation Reform Act of 1995 (collectively referred to herein as “forward-looking statements”). Forward-looking statements can be identified by the use of words, such as “plans,” “expects,” or “is expected,” “budget,” “scheduled,” “estimates,” “forecasts,” “intends,” “anticipates,” or “believes” or variations of such words and phrases or state that certain actions, events or results “may,” “could,” “would,” “might” or “will” be taken, occur or be achieved. These forward-looking statements relate to, among other things, our future results, levels of activity, performance, goals or achievements or other future events. These forward-looking statements are based on current expectations and various assumptions and analyses made by us in light of our experience and our perceptions of historical trends, current conditions and expected future developments and other factors that we believe are appropriate in the circumstances. These forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in our forward-looking statements.

These risks, uncertainties and other factors include, but are not limited to: our inability to execute our business plan, inability to implement our business strategy or to grow our business and its impact on our business, results of operations and consolidated financial condition; inability to address a slow return to economic growth; fluctuations in our quarterly results; failure to maintain our customer base that generates the majority of our revenues; currency fluctuations; failure to maintain sufficient insurance coverage; changes in value of our goodwill; failure of a significant market to develop for our products; failure of hydrogen being readily available on a cost-effective basis; changes in government policies and regulations; lack of new government policies and regulations for the energy storage technologies; failure of uniform codes and standards for hydrogen fueled vehicles and related infrastructure to develop; liability for environmental damages resulting from our research, development or manufacturing operations; failure to compete with other developers and manufacturers of products in our industry; failure to compete with developers and manufacturers of traditional and alternative technologies; failure to develop partnerships with original equipment manufacturers, governments, systems integrators and other third parties; inability to obtain sufficient materials and components for our products from suppliers; failure to manage expansion of our operations; failure to manage foreign sales and operations; failure to recruit, train and retain key management personnel; inability to integrate acquisitions; failure to develop adequate manufacturing processes and capabilities; failure to complete the development of commercially viable products; failure to produce cost-competitive products; failure or delay in field testing of our products; failure to produce products free of defects or errors; inability to adapt to technological advances or new codes and standards; failure to protect our intellectual property; our involvement in intellectual property litigation; exposure to product liability claims; failure to manage cyber security threats to our information technology infrastructure and systems; failure to meet rules regarding passive foreign investment companies; failure to maintain the requirements for continued listing on Nasdaq; actions of our significant and principal shareholders; dilution as a result of significant issuances of our common shares and preferred shares; inability of US investors to enforce US civil liability judgments against us; volatility of our common share price; and dilution as a result of the exercise of options.

These factors may cause the Company’s actual performance and financial results in future periods to differ materially from any estimates or projections of future performance or results expressed or implied by such forward-looking statements. Forward-looking statements do not take into account the effect that transactions or non-recurring or other special items

announced or occurring after the statements are made have on the Company's business. For example, they do not include the effect of business dispositions, acquisitions, other business transactions, asset write-downs or other charges announced or occurring after forward-looking statements are made. The financial impact of such transactions and non-recurring and other special items can be complex and necessarily depends on the facts particular to each of them.

We believe the expectations represented by our forward-looking statements are reasonable, yet there can be no assurance that such expectations will prove to be correct. The purpose of the forward-looking statements is to provide the reader with a description of management's expectations regarding the Company's fiscal 2018 financial performance and may not be appropriate for other purposes. Furthermore, unless otherwise stated, the forward-looking statements contained in this report are made as of the date of this report and we do not undertake any obligation to update publicly or to revise any of the included forward-looking statements, whether as a result of new information, future events or otherwise unless required by applicable legislation or regulation. The forward-looking statements contained in this report are expressly qualified by this cautionary statement.