

BALLARD POWER SYSTEMS INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS
SECOND QUARTER 2020

FUEL CELL POWER
FOR A SUSTAINABLE
PLANET



Power to Change the World®

CAUTION REGARDING FORWARD-LOOKING STATEMENTS

This document contains forward-looking statements about expected events and the financial and operating performance of Ballard Power Systems Inc. ("Ballard", "the Company", "the Corporation", "we", "us" or "our"). Forward-looking statements include any statements that do not refer to historical facts. Forward-looking statements are based on the beliefs of management and reflect our current expectations as contemplated under the safe harbor provisions of Section 21E of the United States Securities Exchange Act of 1934, as amended. Such statements include, but are not limited to, statements related to the expected or potential impact of the novel coronavirus (COVID-19) pandemic, and the related responses of the government, our customers and partners, joint venture operations, suppliers and the company, on our business, financial condition and results of operations; and statements with respect to our objectives, goals, liquidity, sources of capital and our outlook including our estimated revenue and gross margins, cash flow from operations, Cash Operating Costs, EBITDA and Adjusted EBITDA (see Non-GAAP Measures), order backlog, order book of expected deliveries over the subsequent 12-months, future product costs and selling prices, future product sales and production volumes, expenses / costs, contributions and cash requirements to and from joint venture operations, our strategy, the markets for our products, and research and development activities, as well as statements with respect to our beliefs, plans, objectives, expectations, anticipations, estimates and intentions. Words such as "estimate", "project", "believe", "anticipate", "intend", "expect", "plan", "predict", "may", "should", "will", the negatives of these words or other variations thereof and comparable terminology are intended to identify forward-looking statements. These statements are not guarantees of future performance and involve assumptions, risks and uncertainties that are difficult to predict. In particular, these forward-looking statements are based on certain factors and assumptions relating to our expectations with respect to new and existing customer and partner relationships, the generation of new sales, producing, delivering and selling the expected product and service volumes at the expected prices and controlling our costs. They are also based on a variety of general factors and assumptions including, but not limited to, our expectations regarding technology and product development efforts, manufacturing capacity and cost, product and service pricing, market demand, and the availability and prices of raw materials, labour and supplies. These assumptions have been derived from information available to the Company including information obtained by the Company from third parties. These assumptions may prove to be incorrect in whole or in part. In addition, actual results may differ materially from those expressed, implied, or forecasted in such forward-looking statements. Factors that could cause our actual results or outcomes to differ materially from the results expressed, implied or forecasted in such forward-looking statements include, but are not limited to: the severity, magnitude and duration of the COVID-19 pandemic, including impacts of the pandemic and of businesses' and governments' responses to the pandemic on our operations, personnel and joint venture operations, and on commercial activity and demand across our and our customers', partners' and joint venture businesses, and on global supply chains; global economic trends and geopolitical risks, including changes in the rates of investment or economic growth in our key markets, or an escalation of trade tensions such as those between the U.S. and China; market developments or customer actions (including developments and actions arising from the COVID-19 pandemic) that may affect levels of demand and/or the financial performance of the major industries and customers we serve, such as secular, cyclical and competitive pressures in the bus, truck, rail and marine sectors; the rate of mass adoption of our products or related ecosystem, including the availability of cost-effective hydrogen; changes in product or service pricing or cost; changes in our customers' requirements, the competitive environment and/or related market conditions; the relative strength of the value proposition that we offer our customers with our products or services; changes in competitive technologies, including battery and fuel cell technologies; product safety, liability or warranty issues; challenges or delays in our technology and product development activities; changes in the availability or price of raw materials, labour and supplies; our ability to attract and retain business partners, suppliers, employees and customers; changing government or environmental regulations, including subsidies or incentives associated with the adoption of clean energy products, including hydrogen and fuel cells; our access to funding and our ability to provide the capital required for product development, operations and marketing efforts, working capital requirements, and joint venture capital contributions; our ability to protect our intellectual property; our ability to extract value from joint venture operations; currency fluctuations, including the magnitude of the rate of change of the Canadian dollar versus the U.S. dollar; potential merger and acquisition activities, including risks related to integration, loss of key personnel, disruptions to operations, costs of integration, and the integration failing to achieve the expected benefits of the transaction; the general assumption that none of the risks identified in the Risks and Uncertainties section of this document or in our most recent Annual Information Form will materialize. Readers should not place undue reliance on Ballard's forward-looking statements. The forward-looking statements contained in this document speak only as of the date of this Management Discussion and Analysis ("MD&A"). Except as required by applicable legislation, Ballard does not undertake any obligation to release publicly any updates or revisions to these forward-looking statements to reflect events or circumstances after the date of this MD&A including the occurrence of unanticipated events.

MANAGEMENT'S DISCUSSION AND ANALYSIS

August 5, 2020

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1. INTRODUCTION

1.1 Preparation of the MD&A

This discussion and analysis of financial condition and results of operations of Ballard Power Systems Inc. ("Ballard", "the Company", "we", "us" or "our") is prepared as at August 5, 2020 and should be read in conjunction with our unaudited condensed consolidated interim financial statements and accompanying notes for the three and six months ended June 30, 2020 and with our audited consolidated financial statements and accompanying notes for the year ended December 31, 2019. The results reported herein are presented in U.S. dollars unless otherwise stated and have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. Additional information relating to the Company, including our Annual Information Form, is filed with Canadian (www.sedar.com) and U.S. securities regulatory authorities (www.sec.gov) and is also available on our website at www.ballard.com.

1.2 Disclosure Controls and Procedures and Internal Controls over Financial Reporting

Our disclosure controls and procedures are designed to provide reasonable assurance that relevant information is gathered and reported to senior management, including the Chief Executive Officer and the Chief Financial Officer, on a timely basis so that appropriate decisions can be made regarding public disclosures. We have also designed internal controls over financial reporting to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS. During the three and six months ended June 30, 2020, there were no changes in internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting. Our design of disclosure controls and procedures and internal controls over financial reporting includes controls, policies and procedures covering all of our subsidiaries including Ballard Power Systems Europe A/S, Ballard Unmanned Systems, Inc., and Guangzhou Ballard Power Systems Co., Ltd.

1.3 Risks and Uncertainties

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 in our Annual Information Form are not the only ones that 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, please see our Annual Information Form and other filings with Canadian (www.sedar.com) and U.S. (www.sec.gov) securities regulatory authorities.

2. CORE BUSINESS AND STRATEGY

2.1 Core Business

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

Our principal business is the design, development, manufacture, sale and service of PEM



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

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

We are based in Canada, with head office, research, technology and product development, testing, manufacturing and service facilities in Burnaby, British Columbia. We also have a sales, assembly, service and research and development facility in Hobro, Denmark; a sales, assembly, research and development facility in Southborough, Massachusetts; and a sales, service, quality and supply chain office in Guangzhou, Guangdong Province, China.

We also have a non-controlling, 49% interest, in Weichai Ballard Hy-Energy Technologies Co., Ltd. ("Weichai Ballard JV"), located in Weifang, Shandong Province, China. Weichai Ballard JV will manufacture Ballard's next-generation LCS fuel cell stack and LCS-based power modules for bus, commercial truck and forklift applications with certain exclusive rights in China.

In addition, we have a non-controlling 10% interest in Guangdong Synergy Ballard Hydrogen Power Co., Ltd. ("Synergy Ballard JVCo"), located in Yunfu, Guangdong Province, China. Synergy Ballard JVCo manufactures fuel cell stacks utilizing our FCvelocity®-9SSL fuel cell stack technology for use primarily in fuel cell engines assembled in China to provide propulsion power for zero-emission fuel cell electric buses and commercial vehicles with certain exclusive rights in China.

2.2 Strategic Imperatives

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

We continue to execute on our e12345 strategy. **e12345** is shorthand for:

- Engaging the **e**-mobility ecosystem;
- Be number **1** in the world with best PEM fuel cell technology and products (best performance and value for our target markets);
- **2** growth platforms - Power Products and Technology Solutions;
- **3** key geographic markets - Europe, China, and California (key markets, with

expectation to grow and opportunities in other markets as they become attractive, such as Japan, Korea, Australia, Canada);

- **4** parts of the value chain - MEAs & plates, stacks, modules/systems, service; and
- **5** key applications - bus, truck, rail, marine and passenger cars (secondary applications are material handling, stationary power and unmanned systems).

Our e12345 strategy supports commercialization, revenue and profitability, while also enabling future value based on longer-term market opportunities for our technology, products and intellectual property.

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

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

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

As part of our strategy, we have been working to develop a local fuel cell supply chain and related ecosystem to address new-energy bus and commercial vehicle markets in China. We believe this strategy aligns with current and expected local content requirements for government subsidies supporting the adoption of fuel cell electric vehicles ("FCEVs"). Key elements of our strategy include adopting a business model in which we seek to mitigate market adoption risk and capital investment by engaging partnerships with local companies that are well positioned in their respective market.

We have established and are pursuing technology transfer and licensing opportunities with Chinese partners in order to localize the manufacture of Ballard-designed fuel cell modules and fuel cell stacks for heavy-duty motive applications in China, including bus, commercial vehicles, material handling and light-rail applications.

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

research and development of MEAs and manufacture our MEAs in our head office facilities in Burnaby, Canada.

We continue to make significant investment in next generation products and technology, including MEAs, stacks, modules, and systems integration, as well as advanced manufacturing processes, technologies and equipment. We also continue to make significant investment in technology and product cost reduction and in production capacity expansion.

3. 2020 BUSINESS OUTLOOK

3.1 2020 Business Outlook

Consistent with the Company's practice, and in view of the early stage of hydrogen fuel cell market development and adoption, we did not provide specific financial performance guidance for 2020. However, in the 2020 Business Outlook section of our 2019 year-end MD&A dated March 4, 2020, we stated that we had expected total revenue of approximately \$130 million in fiscal 2020, compared to total revenue of \$106.3 million in fiscal 2019. We also noted that this 2020 revenue outlook did not reflect any impact of the corona virus outbreak ("COVID-19") as, at that time, it was too early to accurately project any impact of COVID-19 since the duration and scope of the pandemic was not yet known with any certainty. In the 2020 Business Outlook section of our first quarter of 2020 MD&A dated May 5, 2020, we noted that although we were not seeing a pull-back in long-term demand as a result of COVID-19, there were now some uncertainties on the timelines for vehicle deployments by end customers. As a result, we felt it was prudent and responsible for us to withdraw our 2020 revenue outlook at that time. During the second quarter of 2020, revenues were negatively impacted by COVID-19 as certain product shipments and end customer vehicle deployments were delayed, and work on certain technology solutions programs was deferred due to employee work at home requirements. As a result of these impacts and the ongoing uncertainties related to COVID-19, we will not be giving a revised 2020 revenue outlook at this time.

Although we have withdrawn our 2020 revenue outlook, we are retaining certain qualitative outlook expectations for 2020. During 2020, we continue to intend to maintain focus on Heavy-Duty and Medium-Duty Motive applications in the bus, commercial truck, train and marine markets in order to increase adoption in our key markets of China, Europe and California. We continue to invest in next generation products and technology, including MEAs, stacks, modules, and systems integration, as well as advanced manufacturing processes, technologies and equipment. We also continue to invest in technology and product cost reduction and in production capacity expansion. In particular:

- In China, the Weichai-Ballard joint venture has commenced production activities and assembly of next-generation fuel cell stacks and modules. We expect the joint venture to optimize manufacturing processes and start a production ramp through the remainder of 2020. We also continue to expect delivery of MEAs to Weichai Ballard JV for the production of next-generation FCgen[®]-LCS fuel cell stacks and FCmove[™]-fuel cell modules. During 2020, we have a commitment to make capital contributions towards our pro rata ownership share of Weichai Ballard JV of approximately \$20 million, including \$12.9 million which was contributed in the first half of 2020. This is in addition to \$20.9 million contributed in 2019 and \$14.6 million contributed in 2018, as part of

our total capital contribution commitment of approximately \$78 million. We also continue to expect to report equity investment losses in joint venture and associates of approximately \$10 million to \$15 million in fiscal 2020 (including \$5.4 million recognized in the first half of 2020) primarily in connection with the operations of Weichai Ballard JV.

- In Europe, we continue to expect to deliver a significant number of modules to support Fuel Cell Electric Buses ("FCEBs") in a number of countries.
- In North America, we continue to expect continuing market activity in California for FCEBs and fuel cell-powered trucks. In addition, we continue to expect a volume reduction in fuel cell stack sales for forklift applications.
- In Technology Solutions, we now expect revenue to be lower in 2020, as compared to 2019 (instead of being relatively flat), due to a reduction in program scope as certain planned activities were completed, and by the deferral of development work on certain of our programs as a result of employee work at home requirements due to COVID-19. In addition to our ongoing technology transfer and engineering services programs with Audi and Weichai Ballard JV, Technology Solutions revenue is expected from other existing and new customers in a variety of markets.

Our qualitative outlook expectations for 2020 are supported by our 12-month Order Book of approximately \$101 million which is derived from our Order Backlog of approximately \$155 million as of June 30, 2020. Our Order Backlog represents the estimated aggregate value of orders at a given time for which customers have made contractual commitments and our 12-month Order Book represents the aggregate expected value of that portion of the Order Backlog that the Company expects to deliver in the subsequent 12-month period.

Our qualitative outlook expectations for 2020 are based on our internal forecast which reflects an assessment of overall business conditions and takes into account actual sales and financial results in the first seven months of 2020; sales orders received for units and services expected to be delivered in the remainder of 2020; an estimate with respect to the generation of new sales and the timing of deliveries in each of our markets for the balance of 2020; and assumes an average U.S. dollar exchange rate in the low to mid \$0.70's in relation to the Canadian dollar for 2020.

The primary risk factors to our qualitative business outlook expectations for 2020 are customer, production, or program delays or cancellations in delivering against existing power products and technology solutions orders and delays from forecast in terms of closing and delivering expected sales primarily in our Heavy-Duty Motive market including expected sales to Weichai Ballard JV and Synergy Ballard JVCo and the timing of sales of that inventory by those respective joint ventures to end-customers in China; adverse macro-economic conditions including trade, public health (including the ongoing impact of the COVID-19), and other geopolitical risks; changes in government subsidy and incentive programs; inadequate investment in hydrogen infrastructure and / or excessive hydrogen fuel costs, all of which could negatively impact our customers' access to capital and the success of their program plans which could adversely impact our business; disruptions in our Heavy-Duty market due to delays of supply of key materials and components from third party suppliers; disruptions in our Technology Solutions market as a result of our significant reliance on a limited number of customers including Audi and Weichai Ballard JV which are

reliant on their internal commercialization plans and budget requirements; disruptions in our Technology Solutions market as a result of delays in achieving program milestones; disruptions in the Material Handling market as a result of our reliance on a single customer in this market and that customer's internal stack development and commercialization plans; and fluctuations in the Canadian dollar relative to the U.S. dollar, as a significant portion of our Technology Solutions revenues (including the technology development and engineering services agreement with Audi) are priced in Canadian dollars.

Our Order Backlog and our 12-month Order Book are currently comprised of a relatively limited number of contracts and a relatively limited number of customers. Given the relative immaturity of our industry and customer deployment programs, our Order Backlog and 12-month Order Book are potentially vulnerable to risk of cancellation, deferral or non-performance by our customers for a variety of reasons including: risks related to continued customer commitment to a fuel cell program; risks related to customer liquidity; credit risks; risks related to changes, reductions or eliminations in government policies, subsidies and incentives; risks related to macro-economic conditions including trade, public health (including the ongoing impact of the COVID-19), and other geopolitical risks; risks related to slower market adoption; risks related to vehicle integration challenges; risks related to the development of effective hydrogen refueling infrastructure; risks related to the ability of our products to meet evolving market requirements; and supplier-related risks.

Furthermore, potential fluctuations in our financial results make financial forecasting difficult. In addition, due to the early stage of development of the market for hydrogen fuel cell products, it is difficult to accurately predict future revenues, cash flows or results of operations on a quarterly basis. The Company's revenues, cash flows and other operating results can vary significantly from quarter to quarter. As a result, quarter-to-quarter comparisons of revenues, cash flows and other operating results may not be meaningful; instead, we believe our operating performance should be assessed over a number of quarters and years. It is likely that in one or more future quarters, financial results will fall below the expectations of securities analysts and investors and the trading price of the Company's shares may be materially and adversely affected as a result.

1. RECENT DEVELOPMENTS (Including Contractual Updates)

4.1 Corporate

Filing of Final Shelf Prospectus

On June 12, 2020, we announced the filing of a final short form base shelf prospectus ("Prospectus"), which provides the flexibility to make offerings of securities during the effective period of the Prospectus, until July 2022. The final short form base shelf prospectus has been filed further to the preliminary short form base shelf prospectus, which was previously announced on June 5, 2020.

The Prospectus has been filed in each of the provinces and territories of Canada and a corresponding shelf registration statement on Form F-10 ("Registration Statement") was also filed with the United States Securities and Exchange Commission ("SEC") and was effective as of June 15, 2020. These filings will enable offerings of securities up to an aggregate initial offering price of \$750 million at any time during the 25-month period that

the Prospectus remains effective. Copies of the Prospectus and the Registration Statement are available at www.sedar.com and www.sec.gov, respectively.

If any securities are offered under the Prospectus and/or Registration Statement, the terms of any such securities and the intended use of the net proceeds resulting from such offering would be established at the time of any offering and would be described in a Prospectus supplement filed with applicable Canadian securities regulators and/or the SEC, respectively, at the time of such an offering.

At-The-Market Equity Distribution Agreement

On March 10, 2020, we announced that we had entered into an at-the-market Equity Distribution Agreement (the "Equity Distribution Agreement") with BMO Capital Markets Corp. ("BMO") as lead agent and CIBC World Markets Corp., Cormark Securities Inc., and TD Securities (USA) LLC (together with BMO, the "Selling Agents"), thereby establishing an at-the-market equity program (the "ATM Program") to allow us to issue up to \$75 million of common shares ("Common Shares"). The Common Shares are issued from treasury to the public from time to time, at the Company's discretion. Common Shares sold under the ATM Program are sold at the prevailing market price at the time of sale, when sold through the Nasdaq stock exchange ("Nasdaq") or any other existing trading market for the Common Shares in the United States. Sales under the ATM Program are commenced at the Company's discretion, and the net proceeds of any sales of Common Shares under the ATM Program will be used for general corporate purposes.

Ballard pays the Selling Agents a commission rate of up to 2.0% of the aggregate gross proceeds from each sale of Common Shares and has agreed to provide the Selling Agents with customary indemnification and contribution rights. Ballard also reimburses the Selling Agents for certain specified expenses in connection with entering into the Equity Distribution Agreement.

During the first half of 2020, we issued 8.2 million Common Shares under the ATM Program for gross proceeds of \$66.7 million. With the filing of the Prospectus on June 12, 2020, the \$75 million ATM Program was terminated.

In connection with its equity investment in Ballard, Weichai has certain anti-dilution rights entitling it to maintain its 19.9% equity interest in Ballard. At Weichai's request, Ballard agreed to allow Weichai to exercise its anti-dilution right in respect of the ATM Program at a future time, at a price reflecting the market price at that time.

4.2 China

Weichai Power Co., Ltd. and Weichai Ballard Hy-Energy Technologies Co., Ltd.

On November 13, 2018, we announced the closing of a strategic collaboration transaction with Weichai, initially disclosed on August 29, 2018. Ballard's strategic collaboration with Weichai includes:

- *Equity Investment* – an equity investment in Ballard made by Weichai in the amount of \$163.6 million, representing a 19.9% interest in the Company, through the subscription and purchase of 46.1 million shares from treasury at a price of \$3.54, which reflected a 15% premium to the 30-day VWAP of \$3.08 on August 29, 2018.

Ballard entered into an investor rights agreement with Weichai under which: (a) Weichai is subject to 2-year "standstill" and resale restrictions, subject to customary exceptions;



(b) for so long as Weichai directly or indirectly holds at least 10% of Ballard's outstanding shares, it has an anti-dilution right entitling it to maintain its percentage ownership in Ballard by subscribing for Common Shares from treasury at the same price as Ballard distributes Common Shares to other investors; (c) for so long as Weichai directly or indirectly holds at least 15% of Ballard's outstanding shares, it has the right to nominate two directors to Ballard's board of directors; and (d) if there is a third-party offer to buy Ballard, Weichai has the right to make a superior proposal or otherwise it must vote its shares in accordance with the recommendation of Ballard's board of directors.

- *China Joint Venture and Technology Transfer Agreement* – Weichai and Ballard have established a joint venture company in Shandong Province to support China's Fuel Cell Electric Vehicle market, with Weichai holding a controlling ownership interest of 51% and Ballard holding a 49% ownership position. The joint venture, Weichai Ballard Hy-Energy Technologies Co., Ltd. ("Weichai Ballard JV") was established in the fourth quarter of 2018 with Weichai making an initial capital contribution in 2018 of RMB 102 million and Ballard making an initial capital contribution of \$14.3 million (RMB 98 million equivalent). During 2019, Weichai made its planned second and third capital contributions totaling RMB 149.2 million and Ballard made its planned second and third capital contributions totaling \$20.9 million (RMB 143.3 million equivalent). In the first half of 2020, Weichai made its planned fourth and fifth capital contributions of RMB 94.35 million and Ballard made its planned fourth and fifth capital contributions totaling \$12.9 million (RMB 90.65 million equivalent). Weichai and Ballard will fund pro rata shares of the Weichai Ballard JV based on an agreed business plan. Weichai holds three of five Weichai Ballard JV board seats and Ballard holds two, with Ballard having certain shareholder protection provisions.

The Weichai Ballard JV will manufacture Ballard's next-generation LCS fuel cell stack and FCgen®-LCS-based power modules for bus, commercial truck and forklift applications with exclusive rights in China and will pay Ballard a total of \$90 million under a program to develop and transfer technology to the Weichai Ballard JV in order to enable these manufacturing activities. Revenue earned from the \$90 million Weichai Ballard JV technology transfer agreement (\$4.8 million in the second quarter of 2020; \$9.4 million in the first half of 2019; \$6.2 million in the second quarter of 2019; \$10.2 million in the first half of 2019; \$22.5 million in fiscal 2019; \$1.2 million in fiscal 2018) is recorded as Technology Solutions revenues. During the fourth quarter of 2018, we received an initial 10% or \$9.0 million prepayment from Weichai Ballard JV for this program with additional amounts paid to us as program milestones are successfully completed. We retain an exclusive right to the developed technologies outside China, subject to certain restrictions on sublicensing outside China. The Weichai Ballard JV will also purchase MEAs for FCgen®-LCS fuel cell stacks exclusively from Ballard under a long-term supply agreement.

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

On May 1, 2019, we announced that we have reached agreement with Weichai Ballard JV for the supply of a mix of certain fuel cell products and components that will be used in the assembly of modules to power zero-emission FCEVs in China. The order has a total value of approximately \$44 million to Ballard. Once assembled by Weichai Ballard JV, final modules will be sold to Weichai to support initial deployments against Weichai's commitment to supply a minimum of 2,000 fuel cell modules for commercial FCEVs in China. All products and components to be supplied by Ballard, as well as related applications engineering support, are planned for delivery through 2020, and will be based on Ballard's next-generation LCS stack technology. During the second quarter of 2019, we received initial prepayments of \$7.5 million from Weichai Ballard JV for this order with additional amounts paid to us as product is delivered. Revenue earned from these agreements (\$4.0 million in the second quarter of 2020; \$12.9 million in the first half of 2020; \$0.2 million in the second quarter and first half of 2019; \$14.7 million in fiscal 2019) is recorded as Heavy-Duty Motive revenues. As of June 30, 2020, an additional \$16.3 million of revenue associated with shipments on these orders to Weichai Ballard JV remain unrecognized until these products are ultimately sold by Weichai Ballard JV.

On December 16, 2019, we announced the receipt of an additional purchase order from Weichai Ballard JV for the delivery of MEAs valued at approximately \$19 million, expected to be delivered in 2020 under a long-term MEA supply agreement. Revenue earned from this agreement (\$2.2 million in the second quarter and first half of 2020) is recorded as Heavy-Duty Motive revenues. As of June 30, 2020, an additional \$2.1 million of revenue associated with shipments on this order to Weichai Ballard JV remain unrecognized until these products are ultimately sold by Weichai Ballard JV.

The Weichai Ballard JV production facility, located in Shandong Province, China, has commenced production activities and assembly of next-generation LCS fuel cell stacks and LCS-based modules to power FCEVs for the China market. We expect the joint venture to optimize manufacturing processes and start a production ramp through the remainder of 2020. A more formal commissioning event will be held later this year as circumstances permit. The Weichai Ballard JV is expected to have initial annual production capacity of 20,000 fuel cell stacks, or approximately 10,000 modules, based on a two-shift operation.

Guangdong Synergy Ballard Hydrogen Power Co., Ltd.

During 2017, the FCvelocity®-9SSL fuel cell stack joint venture operation in the city of Yunfu in China's Guangdong Province commenced operations. Ballard has a non-controlling 10% interest in the joint venture, Synergy Ballard JVCo, together with our partner Guangdong Nation Synergy Hydrogen Power Technology Co., Ltd. (a member of the "Synergy Group") who has a 90% interest. The fuel cell stacks manufactured by Synergy Ballard JVCo are expected to be used primarily in fuel cell engines assembled in China to provide propulsion power for zero-emission fuel cell electric buses and commercial vehicles in China. The Synergy Ballard JVCo operation is designed to achieve an annualized production capacity of approximately 20,000 fuel cell stacks.

The joint venture transaction and related sales agreements, which closed on October 25, 2016 (originally announced on July 18, 2016), contemplated Ballard's exclusive supply of MEAs for each fuel cell stack manufactured by Synergy Ballard JVCo with minimum annual MEA volume commitments.

During the second quarter of 2019, we agreed to a new MEA equipment supply agreement with Synergy Ballard JVCo with a contemplated value of approximately \$8 million to Ballard in 2019.

On July 2, 2020, we announced the receipt of a new purchase order for the delivery of \$7.7 million of MEAs to Synergy Ballard JVCo for their use in manufacturing FCvelocity®-9SSL fuel cell stacks.

Revenue earned from MEA and other supply agreements with Synergy Ballard JVCo (\$0.2 million in the second quarter of 2020; \$0.3 million in the first half of 2020; \$1.1 million in the second quarter and first half of 2019; \$8.7 million in fiscal 2019) is recorded as Heavy-Duty Motive revenues.

Synergy Ballard JVCo retains an exclusive right to manufacture and sell FCvelocity®-9SSL stacks in China until September 30, 2026. Exclusivity is subject to Synergy Ballard JVCo maintaining certain performance criteria, including compliance with: a code of ethics; Ballard's quality policies and branding practices; payment terms; certain intellectual property covenants; achievement of certain minimum annual MEA volume commitments through 2026; and certain financing conditions.

Ballard has the exclusive right to purchase FCvelocity®-9SSL fuel cell stacks and sub-components from Synergy Ballard JVCo for sale outside China. Ballard contributed approximately \$1.0 million for our 10% interest in Synergy Ballard JVCo in 2017, currently recognized at nil value. We have no obligation to provide future funding to Synergy Ballard JVCo.

4.3 Europe

Wrightbus

On June 18, 2020, we announced the receipt of follow-on purchase orders for 15 of our 85-kilowatt heavy-duty FCveloCity®-HD fuel cell modules from Wrightbus, a leading bus OEM and Ballard partner headquartered in Northern Ireland, to power FCEBs, planned for deployment in the U.K. After having gone into administration in 2019, the assets of Wrightbus Limited were acquired by Bamford Bus Company, which carries on business under the name Wrightbus ("Wrightbus").

Including the 15 modules, Ballard currently has orders in-hand from Wrightbus for a total of 50 modules to power FCEBs in the U.K., 35 of which were previously announced in 2019. Of those 35 modules, 20 are to power buses planned for deployment in London and 15 are for buses planned for deployment in Aberdeen. Ballard expects to ship all 50 modules in 2020.

Ballard, Wrightbus and Ryse Hydrogen – also a Bamford-owned business – are founding members of the H2Bus Consortium, announced in June 2019 and focused on deployment of at least 1,000 zero-emission Fuel Cell Electric Buses and related infrastructure in European cities at commercially competitive rates.

Revenue earned from all supply agreements with Wrightbus and its predecessor (\$2.1 million in the second quarter of 2020; \$2.7 million in the first half of 2020; \$1.6 million in the second quarter of 2019; \$1.7 million in the first half of 2019 and in fiscal 2019) is recorded as Heavy-Duty Motive revenues.

Solaris Bus & Coach S.A.

On April 28, 2020, we announced a purchase order from Solaris Bus & Coach S.A. ("Solaris"), a leading European bus and trolleybus manufacturer headquartered in Bolechowo, Poland, for 20 of Ballard's new 70 kilowatt heavy-duty FCmove™-HD fuel cell modules. These modules will power 20 Solaris Urbino 12 hydrogen buses planned for deployment in South Holland, the most populous province of The Netherlands, under the Joint Initiative For Hydrogen Vehicles Across Europe ("JIVE 2") funding program. The buses will be operated by Connexxion, which provides transport services for South Holland province. Shipments of the 20 FCmove™-HD modules to Solaris are expected to match the timing for bus builds and deployments.

On March 12, 2020, we announced a purchase order from Solaris for 25 of our new 70 kilowatt heavy-duty FCmove™-HD fuel cell modules. These 25 modules will power 15 Solaris Urbino 12 hydrogen buses planned for deployment in Cologne, Germany and 10 Urbino 12 hydrogen buses planned for deployment in Wuppertal, Germany, all under the JIVE 2 funding program. Shipment of the 25 FCmove™-HD modules to Solaris is expected to begin in 2020 and extend into 2021 to match the timing for the bus builds and deployments.

On July 29, 2019, we announced a purchase order from Solaris for 12 FCmove™-HD fuel cell modules to power 12 buses to be deployed with SASA Bolzano, the public transport operator in Bolzano, Italy under the JIVE funding program. The 12 FCmove™-HD modules are expected to ship in 2020 and the buses are expected to be deployed with SAS Bolzano by 2021.

Revenue earned from all supply agreements with Solaris (\$0.1 million in the second quarter and first half of 2020) is recorded as Heavy-Duty Motive revenues.

AdKor GMBH and SFC ENERGY AG

On January 14, 2020, we announced the signing of Equipment Sales Agreements for the provision of an initial 500 FCgen®-1020ACS fuel cell stacks to adKor GmbH ("adKor") and SFC Energy AG ("SFC Energy"), to be integrated into adKor's Jupiter backup power systems for deployment at radio tower sites in Germany through the end of 2021. Contracts have been awarded to adKor for the supply of fuel cell backup power systems to support an initial tranche of 500 radio tower sites in Germany – with the potential for a total of up to 1,500 radio tower sites – and adKor has sub-contracted a portion of the work to SFC Energy. As a result, adKor and SFC Energy have signed development partnership and licensing agreements, will share production activities for the supply of Jupiter systems and are developing product line extensions. Revenue earned from these agreements (\$0.5 million in the second quarter of 2020; \$0.6 million in the first half of 2020) are recorded as Backup Power revenues.

Van Hool NV

On December 4, 2019, we announced the receipt of a purchase order from Van Hool for 20 FCveloCity®-HD 85-kilowatt (kW) fuel cell modules to power buses in Groningen, the Netherlands, under the JIVE2 funding program. Ballard plans to deliver the 20 FCveloCity®-HD 85kW modules in 2020. These are expected to power 20 Van Hool A330 model FCEBs that are planned for deployment with Qbuzz, the transit agency for the city of Groningen, by



the end of 2020. Europe's Joint Initiative For Hydrogen Vehicles Across Europe ("JIVE") funding programs are intended to pave the way to commercialization of fuel cell electric buses by coordinating procurement activities to unlock economies-of-scale and reduce costs as well as supporting new hydrogen refueling stations.

Revenue earned from all supply agreements with Van Hool (\$1.7 million in the second quarter of 2020; \$2.3 million in the first half of 2020; \$2.6 million in the second quarter of 2019; \$3.4 million in the first half of 2019; \$5.1 million in fiscal 2019) is recorded as Heavy-Duty Motive revenues.

Audi AG

On June 11, 2018, we announced the signing of a 3.5 year extension to our technology solutions contract with AUDI AG ("Audi"), part of the Volkswagen Group, extending the program to August 2022. The aggregate value of the contract extension is expected to be Canadian \$80 to \$130 million (approximately \$62 to \$100 million), subject to certain rights by Audi to reduce the program scope and value. The program, through a series of technical milestone awards, encompasses automotive fuel cell stack development as well as system design support activities for the benefit of Audi. Ballard engineers are leading critical areas of fuel cell product design – including the MEA, plate and stack components – along with certain testing and integration work.

Ballard signed an initial 4 year contract with Volkswagen AG in March 2013, followed by a 2 year extension in February 2015. Audi assumed leadership of the program in 2016. Revenue earned from this and other agreements with Audi (\$2.6 million in the second quarter of 2020; \$8.4 million in the first half of 2020; \$5.8 million in the second quarter of 2019; \$10.3 million in the first half of 2019; \$26.7 million in fiscal 2019; \$26.6 million in fiscal 2018) is recorded as Technology Solutions revenues.

Siemens AG

On November 14, 2017, we announced the signing of a multi-year Development Agreement with Siemens AG ("Siemens") for the development of a zero-emission fuel cell engine to power Siemens' Mireo light rail train. The Development Agreement has a contemplated value of approximately \$9.0 million to Ballard over 3 years. Under the terms of the Development Agreement, Ballard will develop a 200 kilowatt fuel cell engine for integration into Siemens' new Mireo train platform. Initial deployments of the fuel cell-powered Mireo train are planned for 2021. Revenue earned from this agreement (\$0.3 million in the second quarter of 2020; \$0.7 million in the first half of 2020; \$0.7 million in the second quarter of 2019; \$1.3 million in the first half of 2019; \$3.2 million in fiscal 2019; \$1.8 million in fiscal 2018) is recorded as Technology Solutions revenue.

4.4 North America and Other

Anglo American

On October 29, 2019, we announced receipt of a purchase order for the sale of nine FCveloCity®-HD 100 kilowatt (kW) fuel cell modules to Anglo American, the world's largest platinum group metals mining company and a strategic investor in Ballard. Eight of the FCveloCity®-HD modules are expected to power a retrofitted Ultra heavy-duty mining truck in a demonstration project during 2020 at one of Anglo American's mining operations in

South Africa with the ninth module maintained as a spare. Revenue earned from this and other agreements with Anglo American (\$1.5 million in the second quarter and first half of 2020) are recorded as Heavy-Duty Motive revenues.

5. RESULTS OF OPERATIONS

5.1 Operating Segments

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

5.2 Summary of Key Financial Metrics – Three Months Ended June 30, 2020

Revenue and gross margin

		Three months ended June 30,			
<i>(Expressed in thousands of U.S. dollars)</i>					
Fuel Cell Products and Services	2020	2019	\$ Change	% Change	
Heavy-Duty Motive	\$ 12,508	\$ 6,455	\$ 6,053	94%	
UAV	35	233	(198)	(85%)	
Material Handling	2,238	2,799	(561)	(20%)	
Backup Power	1,250	377	873	232%	
Technology Solutions	9,787	13,787	(4,000)	(29%)	
Revenues	25,818	23,651	2,167	9%	
Cost of goods sold	20,461	18,101	2,360	13%	
Gross Margin	\$ 5,357	\$ 5,550	\$ (193)	(3%)	
Gross Margin %	21%	23%	n/a	(2 pts)	

Fuel Cell Products and Services Revenues of \$25.8 million for the second quarter of 2020 increased 9%, or \$2.2 million, compared to the second quarter of 2020. The 9% increase was driven by significantly higher Heavy-Duty Motive revenues and by higher Backup Power revenues which more than offset declines in Technology Solutions and Material Handling revenues.

Heavy-Duty Motive revenues of \$12.5 million increased \$6.1 million, or 94%, due primarily to higher shipments of fuel cell products to customers primarily in China. Heavy-Duty Motive revenues on a quarter to quarter basis are also impacted by product mix due to varying customer requirements and various fuel cell products, including numerous power configurations required by our customers (and the resulting impact on selling price) of our fuel cell modules, fuel cell stacks, MEAs, and related component and parts kits. Heavy-Duty Motive revenues of \$12.5 million in the second quarter of 2020 include \$6.2 million to Weichai Ballard JV for the supply of a mix of certain fuel cell products and components that will be used in the assembly of modules to power zero-emission FCEVs in China; \$2.1 million to Wrightbus and \$1.7 million to Van Hool for shipments of FCveloCity®-HD7 85-kilowatt fuel cell modules and related components for their respective bus programs; \$1.5 million to Anglo American for shipments of FCveloCity®-HD 100 kilowatt (kW) fuel cell modules and related components for their mining project; and \$1.0 million for fuel cell

products to other customers. Heavy-Duty Motive revenues of \$6.5 million in the second quarter of 2019 include \$1.1 million for shipments of MEAs to Synergy Ballard JVCo for use in their manufacture and assembly of FCveloCity® fuel cell stacks in China; \$2.6 million to Van Hool and \$1.6 million to Wright Bus for shipments of FCveloCity®-HD7 85&100-kilowatt fuel cell modules and related components for their respective bus programs; and \$1.2 million for a variety of fuel cell products primarily to customers in China and Europe.

Technology Solutions revenues of \$9.8 million decreased by (\$4.0) million, or (29%), due primarily to decreased amounts earned on the Audi program, the Weichai Ballard JV technology transfer program, and the Siemens development program. Technology Solutions revenues in the second quarter of 2020, as compared to the second quarter of 2019, were negatively impacted by a reduction in program scope as certain planned activities were completed, and by the deferral of development work on certain of our programs as a result of employee work at home requirements due to COVID-19. Revenues of \$9.8 million in the second quarter of 2020 were from a variety of customer programs including revenue from the Weichai Ballard JV technology transfer program of \$4.8 million; the Audi program of \$2.6 million; the Siemens development program of \$0.3 million; Nisshinbo programs of \$1.0 million; and \$1.1 million from a variety of other customer programs. Revenue in the second quarter of 2019 of \$13.8 million were also from a variety of customer programs including amounts earned from the Weichai Ballard JV technology transfer program of \$6.2 million; the Audi program of \$5.8 million; the Siemens development program of \$0.7 million; Nisshinbo programs of \$0.3 million; and \$0.8 million from a variety of other customer programs. Audi program revenues were also negatively impacted by approximately (\$0.1) million in the second quarter of 2020, as compared to the second quarter of 2019, as a result of an approximate (3%) lower Canadian dollar, relative to the U.S. dollar, as the Audi Agreement is priced in Canadian dollars. The underlying costs to satisfy the Audi Agreement are primarily denominated in Canadian dollars.

Material Handling revenues of \$2.2 million decreased (\$0.6) million, or (20%), primarily as a result of lower shipments to Plug Power.

Backup Power revenues of \$1.3 million increased \$0.9 million, or 232%, due primarily to an increase in sales of hydrogen-based backup power fuel cell stacks to Europe and Asia, including shipments of FCgen®-1020ACS fuel cell stacks to adKor and SFC Energy in Germany, combined with a minor increase in hydrogen-based backup power product and service revenues in Europe.

UAV revenues were nominal in each of the periods.

Fuel Cell Products and Services gross margins were \$5.4 million, or 21% of revenues, for the second quarter of 2020, compared to \$5.6 million, or 23% of revenues, for the second quarter of 2019. The decrease in gross margin of (\$0.2) million, or (3%), was driven primarily by a shift to lower overall product margin and service revenue mix resulting in an (2) percentage point decrease in gross margin as a percent of revenues, which more than offset the positive impact of the 9% increase in total revenues.

Cash Operating Costs

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,			
	2020	2019	\$ Change	% Change	
Research and Product Development (cash operating cost)	\$ 7,088	\$ 4,133	\$ 2,955	71%	
General and Administrative (cash operating cost)	2,876	2,606	270	10%	
Sales and Marketing (cash operating cost)	1,659	1,664	(5)	-%	
Cash Operating Costs	\$ 11,623	\$ 8,403	\$ 3,220	38%	

Cash Operating Costs and its components of Research and Product Development (cash operating cost), General and Administrative (cash operating cost), and Sales and Marketing (cash operating cost) are non-GAAP measures. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. See the reconciliation of Cash Operating Costs to GAAP in the Supplemental Non-GAAP Measures and Reconciliations section and the reconciliation of Research and Product Development (cash operating cost), General and Administrative (cash operating cost), and Sales and Marketing (cash operating cost) to GAAP in the Operating Expense section. Cash Operating Costs adjusts operating expenses for stock-based compensation expense, depreciation and amortization, impairment losses on trade receivables, restructuring charges, the impact of unrealized gains or losses on foreign exchange contracts, acquisition costs and financing charges.

Cash Operating Costs (see Supplemental Non-GAAP Measures and Reconciliations) for the second quarter of 2020 were \$11.6 million, an increase of \$3.2 million, or 38%, compared to the second quarter of 2019. The \$3.2 million, or 38%, increase was driven by higher research and product development cash operating costs of \$3.0 million and by higher general and administrative cash operating costs of \$0.3 million as sales and marketing cash operating costs were relatively flat.

The \$3.2 million, or 38%, increase in cash operating costs in the second quarter of 2020 was driven primarily by increased expenditure on technology and product development activities in Canada and in Denmark related to the design and development of our next generation fuel cell stacks and modules for bus, truck, rail and marine applications and the ongoing improvement of our existing fuel cell products, and by higher general and administrative expenses due primarily to increased contract administration costs.

While we have significantly increased our gross investment and expenditure on research and product development activities in Canada related to our next generation fuel cell products and on the ongoing improvement of our fuel cell products including our high performance fuel cell module, the FCmove™-HD, and our high performance liquid-cooled fuel cell stack, the FCgen®-LCS, a significant portion of this gross investment has been reallocated from research and product development expense to cost of goods sold for work performed on revenue producing Technology Solutions projects.

Adjusted EBITDA

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,			
	2020	2019	\$ Change	% Change	
Adjusted EBITDA	\$ (8,636)	\$ (5,028)	\$ (3,608)	(72%)	

EBITDA and Adjusted EBITDA are non-GAAP measures. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. See reconciliation of Adjusted EBITDA to GAAP in the Supplemental Non-GAAP Measures and Reconciliations section. Adjusted EBITDA adjusts EBITDA for stock-based compensation expense, transactional gains and losses, asset impairment charges, unrealized gains or losses on foreign exchange contracts, finance and other income, and acquisition costs.

Adjusted EBITDA (see Supplemental Non-GAAP Measures and Reconciliations) for the second quarter of 2020 was (\$8.6) million, compared to (\$5.0) million for the second quarter of 2019. The (\$3.6) million increase in Adjusted EBITDA loss was driven primarily the increase in Cash Operating Costs of (\$3.2) million and by the minor decrease in gross margin of (\$0.2) million.

In addition, operating costs in the second quarter of 2020 were impacted by the positive

impact of a weaker Canadian dollar, relative to the U.S. dollar, as compared to the second quarter of 2019. As a significant amount of our net operating costs (primarily labour) are denominated in Canadian dollars, gross margin, operating expenses and Adjusted EBITDA are impacted by changes in the Canadian dollar relative to the U.S. dollar. As the Canadian dollar relative to the U.S. dollar was approximately (3%), or (3) basis points, lower in the second quarter of 2020 as compared to the second quarter of 2019, positive foreign exchange impacts on our Canadian operating cost base and Adjusted EBITDA were approximately \$0.2 million. A \$0.01 decrease in the Canadian dollar, relative to the U.S. dollar, positively impacts annual Adjusted EBITDA by approximately \$0.5 million.

Net loss

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
	2020	2019	\$ Change	% Change
Net loss	\$ (11,432)	\$ (6,971)	\$ (4,461)	(64%)

Net loss for the second quarter of 2020 was (\$11.4) million, or (\$0.05) per share, compared to a net loss of (\$7.0) million, or (\$0.03) per share, in the second quarter of 2019. The (\$4.5) million increase in net loss in the second quarter of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$3.6) million, by lower finance and other income of (\$0.4) million primarily as a result of lower interest income, and by higher stock-based compensation expense of (\$0.7) million.

Cash provided by (used in) operating activities

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
	2020	2019	\$ Change	% Change
Cash provided by (used in) operating activities	\$ (14,841)	\$ 1,715	\$ (16,556)	(966%)

Cash used in operating activities in the second quarter of 2020 was (\$14.8) million, consisting of cash operating losses of (\$5.3) million and net working capital outflows of (\$9.5) million. Cash provided by operating activities in the second quarter of 2019 was \$1.7 million, consisting of cash operating losses of (\$1.4) million and net working capital inflows of \$3.1 million. The (\$16.6) million increase in cash used in operating activities in the second quarter of 2020, as compared to the second quarter of 2019, was driven by the relative increase in cash operating losses of (\$3.9) million combined with the increase in working capital requirements of (\$12.6) million.

The relative (\$3.9) million increase in cash operating losses in the second quarter of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$3.6) million, and by lower finance and other income of (\$0.4) million which is included in cash operating losses but is excluded from Adjusted EBITDA loss.

The total change in working capital of (\$9.5) million in the second quarter of 2020 was driven by higher accounts and contract receivables of (\$4.2) million primarily as a result of the timing of revenues and the related customer collections, by higher inventory of (\$3.5) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2020 and to mitigate potential future COVID-19 supply chain disruptions, and by lower deferred revenue of (\$1.4) million as we fulfilled contract deliverables on certain Heavy-Duty Motive and Technology Solutions contracts for which we received pre-payments in an earlier

period.

This compares to a total change in working capital of \$3.1 million in the second quarter of 2019 which was driven by higher accounts payable and accrued liabilities of \$6.1 million primarily as a result of the timing of payments for inventory purchases, and by higher deferred revenue of \$4.8 million as we collected net pre-payments on certain Heavy-Duty Motive and Technology Solutions contracts in advance of work performed. These second quarter of 2019 inflows were partially offset by higher accounts receivable of (\$5.9) million primarily as a result of the timing of revenues and the related customer collections, and by higher prepaid expenses of (\$1.9) million.

5.3 Summary of Key Financial Metrics – Six Months Ended June 30, 2020

Revenue and gross margin

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,			
Fuel Cell Products and Services	2020	2019	\$ Change	% Change	
Heavy-Duty Motive	\$ 22,830	\$ 9,015	\$ 13,815	153%	
UAV	179	372	(193)	(52%)	
Material Handling	2,942	6,015	(3,073)	(51%)	
Backup Power	2,496	820	1,676	204%	
Technology Solutions	21,397	23,437	(2,040)	(9%)	
Revenues	49,844	39,659	10,185	26%	
Cost of goods sold	39,317	31,906	7,411	23%	
Gross Margin	\$ 10,527	\$ 7,753	\$ 2,774	36%	
Gross Margin %	21%	20%	n/a	1 pt	

Fuel Cell Products and Services Revenues of \$49.8 million for the first half of 2020 increased 26%, or \$10.2 million, compared to the first half of 2019. The 26% increase was driven by significantly higher Heavy-Duty Motive revenues and by higher Backup Power revenues which more than offset declines in Material Handling and Technology Solutions revenues.

Heavy-Duty Motive revenues of \$22.8 million increased \$13.8 million, or 153%, due primarily to higher shipments of fuel cell products to customers primarily in China. Heavy-Duty Motive revenues on a quarter to quarter basis are also impacted by product mix due to varying customer requirements and various fuel cell products, including numerous power configurations required by our customers (and the resulting impact on selling price) of our fuel cell modules, fuel cell stacks, MEAs, and related component and parts kits. Heavy-Duty Motive revenues of \$22.8 million in the first half of 2020 include \$15.0 million to Weichai Ballard JV for the supply of a mix of certain fuel cell products and components that will be used in the assembly of modules to power zero-emission FCEVs in China; \$2.7 million to Wrightbus and \$2.3 million to Van Hool for shipments of FCveloCity®-HD7 85-kilowatt fuel cell modules and related components for their respective bus programs; \$1.5 million to Anglo American for shipments of FCveloCity®-HD 100 kilowatt (kW) fuel cell modules and related components for their mining project; and \$1.3 million for fuel cell products to other customers. Heavy-Duty Motive revenues of \$9.0 million in the first half of 2019 include \$1.1 million for shipments of MEAs to Synergy Ballard JVCo for use in their manufacture and assembly of FCveloCity® fuel cell stacks in China; \$3.4 million to Van Hool and \$1.7 million to Wright Bus for shipments of FCveloCity®-HD7 85&100-kilowatt fuel cell modules and related components for their respective bus programs; and \$2.8 million for a variety of fuel

cell products primarily to customers in North America, China and Europe.

Technology Solutions revenues of \$21.4 million decreased by (\$2.0) million, or (9%), due primarily to decreased amounts earned on the Audi program, the Weichai Ballard JV technology transfer program, and the Siemens development program. Technology Solutions revenues in the first half of 2020, as compared to the first half of 2019, were negatively impacted by a reduction in program scope as certain planned activities were completed, and by the deferral of development work on certain of our programs as a result of employee work at home requirements due to COVID-19. Revenues of \$21.4 million in the first half of 2020 were from a variety of customer programs including revenue from the Weichai Ballard JV technology transfer program of \$9.4 million; the Audi program of \$8.4 million; the Siemens development program of \$0.7 million; Nisshinbo programs of \$1.2 million; and \$1.7 million from a variety of other customer programs. Revenue in the first half of 2019 of \$23.4 million were also from a variety of customer programs including amounts earned from the Audi program of \$10.3 million; the Weichai Ballard JV technology transfer program of \$10.2 million; the Siemens development program of \$1.3 million; Nisshinbo programs of \$0.3 million; and \$1.3 million from a variety of other customer programs. Audi program revenues were also negatively impacted by approximately (\$0.2) million in the first half of 2020, as compared to the first half of 2019, as a result of an approximate (2%) lower Canadian dollar, relative to the U.S. dollar, as the Audi Agreement is priced in Canadian dollars. The underlying costs to satisfy the Audi Agreement are primarily denominated in Canadian dollars.

Material Handling revenues of \$2.9 million decreased (\$3.1) million, or (51%), primarily as a result of significantly lower shipments to Plug Power.

Backup Power revenues of \$2.5 million increased \$1.7 million, or 204%, due primarily to an increase in sales of hydrogen-based backup power fuel cell stacks to Asia and Europe, including shipments of FCgen®-1020ACS fuel cell stacks to adKor and SFC Energy in Germany, as hydrogen-based backup power product and service revenues in Europe were relatively flat.

UAV revenues were nominal in each of the periods.

Fuel Cell Products and Services gross margins were \$10.5 million, or 21% of revenues, for the first half of 2020, compared to \$7.8 million, or 20% of revenues, for the first half of 2019. The increase in gross margin of \$2.8 million, or 36%, was driven primarily by the 26% increase in total revenues, combined with a shift to a higher overall product margin and service revenue mix resulting in a 1 percentage point increase in gross margin as a percent of revenues.

Cash Operating Costs

		Six months ended June 30,			
<i>(Expressed in thousands of U.S. dollars)</i>					
	2020	2019	\$ Change	% Change	
Research and Product Development (cash operating cost)	\$ 14,404	\$ 9,174	\$ 5,230		57%
General and Administrative (cash operating cost)	5,908	5,341	567		11%
Sales and Marketing (cash operating cost)	3,484	3,194	290		9%
Cash Operating Costs	\$ 23,796	\$ 17,709	\$ 6,087		34%

Cash Operating Costs and its components of Research and Product Development (cash operating cost), General and Administrative (cash operating cost), and Sales and Marketing (cash operating cost) are non-GAAP measures. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. See the reconciliation of Cash Operating Costs to GAAP in the Supplemental Non-GAAP Measures and Reconciliations section and the reconciliation of Research and Product Development (cash operating cost), General and Administrative (cash operating cost), and Sales and Marketing (cash operating cost) to GAAP in the Operating Expense section. Cash Operating Costs adjusts operating expenses for stock-based compensation expense, depreciation and amortization, impairment losses on trade receivables, restructuring charges, the impact of unrealized gains or losses on foreign exchange contracts, acquisition costs and financing charges.

Cash Operating Costs (see Supplemental Non-GAAP Measures and Reconciliations) for the first half of 2020 were \$23.8 million, an increase of \$6.1 million, or 34%, compared to the first half of 2019. The \$6.1 million, or 34%, increase was driven by higher research and product development cash operating costs of \$5.2 million, by higher general and administrative cash operating costs of \$0.6 million, and by higher sales and marketing cash operating costs of \$0.3 million.

The \$6.1 million, or 34%, increase in cash operating costs in the first half of 2020 was driven primarily by increased expenditure on technology and product development activities in Canada and in Denmark related to the design and development of our next generation fuel cell stacks and modules for bus, truck, rail and marine applications and the ongoing improvement of our existing fuel cell products, by higher general and administrative expenses due primarily to increased contract administration costs, and by higher sales and marketing labour costs and business development expenses.

While we have significantly increased our gross investment and expenditure on research and product development activities in Canada related to our next generation fuel cell products and on the ongoing improvement of our fuel cell products including our high performance fuel cell module, the FCmove™-HD, and our high performance liquid-cooled fuel cell stack, the FCgen®-LCS, a significant portion of this gross investment has been reallocated from research and product development expense to cost of goods sold for work performed on revenue producing Technology Solutions projects.

Adjusted EBITDA

		Six months ended June 30,			
<i>(Expressed in thousands of U.S. dollars)</i>					
	2020	2019	\$ Change	% Change	
Adjusted EBITDA	\$ (17,703)	\$ (13,585)	\$ (4,118)		(30%)

EBITDA and Adjusted EBITDA are non-GAAP measures. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. See reconciliation of Adjusted EBITDA to GAAP in the Supplemental Non-GAAP Measures and Reconciliations section. Adjusted EBITDA adjusts EBITDA for stock-based compensation expense, transactional gains and losses, asset impairment charges, unrealized gains or losses on foreign exchange contracts, finance and other income, and acquisition costs.

Adjusted EBITDA (see Supplemental Non-GAAP Measures and Reconciliations) for the first half of 2020 was (\$17.7) million, compared to (\$13.6) million for the first half of 2019. The (\$4.1) million increase in Adjusted EBITDA loss was driven primarily by the increase in Cash Operating Costs of (\$6.1) million and by the increase in equity in loss of investment in joint venture and associates of (\$0.5) million attributed primarily to the ongoing establishment of

operations of Weichai Ballard JV, partially offset by the increase in gross margin of \$2.8 million as a result of the 26% increase in total revenues.

In addition, operating costs in the first half of 2020 were impacted by the positive impact of a weaker Canadian dollar, relative to the U.S. dollar, as compared to the first half 2019. As a significant amount of our net operating costs (primarily labour) are denominated in Canadian dollars, gross margin, operating expenses and Adjusted EBITDA are impacted by changes in the Canadian dollar relative to the U.S. dollar. As the Canadian dollar relative to the U.S. dollar was approximately (2%), or (2) basis points, lower in the first half of 2020 as compared to the first half of 2019, positive foreign exchange impacts on our Canadian operating cost base and Adjusted EBITDA were approximately \$0.7 million. A \$0.01 decrease in the Canadian dollar, relative to the U.S. dollar, positively impacts annual Adjusted EBITDA by approximately \$0.7 million.

Net loss

<i>(Expressed in thousands of U.S. dollars)</i>							
	2020		Six months ended June 30,				
		2019	\$ Change	% Change			
Net loss	\$	(24,935)	\$	(18,995)	\$	(5,940)	(31%)

Net loss for the first half of 2020 was (\$24.9) million, or (\$0.10) per share, compared to a net loss of (\$19.0) million, or (\$0.08) per share, in the first half of 2019. The (\$5.9) million increase in net loss in the first half of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$4.1) million, by lower finance and other income of (\$1.4) million primarily as a result of lower interest income, by an increase in the impact of unrealized gains (losses) on foreign exchange contracts of (\$1.7) million, and higher stock-based compensation expense of (\$1.0) million. These loss increases in 2020 were partially offset by a decline in loss on sale of assets of \$2.0 million.

As noted above, net loss in the first half of 2019 was negatively impacted by a loss on sale of assets of (\$2.0) million related to an additional impairment charge arising from the divestiture of our Power Manager assets in October 2018. Excluding the impact of transactional gains and losses, Adjusted Net Loss (see Supplemental Non-GAAP Measures and Reconciliations) in the first half of 2020 was (\$24.9) million, or (\$0.10) per share, compared to (\$17.0) million, or (\$0.07) per share, for the first half of 2019.

Cash provided by (used in) operating activities

<i>(Expressed in thousands of U.S. dollars)</i>							
	2020		Six months ended June 30,				
		2019	\$ Change	% Change			
Cash provided by (used in) operating activities	\$	(24,948)	\$	(8,747)	\$	(16,201)	(185%)

Cash used in operating activities in the first half of 2020 was (\$24.9) million, consisting of cash operating losses of (\$12.3) million and net working capital outflows of (\$12.6) million. Cash used in operating activities in the first half of 2019 was (\$8.7) million, consisting of cash operating losses of (\$7.4) million and net working capital outflows of (\$1.3) million. The (\$16.2) million increase in cash used in operating activities in the first half of 2020, as compared to the first half of 2019, was driven by relative increase in cash operating losses of (\$4.9) million combined with the relative increase in working capital requirements of (\$11.3) million.

The relative (\$4.9) million increase in cash operating losses in the first half of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$4.1) million, and by lower finance and other income of (\$1.4) million which is included in cash operating losses but is excluded from Adjusted EBITDA loss.

The total change in working capital of (\$12.6) million in the first half of 2020 was driven by lower accounts payable and accrued liabilities of (\$9.0) million primarily as a result of the timing of payments for inventory purchases and annual compensation awards, by higher inventory of (\$5.1) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2020 and to mitigate potential future COVID-19 supply chain disruptions, by lower deferred revenue of (\$4.9) million as we fulfilled contract deliverables on certain Heavy-Duty Motive and Technology Solutions contracts for which we received pre-payments in an earlier period, and by higher prepaid expenses of (\$1.1) million. These working capital outflows were partially offset by lower accounts and contract receivables of \$6.9 million primarily as a result of the timing of revenues and the related customer collections, and by higher accrued warranty obligations of \$0.6 million related primarily to Heavy-Duty Motive product shipments.

This compares to a total change in working capital of (\$1.3) million in the first half of 2019 which was driven by higher accounts receivable of (\$4.0) million primarily as a result of the timing of revenues and the related customer collections, by higher prepaid expenses of (\$2.2) million, and by higher inventory of (\$0.6) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2019. These first half of 2019 outflows were partially offset by higher deferred revenue of \$4.6 million as we collected net pre-payments on certain Heavy-Duty Motive and Technology Solutions contracts in advance of work performed, and by higher accrued warranty obligations of \$0.7 million primarily on Heavy-Duty Motive product shipments.

5.4 Operating Expenses and Other Items – Three and Six Months ended June 30, 2020

Research and product development expenses

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Research and product development	2020	2019	\$ Change	% Change
Research and product development expense	\$ 8,552	\$ 5,332	\$ 3,220	60%
Less: Depreciation and amortization expense	\$ (689)	\$ (823)	\$ 134	16%
Less: Stock-based compensation expense	\$ (775)	\$ (376)	\$ (399)	(106%)
Research and Product Development (cash operating cost)	\$ 7,088	\$ 4,133	\$ 2,955	71%

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Research and product development	2020	2019	\$ Change	% Change
Research and product development expense	\$ 17,043	\$ 11,366	\$ 5,677	50%
Less: Depreciation and amortization expense	\$ (1,383)	\$ (1,491)	\$ 108	7%
Less: Stock-based compensation expense	\$ (1,256)	\$ (701)	\$ (555)	(79%)
Research and Product Development (cash operating cost)	\$ 14,404	\$ 9,174	\$ 5,230	57%

Research and Product Development (cash operating cost) is a non-GAAP measure. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. Research and Product Development (cash operating cost) adjusts Research and product development expense for depreciation and amortization expense and stock-based compensation expense. See the reconciliation of the adjustments to Research and product development expense in the table above.

Research and product development expenses for the three months ended June 30, 2020 were \$8.6 million, an increase of \$3.2 million, or 60%, compared to the corresponding period of 2019. Excluding depreciation and amortization expense of (\$0.7) million and (\$0.8) million, respectively, in each of the periods, and excluding stock-based compensation expense of (\$0.8) million and (\$0.4) million, respectively, in each of the periods, research and product development cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) were \$7.1 million in the second quarter of 2020, an increase of \$3.0 million, or 71%, compared to the second quarter of 2019.

Research and product development expenses for the six months ended June 30, 2020 were \$17.0 million, an increase of \$5.7 million, or 50%, compared to the corresponding period of 2019. Excluding depreciation and amortization expense of (\$1.4) million and (\$1.5) million, respectively, in each of the periods, and excluding stock-based compensation expense of (\$1.3) million and (\$0.7) million, respectively, in each of the periods, research and product development cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) were \$14.4 million in the first half of 2020, an increase of \$5.2 million, or 57%, compared to the first half of 2019.

The respective \$3.0 million, or 71%, and \$5.2 million, or 57%, increases in research and development cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) in the second quarter and first half of 2020, as compared to the second quarter and first half of 2019, was driven primarily by increased expenditure on technology and product development activities in Canada and Denmark related to the design and development of our next generation fuel cell stacks and modules for bus, truck, rail and marine applications and the ongoing improvement of our existing fuel cell products. These cost increases were partially offset by lower labour costs in Canada in 2020 as a result of an approximate (2%) lower Canadian dollar, relative to the U.S. dollar, and the resulting positive impact on our Canadian operating cost base.

While we have significantly increased our gross investment and expenditure on research and product development activities in Canada related to our next generation fuel cell products and on the ongoing improvement of our fuel cell products including our high performance fuel cell module, the FCmove™-HD, and our high performance liquid-cooled fuel cell stack, the FCgen®-LCS, a significant portion of this gross investment has been reallocated from research and product development expense to cost of goods sold for work performed on revenue producing Technology Solutions projects.

Government funding recoveries in the first half of 2020, as compared to the first half of 2019, were relatively consistent, and are attributable primarily to government funding recoveries earned in Denmark by Ballard Power Systems Europe A/S for work performed a variety of European programs. Government funding recoveries are reflected as a cost offset against gross research and product development expenses. To date, we have not applied for any significant funding subsidy related to COVID-19 government funding programs.

Depreciation and amortization expense included in research and product development expense for the three and six months ended June 30, 2020 was \$0.7 million and \$1.4 million, respectively, compared to \$0.8 million and \$1.5 million, respectively, for the corresponding periods of 2019. Depreciation and amortization expense relates primarily to

amortization expense on our intangible assets and depreciation expense on our research and product development facilities and equipment.

Stock-based compensation expense included in research and product development expense for the three and six months ended June 30, 2020 was \$0.8 million and \$1.3 million, compared to \$0.4 million and \$0.7 million, respectively, for the corresponding periods of 2019.

General and administrative expenses

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,			
General and administrative	2020	2019	\$ Change	% Change	
General and administrative expense	\$ 3,414	\$ 2,909	\$ 505	17%	
Less: Depreciation and amortization expense	\$ (280)	\$ (279)	\$ (1)	-%	
Less: Stock-based compensation expense	\$ (500)	\$ (355)	\$ (145)	(41%)	
Add: Impact of unrealized gains (losses) on foreign exchange contracts	\$ 242	\$ 331	\$ (89)	(27%)	
General and Administrative (cash operating cost)	\$ 2,876	\$ 2,606	\$ 270	10%	

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,			
General and administrative	2020	2019	\$ Change	% Change	
General and administrative expense	\$ 8,348	\$ 5,842	\$ 2,506	43%	
Less: Depreciation and amortization expense	\$ (559)	\$ (568)	\$ 9	2%	
Less: Stock-based compensation expense	\$ (904)	\$ (681)	\$ (223)	(33%)	
Add: Impact of unrealized gains (losses) on foreign exchange contracts	\$ (977)	\$ 748	\$ (1,725)	(231%)	
General and Administrative (cash operating cost)	\$ 5,908	\$ 5,341	\$ 567	11%	

General and Administrative (cash operating cost) is a non-GAAP measure. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. General and Administrative (cash operating cost) adjusts General and administrative expense for depreciation and amortization expense, stock-based compensation expense and the impact of unrealized gains or losses on foreign exchange contracts. See the reconciliation of the adjustments to General and administrative expense in the table above.

General and administrative expenses for the three months ended June 30, 2020 were \$3.4 million, an increase of \$0.5 million, or 17%, compared to the corresponding period of 2019. Excluding depreciation and amortization expense of (\$0.3) million in each of the periods, excluding stock-based compensation expense of (\$0.5) million and (\$0.4) million, respectively, in each of the periods, and excluding the impact of unrealized gains (losses) on foreign exchange contracts of \$0.2 and \$0.3 million, respectively, in each of the periods, general and administrative cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) were \$2.9 million in the second quarter of 2020, an increase of \$0.3 million, or 10%, compared to the second quarter of 2019.

General and administrative expenses for the six months ended June 30, 2020 were \$8.3 million, an increase of \$2.5 million, or 43%, compared to the corresponding period of 2019. Excluding depreciation and amortization expense of (\$0.6) million in each of the periods, excluding stock-based compensation expense of (\$0.9) million and (\$0.7) million, respectively, in each of the periods, and excluding the impact of unrealized gains (losses) on foreign exchange contracts of (\$1.0) and \$0.7 million, respectively, in each of the periods, general and administrative cash operating costs (see Supplemental Non-GAAP Measures and

Reconciliations) were \$5.9 million in the first half of 2020, an increase of \$0.6 million, or 11%, compared to the first half of 2019.

The respective \$0.3 million, or 10%, and \$0.6 million, or 11%, increases in general and administrative cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) in the second quarter and first half of 2020, as compared to the second quarter and first half of 2019, were driven primarily by increased contract administration costs. These cost increases were partially offset by lower labour costs in Canada in 2020 as a result of an approximate (2%) lower Canadian dollar, relative to the U.S. dollar, and the resulting positive impact on our Canadian operating cost base.

Depreciation and amortization expense included in general and administrative expense for the three and six months ended June 30, 2020 was \$0.3 million and \$0.6 million, consistent with the corresponding periods of 2019. Depreciation and amortization expense relates primarily to our office and information technology intangible assets including our recent investment in a new ERP system.

Stock-based compensation expense included in general and administrative expense for the three and six months ended June 30, 2020 was \$0.5 million and \$0.9 million, respectively, compared to \$0.4 million and \$0.7 million, respectively, for the corresponding periods of 2018.

The impact of unrealized gains (losses) on foreign exchange contracts included in general and administrative expense for the three and six months ended June 30, 2020 was \$0.2 million and (\$1.0) million, respectively, compared to \$0.3 million and \$0.7 million, respectively, for the corresponding periods of 2019. We use forward foreign exchange contracts to manage our exposure to currency rate fluctuations. We record these contracts at their fair value as of the balance sheet date as either assets or liabilities with any changes in fair value in the period recorded in profit or loss (general and administrative expense) as these contracts are not designated or qualified under hedge accounting criteria. At June 30, 2020, we had outstanding foreign exchange currency contracts to purchase a total of Canadian \$13 million at an average rate of 1.3960 Canadian per U.S. dollar, resulting in an unrealized gain of Canadian \$0.4 million at June 30, 2020.

Sales and marketing expenses

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Sales and marketing	2020	2019	\$ Change	% Change
Sales and marketing expense	\$ 1,988	\$ 1,840	\$ 148	8%
Less: Depreciation and amortization expense	\$ (9)	\$ (9)	\$ -	-%
Less: Stock-based compensation expense	\$ (320)	\$ (167)	\$ (153)	(92%)
Sales and Marketing (cash operating cost)	\$ 1,659	\$ 1,664	\$ (5)	-%

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Sales and marketing	2020	2019	\$ Change	% Change
Sales and marketing expense	\$ 4,031	\$ 3,519	\$ 512	15%
Less: Depreciation and amortization expense	\$ (17)	\$ (16)	\$ (1)	(6%)
Less: Stock-based compensation expense	\$ (530)	\$ (309)	\$ (221)	(72%)
Sales and Marketing (cash operating cost)	\$ 3,484	\$ 3,194	\$ 290	9%

Sales and Marketing (cash operating cost) is a non-GAAP measure. We use certain Non-GAAP measures to assist in assessing our financial performance. Non-GAAP measures do not have any standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies. Sales and Marketing (cash operating cost) adjusts Sales and marketing expense for depreciation and amortization expense and stock-based compensation expense. See the reconciliation of the adjustments to Sales and marketing expense in the table above.

Sales and marketing expenses for the three months ended June 30, 2020 were \$2.0 million, an increase of \$0.1 million, or 8%, compared to the corresponding period of 2019. Excluding stock-based compensation expense of (\$0.3) million and (\$0.2) million, respectively, in each of the periods, sales and marketing cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) were \$1.7 million in the second quarter of 2020, consistent with the second quarter of 2019.

Sales and marketing expenses for the six months ended June 30, 2020 were \$4.0 million, an increase of \$0.5 million, or 15%, compared to the corresponding period of 2019. Excluding stock-based compensation expense of (\$0.5) million and (\$0.3) million, respectively, in each of the periods, sales and marketing cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) were \$3.5 million in the first half of 2020, an increase of \$0.3 million, or 9%, compared to the first half of 2019.

The \$0.3 million, or 9%, increase in sales and marketing cash operating costs (see Supplemental Non-GAAP Measures and Reconciliations) in the first half of 2020, as compared to the first half of 2019, was driven primarily by an increase in sales and marketing labour costs and business development expenses. These cost increases were partially offset by lower labour costs in Canada as a result of an approximate (2%) lower Canadian dollar, relative to the U.S. dollar, and the resulting positive impact on our Canadian operating cost base.

Stock-based compensation expense included in sales and marketing expense for the three and six months ended June 30, 2020 was \$0.3 million and \$0.5 million, respectively, compared to \$0.2 million and \$0.3 million, respectively, for the corresponding periods of 2019.

Other expense for the three and six months and year ended June 30, 2020 was \$0.1 million and \$0.3 million, respectively, compared to \$0.1 million for each of the corresponding periods of 2019. The following table provides a breakdown of other expense for the reported periods:

	(Expressed in thousands of U.S. dollars)			
	2020	Three months ended June 30,		
		2019	\$ Change	% Change
Impairment loss (recovery) on trade receivables	\$ 50	\$ -	\$ 50	100%
Restructuring expense (recovery)	13	68	(55)	(81%)
Acquisition charges	-	-	-	-
Other expenses (recovery)	\$ 63	\$ 68	\$ (5)	(7%)

	(Expressed in thousands of U.S. dollars)			
	2020	Six months ended June 30,		
		2019	\$ Change	% Change
Impairment loss (recovery) on trade receivables	\$ 250	\$ -	\$ 250	100%
Restructuring expense	31	149	(118)	(79%)
Acquisition charges	-	-	-	-
Other expenses (recovery)	\$ 281	\$ 149	\$ 132	89%

Net impairment loss (recovery) on trade receivables for the three and six months ended June 30, 2020 was \$0.1 million and \$0.3 million, respectively, and is due primarily to an

increase in the expected credit loss (“ECL”) on our financial assets measured at amortized cost which consist primarily of trade receivables and contract assets. ECLs are a probability-weighted estimate of credit losses. In the event that we are able to recover on an impaired trade receivable through legal or other means, the recovered amount is recognized in the period of recovery as a reversal of the impairment loss.

Finance income (loss) and other for the three and six months ended June 30, 2020 was \$0.5 million and \$0.4 million, respectively, compared to \$0.9 million and \$1.8 million for the corresponding periods of 2019. The following table provides a breakdown of finance and other income (loss) for the reported periods:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
	2020	2019	\$ Change	% Change
Employee future benefit plan expense	\$ (56)	\$ (56)	\$ -	-%
Pension administration expense	(8)	(1)	(7)	(700%)
Investment and other income (loss)	111	1,006	(895)	(89%)
Foreign exchange gain (loss)	503	(4)	507	12,675%
Finance income (loss) and other	\$ 550	\$ 945	\$ (395)	(42%)

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
	2020	2019	\$ Change	% Change
Employee future benefit plan expense	\$ (112)	\$ (112)	\$ -	-%
Pension administration expense	(13)	(13)	-	-%
Investment and other income (loss)	655	2,104	(1,449)	(69%)
Foreign exchange gain (loss)	(122)	(201)	79	40%
Finance income (loss) and other	\$ 408	\$ 1,778	\$ (1,370)	(77%)

Employee future benefit plan expense for the six months ended June 30, 2020 and 2019 were (\$0.1) million in each of the periods and primarily represent the excess of expected interest cost on plan obligations in excess of the expected return on plan assets related to a curtailed defined benefit pension plan for certain former United States employees. Pension administration expense for the six months ended June 30, 2020 and 2019 were nominal in each of the periods and represent administrative costs incurred in managing the plan.

Investment and other income for the three and six months ended June 30, 2020 were \$0.1 million and \$0.7 million, respectively, compared to \$1.0 million and \$2.1 million, respectively, for the corresponding periods of 2019. Amounts were earned primarily on our cash and cash equivalents and have decreased relatively proportionately with the change in our overall cash balances combined with the change in overall term deposit interest rates.

Foreign exchange gains (losses) for the three and six months ended June 30, 2020 were \$0.5 million and (\$0.1) million, respectively, compared to nil million and (\$0.2) million, respectively, for the corresponding periods of 2019. Foreign exchange gains and losses are attributable primarily to the effect of the changes in the value of the Canadian dollar, relative to the U.S. dollar, on our Canadian dollar-denominated net monetary position. Foreign exchange gains and losses impacted by the conversion of Ballard Power Systems Europe A/S’ assets and liabilities from the Danish Kroner to the U.S. dollar at exchange rates in effect at each reporting date are recorded in other comprehensive income (loss).

Finance expense for the three and six months ended June 30, 2020 was (\$0.3) million and (\$0.7) million, respectively, compared to (\$0.4) million and (\$0.7) million, respectively, for the corresponding periods of 2019. Finance expense represents the interest expense incurred on all of our right-of-use assets with a lease term of greater than 12-months, including our head office building, manufacturing facility, and related storage facilities in Burnaby, British Columbia, as well as similar right-of-use assets in all of our subsidiaries.

Equity in income (loss) of investment in joint venture and associates for the three and six months ended June 30, 2020 was (\$2.9) million and (\$5.4) million respectively, compared to (\$2.9) million and (\$4.9) million, respectively, for the corresponding periods of 2019. Equity in loss of investment in joint venture and associates relates to the pickup of 49% of the net income (loss) of Weichai Ballard JV as a result of our 49% ownership position, and 10% of the net income (loss) of Synergy Ballard JVCo as a result of our 10% ownership position. Both of these investments in China are accounted for using the equity method of accounting.

The loss of investment in joint venture and associates in 2020 and 2019 is primarily as a result of research and product development expenses in the periods consisting primarily of amounts expended on the ongoing \$90 million technology transfer agreement with Ballard as Weichai Ballard JV continue to establish operations. Weichai Ballard JV will manufacture Ballard's next-generation LCS fuel cell stack and LCS-based power modules for bus, commercial truck and forklift applications with exclusive rights in China.

Loss on sale of assets for the six months ended June 30, 2019 were (\$2.0) million and relate to an additional impairment charge arising from the divestiture of our Power Manager assets in October 2018 after adjusting the estimated amount of variable consideration from \$2.0 million to nil. During October 2019, the estimated amount of variable consideration was confirmed as nil as the buyer failed to meet the minimum specific sales objectives in the 12-month earn-out period to trigger any additional proceeds payable to us.

Income tax expense for the three and six months ended June 30, 2020 and 2019 were nominal. Income tax expense relates primarily to withholding taxes in China deducted from proceeds earned on certain Chinese commercial contracts.

5.5 Summary of Quarterly Results

The following table provides summary financial data for our last eight quarters:

	Quarter ended,			
	Jun 30, 2020	Mar 31, 2020	Dec 31, 2019	Sep 30, 2019
<i>(Expressed in thousands of U.S. dollars, except per share amounts and weighted average shares outstanding which are expressed in thousands)</i>				
Revenues	\$ 25,818	\$ 24,026	\$ 41,883	\$ 24,785
Net loss	\$ (11,432)	\$ (13,503)	\$ (10,273)	\$ (9,782)
Net loss per share attributable to Ballard, basic and diluted	\$ (0.05)	\$ (0.06)	\$ (0.04)	\$ (0.04)
Weighted average common shares outstanding	235,765	235,330	233,969	232,810
	Jun 30, 2019	Mar 31, 2019	Dec 31, 2018	Sep 30, 2018
Revenues	\$ 23,651	\$ 16,008	\$ 28,477	\$ 21,574
Net loss	\$ (6,971)	\$ (12,024)	\$ (11,475)	\$ (6,024)
Net loss per share attributable to Ballard, basic and diluted	\$ (0.03)	\$ (0.05)	\$ (0.06)	\$ (0.03)
Weighted average common shares outstanding	243,469	232,012	207,047	179,153

Summary of Quarterly Results: There were no significant seasonal variations in our quarterly results. Variations in our net loss for the above periods were affected primarily by the following factors:

- **Revenues:** Variations in fuel cell product and service revenues reflect the demand and timing of our customers' fuel cell vehicle, bus and fuel cell product deployments as well as the demand and timing of their engineering services projects. Variations in fuel cell product and service revenues also reflect the timing of work performed and the achievements of milestones under long-term fixed price contracts.
- **Operating expenditures:** Operating expenses were negatively impacted in the third quarter of 2019 by net impairment losses on trade receivables of (\$1.5) million for amounts owed to us for product shipments sold to WrightBus that were uncollectable. Operating expenses were negatively impacted in the fourth quarter of 2018 by restructuring expenses of (\$0.4) million related to a change in operations leadership combined with severance obligations paid to departed employees at Ballard Unmanned Systems as a result of the disposition of the Power Manager assets and associated personnel. Operating expenses also include the impact of changes in the value of the Canadian dollar, versus the U.S. dollar, on our Canadian dollar denominated expenditures.
- **Net loss:** Net loss for the first quarter of 2019 and the fourth quarter of 2018 was negatively impacted by a loss on sale of assets of (\$2.0) million and (\$4.0) million, respectively, as a result of the divestiture of our Power Manager assets to Revision on October 5, 2018. Net loss for the first two quarters of 2020 and the four quarters of 2019 was negatively impacted by equity in loss of investment in joint venture and associates as a result of the commencement of operations of Weichai Ballard JV.

6. CASH FLOWS, LIQUIDITY AND CAPITAL RESOURCES

6.1 Summary of Cash Flows

Cash and cash equivalents were \$170.3 million at June 30, 2020, compared to \$147.8 million at December 31, 2019. The \$22.5 million increase in cash and cash equivalents in 2020 was driven by net proceeds received from the sale of share capital under the ATM Program of \$64.7 million and by share purchase option exercises of \$3.4 million. These 2020 cash inflows were partially offset by net cash operating losses (excluding non-cash items) of (\$12.3) million, net working capital outflows of (\$12.7) million, equity investments in Weichai Ballard JV of (\$12.9) million, purchases of property, plant and equipment of (\$6.9) million, and by finance lease repayments of (\$1.2) million.

6.2 Cash Provided by (Used by) Operating Activities

For the three months ended June 30, 2020, cash used in operating activities was (\$14.8) million, consisting of cash operating losses of (\$5.3) million and net working capital outflows of (\$9.5) million. For the three months ended June 30, 2019, cash provided by operating activities was \$1.7 million, consisting of cash operating losses of (\$1.4) million and net working capital inflows of \$3.1 million. The (\$16.6) million increase in cash used in operating activities in the second quarter of 2020, as compared to the second quarter of 2019, was driven by the relative increase in cash operating losses of (\$3.9) million combined with the increase in working capital requirements of (\$12.6) million.

The relative (\$3.9) million increase in cash operating losses in the second quarter of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$3.6) million, and by lower finance and other income of (\$0.4) million which is included in cash operating losses but is excluded from Adjusted EBITDA loss.

The total change in working capital of (\$9.5) million in the second quarter of 2020 was driven by higher accounts and contract receivables of (\$4.2) million primarily as a result of the timing of revenues and the related customer collections, by higher inventory of (\$3.5) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2020 and to mitigate potential future COVID-19 supply chain disruptions, and by lower deferred revenue of (\$1.4) million as we fulfilled contract deliverables on certain Heavy-Duty Motive and Technology Solutions contracts for which we received pre-payments in an earlier period.

This compares to a total change in working capital of \$3.1 million in the second quarter of 2019 was driven primarily by higher accounts payable and accrued liabilities of \$6.1 million primarily as a result of the timing of payments for inventory purchases, and by higher deferred revenue of \$4.8 million as we collected net pre-payments on certain Heavy-Duty Motive and Technology Solutions contracts in advance of work performed. These second quarter of 2019 inflows were partially offset by higher accounts receivable of (\$5.9) million primarily as a result of the timing of revenues and the related customer collections, and by higher prepaid expenses of (\$1.9) million.

For the six months ended June 30, 2020, cash used in operating activities was (\$24.9) million, consisting of cash operating losses of (\$12.3) million and net working capital outflows of (\$12.6) million. For the six months ended June 30, 2019, cash used in operating

activities was (\$8.7) million, consisting of cash operating losses of (\$7.4) million and net working capital outflows of (\$1.3) million. The (\$16.2) million increase in cash used in operating activities in the first half of 2020, as compared to the first half of 2019, was driven by relative increase in cash operating losses of (\$4.9) million combined with the relative increase in working capital requirements of (\$11.3) million.

The relative (\$4.9) million increase in cash operating losses in the first half of 2020 was driven primarily by the increase in Adjusted EBITDA loss of (\$4.1) million, and by lower finance and other income of (\$1.4) million which is included in cash operating losses but is excluded from Adjusted EBITDA loss.

The total change in working capital of (\$12.6) million in the first half of 2020 was driven by lower accounts payable and accrued liabilities of (\$9.0) million as a result of the timing of payments for inventory purchases and annual compensation awards, by higher inventory of (\$5.1) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2020 and to mitigate potential future COVID-19 supply chain disruptions, by lower deferred revenue of (\$4.9) million as we fulfilled contract deliverables on certain Heavy-Duty Motive and Technology Solutions contracts for which we received pre-payments in an earlier period, and by higher prepaid expenses of (\$1.1) million. These working capital outflows were partially offset by lower accounts and contract receivables of \$6.9 million primarily as a result of the timing of revenues and the related customer collections, and by higher accrued warranty obligations of \$0.6 million related primarily to Heavy-Duty Motive product shipments.

This compares to a total change in working capital of (\$1.3) million in the first half of 2019 which was driven by higher accounts receivable of (\$4.0) million primarily as a result of the timing of revenues and the related customer collections, by higher prepaid expenses of (\$2.2) million, and by higher inventory of (\$0.6) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2019. These first half of 2019 outflows were partially offset by higher deferred revenue of \$4.6 million as we collected net pre-payments on certain Heavy-Duty Motive and Technology Solutions contracts in advance of work performed, and by higher accrued warranty obligations of \$0.7 million primarily on Heavy-Duty Motive product shipments.

6.3 Cash Provided by (Used by) Investing Activities

Investing activities resulted in net cash outflows of (\$9.9) million and (\$19.7) million, respectively, for the three and six months ended June 30, 2020, compared to net cash outflows of (\$3.0) million and (\$19.4) million, respectively, for the corresponding periods of 2019.

Investing activities in the second quarter of 2020 of (\$9.9) million consist primarily of investments in associated companies of (\$6.4) million paid as planned for the fifth equity contribution in our 49% investment in Weichai Ballard JV, and by capital expenditures of (\$3.5) million incurred primarily for production and test equipment. Investing activities in the second quarter of 2019 of (\$3.0) million consist primarily of capital expenditures of (\$3.0) million incurred primarily for production and test equipment.

Investing activities in the first half of 2020 of (\$19.7) million consist primarily of investments in associated companies of (\$12.9) million paid as planned for the fourth and

fifth equity contributions in our 49% investment in Weichai Ballard JV, and by capital expenditures of (\$6.9) million incurred primarily for production and test equipment. Investing activities in the first half of 2019 of (\$19.4) million consist primarily of investments in associated companies of (\$14.5) million paid as planned for the second equity contribution in our 49% investment in Weichai Ballard JV, and capital expenditures of (\$4.9) million incurred primarily for production and test equipment.

6.4 Cash Provided by (Used by) Financing Activities

Financing activities resulted in net cash inflows of \$13.4 million and \$66.9 million, respectively, for the three and six months ended June 30, 2020, compared to net cash outflows of nil million and (\$0.4) million, respectively, for the corresponding periods of 2019.

Financing activities in the second quarter of 2020 consist of net proceeds from the sale of share capital under the now terminated ATM Program of \$12.2 million (gross proceeds of \$12.6 million), proceeds from share purchase options of \$1.8 million, partially offset by finance lease payments of (\$0.6) million. Financing activities in the second quarter of 2019 of nil million consist of proceeds from share purchase options of \$0.5 million, offset by finance lease payments of (\$0.5) million.

Financing activities in the first half of 2020 consist of net proceeds from the sale of share capital under the now terminated ATM Program of \$64.7 million (gross proceeds of \$66.7 million), proceeds from share purchase options of \$3.4 million, partially offset by finance lease payments of (\$1.2) million. Financing activities in the first half of 2019 of (\$0.4) million consist of finance lease payments of (\$1.0) million, partially offset by proceeds from share purchase options of \$0.6 million.

6.5 Liquidity and Capital Resources

At June 30, 2020, we had total liquidity of \$170.3 million. We measure liquidity as our net cash position, consisting of the sum of our cash, cash equivalents and short-term investments of \$170.3 million, net of amounts drawn on our \$7 million Canadian demand revolving facility ("Operating Facility") of nil. The Operating Facility is available to be used in helping to finance our short term working capital requirements and is secured by a hypothecation of our cash, cash equivalents and short-term investments.

We also have a \$1.8 million Canadian capital leasing facility ("Leasing Facility") which is available to be used to finance the acquisition and / or lease of operating equipment and is secured by a hypothecation of our cash, cash equivalents and short-term investments. As of June 30, 2020, nothing was outstanding on the Leasing Facility.

Our liquidity objective is to maintain cash balances sufficient to fund at least six quarters of forecasted cash used by operating activities and expected joint venture capital contributions at all times. Our strategy to attain this objective is to continue our drive to attain profitable operations that are sustainable by executing a business plan that continues to focus on Fuel Cell Products and Services revenue growth, improving overall gross margins, maintaining discipline over Cash Operating Costs, managing working capital requirements, and securing additional financing to fund our operations as needed until we do achieve profitable operations that are sustainable. We believe that we currently have adequate liquidity in

cash and working capital to achieve our liquidity objective.

Failure to achieve or maintain this liquidity objective could have a material adverse effect on our financial condition and results of operations including our ability to continue as a going concern. There are also various risks and uncertainties affecting our ability to achieve this liquidity objective including, but not limited to, the market acceptance and rate of commercialization of our products, the ability to successfully execute our business plan, and general global economic conditions, certain of which are beyond our control. While we continue to make significant investments in product development and market development activities necessary to commercialize our products, make increased investments in working capital as we grow our business, and make ongoing capital contributions in support of our investment in Weichai Ballard JV, our actual liquidity requirements will also vary and will be impacted by our relationships with our lead customers and strategic partners including their ability to successfully finance and fund their operations and programs and agreements with us, our success in developing new channels to market and relationships with customers, our success in generating revenue growth from near-term product, service and licensing opportunities, our success in managing our operating expense and working capital requirements, foreign exchange fluctuations, and the progress and results of our research, development and demonstration programs.

We may also choose to pursue additional liquidity through the issuance of debt or equity in private or public market financings. To enable the timely issuance of equity securities in the public market, we renewed our shelf prospectus ("Base Shelf Prospectus") on file with the securities regulators in Canada in June 2020. The Base Shelf Prospectus, which expires in September 2022, was filed in each of the provinces and territories of Canada, and a corresponding shelf registration statement on Form F-10 ("Registration Statement") was also filed with the United States Securities and Exchange Commission ("SEC"). These filings enable offerings of securities up to an aggregate initial offering price of \$750 million at any time during the 25-month period to July 2020 that the Base Shelf Prospectus remains effective.

During March 2020, we established an ATM Program that allowed the issuance of up to \$75 million of common shares from treasury to the public from time to time at the Company's discretion, subject to favorable market conditions. The ATM Program was conducted under our now expired \$150 million Base Shelf Prospectus with proceeds to be used to fund growth and strategic opportunities. During the first half of 2020, we issued 8.197 million Common Shares under the now terminated ATM Program for gross proceeds of \$66.7 million. In connection with its equity investment in Ballard, Weichai has certain anti-dilution rights entitling it to maintain its 19.9% equity interest in Ballard. At Weichai's request, Ballard agreed to allow Weichai to exercise its anti-dilution right in respect of the ATM Program at a future time, at a price reflecting the market price at that time.

No assurance can be given that any such additional liquidity will be available or that, if available, it can be obtained on terms favorable to the Company. If any securities are offered under the Base Shelf Prospectus and/or Registration Statement, the terms of any such securities and the intended use of the net proceeds resulting from such offering would be established at the time of any offering and would be described in a Prospectus Supplement filed with applicable Canadian securities regulators and/or the SEC,

respectively, at the time of such an offering.

7. OTHER FINANCIAL MATTERS

7.1 Off-Balance Sheet Arrangements and Contractual Obligations

Periodically, we use forward foreign exchange contracts to manage our exposure to currency rate fluctuations. We record these contracts at their fair value as either assets or liabilities on our balance sheet. Any changes in fair value are either (i) recorded in other comprehensive income if formally designated and qualified under hedge accounting criteria; or (ii) recorded in profit or loss (general and administrative expense) if either not designated, or not qualified, under hedge accounting criteria. At June 30, 2020, we had outstanding foreign exchange currency contracts to purchase a total of Canadian \$13.0 million at an average rate of 1.3960 Canadian per U.S. dollar, resulting in an unrealized gain of Canadian \$0.4 million at June 30, 2020. The outstanding foreign exchange currency contracts have not been designated under hedge accounting. In addition, we have certain foreign exchange currency contracts with a counterparty that is now insolvent and, as a result, these historic foreign exchange currency contracts are likely unenforceable. In that the case, some or all of our net recognized unrealized exposure of (\$0.5) million may become realized.

At June 30, 2020, we did not have any other material obligations under guarantee contracts, retained or contingent interests in transferred assets, outstanding derivative instruments or non-consolidated variable interests.

At June 30, 2020, we had the following contractual obligations and commercial commitments (including capital contribution commitments to Weichai Ballard JV) calculated on a non-discounted basis:

Contractual Obligations	Total	Payments due by period,			
		Less than one year	1-3 years	4-5 years	After 5 years
Finance leases	\$ 21,982	\$ 3,557	\$ 7,027	\$ 6,637	\$ 4,761
Asset retirement obligations	1,818	-	-	-	1,818
Capital contributions to Weichai Ballard JV	29,273	14,723	14,550	-	-
Total contractual obligations	\$ 53,073	\$ 18,280	\$ 21,577	\$ 6,637	\$ 6,579

In addition, we have outstanding commitments of \$7.7 million at June 30, 2020 related primarily to purchases of property, plant and equipment. Capital expenditures and expenditures on other intangible assets pertain to our regular operations and are expected to be funded through cash on hand.

In connection with the acquisition of intellectual property from UTC in 2014, we have a royalty obligation in certain circumstances to pay UTC a portion of any future intellectual property sale and licensing income generated from certain of our intellectual property portfolio for a period of 15-years expiring in April 2029. No royalties were paid to UTC in the six months ended June 30, 2020 or in the years ended December 31, 2019 and 2018.

As of June 30, 2020, we retain a previous funding obligation to pay royalties of 2% of revenues (to a maximum of Canadian \$5.4 million) on sales of certain fuel cell products for

commercial distributed utility applications. No royalties have been incurred to date as a result of this agreement.

We also retain a previous funding obligation to pay royalties of 2% of revenues (to a maximum of Canadian \$2.2 million) on sales of certain fuel cell products for commercial transit applications. No royalties have been incurred to date as a result of this agreement.

In the ordinary course of business or as required by certain acquisition or disposition agreements, we are periodically required to provide certain indemnities to other parties. At June 30, 2020, we have not accrued any significant amount owing, or receivable, as a result of any indemnity agreements undertaken in the ordinary course of business.

7.2 Related Party Transactions

Related parties include our 49% owned equity accounted investee, Weichai Ballard JV, and our 10% owned equity accounted investee, Synergy Ballard JVCo. Transactions between us and our subsidiaries are eliminated on consolidation. For the three and six months ended June 30, 2020 and 2019, related party transactions and balances with Weichai Ballard JV and Synergy Ballard JVCo total as follows:

<i>(Expressed in thousands of U.S. dollars)</i>	Three Months Ended June 30,	
Transactions with related parties	2020	2019
Revenues	\$ 11,240	\$ 7,494
Cost of goods sold and operating expense	\$ -	\$ -

<i>(Expressed in thousands of U.S. dollars)</i>	Six Months Ended June 30,	
Transactions with related parties	2020	2019
Revenues	\$ 24,696	\$ 11,498
Cost of goods sold and operating expense	\$ -	\$ -

<i>(Expressed in thousands of U.S. dollars)</i>	As at Jun 30,	As at Dec 31,
Balances with related parties	2020	2019
Accounts receivable	\$ 10,475	\$ 10,122
Investments	\$ 25,368	\$ 21,642
Deferred revenue	\$ (9,782)	\$ (11,903)

We also provide key management personnel, being board directors and executive officers, certain benefits, in addition to their salaries. Key management personnel also participate in the Company's share-based compensation plans. Key management personnel compensation is summarized in note 27 to our annual consolidated financial statements for the year ended December 31, 2019.

7.3 Outstanding Share and Equity Information

As at August 5, 2020	
Common share outstanding	244,466,795
Options outstanding	3,982,600
DSU's outstanding	811,216
RSU's / PSU's outstanding (subject to vesting and performance criteria)	1,015,709

8. ACCOUNTING MATTERS

8.1 Overview

Our consolidated financial statements are prepared in accordance with IFRS, which require us to make estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from those estimates. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

8.2 Critical Judgments in Applying Accounting Policies

Critical judgments that we have made in the process of applying our accounting policies and that have the most significant effect on the amounts recognized in the consolidated financial statements is limited to our assessment of our ability to continue as a going concern (See Note 2 (e) to our condensed consolidated interim financial statements).

Our significant accounting policies are detailed in note 4 to our annual consolidated financial statements for the year ended December 31, 2019 except as described below. These changes in accounting policies are also expected to be reflected in the Company's consolidated financial statements as at and for the year ending December 31, 2020.

Effective January 1, 2020, we have adopted *Amendments to References to the Conceptual Framework in IFRS Standards, Definition of a Business (Amendments to IFRS 3) and Definition of Material (Amendments to IAS 1 and IAS 8)*. The effect of initially applying *Amendments to References to the Conceptual Framework in IFRS Standards, Definition of a Business (Amendments to IFRS 3) and Definition of Material (Amendments to IAS 1 and IAS 8)* did not have a material impact on our financial statements. A number of other new standards and interpretations were also effective from January 1, 2020 but they also did not have a material impact on our financial statements. Changes to significant accounting policies are detailed below and in note 4 to our annual consolidated financial statements.

8.3 Key Sources of Estimation Uncertainty

The following are key assumptions concerning the future and other key sources of estimation uncertainty that have a significant risk of resulting in a material adjustment to the reported amount of assets, liabilities, income and expenses within the next financial year.

REVENUE RECOGNITION

Revenues are generated primarily from product sales, the license and sale of intellectual property and fundamental knowledge, and the provision of engineering services and

technology transfer services. Product revenues are derived primarily from standard product sales contracts and from long-term fixed price contracts. Intellectual property and fundamental knowledge license revenues are derived primarily from standard licensing and technology transfer agreements. Engineering service and technology transfer service revenues are derived primarily from cost-plus reimbursable contracts and from long-term fixed price contracts.

Revenue is recognized when a customer obtains control of the goods or services. Determining the timing of the transfer of control, at a point in time or over time, requires judgment.

On standard product sales contracts, revenues are recognized when customers obtain control of the product, that is when transfer of title and risks and rewards of ownership of goods have passed, and when obligation to pay is considered certain. Invoices are generated and revenue is recognized at that point in time. Provisions for warranties are made at the time of sale. Revenue recognition for standard product sales contracts does not usually involve significant estimates.

On standard licensing and technology transfer agreements, revenues are recognized on the transfer of rights to a licensee, when it is determined to be distinct from other performance obligations, and if the customer can direct the use of, and obtain substantially all of the remaining benefits from the license as it exists at the time of transfer. In other cases, the proceeds are considered to relate to the right to use the asset over the license period and the revenue is recognized over that period. If it is determined that the license is not distinct from other performance obligations, revenue is recognized over time as the customer simultaneously receives and consumes the benefit. Revenue recognition for standard license and sale agreements does not usually involve significant estimates.

On cost-plus reimbursable contracts, revenues are recognized as costs are incurred, and include applicable fees earned as services are provided. Revenue recognition for cost-plus reimbursable contracts does not usually involve significant estimates.

On long-term fixed price contracts, the customer controls all of the work in progress as the services are being provided. This is because under these contracts, the deliverables are made to a customer's specification, and if a contract is terminated by the customer, then the Company is entitled to reimbursement of the costs incurred to date plus the applicable gross margin. Therefore, revenue from these contracts and the associated costs are recognized as the costs are incurred over time. On long-term fixed price contracts, revenues are recognized over time using cumulative costs incurred to date relative to total estimated costs at completion to measure progress towards satisfying performance obligations. Generally, revenue is recognized by multiplying the expected consideration by the ratio of cumulative costs incurred to date to the sum of incurred and estimated costs for completing the performance obligation. The cumulative effect of changes to estimated revenues and estimated costs for completing a contract are recognized in the period in which the revisions are identified. In the event that the estimated costs for completing the contract exceed the expected revenues on a contract, such loss is recognized in its entirety in the period it becomes known. Deferred revenue (i.e. contract liabilities) represents cash received from customers in excess of revenue recognized on uncompleted contracts.

- The determination of expected costs for completing a contract is based on estimates that can be affected by a variety of factors such as variances in the timeline to completion, the cost of materials, the availability and cost of labour, as well as productivity.
- The determination of potential revenues includes the contractually agreed amount and may be adjusted based on the estimate of our attainment on achieving certain defined contractual milestones. Management's estimation is required in determining the amount of consideration for which the Company expects to be entitled and in determining when a performance obligation has been met.

Estimates used to determine revenues and costs of long-term fixed price contracts involve uncertainties that ultimately depend on the outcome of future events and are periodically revised as projects progress. There is a risk that a customer may ultimately disagree with management's assessment of the progress achieved against milestones, or that our estimates of the work required to complete a contract may change.

During the three and six months ended June 30, 2020 and 2019, there were no material adjustments to revenues relating to revenue recognized in a prior period.

ASSET IMPAIRMENT

The carrying amounts of our non-financial assets other than inventories are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. For goodwill and intangible assets that have indefinite useful lives, the recoverable amount is estimated at least annually.

The recoverable amount of an asset or cash-generating unit is the greater of its value in use and its fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In assessing fair value less costs to sell, the price that would be received on the sale of an asset in an orderly transaction between market participants at the measurement date is estimated. For the purposes of impairment testing, assets that cannot be tested individually are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows of other groups of assets. The allocation of goodwill to cash-generating units reflects the lowest level at which goodwill is monitored for internal reporting purposes. Many of the factors used in assessing fair value are outside the control of management and it is reasonably likely that assumptions and estimates will change from period to period. These changes may result in future impairments. For example, our revenue growth rate could be lower than projected due to economic, industry or competitive factors, or the discount rate used in our value in use model could increase due to a change in market interest rates. In addition, future goodwill impairment charges may be necessary if our market capitalization decreased due to a decline in the trading price of our common stock, which could negatively impact the fair value of our business.

An impairment loss is recognized if the carrying amount of an asset or its cash-generating unit exceeds its estimated recoverable amount. Impairment losses are recognized in net loss. Impairment losses recognized in respect of the cash-generating units are allocated first

to reduce the carrying amount of any goodwill allocated to the units, and then to reduce the carrying amounts of the other assets in the unit on a pro-rata basis.

An impairment loss in respect of goodwill is not reversed. In respect of other assets, impairment losses recognized in prior periods are assessed at each reporting date for any indications that the cumulative loss has decreased or no longer exists. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

We perform the annual review of goodwill as at December 31 of each year, more often if events or changes in circumstances indicate that it might be impaired. Based on the impairment test performed as at December 31, 2019 and our assessment of current events and circumstances, we have concluded that no goodwill impairment test was required for the three and six months ending June 30, 2020.

In addition to the above goodwill impairment test, we perform a quarterly assessment of the carrying amounts of our non-financial assets (other than inventories) to determine whether there is any indication of impairment. During the year ended December 31, 2019, we recorded a loss on sale of assets of (\$2.0) million related to an additional impairment charge arising from the divestiture of our Power Manager assets in October 2018 after adjusting the estimated amount of variable consideration from \$2.0 million to nil. During October 2019, the estimated amount of variable consideration was confirmed as nil as the buyer failed to meet the minimum specific sales objectives in the 12-month earn-out period to trigger any additional proceeds payable to us.

WARRANTY PROVISION

A provision for warranty costs is recorded on product sales at the time of shipment. In establishing the accrued warranty liabilities, we estimate the likelihood that products sold will experience warranty claims and the cost to resolve claims received.

In making such determinations, we use estimates based on the nature of the contract and past and projected experience with the products. Should these estimates prove to be incorrect, we may incur costs different from those provided for in our warranty provisions. During the three and six months ended June 30, 2020, we recorded provisions to accrued warranty liabilities of \$0.5 million and \$1.8 million, respectively, for new product sales, compared to \$0.9 million and \$1.3 million, respectively, for the three and six months ended June 30, 2019.

We review our warranty assumptions and make adjustments to accrued warranty liabilities quarterly based on the latest information available and to reflect the expiry of contractual obligations. Adjustments to accrued warranty liabilities are recorded in cost of product and service revenues. As a result of these reviews and the resulting adjustments, our warranty provision and cost of revenues for the three and six months ended June 30, 2020 were adjusted downwards by \$0.2 million in each of the periods, compared to nominal adjustments for the three and six months ended June 30, 2019.

INVENTORY PROVISION

In determining the lower of cost and net realizable value of our inventory and establishing

the appropriate provision for inventory obsolescence, we estimate the likelihood that inventory carrying values will be affected by changes in market pricing or demand for our products and by changes in technology or design which could make inventory on hand obsolete or recoverable at less than cost. We perform regular reviews to assess the impact of changes in technology and design, sales trends and other changes on the carrying value of inventory. Where we determine that such changes have occurred and will have a negative impact on the value of inventory on hand, appropriate provisions are made. If there is a subsequent increase in the value of inventory on hand, reversals of previous write-downs to net realizable value are made. Unforeseen changes in these factors could result in additional inventory provisions, or reversals of previous provisions, being required. During the three and six months ended June 30, 2020, net negative inventory adjustments of (\$0.7) million were recorded in each of the periods as a recovery (charge) to cost of product and service revenues, compared to net negative inventory adjustments of (\$0.5) million and (\$0.6) million, respectively, in the three and six months ended June 30, 2019.

FINANCIAL ASSETS INCLUDING IMPAIRMENT OF TRADE RECEIVABLES

A financial asset is classified as measured at: amortized cost; fair value through other comprehensive income ("FVOCI") or fair value through profit or loss ("FVTPL"). The classification of financial assets is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. Derivatives embedded in contracts where the host is a financial asset in the scope of the standard are never separated. Instead, the hybrid financial instrument as a whole is assessed for classification. The Company's financial assets which consist primarily of cash and cash equivalents, trade and other receivables, and contract assets, are classified at amortized cost.

An 'expected credit loss' ("ECL") model applies to financial assets measured at amortized cost and debt investments at FVOCI, but not to investments in equity instruments. The Company's financial assets measured at amortized cost and subject to the ECL model consist primarily of trade receivables and contract assets.

In applying the ECL model, loss allowances are measured on either of the following bases:

- 12-month ECLs: these are ECLs that result from possible default events within the 12 months after the reporting date; and
- Lifetime ECLs: these are ECLs that result from all possible default events over the expected life of a financial instrument.

We have elected to measure loss allowances for trade receivables and contract assets at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, we consider reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on our historical experience and informed credit assessment and including forward-looking information.

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that we expect to receive). ECLs

are discounted at the effective interest rate of the financial asset. At each reporting date, we assess whether financial assets carried at amortized cost are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred. Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets. Impairment (losses) recoveries related to trade receivables and contract assets are presented separately in the statement of profit or loss. During the three and six months ended June 30, 2020, net impairment (charges) on trade receivables and contract assets of (\$0.1) million and (\$0.3) million, respectively, were recorded in other operating expenses, compared to nominal net impairment (charges) during the three and six months ended June 30, 2019. Net impairment charges in the first half of 2020 of (\$0.3) million include ECL's of (\$0.3) million.

LEASES

We apply judgment in determining whether a contract contains an identified asset. The identified asset should be physically distinct or represent substantially all of the capacity of the asset, and should provide the right to substantially all of the economic benefits from the use of the asset. We also apply judgment in determining whether or not we have the right to control the use of the identified asset. We have that right when we have the decision-making rights that are most relevant to changing how and for what purpose the asset is used. In rare cases where the decisions about how and for what purpose the asset is used are predetermined, we have the right to direct the use of the asset if we have the right to operate the asset or if the asset is designed in a way that predetermines how and for what purpose the asset will be used.

We apply judgment in determining the incremental borrowing rate used to measure our lease liability for each lease contract, including an estimate of the asset-specific security impact. The incremental borrowing rate should reflect the interest that would have to be paid to borrow at a similar term and with a similar security.

The lease liability is subsequently increased by the interest cost on the lease liability and decreased by lease payments made. It is re-measured when there is a change in future lease payments arising from a change in an index or rate, a change in the estimate of the amount expected to be payable under a residual value guarantee, or as appropriate, changes in the assessment of whether a purchase or extension option is reasonably certain to be exercised or a termination option is reasonably certain not to be exercised.

We have applied judgment to determine the lease term for some lease contracts in which we are a lessee that include renewal options. At lease commencement, we assess whether it is reasonably certain to exercise any of the extension options based on the expected economic return from the lease. We periodically reassess whether we are reasonably certain to exercise the options and account for any changes at the date of the reassessment. The assessment of whether we are reasonably certain to exercise such options impacts the lease term which significantly affects the amount of lease liabilities and right-of-use assets recognized. We estimate the lease term by considering the facts and circumstances that can create an economic incentive to exercise an extension option, or not exercise a termination option. Certain qualitative and quantitative assumptions are made when deriving the value of the economic incentive.

EMPLOYEE FUTURE BENEFITS

The present value of our defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that have terms to maturity approximating the terms of the related pension liability. Determination of benefit expense requires assumptions such as the discount rate to measure obligations, expected plan investment performance, expected healthcare cost trend rate, and retirement ages of employees. Actual results will differ from the recorded amounts based on these estimates and assumptions.

INCOME TAXES

We use the asset and liability method of accounting for income taxes. Under this method, deferred income taxes are recognized for the deferred income tax consequences attributable to differences between the financial statement carrying values of assets and liabilities and their respective income tax bases (temporary differences) and for loss carry-forwards. The resulting changes in the net deferred tax asset or liability are included in income.

Deferred tax assets and liabilities are measured using enacted, or substantively enacted, tax rates expected to apply to taxable income in the years in which temporary differences are expected to be recovered or settled. The effect on deferred income tax assets and liabilities, of a change in tax rates, is included in income in the period that includes the substantive enactment date. Deferred income tax assets are reviewed at each reporting period and are reduced to the extent that it is no longer probable that the related tax benefit will be realized. In circumstances in which there is uncertainty over income tax treatments for current and / or deferred tax liabilities and asset, we contemplate whether uncertain tax treatments should be considered separately, or together as a group, based on which approach provides better predictions of the resolution. We then determine if it is probable that the tax authorities will accept the uncertain tax treatment; and if it is not probable that the uncertain tax treatment will be accepted, we measure the tax uncertainty based on the most likely amount of expected value, depending on whichever method better predicts the resolution of the uncertainty.

As of June 30, 2020 and 2019, we have not recorded any deferred income tax assets on our consolidated statement of financial position.

8.4 Recently Adopted Accounting Policy Changes

Effective January 1, 2020, we have adopted *Amendments to References to the Conceptual Framework in IFRS Standards, Definition of a Business (Amendments to IFRS 3) and Definition of Material (Amendments to IAS 1 and IAS 8)*. The effect of initially applying *Amendments to References to the Conceptual Framework in IFRS Standards, Definition of a Business (Amendments to IFRS 3) and Definition of Material (Amendments to IAS 1 and IAS 8)* did not have a material impact on our financial statements. A number of other new standards and interpretations were also effective from January 1, 2020 but they also did not have a material impact on our financial statements.

AMENDMENTS TO REFERENCES TO THE CONCEPTUAL FRAMEWORK IN IFRS STANDARDS

On March 29, 2018, the IASB issued a revised version of its *Conceptual Framework for Financial Reporting* ("the Framework") that underpins IFRS Standards. The IASB also issued

Amendments to References to the Conceptual Framework in IFRS Standards ("the Amendments") to update references in IFRS Standards to previous versions of the Conceptual Framework.

Some Standards include references to the 1989 and 2010 versions of the Framework. The IASB has published a separate document which contains consequential amendments to affected Standards so that they refer to the new Framework, with the exception of IFRS 3 Business Combinations which continues to refer to both the 1989 and 2010 Frameworks.

The adoption of the Amendments did not have a material impact on the Company's financial statements.

DEFINITION OF A BUSINESS (AMENDMENTS TO IFRS 3)

On October 22, 2018, the IASB issued amendments to *IFRS 3 Business Combinations* that seek to clarify whether a transaction results in an asset or a business acquisition.

The amendments include an election to use a concentration test. This is a simplified assessment that results in an asset acquisition if substantially all of the fair value of the gross assets is concentrated in a single identifiable asset or a group of similar identifiable assets. If a preparer chooses not to apply the concentration test, or the test is failed, then the assessment focuses on the existence of a substantive process.

The adoption of the amendments to IFRS 3 did not have a material impact on the Company's financial statements.

DEFINITION OF MATERIAL (AMENDMENTS TO IAS 1 and IAS 8)

On October 31, 2018 the IASB refined its definition of material and removed the definition of material omissions or misstatements from *IAS 8*.

The definition of material has been aligned across *IFRS Standards and the Conceptual Framework for Financial Reporting*. The amendments provide a definition and explanatory paragraphs in one place. Pursuant to the amendments, information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity.

The adoption of the amendments to IAS 1 and IAS 8 did not have a material impact on the Company's financial statements.

8.5 Future Accounting Policy Changes

The following is an overview of accounting standard changes that we will be required to adopt in future years. We do not expect to adopt any of these standards before their effective dates and we continue to evaluate the impact of these standards on our consolidated financial statements.

Classification of Liabilities as Current or Non-Current (Amendments to IAS 1)

On January 23, 2020, the IASB issued amendments to *IAS 1 Presentation of Financial Statements*, to clarify the classification of liabilities as current or non-current. On July 15, 2020 the IASB issued an amendment to defer the effective date by one year.

For the purposes of non-current classification, the amendments removed the requirement for a right to defer settlement or roll over of a liability for at least twelve months to be unconditional. Instead, such a right must have substance and exist at the end of the reporting period. The amendments also clarify how a company classifies a liability that includes a counterparty conversion option. The amendments state that:

- settlement of a liability includes transferring a company's own equity instruments to the counterparty, and
- when classifying liabilities as current or non-current a company can ignore only those conversion options that are recognized as equity.

The amendments are effective for annual periods beginning on or after January 1, 2023. Early adoption is permitted. The extent of the impact of adoption of the amendments to *IAS 1* has not yet been determined.

Property, Plant and Equipment – Proceeds before Intended Use (Amendments to IAS 16)

On May 14, 2020, the IASB issued *Property, Plant and Equipment – Proceeds before Intended Use (Amendments to IAS 16)*.

The amendments provide guidance on the accounting for sale proceeds and the related production costs for items a company produces and sells in the process of making an item of property, plant and equipment ("PPE") available for its intended use. Specifically, proceeds from selling items before the related item of PPE is available for use should be recognized in profit or loss, together with the costs of producing those items.

The amendments are effective for annual periods beginning on or after January 1, 2022. Early adoption is permitted. The extent of the impact of adoption of the amendments to *IAS 16* has not yet been determined.

Onerous Contracts – Cost of Fulfilling a Contract (Amendments to IAS 37)

On May 14, 2020, the IASB issued *Onerous Contracts – Cost of Fulfilling a Contract (Amendments to IAS 37)*.

IAS 37 does not specify which costs are included as a cost of fulfilling a contract when determining whether a contract is onerous. The IASB's amendments address this issue by clarifying that the 'costs of fulfilling a contract' comprise both:

- the incremental costs – e.g. direct labour and materials; and
- an allocation of other direct costs – e.g. an allocation of the depreciation charge for an item of PPE used in fulfilling the contract.

The amendments are effective for annual periods beginning on or after January 1, 2022 and apply to contracts existing at the date when the amendments are first applied. Early adoption is permitted. The extent of the impact of adoption of the amendments to *IAS 37* has not yet been determined.

9. SUPPLEMENTAL NON-GAAP MEASURES AND RECONCILIATIONS

9.1 Overview

In addition to providing measures prepared in accordance with GAAP, we present certain supplemental non-GAAP measures. These measures are Cash Operating Costs (including its components of research and product development (operating cost), general and

administrative (operating cost) and sales and marketing (operating cost)), EBITDA and Adjusted EBITDA, and Adjusted Net Loss. These non-GAAP measures do not have any standardized meaning prescribed by GAAP and therefore are unlikely to be comparable to similar measures presented by other companies. We believe these measures are useful in evaluating the operating performance of the Company's ongoing business. These measures should be considered in addition to, and not as a substitute for, operating expenses, net income, cash flows and other measures of financial performance and liquidity reported in accordance with GAAP. The calculation of these non-GAAP measures have been made on a consistent basis for all periods presented.

9.2 Cash Operating Costs

This supplemental non-GAAP measure is provided to assist readers in determining our operating costs on an ongoing cash basis. We believe this measure is useful in assessing performance and highlighting trends on an overall basis.

We also believe Cash Operating Costs is frequently used by securities analysts and investors when comparing our results with those of other companies. Cash Operating Costs differs from the most comparable GAAP measure, operating expenses, primarily because it does not include stock-based compensation expense, depreciation and amortization, impairment losses or recoveries on trade receivables, restructuring charges, acquisition costs, the impact of unrealized gains and losses on foreign exchange contracts, and financing charges. The following tables show a reconciliation of operating expenses to Cash Operating Costs for the three and six months ended June 30, 2020 and 2019:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Cash Operating Costs	2020	2019	\$ Change	
Total Operating Expenses	\$ 14,017	\$ 10,149	\$ 3,868	
Stock-based compensation expense	(1,595)	(898)	(697)	
Impairment recovery (losses) on trade receivables	(50)	-	(50)	
Acquisition and integration costs	-	-	-	
Restructuring (charges) recovery	(13)	(68)	55	
Impact of unrealized gains (losses) on foreign exchange contracts	242	331	(89)	
Depreciation and amortization	(978)	(1,111)	133	
Cash Operating Costs	\$ 11,623	\$ 8,403	\$ 3,220	

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Cash Operating Costs	2020	2019	\$ Change	
Total Operating Expenses	\$ 29,703	\$ 20,876	\$ 8,827	
Stock-based compensation expense	(2,690)	(1,691)	(999)	
Impairment recovery (losses) on trade receivables	(250)	-	(250)	
Acquisition and integration costs	-	-	-	
Restructuring (charges) recovery	(31)	(149)	118	
Impact of unrealized gains (losses) on foreign exchange contracts	(977)	748	(1,725)	
Depreciation and amortization	(1,959)	(2,075)	116	
Cash Operating Costs	\$ 23,796	\$ 17,709	\$ 6,087	

The components of Cash Operating Costs of research and product development (cash operating cost), general and administrative (cash operating cost), and sales and marketing (cash operating cost) differ from their respective most comparable GAAP measure of research and product development expense, general and administrative expense, and sales and marketing expense, primarily because they do not include stock-based compensation expense and depreciation and amortization expense. A reconciliation of these respective operating expenses to the respective components of Cash Operating Costs for the three and six months ended June 30, 2020 and 2019 is included in Section 5.4 Operating Expenses and Other Items.

A breakdown of total stock-based compensation expense for the three and six months ended June 30, 2020 and 2019 are as follows:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Stock-based compensation expense	2020	2019		\$ Change
Total stock-based compensation expense recorded as follows:				
Cost of goods sold	\$ -	\$ -		\$ -
Research and product development expense	775	376		399
General and administrative expense	500	355		145
Sales and marketing expense (recovery)	320	167		153
Stock-based compensation expense	\$ 1,595	\$ 898		\$ 697

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Stock-based compensation expense	2020	2019		\$ Change
Total stock-based compensation expense recorded as follows:				
Cost of goods sold	\$ -	\$ -		\$ -
Research and product development expense	1,256	701		555
General and administrative expense	904	681		223
Sales and marketing expense (recovery)	530	309		221
Stock-based compensation expense	\$ 2,690	\$ 1,691		\$ 999

A breakdown of total depreciation and amortization expense for the three and six months ended June 30, 2020 and 2019 are as follows:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Depreciation and amortization expense	2020	2019		\$ Change
Total depreciation and amortization expense recorded as follows:				
Cost of goods sold	\$ 632	\$ 842		\$ (210)
Research and product development expense	689	823		(134)
General and administrative expense	280	279		1
Sales and marketing expense	9	9		-
Depreciation and amortization expense	\$ 1,610	\$ 1,953		\$ (343)

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Depreciation and amortization expense	2020	2019	\$ Change	
Total depreciation and amortization expense recorded as follows:				
Cost of goods sold	\$ 1,271	\$ 1,445	\$ (174)	
Research and product development expense	1,383	1,491	(108)	
General and administrative expense	559	568	(9)	
Sales and marketing expense	17	16	1	
Depreciation and amortization expense	\$ 3,230	\$ 3,520	\$ (290)	

9.3 EBITDA and Adjusted EBITDA

These supplemental non-GAAP measures are provided to assist readers in determining our operating performance. We believe this measure is useful in assessing performance and highlighting trends on an overall basis. We also believe EBITDA and Adjusted EBITDA are frequently used by securities analysts and investors when comparing our results with those of other companies. EBITDA differs from the most comparable GAAP measure, net loss, primarily because it does not include finance expense, income taxes, depreciation of property, plant and equipment, and amortization of intangible assets. Adjusted EBITDA adjusts EBITDA for stock-based compensation expense, transactional gains and losses, asset impairment charges, finance and other income, the impact of unrealized gains and losses on foreign exchange contracts, and acquisition costs. The following tables show a reconciliation of net loss to EBITDA and Adjusted EBITDA for the three and six months ended June 30, 2020 and 2019:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
EBITDA and Adjusted EBITDA	2020	2019	\$ Change	
Net loss	\$ (11,432)	\$ (6,971)	\$ (4,461)	
Depreciation and amortization	1,610	1,953	(343)	
Finance expense	316	368	(52)	
Income taxes	67	-	67	
EBITDA	\$ (9,439)	\$ (4,650)	\$ (4,789)	
Stock-based compensation expense	1,595	898	697	
Acquisition and integration costs	-	-	-	
Finance and other (income) loss	(550)	(945)	395	
Impairment charges on intangible assets and property, plant and equipment	-	-	-	
Loss (gain) on sale of assets	-	-	-	
Impact of unrealized (gains) losses on foreign exchange contracts	(242)	(331)	89	
Adjusted EBITDA	\$ (8,636)	\$ (5,028)	\$ (3,608)	

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
EBITDA and Adjusted EBITDA	2020	2019	\$ Change	
Net loss	\$ (24,935)	\$ (18,995)	\$ (5,940)	
Depreciation and amortization	3,230	3,520	(290)	
Finance expense	660	724	(64)	
Income taxes	83	6	77	
EBITDA	\$ (20,962)	\$ (14,745)	\$ (6,217)	
Stock-based compensation expense	2,690	1,691	999	
Acquisition and integration costs	-	-	-	
Finance and other (income) loss	(408)	(1,778)	1,370	
Impairment charges on intangible assets and property, plant and equipment	-	-	-	
Loss (gain) on sale of assets	-	1,995	(1,995)	
Impact of unrealized (gains) losses on foreign exchange contracts	977	(748)	1,725	
Adjusted EBITDA	\$ (17,703)	\$ (13,585)	\$ (4,118)	

9.4 Adjusted Net Loss

This supplemental non-GAAP measure is provided to assist readers in determining our financial performance. We believe this measure is useful in assessing our actual performance by adjusting our results from continuing operations for transactional gains and losses and impairment losses. Adjusted Net Loss differs from the most comparable GAAP measure, net loss, primarily because it does not include transactional gains and losses, asset impairment charges, and acquisition costs. The following table shows a reconciliation of net loss to Adjusted Net Loss for the three and six months ended June 30, 2020 and 2019:

<i>(Expressed in thousands of U.S. dollars)</i>		Three months ended June 30,		
Adjusted Net Loss	2020	2019	\$ Change	
Net loss	\$ (11,432)	\$ (6,971)	\$ (4,461)	
Acquisition and integration costs	-	-	-	
Impairment charges (recovery) on intangible assets and property, plant and equipment	-	-	-	
Loss on sale of assets	-	-	-	
Adjusted Net Loss	\$ (11,432)	\$ (6,971)	\$ (4,461)	
Adjusted Net Loss per share	\$ (0.05)	\$ (0.03)	\$ (0.02)	

<i>(Expressed in thousands of U.S. dollars)</i>		Six months ended June 30,		
Adjusted Net Loss	2020	2019	\$ Change	
Net loss	\$ (24,935)	\$ (18,995)	\$ (5,940)	
Acquisition and integration costs	-	-	-	
Impairment charges (recovery) on intangible assets and property, plant and equipment	-	-	-	
Loss on sale of assets	-	2,000	(2,000)	
Adjusted Net Loss	\$ (24,935)	\$ (16,995)	\$ (7,940)	
Adjusted Net Loss per share	\$ (0.10)	\$ (0.07)	\$ (0.03)	