

Ballard Power Systems Inc. (BLDP - \$15.06)
September 20, 2021*

Ballard Power Systems Inc. (BLDP) designs, develops, manufactures, markets, and services proton exchange membrane (PEM) fuel cell products for bus, truck, rail, and marine motive applications and material handling and backup power. In addition, the Company provides fuel cell engineering services, technology transfer, and intellectual property licensing. The Company sells its products to original equipment manufacturers and system integrators through an internal salesforce and partnerships. Ballard was founded in 1979 and is headquartered in Burnaby, Canada. Its fiscal year ends on 12/31.

Thesis Summary

We are concerned Ballard commentary and order backlog and order book coverage deterioration suggest consensus revenue expectations may be difficult to achieve. In our view, the Company recently shifted emphasis to sales pipeline growth to mask the backlog/order book weakness. Further, we believe the Company's sales pipeline disclosure may be misleading and provide limited insight into the business. In our view, Ballard's guidance for widespread fuel cell adoption may be overly optimistic and batteries may be a viable fuel cell alternative for certain medium- and heavy-duty motive applications. In addition, we believe intensifying fuel cell competition may pressure Ballard market share and drive persistent order backlog weakness. Our competition concerns are heightened given commentary suggesting new entrants may price aggressively to gain market share. Moreover, we are concerned certain vertically integrated commercial vehicle OEMs may pressure Ballard fuel cell demand. In our view, elevated receivable and contract asset levels highlight revenue growth pressure. Our earnings sustainability concerns are heightened given elevated inventory levels; depressed warranty, current deferred revenue, and cash flow levels; and shareholder dilution.

Catalysts and Timing

- Weaker-than-expected Q3 21 results and/or next-twelve month revenue expectations are reduced
- Competition drives Ballard market share pressure
- Fuel cell adoption ramps slower-than-expected
- Medium- & heavy-duty motive battery adoption pressures fuel cell market share

Company Data

Country/Exchange	US/NASDAQ
Shares Outstanding (mil)	297.6
Float (mil)	237.5
Short Interest (mil)	23.2
% of Float Short	9.8%
Average Volume (mil)	\$45.8
52 Week Range	\$12.80 - \$42.28
Dividend Yield	0.0%
Market Cap (bil)	\$4.5
Net Cash (bil)	\$1.2
Enterprise Value (bil)	\$3.3
FY 20 Rev (mil)/Rev Growth	\$103.9 / (1.7%)
FY 20 adj. EBITDA (mil)	(\$38.9)
FY 20 GM %/Change	20.2% / (90 bps)
FY 20 adj. EBITDA Margin %	37.5% / (1,230 bps)

Historical Earnings

	Actual	Expected	Surprise
Q2 21	(\$0.07)	(\$0.05)	--
Q1 21	(\$0.06)	(\$0.05)	--
Q4 20	(\$0.05)	(\$0.04)	--

Estimate Drift

	EST	1M Ago	6M Ago	1YR Ago
Q3 21 Rev	\$26.8	\$26.8	\$31.2	\$40.5
FY 21 Rev	\$103.2	\$103.2	\$122.0	\$151.8
FY 22 Rev	\$142.8	\$142.8	\$174.0	\$194.1
Q3 21 EPS	(\$0.06)	(\$0.06)	(\$0.04)	(\$0.03)
FY 21 EPS	(\$0.25)	(\$0.25)	(\$0.17)	(\$0.12)
FY 22 EPS	(\$0.20)	(\$0.20)	(\$0.12)	(\$0.04)

Peers Mentioned In This Report

Bosch Ltd (BOSH.NS)
Daimler AG (DAIGN.DE)
Hyzon Motors Inc. (HYZ)
PACCAR Inc (PCAR)
Plug Power Inc. (PLUG)
Powercell Sweden AB (PCELL.ST)
Volvo AB (VOLVB.ST)
Hyundai Motor Co (005380.KS)
Toyota Motor Corp (7203.T)

* All research is completed as of 4:00PM – 4:15PM Eastern Time unless otherwise noted.

Please refer to the end of this report for an updated version of *The Short List*.

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Background and Bull Story

Company Background

Company description: Ballard Power Systems Inc. (BLDP) designs, develops, manufactures, markets, and services proton exchange membrane (PEM) fuel cell products for bus, truck, rail, and marine motive applications and material handling and backup power. In addition, the Company provides fuel cell engineering services, technology transfer, and intellectual property licensing. The Company sells its products to original equipment manufacturers and system integrators through an internal salesforce and partnerships. Ballard was founded in 1979 and is headquartered in Burnaby, Canada. Its fiscal year ends on 12/31.

Background on fuel cells: A fuel cell is an environmentally friendly 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, as well as through electrolysis. Ballard's fuel cell products feature high fuel efficiency, relatively low operating temperature, high durability, low noise and vibration, compact size, quick response to electrical demand changes, and modular design.

Revenue by type: In FY 20, heavy-duty motive accounted for 45.9% of revenue, technology solutions accounted for 43.6%, backup power accounted for 5.4%, and material handling accounted for 5.1%. In its FY 20 40F, the Company disclosed it focused on bus, truck, rail, and marine heavy-duty motive applications. In addition, the Company disclosed technology solutions included engineering services, technology transfer, and intellectual property licensing; backup power included stationary applications for telecommunications equipment and other critical infrastructure; and material handling included forklifts, automated guided vehicles, and guided support equipment applications.

FY 20 Revenue By Type Analysis	As % of Revenue
Heavy duty motive	45.9%
Technology solutions	43.6%
Backup power	5.4%
Material handling	5.1%
Total	100.0%

Revenue by recognition method: In FY 20, revenue recognized at a point-in-time accounted for 54.5% of revenue, while revenue recognized over-time accounted for 45.5%. In its FY 20 40F, the Company disclosed point-in-time revenue primarily related to product sales, while over-time revenue related to product and service sales.

FY 20 Revenue By Channel Analysis	As % of Revenue
Point-in-time	54.5%
Over-time	45.5%
Total	100.0%

Geography background: In FY 20, China accounted for 52.2% of revenue, Europe accounted for 35.1%, North America accounted for 8.9%, and all other accounted for 3.7%. In its FY 20 40F, the Company highlighted China, Europe, and California as its key markets.

FY 20 Geography Analysis	As % of Revenue
China	52.2%
Europe	35.1%
North America	8.9%
Other	3.7%
Total	100.0%

Revenue by customer type: In FY 20, investees accounted for 51.1% of revenue, while non-investees accounted for 48.9% of revenue. In its FY 20 40F, Ballard disclosed investee revenue related to its two Chinese joint ventures (JV): Weichai Ballard JV and Synergy Ballard JVCo. Ballard disclosed it owned 49.0% of Weichai Ballard JV and 10.0% of Synergy Ballard JVCo. Ballard represented the purpose of the Weichai Ballard JV was to manufacture Ballard’s next-generation liquid-cooled fuel cell stack (LCS) and LCS-based power modules for bus, commercial truck, and forklift applications with certain exclusive rights in China. Ballard represented the purpose of the Synergy Ballard JVCo was to manufacture fuel cell stacks utilizing Ballard’s fuel cell stack technology for bus and commercial vehicle applications with certain exclusive rights in China. Ballard accounts for both JVs under the equity method of accounting.

FY 20 Revenue By Customer Type Analysis	As % of Revenue
Investee	51.1%
Non-investee	48.9%
Total	100.0%

Competition: Ballard competes with other fuel cell product manufacturers including Beijing Sinohytec, cellcentric GmbH & Co. KG, Cummins, Hyzon, Hyundai, Nikola, Plug Power, Powercell Sweden AB, Bosch, Shanghai Re-Fire, Toyota.¹ In addition, Ballard’s fuel cell products compete with other alternative energy powertrains such as hybrid electric, compressed natural gas, and battery electric.

Bull Story: Favorable Policy Landscape, Market Leadership, & Cost Reductions

Policy landscape guided to drive fuel cell adoption & market growth: On its Q2 20 Conference Call on 08/06/20, the Company highlighted several favorable policy developments in its target geographic markets. Specifically, the Company highlighted European Commission, California Air Resources Board, and Chinese hydrogen initiatives to achieve climate neutrality goals. On its Q4 20 Conference Call on 03/11/21, the Company represented there were 50 countries with carbon pricing initiatives, 75 countries with net zero carbon emission targets, and 32 countries with hydrogen roadmaps. On its Q1 21 Conference Call on 05/04/21, the Company guided for its total addressable market to be \$130.0 billion by CY 30.

Indeed, the decarbonization agenda had gained remarkable momentum in the past year. There are now close to 50 countries with carbon pricing initiatives and 75 countries with net 0 carbon emission targets. And notably, the growing importance of hydrogen in the future energy mix continues to be signified by supportive policy measures around the world. There are now 32 countries, representing over 70% of global GDP, that have announced hydrogen roadmaps. (CEO Mr. Randall MacEwen, Q4 20 Conference Call, 03/11/21)

¹ Beijing SinoHyttec Co. Ltd. (688339.SS), cellcentric GmbH & Co. KG (JV between DAIGn.DE & VOLVb.ST), Cummins Inc. (CMI), Hyzon Motors Inc. (HYZ), Hyundai Motor Co (005380.KS), Nikola Corporation (NKLA), Plug Power Inc. (PLUG), Powercell Sweden AB (PCELL.ST), Bosch Ltd (BOSH.NS), Shanghai Re-Fire (private), Toyota Motor Corp (7203.T)

Ballard continuously highlights its leading market position: On its Q4 20 Conference Call, the Company highlighted its industry leading fuel cell technology installed base. On its Q1 21 Conference Call, the Company represented it employees were hydrogen thought and technology leaders. In addition, the Company represented it had a highly disruptive, leading fuel cell technology. On its Q2 21 Conference Call on 08/06/21, the Company indicated its leading fuel cell technology enabled it to win new customers and have exposure to a variety of verticals.

What I think is important, very important to understand, is that Ballard has already proven the durability of our fuel cell technology in the field. So as we mentioned earlier, over 70 million kilometers of in-revenue service of now 3,300 buses and trucks in operation. No one else, no one else has that type of installed base for buses and trucks. (CEO Mr. Randall MacEwan, Q4 20 Conference Call, 03/11/21)

Ballard guided to reduce fuel cell costs by 70.0%: On its Investor Day Conference Call on 09/29/20, highlighted its 3x3 cost reduction efforts. Specifically, the Company represented its 3x3 plan aimed to address every component of its fuel cell stacks through engineering design, supply chain, and advanced manufacturing improvements. Ballard guided for its 3x3 plan to reduce costs by 70.0% and help achieve total cost of ownership parity with combustion engines by CY 24.

As heavy-duty truck is our largest future addressable market, Ballard is focused on developing a challenging stack cost reduction plan called 3x3, which represents 3 major cost initiatives per 3 time phases. Our 3x3 plan aim to address all key components of the stack with tremendous emphasis on the MEAs, which represents over 2/3 of the cost. (VP of Advanced Manufacturing Mr. Lee Sweetland, Investor Day Conference Call, 09/29/20)

Valuation: On 08/06/21, the Company reported Q2 21 revenue (loss) of \$25.0 million (\$0.07), 18.3% above (\$0.02 below) the consensus estimate. As of the date of this publication, the Company’s shares traded at 25.4x forward EV/revenue, 5.4% below its valuation over the past year and 81.4% above its prior five-year average.

NTM EV/S Valuation Analysis	Publication Date	One Year Ago	Two Years Ago	Three Years Ago	Five Year Average
Ballard Power Systems Inc. (BLDP)	24.7x	26.1x	8.0x	5.2x	14.0x

Voyant's Earnings Risk Assessment

We are concerned Ballard commentary and order backlog and order book coverage deterioration suggest consensus revenue expectations may be difficult to achieve. In our view, the Company recently shifted emphasis to sales pipeline growth to mask the backlog/order book weakness. Further, we believe the Company's sales pipeline disclosure may be misleading and provide limited insight into the business. In our view, Ballard's guidance for widespread fuel cell adoption may be overly optimistic and batteries may be a viable fuel cell alternative for certain medium- and heavy-duty motive applications. In addition, we believe intensifying fuel cell competition may pressure Ballard market share and drive persistent order backlog weakness. Our competition concerns are heightened given commentary suggesting new entrants may price aggressively to gain market share. Moreover, we are concerned certain vertically integrated commercial vehicle OEMs may pressure Ballard fuel cell demand. In our view, elevated receivable and contract asset levels highlight revenue growth pressure. Our earnings sustainability concerns are heightened given elevated inventory levels; depressed warranty, current deferred revenue, and cash flow levels; and shareholder dilution.

Order Backlog Deterioration Highlights Optimistic Revenue Expectations, In Our View

Background on order backlog & sales pipeline disclosures: Prior to Q4 19, the Company did not disclose sales pipeline trends. However, on its Q4 19 Conference Call, the Company began disclosing sales pipeline growth on its quarterly conference calls. In addition, the Company discloses order backlog and twelve-month order book in its quarterly 6K and annual 40F filings. In its FY 20 40F, the Company disclosed order backlog represented the aggregate value of customer orders at a given time for which customers made contractual commitments, while twelve-month order book represented the aggregate value of order backlog it expected to recognize as revenue over the next 12 months. In addition, the Company disclosed order backlog was vulnerable to cancellation, deferral, or non-performance by its customers.

Order backlog deterioration highlights revenue growth pressure, in our view: In Q2 21, twelve-month order book declined 20.2% year-over-year to \$80.6 million, the fifth consecutive decline. In addition, total order backlog declined 27.1% to \$113.3 million, the seventh consecutive decline and second lowest level in at least 16 periods. On its Q2 21 Conference Call, the Company attributed the order backlog decline to delayed China subsidy policies and the COVID-19 pandemic. While we acknowledge certain policy delays and the pandemic may have negatively impacted order conversion, we believe the twelve-month order book decline suggests Ballard may have limited near-term revenue visibility. Further, we are concerned persistently depressed order backlog highlights revenue growth pressure.

Order Backlog Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
12-month order book	\$80.6	\$73.1	\$83.5	\$79.6	\$101.0
<i>Year-over-year change</i>	<i>(20.2%)</i>	<i>(30.9%)</i>	<i>(24.3%)</i>	<i>(35.6%)</i>	<i>(20.3%)</i>
Long-term backlog	\$32.7	\$38.9	\$34.3	\$48.3	\$54.5
<i>Year-over-year change</i>	<i>(40.0%)</i>	<i>(38.9%)</i>	<i>(49.9%)</i>	<i>(36.4%)</i>	<i>(35.8%)</i>
Order backlog	\$113.3	\$112.0	\$117.8	\$127.9	\$155.5
<i>Year-over-year change</i>	<i>(27.1%)</i>	<i>(33.9%)</i>	<i>(34.1%)</i>	<i>(35.9%)</i>	<i>(26.5%)</i>

Evidence of order cancellations/deferrals highlights backlog conversion risk, in our view: From Q2 19 to Q2 20, the twelve-month order book accounted for over 100.0% of next twelve-month revenue. In addition, long-term backlog declined year-over-year in each period from Q4 19 to Q2 21. In our view, the greater-than-100.0% next twelve-month order book coverage and persistent long-term backlog deterioration highlight customer order deferral and/or cancellation risk. While we acknowledge the pandemic may have impacted order conversion, we are

concerned certain customer orders may have been deferred and/or cancelled. We believe the long-term backlog decline highlights order cancellations and/or limited new order strength.

Order Book Coverage Analysis (\$ in millions)	Q2 20	Q1 20	Q4 19	Q3 19	Q2 19
12-month order book	\$101.0	\$105.8	\$110.3	\$123.6	\$126.7
Next 12-month revenue	\$96.8	\$97.6	\$103.9	\$116.7	\$115.7
12-month order book coverage	104.3%	108.4%	106.2%	105.9%	109.5%
<i>Year-over-year change</i>	<i>(510 bps)</i>	<i>4,150 bps</i>	<i>4,090 bps</i>	<i>4,170 bps</i>	<i>250 bps</i>

Order book coverage decline highlights optimistic expectations & sales pipeline conversion dependence: In Q2 21, next twelve-month order book coverage declined 3,640 basis points year-over-year to 68.0%, toward the lower end of the prior four-year range.² In our view, the next twelve-month order book coverage decline suggests consensus expectations may be dependent on sales pipeline conversion (discussed next) and difficult to achieve.

Order Book Coverage Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
12-month order book	\$80.6	\$73.1	\$83.5	\$79.6	\$101.0
Next 12-month revenue (expectations for period after Q2 21)	\$118.6	\$110.3	\$100.2	\$97.8	\$96.8
12-month order book coverage	68.0%	66.3%	83.3%	81.4%	104.3%
<i>Year-over-year change</i>	<i>(3,640 bps)</i>	<i>(4,210 bps)</i>	<i>(2,280 bps)</i>	<i>(2,450 bps)</i>	<i>(510 bps)</i>

Sales pipeline emphasis may have been driven by order backlog deterioration, in our view: As mentioned, the Company only began disclosing sales pipeline trends on its Q4 19 Conference Call when order backlog declined 8.4% year-over-year from a depressed base (declined 11.8% in Q4 18). However, on its Q4 20 Conference Call, the Company indicated its sales pipeline was a “better indicator” of business trajectory than its order backlog disclosure. In our view, the Company may have begun emphasizing sales pipeline over order backlog to divert investor attention away from deteriorating order backlog trends.

The sales pipeline is probably a better indicator of where the trends are as compared to the order book. (CEO Mr. Randall MacEwan, Q4 20 Conference Call, 03/11/21)

We have the following observations:

- 1. Sales pipeline activity disclosure may be misleading & may provide limited insight into the business:** As mentioned, the Company discloses sales pipeline trends (i.e. year-over-year growth). However, the Company does not quantify the absolute dollar value of its sales pipeline. Further, the Company does not define what it considers as part of its sales pipeline. We believe the sales pipeline disclosure may be misleading given the qualitative and undefined nature of the disclosure and we are concerned the disclosure may provide limited insight into the business. Our concerns are heightened given the Company’s recent sales pipeline over backlog emphasis.
- 2. Failure to provide financial guidance suggests it may be difficult to forecast sales pipeline conversion:** On its Q4 20 Conference Call, the Company represented the majority of its sales pipeline experienced long sales cycles. In addition, in its Q2 21 6K, the Company disclosed it did not provide financial guidance as the early-stage hydrogen fuel cell market development and adoption made it difficult to forecast. In our view, the commentary and failure to provide financial guidance suggest it may be difficult to accurately forecast sales pipeline conversion.

² Next twelve-month order book coverage was lower in only four other periods.

It is important to remember that lots of times that the sales pipeline takes time from the time we receive interest, translate that through the sales force, different grades that we have in the pipeline, ultimately to order book because the -- it's a long sales cycle for these markets. (CEO Mr. Randall MacEwen, Q4 20 Conference Call, 03/11/21)

3. Ballard guides for a majority of sales pipeline to convert to orders beginning in FY 22, in our view: On its Q1 21 Conference Call, the Company highlighted significant sales pipeline growth over the past five quarters. However, the Company implicitly guided for the majority of its sales pipeline to convert to orders beginning in FY 22 and beyond. On its Annual Shareholder Meeting Conference Call on 06/02/21, the Company highlighted sales pipeline order conversion as a key theme over the next six to 18 months. While we acknowledge subsidy delays and the pandemic may have negatively impacted sales pipeline conversion, we are concerned the Company has not converted its sales pipeline to material orders given persistent order backlog weakness despite commentary about sales pipeline strength. Given commentary suggesting the majority of its sales pipeline would not convert until at least FY 22, we are concerned potentially slower-than-expected fuel cell market adoption (discussed next) and intensifying competition (discussed herein) may drive persistent order backlog pressure. The sales pipeline conversion timeline commentary heightens our concerns about the achievability of next twelve-month revenue expectations.

Analyst: Maybe percentage of how much could potentially hit the 2021 numbers versus looking at 2022 and beyond. Is it like a -- could it be like a 50-50? Or is it more like a 90%/10% 2022 and beyond?

CEO Mr. Randall MacEwen: Yes. I think we'll have some limited impact to 2021 in terms of conversion of the sales pipeline to order book. (Q1 21 Conference Call, 05/04/21) [emphasis added]

Guided Widespread Fuel Cell Adoption Timeline May Be Optimistic, In Our View

Background on fuel cells: A fuel cell is an environmentally friendly 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, as well as through electrolysis. In its FY 20 40F, Ballard highlighted fuel cells were the best zero-emission alternative for medium- and heavy-duty motive applications due to the ability to operate over a longer range, quicker refueling, and higher energy/power density relative to battery electric vehicles.

Ballard guidance for widespread fuel cell adoption may be overly optimistic, in our view: On its Q1 21 Conference Call, Ballard guided for CY 23 and CY 24 to be the first years of significant fuel cell market adoption. However, on its Q2 20 Conference Call on 07/21/20, PACCAR Inc (PCAR) indicated significant fuel cell adoption may take five to ten years as high hydrogen and fuel cell costs and the lack of hydrogen refueling infrastructure may impede near- to medium-term adoption.³ In addition, on its Q4 20 Conference Call on 01/26/21, PACCAR guided for diesel engines to be the primary mode of power for the next decade. In our view, PACCAR's commentary suggests Ballard's guidance for widespread fuel cell adoption may be overly optimistic. To the extent, significant fuel cell adoption does not occur until the latter part of the decade, we would be concerned competitors (discussed herein) have an opportunity to improve technology and gain market share.

We do think diesel engines will be a primary mode of power for the time frame up to the next decade. (PCAR CEO Mr. Preston Feight, Q4 20 Conference Call, 01/26/21)

PACCAR suggests electric batteries may be a viable alternative for certain motive applications, in our view: On its Q3 20 Conference Call on 10/20/20, PACCAR represented battery electric trucks may be a viable alternative to fuel cell trucks for certain regional markets where trucks return to a charging station. On its Q4 20 Conference Call, PACCAR indicated it invested in battery, fuel cell, and hybrid electric capabilities so it could meet the needs of its customers. In our view, PACCAR's commentary and battery electric investments suggest batteries may be a viable fuel cell alternative for certain medium- and heavy-duty motive applications. Accordingly, our concerns about slower-than-expected widespread fuel cell adoption are heightened.

³ PACCAR's fiscal year ends on 12/31.

We keep being invested in all the different battery electric and hydro fuel cell and hybrid capabilities so that when the market chooses, PACCAR is there for the product that they want. And we kind of think of ourselves as a powertrain agnostic and want to make sure that we can provide the customers the product they need. (PCAR CEO Mr. Preston Feight, Q4 20 Conference Call, 01/26/21)

Daimler commentary heightens our fuel cell alternative concerns: On its Daimler Truck Strategy Day Conference Call on 05/20/21, Daimler highlighted its dual-track strategy. Specifically, Daimler represented it was pursuing both battery and fuel cell electric trucks as the customer, industry, and world needed both technologies. Daimler represented battery energy density and cost have developed quickly and made long-range battery electric trucks viable. In addition, Daimler indicated it was developing long-range heavy-duty battery trucks. The Daimler battery truck commentary and development heightens our concerns about batteries being a viable fuel cell alternative.

We need to pursue a dual-track strategy with both battery electric and fuel cell trucks. The customer needs both, the industry needs both, the world needs both, and we are going to develop and deliver both. Let me explain. Battery electric trucks are real. Battery electric trucks are convincing. And the energy density and cost of batteries has developed so fast that long-range electric trucks are viable. (DAIGn.DE Daimler Truck AG CEO Mr. Martin Daum, Daimler Truck Strategy Day Conference Call on 05/20/21)

Audi program scope reduction highlights risk of fuel cell alternatives, in our view: In March 2013, Ballard and Volkswagen AG entered into a technology solutions contract which was later assumed by Audi. Under the contract, Ballard would develop fuel cell stacks and system design activities for the benefit of Audi to use in passenger car and commercial truck applications. On 06/11/18, Audi extended its technology solutions contract with Ballard through August 2022. The aggregate value of the extension was expected to be \$62.0 million to \$100.0 million, subject to certain rights by Audi to reduce the program scope and value. On its Q2 20 Conference Call, Ballard represented Audi reduced the scope of its technology solutions contract. In our view, the Audi program scope reduction highlights risk of fuel cell alternatives and longer-than-expected widespread fuel cell adoption.

Intensifying Fuel Cell Competition May Pressure Ballard Market Share, In Our View

Background on fuel cell competitors: As mentioned, Ballard disclosed it competes with other fuel cell product manufacturers including Beijing Sinhydrotec, cellcentric GmbH & Co. KG, Cummins, Hyzon, Hyundai, Nikola, Plug Power, Powercell Sweden AB, Robert Bosch GmbH, Shanghai Re-Fire, Toyota. While some listed competitors compete directly with Ballard for commercial vehicle OEM fuel cell supply relationships, certain listed competitors are vertically integrated commercial vehicle OEMs with a limited need for third-party fuel cell supply relationships.

Bosch's partnership with PowerCell highlights an elevated fuel cell competitive environment, in our view: In its 04/29/19 Press Release, Bosch announced it entered into a partnership with PowerCell, a fuel cell stack manufacturer, to develop and mass produce fuel cell stacks for global automotive applications.⁴ Bosch highlighted its automotive commercialization strength and guided for the fuel cell stack to complement its fuel cell component portfolio. In its 04/29/20 Press Release, Bosch highlighted its manufacturing capabilities and guided to begin fuel cell stack mass-production in CY 22.⁵ In our view, Bosch's partnership with PowerCell highlights an elevated fuel cell competitive environment. We believe Bosch's global automotive reach and mass-manufacturing capabilities may enable it to more effectively scale relative to Ballard and we are concerned Ballard market share may be pressured.

Bosch has already made this technology neutrality its own, with the result that these innovative fuel-cell stacks are expected to come off the production lines at its Bamberg plant as early as 2022. (BOSH.NS Press Release, 04/29/20)

⁴ Bosch's fiscal year ends on 12/31.

⁵ <https://www.bosch.com/stories/fuel-cell-stack/>

Plug Power guided to expand its heavy-duty commercial vehicle market penetration: Historically, Plug Power's largest market and major focus has been material handling. However, on its Q4 20 Conference Call on 02/25/21, Plug Power guided to expand its heavy-duty fuel cell commercial vehicle market penetration.⁶ Throughout our research, we identified new Plug Power heavy-duty commercial vehicle strategic initiatives. In our view, Plug Power's heavy-duty strategic initiatives and increased heavy-duty focus highlight intensifying fuel cell market competition and potential Ballard market share pressure. We have included certain commentary about Plug Power heavy-duty fuel cell commercial vehicle strategic initiatives below:

We do have discussions going on in the United States and elsewhere, especially with a focus on heavy-duty vehicles. (PLUG CEO Mr. Andrew Marsh, Q4 20 Conference Call, 02/25/21)

- **Plug Power partners with BAE Systems to supply fuel cell powertrains for transit buses:** In its 04/29/21 Press Release, Plug Power announced it entered into a partnership with BAE Systems plc (BAES.L) to supply fuel cell powertrains to heavy-duty transit bus OEMs in North America. Under the partnership, Plug Power's ProGen fuel cell engines will be integrated with BAE's smart electric drive systems. Plug Power guided for the partnership to expand its heavy-duty fuel cell commercial vehicle market reach.

Under the framework, Plug Power and BAE Systems will collaborate to supply zero-emissions powertrains to heavy-duty transit bus OEMs in North America integrating Plug Power's ProGen fuel cell engines into BAE Systems' smart electric drive systems. (PLUG Press Release, 04/29/21)

- **Plug Power guided to place more focus on heavy-duty trucks:** On its Q1 21 Conference Call on 05/04/21, Plug Power guided to expand its heavy-duty truck market penetration. On its Q2 21 Conference Call on 08/05/21, Plug Power indicated it had memorandums of understanding for vehicles beyond light commercial vehicles (e.g. heavy-duty vehicles). In addition, Plug Power guided to place more focus on expanding its heavy-duty fuel cell truck penetration.

Our team, Sanjay, Keith Schmid are in multiple negotiations for deployments and for partnerships for heavy duty vehicles. I think you'll see announcements on other classes of trucks from Class 6 to 8 here in North America with customers who want our products, not just partnerships. I would expect you'd see that in the next, call it, 3 to 6 months. (PLUG CEO Mr. Andrew Marsh, Q1 21 Conference Call, 05/14/21)

Toyota's fuel cell partnerships heighten our concerns: In its FY 20 20F, Toyota disclosed it established a dedicated fuel cell business group in July 2020.⁷ Toyota represented it supplied and integrated its fuel cell systems in a variety of applications and guided to develop fuel cell modules and work with other companies to promote fuel cell use in trucks, buses, trains, and ships. Throughout our research, we identified certain Toyota partnerships related to its fuel cell initiatives. Given Toyota's fuel cell partnerships and Toyota established a dedicated fuel cell business, our competitive concerns are heightened. We have included commentary related to certain Toyota fuel cell partnerships below:

- **Toyota & Kenworth partner to bring heavy-duty fuel cell trucks to market:** In its 09/14/18 Press Release, Toyota announced it was working with Kenworth to develop Class 8 fuel cell trucks for the Port of Los Angeles. In its 12/10/20 Press Release, Toyota disclosed its next-generation fuel cell system was adapted to a Kenworth T680 chassis for the Port of Los Angeles to validate performance, efficiency, and drivability. In addition, Toyota disclosed its fuel cell system was designed to flexibly meet the needs of a wide variety of OEM truck makers.

Designed to be flexible enough to meet the needs of a wide variety of OEM truck makers, the new fuel cell electric system in the latest prototypes has been adapted to a Kenworth T680 chassis. (7203.T Press Release, 12/10/20)

- **Toyota & Hino partner to jointly develop heavy-duty fuel cell trucks:** In its 10/05/20 Press Release, Toyota announced it partnered with Hino to jointly develop Class 8 fuel cell trucks for the North American market. Toyota disclosed the companies would leverage Hino's XL Series chassis and Toyota's fuel cell technology to

⁶ Plug's fiscal year ends on 12/31.

⁷ Toyota's fiscal year ends on 03/31.

deliver exceptional capability. Toyota represented the new collaboration expanded its existing effort to develop heavy-duty trucks for the Japanese market.

Toyota Motor North America (TMNA) and Hino Trucks have agreed to jointly develop a Class 8 fuel cell electric truck (FCET) for the North American market. The companies will leverage the newly developed Hino XL Series chassis with Toyota's proven fuel cell technology to deliver exceptional capability. (7203.T Press Release, 10/05/20)

Ballard commentary suggests medium- & heavy-duty market competition may have increased significantly:

On its Q2 21 Conference Call, Ballard highlighted competitive landscape changes. Specifically, Ballard indicated there were a limited number of competitors five years ago. Since then, more, larger competitors entered the medium- and heavy-duty motive markets and competition intensified as competitors' price aggressively to win market share. We believe Ballard's commentary suggests the medium- and heavy-duty motive market competition may have increased significantly and we are concerned pricing and market share may be pressured. Our concerns are heightened given competitors may have an opportunity to improve technology as widespread fuel cell adoption may not occur until the latter part of the decade (discussed heretofore).

What we've seen is a change in the competitive landscape over the last number of years, right? And so if you go back 5 years ago, there only would have been a handful of companies, a very small handful, competing for these type of opportunities like Tata, as an illustrative example. And what's happened, of course, over the last number of years is that we have much larger companies that have seen our strategy of looking at the medium and heavy-duty motive markets of bus, truck, rail and marine, where the value proposition for fuel cells are strongest. And so **it's a more competitive landscape**... We are seeing other companies who are earlier to the game, who aren't on an 8th generation of product, trying to win early deployment opportunities and **pricing aggressively**. And that's a factor we have to take into account. (CEO Mr. Randall MacEwen, Q2 21 Conference Call, 08/06/21) [emphasis added]

Vertically Integrated OEMs May Pressure Ballard Fuel Cell Demand, In Our View

Certain commercial vehicle OEMs are vertically integrated & may not require 3rd party fuel cell supply: As mentioned, certain listed Ballard competitors are vertically integrated commercial vehicle OEMs. Throughout our research, we identified several commercial vehicle OEMs highlighting recent internal fuel cell innovation and development. We believe vertically integrated OEMs with internal fuel cell operations may have a limited need for third-party fuel cell supply relationships and Ballard fuel cell demand may be pressured. We have included commercial vehicle OEM fuel cell innovation and development commentary below:

- **Hyzon's fuel cells may offer superior power capability than Ballard:** Hyzon is a developer and manufacturer of zero-emission fuel cell electric heavy-duty trucks and buses powered by its internally developed fuel cell stacks.⁸ In its 10/27/20 Press Release, Hyzon highlighted its next-generation fuel cell stack performance.⁹ Specifically, Hyzon represented third-party testing completed by TUV Rheinland validated its next-generation fuel cell peak power density of 6kW/liter. Hyzon indicated the third-party testing confirmed its potential to use fuel cells to deliver 370kW of power for heavy mobility applications. In its Investor Presentation on 07/19/21, Hyzon represented its next generation fuel cell stacks were projected to have the industry's highest power density based on third-party validation and benchmarking. Specifically, Hyzon represented it's next-generation fuel cell stack had approximately 27.0% to 40.0% (7.0% to 18.0%) more volumetric (gravimetric) power density than Ballard. In our view, Hyzon's fuel cell stacks may enable it to provide heavy-duty fuel cell trucks and buses with superior power capability than Ballard powered heavy-duty trucks and buses. Accordingly, we are concerned Hyzon fuel cell technology may pressure end market demand for Ballard fuel cells. To the extent Hyzon expands into other heavy-duty motive applications (e.g. rail, marine, and aviation) and/or sells its fuel cell stacks on a standalone basis, our concerns about market share pressure would be heightened.¹⁰

⁸ Hyzon's fiscal year ends on 12/31.

⁹ <https://hyzonmotors.com/third-party-tests-confirm-hyzon-motors-leads-fuel-cell-power-density/>

¹⁰ In its Investor Presentation on 07/19/21, Hyzon indicated it may sell fuel cell stacks on a standalone basis.

Most fuel cell modules used in heavy vehicles to-date deliver continuous power around 100 kilowatts (kW) or less – with peak power density under 3kW/liter, whereas recent test data validated by highly respected testing and certification services business TUV Rheinland shows Hyzon’s new PEM fuel cells achieve volumetric power density exceeding 6kW/l, and gravimetric power density exceeding 5.5kW/kg (between end hardware). Although the performance data is from short stack testing, it validates the potential of using full power fuel cells up to 500hp (370kW) for heavy mobility applications, reducing dependence on batteries and therefore saving on weight, size and cost. (HYZN Press Release, 10/27/20)

- **Hyundai’s next-gen fuel cell stack guided to enhance power output, lower cost, & improve durability:** In its 09/07/21 Press Release, Hyundai announced plans to launch its third-generation fuel cell stack in CY 23.¹¹ Hyundai represented its third-generation 200kW fuel cell stack would have double the power output at a similar size, reduce cost by more than 50.0%, and improve durability by 50.0% to 100.0% relative to the current version. Hyundai guided to launch new fuel cell buses and heavy-duty trucks globally and apply fuel cells to all commercial vehicle models by CY 28. Further, Hyundai guided to achieve fuel cell and battery electric commercial vehicle price parity by CY 30. Hyundai’s fuel cell technology development efforts heighten our end market demand concerns.

The 200kW version has been designed for commercial vehicle applications and is similar in size to the current NEXO system, but the power output has doubled... For the third-generation fuel cell development, the goal is to improve durability by 50-100 percent. High durability stacks for commercial vehicles will achieve 500,000 kilometers of drive range. Furthermore, the price of the third-generation fuel cell stack will be dramatically reduced – with projections being upwards of more than 50 percent – which will be the key factor to achieving cost parity of FCEVs with BEVs by 2030. (005380.KS Press Release, 09/07/21)

- **Daimler & Volvo form cellcentric joint venture to accelerate fuel cell development:** In its 11/02/20 Press Release, Daimler announced it entered into a joint venture, named cellcentric, with Volvo to develop, produce, and commercialize fuel cell systems for Daimler and Volvo heavy-duty trucks.¹² Daimler guided for customer tests to begin in approximately three years and production to begin during the second half of the decade. In addition, Daimler guided for the joint venture to become a leading global fuel cell manufacturer. On its Daimler Truck Strategy Day Conference Call on 05/20/21, Daimler guided to significantly reduce the price of its fuel cell trucks as it achieved scale through its cellcentric joint venture. Further, Daimler represented the joint venture may sell fuel cells to other heavy-duty OEMs after Daimler and Volvo were fully supplied. While we acknowledge production may be several years away, we believe the joint venture highlights increased heavy-duty fuel cell commercial vehicle end market competition.

This is possible as we partner with Volvo and as we have Rolls-Royce Power System also as an important customer. This is about the scale it takes to bring down the cost level to the sufficient level that also enables the TCO breakeven during this decade. This is one of the reasons why we partner here. (DAIGN.DE Daimler Truck AG CTO Mr. Andreas Gorbach, Daimler Truck Strategy Day Conference Call on 05/20/21)

Materially Elevated Receivable Levels Highlight Revenue Growth Pressure, In Our View

Background on receivables & contract assets: In its quarterly and annual filings, the Company discloses trade and other receivables include trade accounts receivables, other receivables, and contract assets. In its FY 20 40F, the Company disclosed contract assets primarily relate to the Company’s right to consideration for work completed but not billed for engineering services and technology transfer services (i.e. technology solutions revenue). Accordingly, we evaluated receivable levels as trade receivables plus contract assets relative to total revenue and contract assets relative to total receivables and technology solutions revenue.

Receivable levels surge to multi-year seasonal high: In Q2 21, total receivables increased 16.9% year-over-year to \$49.9 million, while revenue declined 3.2% to \$25.0 million. Accordingly, total receivables-to-revenue surged 20.7% to 2.000 (182.0 days), the highest seasonal level in at least five years. In its Q2 21 6K, the Company

¹¹ Hyundai’s fiscal year ends on 12/31.

¹² Daimler and Volvo’s ends on 12/31.

attributed the receivable level build to revenue and collection timing. In our view, the receivable level surge to a multi-year seasonal high highlights revenue growth pressure.

Receivables Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20	Q2 19
Trade receivables	\$24.5	\$21.7	\$29.3	\$16.7	\$21.8	\$17.9
Contract assets	\$25.5	\$24.3	\$22.3	\$25.4	\$20.9	\$16.0
Total receivables	\$49.9	\$46.0	\$51.5	\$42.0	\$42.7	\$34.0
Revenue	\$25.0	\$17.6	\$28.6	\$25.6	\$25.8	\$23.7
Receivables-to-revenue	2.000	2.611	1.802	1.640	1.657	1.436
Year-over-year change	20.7%	62.3%	62.3%	(1.0%)	15.4%	54.3%
Days sales outstanding	182.0 days	235.0 days	165.8 days	150.9 days	150.8 days	130.7 days

Contract asset level build heightens our revenue concerns: In Q2 21, contract assets as a percent of total receivables increased 200 basis points year-over-year to 51.0%, to the highest seasonal level in at least four years. In addition, contract assets-to-technology solutions revenue surged 30.1% year-over-year to 2.785, the highest seasonal level in four years. Given contract asset levels increased to a multi-year seasonal high relative to receivables and technology solutions revenue, our revenue sustainability concerns are heightened.

Contract Assets Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
Contract assets	\$25.5	\$24.3	\$22.3	\$25.4	\$20.9
Total receivables	\$49.9	\$46.0	\$51.5	\$42.0	\$42.7
Contract assets as % of total	51.0%	52.8%	43.2%	60.3%	49.0%
Year-over-year change	200 bps	(50 bps)	200 bps	440 bps	180 bps

Elevated Inventory Levels Highlight Overestimated Demand, In Our View

Q2 20 inventory build attributed to expected H2 20 demand & potential supply chain disruption mitigation: In Q2 20 inventory-to-revenue increased 7.9% year-over-year to 1.365, the highest seasonal level in five years. In its Q2 20 6K, the Company attributed the inventory level build to expected H2 20 demand and potential pandemic related supply disruption mitigation.

The total change in working capital of (\$9.5) million in the second quarter of 2020 was driven 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. (Q2 20 6K)

Inventory levels increase to multi-year seasonal high: In Q2 21, inventory increased 10.3% year-over-year to \$38.8 million, while revenue declined 3.2% to \$25.0 million.¹³ Accordingly, inventory-to-revenue increased 13.9% to 1.555, the lowest seasonal level in at least seven years. In its Q2 21 6K, the Company disclosed it built inventory to support expected H2 21 shipments and mitigate ongoing pandemic related supply chain disruption. Given the Company does not expect material sales pipeline conversion until at least FY 22, backlog deterioration, and our competitive concerns, we believe the inventory level increase to a multi-year seasonal high highlights overbuilt inventory and margin pressure. Our concerns about overestimated demand are heightened given evidence of order cancellations/deferrals.

¹³ Inventory includes service inventory.

The total change in working capital of (\$5.4) million in the second quarter of 2021 was driven by higher inventory of (\$5.8) million primarily to support expected Heavy-Duty Motive shipments in the last half of 2021 and to help mitigate ongoing COVID-19 supply chain disruptions. (Q2 21 6K)

Inventory Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20	Q2 19
Inventory	\$38.8	\$33.0	\$28.5	\$36.1	\$35.2	\$29.9
Revenue	\$25.0	\$17.6	\$28.6	\$25.6	\$25.8	\$23.7
Inventory-to-revenue	1.555	1.872	0.998	1.408	1.365	1.265
<i>Year-over-year change</i>	<i>13.9%</i>	<i>40.9%</i>	<i>37.2%</i>	<i>(3.5%)</i>	<i>7.9%</i>	<i>18.8%</i>

Inventory relative to next quarter revenue build suggests demand may not rationalize elevated inventory: In Q2 21, inventory-to-next-quarter revenue increased 5.4% year-over-year to 1.447, the fifth consecutive increase. Given inventory increased from an elevated base attributed to demand expectations and persistently elevated inventory to forward revenue levels, we believe near-term demand may not rationalize the inventory level build and our concerns about overestimated demand and margin pressure are heightened.

Forward Inventory Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
Inventory	\$38.8	\$33.0	\$28.5	\$36.1	\$35.2
Next quarter revenue	\$26.8	\$25.0	\$17.6	\$28.6	\$25.6
Inventory-to-next quarter revenue	1.447	1.322	1.619	1.262	1.373
<i>Year-over-year change</i>	<i>5.4%</i>	<i>7.3%</i>	<i>28.4%</i>	<i>45.0%</i>	<i>13.3%</i>

Depressed Warranty Levels May Have Provided Unsustainable Gross Margin Benefit

In the twelve-months ended Q2 21, the warranty provision declined 46.5% year-over-year to \$2.3 million, while revenue excluding technology solutions revenue (i.e. our estimate of product revenue) declined 9.7% to \$55.5 million. Accordingly, warranty provision as a percent of revenue excluding technology solutions revenue declined 280 basis points to 4.1%, the seventh consecutive decline and second lowest level in four years. In addition, warranty cash payments as a percent of revenue were 50 basis points higher than warranty provision levels. Given warranty cash payment levels were higher than warranty provision levels, we believe the warranty level decline may have been unwarranted and provided an unsustainable gross margin benefit.

Warranty Analysis (\$ in millions)	12M Ended Q2 21	12M Ended Q1 21	12M Ended Q4 20	12M Ended Q3 20	12M Ended Q2 20
Warranty provision	\$2.3	\$2.2	\$3.1	\$4.3	\$4.3
Revenue excluding technology solutions revenue	\$55.5	\$55.7	\$58.6	\$69.0	\$61.5
Warranty provision as % of revenue	4.1%	3.9%	5.3%	6.2%	7.0%
<i>Year-over-year change</i>	<i>(280 bps)</i>	<i>(460 bps)</i>	<i>(240 bps)</i>	<i>(400 bps)</i>	<i>(340 bps)</i>

Depressed Deferred Revenue Levels Highlight Revenue Growth Pressure, In Our View

Current deferred revenue levels decline to multi-year seasonal low: In Q2 21, current deferred revenue declined 20.8% year-over-year to \$12.1 million, while revenue declined 3.2% to \$25.0 million. Accordingly, current deferred revenue-to-revenue declined 18.2% to 0.485, the seventh consecutive decline greater than 15.0%. The

Company did not discuss current deferred revenue levels on its Q2 21 Conference Call or in its Q2 21 6K. Given persistent current deferred revenue deterioration, our revenue growth pressure concerns are heightened.

Current Deferred Revenue Analysis (\$ in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
Current deferred revenue (CDR)	\$12.1	\$10.1	\$9.9	\$11.5	\$15.3
Revenue	\$25.0	\$17.6	\$28.6	\$25.6	\$25.8
CDR-to-revenue	0.485	0.575	0.346	0.447	0.593
<i>Year-over-year change</i>	<i>(18.2%)</i>	<i>(17.8%)</i>	<i>(29.0%)</i>	<i>(53.0%)</i>	<i>(34.0%)</i>

Free Cash Flow Level Deterioration Highlight Elevated Earnings Sustainability Risk

In Q2 21, twelve-month free cash flow declined \$16.8 million year-over-year to negative \$63.1 million, the largest cash burn in at least 23 periods. In addition, receivables, inventory, and deferred revenue consumed \$15.0 million of cash in the period. In our view, persistently negative free cash flow level driven by material working capital cash consumption highlights elevated earnings sustainability risk. Further, we believe intensifying competitive threats may compel Ballard to aggressively pursue new customers and increase research and development expenditures and negative free cash flow may persist. Accordingly, we are concerned it may take longer-than-expected for Ballard to achieve profitability and/or positive cash flow from operations.

Free Cash Flow Analysis (\$ in millions)	12M Ended Q2 21	12M Ended Q1 21	12M Ended Q4 20	12M Ended Q3 20	12M Ended Q2 20
Cash flow from operations (CFO)	(\$51.5)	(\$48.6)	(\$42.9)	(\$32.2)	(\$30.4)
Capital expenditures	\$11.6	\$12.7	\$12.6	\$14.2	\$15.9
Free cash flow	(\$63.1)	(\$61.3)	(\$55.6)	(\$46.3)	(\$46.3)
Cash provided (consumed) by receivables	(\$8.0)	(\$8.8)	(\$2.1)	\$4.4	(\$3.5)
Cash provided (consumed) by inventory	(\$3.8)	(\$1.5)	\$1.4	(\$0.4)	(\$5.3)
Cash provided (consumed) by deferred revenue	(\$3.2)	(\$6.6)	(\$10.3)	(\$12.0)	(\$6.0)

Shareholder Dilution Increases Investment Risk, In Our View

Background on equity offerings: In its FY 20 40F, the Company disclosed it established two at-the-market (ATM) equity programs and completed a bought deal offering. Under the two ATM programs, Ballard could raise, at its discretion, up to \$325.0 million by issuing common shares to the public at the prevailing market rate. The bought deal offering was completed through a syndicate of underwriters. In FY 20, Ballard raised \$308.8 million under its ATM programs and \$385.8 million through the bought deal offering.

Equity raises may persist as Ballard may have a limited ability to achieve cash flow breakeven: In Q2 21, total shares outstanding surged 21.8% year-over-year to 297.6 million from a materially elevated base (increased 5.0% in Q2 20 and 30.1% in Q2 19). Total shares outstanding have increased 125.3% since Q4 14. On its Q2 21 Conference Call, the Company was reluctant to provide a cash flow breakeven timeline when asked by analysts. Given our concerns about Ballard's ability to achieve profitability and Ballard's failure to give cash flow breakeven guidance, we are concerned equity raises may persist and drive continued shareholder dilution.

I mean we don't provide guidance on our current year revenue, let alone, our views on when we'll see cash flow breakeven. (CEO Mr. Randall MacEwen, Q2 21 Conference Call, 08/06/21)

Share Count Analysis (in millions)	Q2 21	Q1 21	Q4 20	Q3 20	Q2 20
Total shares outstanding	297.6	297.5	282.1	258.8	244.3
<i>Year-over-year change</i>	21.8%	22.9%	20.3%	10.8%	5.0%

Risk to Our Thesis and Conclusion

Risks to our thesis: The following developments could present challenges to our thesis:

- Ballard's sales pipeline conversion drives stronger-than-expected order backlog.
- Fuel cell adoption ramps faster-than-anticipated.
- Ballard technology innovations & cost reductions enable it to grow/maintain market share.
- The Company is acquired.

Conclusion: We are concerned Ballard commentary and order backlog and order book coverage deterioration suggest consensus revenue expectations may be difficult to achieve. In our view, the Company recently shifted emphasis to sales pipeline growth to mask the backlog/order book weakness. Further, we believe the Company's sales pipeline disclosure may be misleading and provide limited insight into the business. In our view, Ballard's guidance for widespread fuel cell adoption may be overly optimistic and batteries may be a viable fuel cell alternative for certain medium- and heavy-duty motive applications. In addition, we believe intensifying fuel cell competition may pressure Ballard market share and drive persistent order backlog weakness. Our competition concerns are heightened given commentary suggesting new entrants may price aggressively to gain market share. Moreover, we are concerned certain vertically integrated commercial vehicle OEMs may pressure Ballard fuel cell demand. In our view, elevated receivable and contract asset levels highlight revenue growth pressure. Our earnings sustainability concerns are heightened given elevated inventory levels; depressed warranty, current deferred revenue, and cash flow levels; and shareholder dilution.

Disclaimer and Disclosure

This report was produced by Voyant Advisors, LLC (“Voyant”). The following Research Analysts employed by Voyant contributed to this report: Alex Cook, Graeme Lazarus, Dayne Burzinski, Miles Trevelyan, and Ryan DesJardin. Voyant’s home office is at 15373 Innovation Dr, Suite 365 San Diego, CA 92128. The firm’s home office is where information about the valuations herein are located, unless otherwise indicated in the report.

At the time of this report, Voyant expects to provide updates on a quarterly or semi-annual basis depending on the frequency of when the above company discloses material financial results. We will cease providing updates if we are discontinuing research coverage as disclosed on the front page of this report in the Thesis Summary.

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