

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Ballard is recognized as a world leader in proton exchange membrane (“PEM”) fuel cell development and commercialization. Our principal business is the design, development, manufacture, sale and service of fuel cell products for a variety of applications. We use our fuel cell expertise to deliver valuable and innovative solutions to our customers globally, create rewarding opportunities for our team, provide extraordinary value to our shareholders and power the hydrogen society. We provide our customers with the positive economic and environmental benefits unique to fuel cell power.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2020	December 31 2020	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

- Canada
- Denmark

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

- USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

- Operational control

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

- Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board-level committee	The People, Corporate Governance & Compensation Committee is responsible for reviewing the corporation’s environmental, health and safety performance on a quarterly basis; reviews and recommends top-level corporate governance policies; annually reviews corporate governance disclosure; and considers any other matters which will assist the board to meet its responsibilities regarding corporate governance matters.

C1.1b

(C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding business plans Overseeing major capital expenditures, acquisitions and divestitures	<Not Applicable>	The board reviews a report from management regarding strategic risks and opportunities, including climate-related risks/opportunities on an annual basis. Government action related to climate change, such as clean energy subsidies and emissions targets, are reported on a quarterly basis.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Sustainability committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Environmental, Health, and Safety manager	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

CEO reports directly to the board

Sustainability Committee - We have a passionate cross-functional team of 30+ members from all levels within the organization, from vice presidents to front line employees. The committee is focused activities on main contributors to our GHG emission at BPS (Burnaby campus) and BPSE (Hobro).

They are responsible for:

1. Evaluating our current environmental impact as an organization and for our products
2. Developing the plan and strategy with targets to reduce year after year our impact print towards a “carbon neutrality” ultimate goal
3. Reporting progress on regular basis to the executive team
4. Defining long term objectives and short term actions with associated budget to be included in our AOP every year
5. Communicating internally and externally on our sustainability efforts and get buy-in from the entire organization

Environmental, Health and Safety Manager reports directly to the SVP of Operations, which reports to directly to the CEO.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	No, and we do not plan to introduce them in the next two years	

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	2	
Medium-term	2	6	
Long-term	6	10	

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Description of process

Cross-organizational senior leadership teams are responsible for key risk identification and mitigation in respect of our annual operating plans. The teams meet regularly to reprioritize and reallocate resources as needed based on the current situational analysis and risk management practices embedded into our operating procedures and policies.

Value chain stage(s) covered

Upstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term

Description of process

We perform a customer level risk assessment and sensitivity analysis during the annual operating plan process. This risk assessment focuses on the potential economic impacts to the plan in the event of potential customer issues or a customer failure as well as the more general potential economic impacts to the overall operating plan.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term

Description of process

Key strategic risks and mitigations are assessed and reviewed annually with the board.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Regulations that support transitioning to a lower-carbon economy creates opportunities for us and may increase demand for zero-emission products like those that we produce. For example, the Regulation (EU) 2019/1242 setting CO2 emission standards for heavy-duty vehicles includes a mechanism to incentivize the uptake of zero- and low-emission vehicles, which benefits sales of our products for heavy-duty vehicle applications.
Emerging regulation	Relevant, always included	Changes in existing government regulations and the emergence of new regulations with respect to fuel cell products may hurt the market for our products and services. Environmental laws and regulations have driven interest in fuel cells. We cannot guarantee that these laws and policies, including subsidies or incentives associated with the adoption of clean energy products, will not change. Changes in these laws and other laws and policies, or the failure of these laws and policies to become more widespread, could result in manufacturers abandoning their interest in fuel cell products or favoring alternative technologies. In addition, as fuel cell products are introduced into our target markets, governments may impose burdensome requirements and restrictions on the use of fuel cell products that could reduce or eliminate demand for some or all of our products and services.
Technology	Relevant, always included	As fuel cell products have the potential to replace existing power products, competition for our products will come from current power technologies, from improvements to current power technologies, and from new alternative energy technologies, including other types of fuel cells and advanced batteries.
Legal	Not relevant, explanation provided	Zero-emission products like those that we produce support transitioning to a lower-carbon economy. Our business is not likely to be subject to climate-related litigation claims.
Market	Relevant, always included	Regulations that support transitioning to a lower-carbon economy creates opportunities for us and may increase demand for zero-emission products like those that we produce. Environmental laws and regulations have driven interest in fuel cells. We cannot guarantee that these laws and policies, including subsidies or incentives associated with the adoption of clean energy products, will not change. Changes in these laws and other laws and policies, or the failure of these laws and policies to become more widespread, could result in manufacturers abandoning their interest in fuel cell products or favoring alternative technologies.
Reputation	Relevant, always included	Ballard has a strong commitment to the environment, as our mission is to deliver fuel cell power for a sustainable planet. Environmental laws and regulations have driven interest in fuel cells. We cannot guarantee that these laws and policies, including subsidies or incentives associated with the adoption of clean energy products, will not change. Changes in these laws and other laws and policies, or the failure of these laws and policies to become more widespread, could result in manufacturers abandoning their interest in fuel cell products or favoring alternative technologies. In addition, as fuel cell products are introduced into our target markets, governments may impose burdensome requirements and restrictions on the use of fuel cell products that could reduce or eliminate demand for some or all of our products and services.
Acute physical	Relevant, always included	Our business interruption risk is exacerbated by an increasing number of extreme weather events related to climate change. Extreme weather events such as floods and fires caused or exacerbated by climate change could impair our ability to carry on business. For example, extreme weather events could cause catastrophic destruction to some of our or our supplier's and/or customer's facilities, which could in turn disrupt our production and/or prevent us from supplying products to our customers.
Chronic physical	Relevant, always included	Transitioning to a lower-carbon economy creates opportunities for us and may increase demand for zero-emission products like those that we produce. However, we may also become subject to potential negative impacts of new environmental regulations, laws, and policies that could result in increased costs of carrying on our business. Our financial condition may be negatively impacted by costs associated with changes in environmental laws and regulations and regulatory enforcement.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Market	Increased cost of raw materials
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Primary potential financial impact

Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Commodity price fluctuations are beyond our control and may have a material adverse effect on our business, operating results, financial condition and profitability. Commodity prices, in particular the price of platinum and palladium, affect our costs. Platinum and palladium are key components of our fuel cell products. Platinum and palladium are scarce natural resources and we are dependent upon a sufficient supply of these commodities. While we do not anticipate significant near or long-term shortages in the supply of platinum or palladium, such shortages could adversely affect our ability to produce commercially viable fuel cell products or significantly raise our cost of producing such products.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

US Government DOE cost targets indicate precious metals make up roughly 6% of a fuel cell module cost at high volumes. This percentage however is significantly lower today as the stack components of the module are further down their cost reduction plan path than are the system balance of plant components. The impact on profitability would be directly proportional to the magnitude of commodity price fluctuation.

Cost of response to risk

Description of response and explanation of cost calculation

In order to reduce the impact of platinum price fluctuations, we occasionally enter into various hedging programs. In addition technology development efforts continue in the pursuit of lower platinum requirement and / or the substitution of non-noble metal catalysts.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Legal	Exposure to litigation
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Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

We could be liable for environmental damages resulting from our research, development or manufacturing operations. Our business exposes us to the risk of harmful substances escaping into the environment, resulting in personal injury or loss of life, damage to or destruction of property, and natural resource damage. Depending on the nature of the claim, our current insurance policies may not adequately reimburse us for costs incurred in settling environmental damage claims, and in some instances, we may not be reimbursed at all. Our business is subject to numerous laws and regulations that govern environmental protection and human health and safety. These laws and regulations have changed frequently in the past and it is reasonable to expect additional and more stringent changes in the future. Our operations may not comply with future laws and regulations, and we may be required to make significant unanticipated capital and operating expenditures.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

If we fail to comply with applicable environmental laws and regulations, governmental authorities may seek to impose fines and penalties on us, or to revoke or deny the issuance or renewal of operating permits, and private parties may seek damages from us. Under those circumstances, we might be required to curtail or cease operations, conduct site remediation or other corrective action, or pay substantial damage claims.

Cost of response to risk

Description of response and explanation of cost calculation

Ballard is committed to improving our understanding of the climate impacts of our products and operations, reducing our corporate and product carbon footprints, reducing our waste and energy consumption and responsible production.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods
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Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Our business interruption risk is exacerbated by an increasing number of extreme weather events related to climate change. Extreme weather events such as floods and fires caused or exacerbated by climate change could impair our ability to carry on business. For example, extreme weather events could cause catastrophic destruction to some of our or our supplier's and/or customer's facilities, which could in turn disrupt our production and/or prevent us from supplying products to our customers.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Revenue impact would be aligned with the duration and location of the outage. Loss of a Top 10 customer production facility could reduce year total revenue in the range of 5%-10%. Shutdown of the Burnaby production facility would have a more significant impact as it would effect all customers.

Cost of response to risk**Description of response and explanation of cost calculation**

Transitioning to a lower-carbon economy creates opportunities for us and may increase demand for zero-emission products like those that we produce. However, we may also become subject to potential negative impacts of new environmental regulations, laws, and policies that could result in increased costs of carrying on our business. Our financial condition may be negatively impacted by costs associated with changes in environmental laws and regulations and regulatory enforcement.

Comment**C2.4****(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

C2.4a**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.****Identifier**

Opp1

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Changes in existing government regulations and the emergence of new regulations with respect to fuel cell products may increase the market for our products and services. Environmental laws and regulations have driven interest in fuel cells. We anticipate that these laws and policies, including subsidies or incentives associated with the adoption of clean energy products, will encourage the selection of our products. Changes in these laws and other laws and policies, and as these laws and policies become more widespread, could result in manufacturers increasing their interest in fuel cell products. In addition, as fuel cell products are introduced into our target markets, governments may impose requirements and restrictions on the use of carbon intensive products that could positively impact demand for some or all of our products and services. Government budgetary choices could increase the demand for our products by increasing the funding available to public transportation agencies and military.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment****Identifier**

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

The market requirements for our products and, by extension, our technology changes rapidly. Continuous improvements are being made for any number of characteristics, including performance, integration characteristics, cost, freeze protection, ingress protection, and durability. As our existing products evolve through continuous improvement and our planned products enter the market, we will be able to access new and emerging markets. An example of this is the various classes and uses of trucks (light, medium and heavy duty). Changing regulations also increase the requirements for zero-emission propulsion in new markets, creating demand for our products in new markets, such as marine vessels.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)**Potential financial impact figure – maximum (currency)****Explanation of financial impact figure****Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment****Identifier**

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other, please specify (Green Bonds)

Primary potential financial impact

Increased access to capital

Company-specific description

We have the ability to issue Green Bonds to provide access to additional capital. A green bond is a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects.

Time horizon

Unknown

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment**

Identifier

Opp4

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Markets

Primary climate-related opportunity driver

Use of public-sector incentives

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Increasingly, we are seeing government intervention to encourage more electric vehicle uptake on the supply side with demand-side policies. Zero-emission vehicle mandates and incentives are driving demand and decreasing the price of vehicles.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment**

Identifier

Opp5

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Failure of critical infrastructure, such as the telecommunications network, can have broad-reaching consequences. Furthermore, increasing reliance infrastructure system interdependence, in combination with the effects of climate change and population growth all contribute to increasing vulnerability and exposure, and greater probability of catastrophic failures. To reduce this vulnerability, telecom companies are investing in zero-emission backup power sources to ensure network availability in the event of a natural disaster or extended power outage.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment****Identifier**

Opp6

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Customers' electric vehicle preferences are shifting. The share of global customers that would consider purchasing an electric vehicle is on the rise. A recent industry report indicates that all sustainable vehicle platforms the report studied are seeing a growth in fleet use across medium- and heavy-duty fleet sectors. Furthermore, 98% of fleets surveyed expect to continue the same level or increase their use of sustainable vehicle technologies and fuels. While transit agencies are leading adopters of natural gas, BEVs, and even FCEVs, almost every medium- and heavy-duty fleet type the report assessed is using at least one of these clean technologies in growing numbers including delivery, school bus, refuse, and heavy-duty short haul fleets.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation****Comment**

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	No, we do not intend to publish a low-carbon transition plan in the next two years	<Not Applicable>	

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
Other, please specify (Deloitte - Specifically targeting Fuel Cell Industry)	Fueling the Future of Mobility: Hydrogen and fuel cell solutions for transportation. The white paper provides a review of energy efficiency, hydrogen production, green gas and other environmental impacts related to fuel cell technology today and going forward, concluding that FCEVs are more attractive environmentally than BEVs and ICE vehicles from a number of perspectives, including production, operation and end-of-life. The scenarios identified answer the questions from industry executives and laypeople alike, specifically regarding the economic viability of FCEVs and their environmental sustainability. It conservatively estimates the Total Cost of Ownership (TCO) for commercial hydrogen vehicles will fall by more than 50% in the next 10 years. At Ballard, our growth strategy is premised on the transition of mobility from diesel and other ICE-based powertrains to zero-emission fuel cell electrification. We believe FCEVs will be the best solution – based on TCO economics, vehicle performance and environmental sustainability – for certain heavy- and medium-duty vehicle use cases. We are focused on bus, commercial truck, rail and marine. Here, we see market segments where vehicle duty cycles require long range, rapid refueling, heavy payload and route flexibility. Many of these use cases already use a 'return-to-base' refueling model, which lowers the barriers to the introduction of depot hydrogen refueling. These use cases also have disproportionately high emissions and have been considered as 'hard-to-abate' emission applications. We are excited about tackling a big problem with our world-leading and highly disruptive fuel cell technology. Link: https://www.ballard.com/about-ballard/newsroom/news-releases/2020/01/08/deloitte-ballard-joint-white-paper-assesses-hydrogen-fuel-cell-solutions-for-transportation

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Ballard-powered buses, trains, trucks, and soon boats are displacing thousands of diesel and gas engines. Our products are lowering global GHG gas emissions, and increasing the livability of urban areas by helping to enable the transition to vehicles with zero tailpipe emissions. The time horizon is up to 2030.
Supply chain and/or value chain	Yes	Design and procurement strategy is driving for longer life components which need to be replaced fewer times over the lifetime of the vehicle. Example: FCvelocity fuel cell air compressor is low cost but needs to be replaced 3 to 5 times over lifetime of vehicle, new FCmove fuel cell air compressor is more expensive to buy but does not need to be replaced over the lifetime of the vehicle and is more efficient in air flow distribution meaning we can also reduce components in the fuel cell module. The time horizon is up to 2030.
Investment in R&D	Yes	Sustainability is a priority in product development at Ballard, just as important as performance enhancements and cost reduction. As reported in the 2020 ESG Report, the latest generation of our heavy-duty power module produces 1.2 metric tons less of GHGs than previous designs. That's roughly equivalent to driving an average passenger car 5,000 kilometers – all achieved through product design efforts. The new design of FCmove™-HD contains 50% fewer components and less platinum, while delivering the same reliable, robust performance to power buses and trucks. Its cradle-to-gate GHGs total 5,172 kg of carbon dioxide equivalent (kgCO2e), which is 1,243 kgs CO2e less than the previous generation FCveloCity™-HD85. The time horizon is up to 2030.
Operations	Yes	Our primary mission is to enable a worldwide reduction of dependence on high-emission diesel and gas engines. But we also need to ensure our zero-emission powertrains are developed sustainably. So we focus on our internal procedures and technologies, to minimize our GHG impacts from "cradle-to-gate". Our corporate GHG inventory, developed annually with Offsetters Clean Technology, which helps us quantify, track and reduce the carbon footprint of our operations in Canada and Europe. Data shows an 11% reduction in our corporate carbon footprint from 2019 to 2020. The time horizon is up to 2030.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues	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 HeavyDuty Motive (consisting of bus, truck, rail and marine applications), Material Handling and Backup Power, as well as the delivery of Technology Solutions. A fuel cell is an environmentally clean electrochemical device that combines hydrogen fuel with oxygen (from the air) to produce electricity. The time horizon is 10 years for planning of revenue.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

At Ballard our vision is to deliver fuel cell power for a sustainable planet. Our Mission is to use our fuel cell expertise to deliver valuable and innovative solutions to our customers globally, create rewarding opportunities for our team, provide extraordinary value to our shareholders and power the hydrogen society. Our 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. In power products mobility is our primary focus. The transport sector represents around 24% of global GHG emissions, and therefore the need for sustainable zero emission mobility solutions is clear and urgent. Fuel cell technology offers a compelling value proposition for applications like heavy-duty mobility which disproportionately contributes to emissions and is otherwise difficult to abate.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2019

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based) + 3 (upstream and downstream)

Intensity metric

Metric tons CO2e per unit FTE employee

Base year

2018

Intensity figure in base year (metric tons CO2e per unit of activity)

18.38

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2030

Targeted reduction from base year (%)

100

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]

0

% change anticipated in absolute Scope 1+2 emissions

50

% change anticipated in absolute Scope 3 emissions

50

Intensity figure in reporting year (metric tons CO2e per unit of activity)

9.28

% of target achieved [auto-calculated]

49.5103373231774

Target status in reporting year

Achieved

Is this a science-based target?

Yes, we consider this a science-based target, but it has not been approved by the Science Based Targets initiative

Target ambition

1.5°C aligned

Please explain (including target coverage)

To hold off some of the worst climate impacts, and avoid irreversible damage to our societies, economies and the natural world, we must hold temperature rise to 1.5°C above pre-industrial levels. This requires halving greenhouse gas emissions by 2030 and hitting net-zero emissions by 2050. At Ballard we have committed to being Carbon Neutral by 2030. Our scope 2 emissions are 95% from renewable sources, ahead of the targets set by the science Based Targets initiative. We are looking at ways to reduce deisel fueled vehicles in our European operations. We participate in programs to reduce our scope two emissions including scan-energi in our Hobro location and BC Hydro in our Canadian operations to complete energy audits and devise action plans to reduce our electrical consumption.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

No other climate-related targets

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	2	2437
To be implemented*	5	1.2
Implementation commenced*	1	6
Implemented*	7	2.4
Not to be implemented	1	

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

5.4

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

63010

Investment required (unit currency – as specified in C0.4)

364202

Payback period

4-10 years

Estimated lifetime of the initiative

21-30 years

Comment

Complete LED upgrade of lighting in our largest Canadian location. Installed motion-sensor activated overhead lighting in one of our Canadian facilities, which includes the large overhead lights in our open test and lab floor area as well as photocell lighting installed in the parking lots. We also installed five regenerative load banks to feed electricity we generate from our product testing into our internal microgrid, which reduced our consumption of external electricity

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

1

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Installed LED lights and sensors for water in our Hobro location.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for low-carbon product R&D	Ballard's Technology Solutions team provides customers with high-value services to accelerate fuel cell development and deployment efforts. From product development, to testing Services and Stations, to Licensing and Technology Transfer. We also complete systems design & Integration and Component Design & Manufacturing.
Employee engagement	Ballard has a mission carbon zero team that includes representatives from both management and employees. Their objectives are to: -Contribute to de-carbonization of economy and COP21 objectives with zero emission power solutions -Generate sustainable local workplaces -Limit our environmental impact while delivering on our business objectives -Develop an environmental conscious culture -Contribute to the talent development within clean technology sector -Provide an attractive economic value proposition to our customers -Market potential with profitable outlook for Ballard shareholders
Dedicated budget for energy efficiency	Working with BC Hydro, our scope 2 electrical utility we continue to target reducing energy usage throughout our facilities, we are committed to eliminating wasted energy, without negatively affecting our product development, testing, or manufacturing capacity.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Company-wide

Description of product/Group of products

Ballard manufactures proton exchange membrane fuel cells. Our product lines include: Heavy Duty Modules - From 30kW to 100kW net power, Ballard's FCveloCity and FCmove heavy duty modules provide flexible solutions for motive applications including buses, trucks and light rail. Marine Systems - Ballard's FCwave fuel cell systems provide scalable zero-emission propulsion for the marine industry. Fuel Cell Stacks - Ballard provides FCgen and FC velocity fuel cell stacks to original equipment manufacturers and system integrators to power fuel cell systems. Backup Power Systems - Ballard's FCgen-H2PM fuel cell system has been designed to provide emergency backup power to critical communications infrastructure.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Estimating and Reporting the Comparative Emissions Impacts of Products (WRI)

% revenue from low carbon product(s) in the reporting year

100

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

All of Ballard's revenues are related to our zero-emission proton exchange membrane fuel cell products.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

1277

Comment

Scope 2 (location-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

223

Comment

Scope 2 (market-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

187

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

1394

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

The electrical grid in British Columbia is relatively clean, since energy is mainly generated at hydroelectric facilities; therefore, the province's GHG emissions associated with electricity consumption tend to be lower than in many other jurisdictions.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

286

Scope 2, market-based (if applicable)

225

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

The location-based emissions total includes emissions from Canadian and European operations. However, the market-based emissions total only includes emissions from Canadian operations since a market-based figure is not available for European operations.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

121.39

Emissions calculation methodology

Hotels (83.59 tCO2e) – hotel nights were recorded for Ballard Europe. Since no data was available for Ballard Canada, hotel emissions were estimated by multiplying the hotel emissions intensity from Ballard Europe by the total number of employees for Ballard Canada. Total number of hotel night stays were multiplied by an emissions factor. Emissions factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0. Paper (24.98 tCO2e) – Paper consumption at Ballard's Canadian operations was an immaterial source in 2018, therefore 2020 data was not collected. Instead, paper consumption for 2020 as assumed to be the same as in 2018. At Ballard's Hobo location, paper consumption was available for 2020. The number of sheets of paper was multiplied by an emissions factor. Emissions factor source: Paper Calculator V 4.0, <https://calculator.environmentalpaper.org/calculate.html> Water Supply (12.82 tCO2e) – water consumption at Ballard's Canadian operations was an immaterial source in 2018, therefore 2020 data was not collected. Instead, water consumption for 2020 was assumed to be the same as in 2018. At Ballard's Hobo location, water consumption was estimated based on square-footage and typical water consumption. Estimated water consumption was multiplied by an emissions factor. Emissions factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Capital goods

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Still developing processes for data collection and analysis.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

1990

Emissions calculation methodology

Hydrogen (1,850.57 tCO₂e) – multiplied weight of hydrogen consumed by an emissions factor. Emissions factor source: National Renewable Energy Laboratory, <https://www.nrel.gov/docs/fy01osti/27637.pdf> Nitrogen (5.23 tCO₂e) – multiplied weight of nitrogen consumed by an emissions factor. Emissions factor source: SimaPro. Reimbursed Driving (13.86 tCO₂e) – multiplied kilometers driven by an emissions factor (based on vehicle and fuel type). Emissions factor source: 2018 BC Methodological Guidance for Quantifying Greenhouse Gas Emissions. Homeworking (120.64 tCO₂e) – used methodology outlined in the Homeworking Emissions Whitepaper published by EcoAct (2020).

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

The purchased hydrogen is manufactured using natural gas reforming and is transported from California to Ballard's facilities in Burnaby. A small quantity was also consumed in Ballard's European operations resulting in only 5 tCO₂e being emitted. Reimbursed driving was only calculated for European staff. European staff often travel by car for client meetings, corporate training and business development. Reimbursed driving for Ballard's Canadian operations is an immaterial emissions source, and was not calculated.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

362.66

Emissions calculation methodology

Shipping (362.66 tCO₂e) – Upstream and downstream shipping was calculated together, and emissions were divided evenly between the two (everything that is shipped in is also shipped out). Tonne-kilometers travelled by materials were multiplied by an emissions factor based on transportation mode. Emission factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

99.6

Please explain

The shipping provider for the Burnaby office provided weight and distance shipped, and an emissions factor.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

9.83

Emissions calculation methodology

Waste (9.83 tCO₂e) – waste production at Ballard's Canadian operations was an immaterial source in 2018, therefore 2020 data was not collected. Instead, waste emissions for 2020 as assumed to be the same as in 2018. At Ballard's Hobo, location in Sweden, water consumption was estimated based on square-footage and average water usage. Estimated consumption was multiplied by an emissions factor (source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0).

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Actual waste data was collected for Ballard's European operations. Altogether, waste produced approximately 10 tCO₂e of emissions in 2020, which contributed less than 1% of Ballard's total GHGs.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

175.44

Emissions calculation methodology

Commercial flights (174.76 tCO₂e) – detailed flight records were used to classify flights as short-haul, medium-haul, or long-haul, and to gather passenger-kilometer data. Passenger kilometers travelled were multiplied by an emissions factor (with radiative forcing). Emissions factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0. Other travel (0.68 tCO₂e) – emissions from travel by train, ferry, or transit were estimated using passenger kilometers travelled where available; in some cases passenger kilometers travelled were estimated based on dollar amount reimbursed for travel. Passenger kilometers were multiplied by an emissions factor. Only Ballard's European staff travel for business by train, ferry and bus. Therefore, other travel was not calculated for operations in Canada. Emissions factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

As Ballard has operations in two countries, and partners and clients around the world, frequent business travel is required. In 2020, Ballard's air travel emissions produced 175 tCO₂e, or 3% of the total emissions. Compared to the previous year, air travel emissions dropped precipitously by 87%. This decrease in emissions is due to the strict travel restrictions implemented around the world during the pandemic. GHG emissions were calculated directly from detailed flight records.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

620

Emissions calculation methodology

Data was collected through an online employee survey, and findings were extrapolated to include staff who did not complete the survey. Kilometers/passenger kilometers travelled were multiplied by an emissions factors. Emissions factor Source: 2018 BC Methodological Guidance for Quantifying Greenhouse Gas Emissions

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Emissions were quantified using data collected through an online survey, and extrapolated to include staff who did not complete the survey.

Upstream leased assets

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Not applicable to Ballard's operations.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

362.66

Emissions calculation methodology

Shipping (362.66 tCO2e) – Upstream and downstream shipping was calculated together, and emissions were divided evenly between the two (everything that is shipped in is also shipped out). Tonne-kilometers travelled by materials were multiplied by an emissions factor based on transportation mode. Emission factor source: UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

99.6

Please explain

The shipping provider for the Burnaby office provided weight and distance shipped, and an emissions factor.

Processing of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Still developing processes for data collection and analysis.

Use of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Still developing processes for data collection and analysis.

End of life treatment of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Still developing processes for data collection and analysis.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Not applicable to Ballard's operations.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Ballard does not have Franchises

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Not applicable to Ballard's operations.

Other (upstream)

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

C-CG6.6

(C-CG6.6) Does your organization assess the life cycle emissions of any of its products or services?

	Assessment of life cycle emissions	Comment
Row 1	Yes	

C-CG6.6a

(C-CG6.6a) Provide details of how your organization assesses the life cycle emissions of its products or services.

	Products/services assessed	Life cycle stage(s) most commonly covered	Methodologies/standards/tools applied	Comment
Row 1	On a case-by-case basis	Cradle-to-gate	ISO 14040 & 14044	

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.000016173

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

1680

Metric denominator

unit total revenue

Metric denominator: Unit total

103877000

Scope 2 figure used

Location-based

% change from previous year

16.87

Direction of change

Increased

Reason for change

2% decrease in revenue from 2019 to 2020. 15% increase in Scope 1 & Scope 2 emissions. In 2020, Ballard Canada's stationary combustion emissions released 1,274 tCO2e, or 24% of total GHGs, making it the second largest source of emissions for Ballard. This is an increase in emissions from 2019, which produced 1,139 tCO2e. These emissions came from the combustion of natural gas for heating of Ballard's five buildings in Burnaby, which together consumed 25,173 GJs of natural gas.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Canada	1275
Denmark	120

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Ballard's corporate headquarters are located in Vancouver, Canada. Inspired by our natural surroundings and the commitment of the local community to protect our environment, Ballard has made it our mission to deliver innovative clean energy solutions.	1275
Ballard Power Systems Europe A/S is recognized as one of the leading players in the commercial application of fuel cell solutions. Founded in January 2007, Ballard Power Systems Europe A/S is a wholly owned subsidiary of Ballard Power Systems Inc.	120

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Canada	270	225	21116	0
Denmark	16		1045	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Ballard's corporate headquarters are located in Vancouver, Canada. Inspired by our natural surroundings and the commitment of the local community to protect our environment, Ballard has made it our mission to deliver innovative clean energy solutions.	270	225
Ballard Power Systems Europe A/S is recognized as one of the leading players in the commercial application of fuel cell solutions. Founded in January 2007, Ballard Power Systems Europe A/S is a wholly owned subsidiary of Ballard Power Systems Inc.	16	

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	78	Increased	37	Company planning for future growth resulted in a total increase in electric consumption. We increased the number of test stations available for product development, as well as increased efficiencies in operations by upgrading process from fully manual to automated systems.
Other emissions reduction activities	0	No change	0	
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output		<Not Applicable>		
Change in methodology	0	No change		
Change in boundary	0	No change		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C-CG7.10

(C-CG7.10) How do your total Scope 3 emissions for the reporting year compare to those of the previous reporting year?

Decreased

C-CG7.10a

(C-CG7.10a) For each Scope 3 category calculated in C6.5, specify how your emissions compare to the previous year and identify the reason for any change.

Purchased goods and services

Direction of change

First year of reporting this category

Primary reason for change

<Not Applicable>

Change in emissions in this category (metric tons CO2e)

<Not Applicable>

% change in emissions in this category

<Not Applicable>

Please explain

<Not Applicable>

Fuel and energy-related activities (not included in Scopes 1 or 2)

Direction of change

Increased

Primary reason for change

Change in output

Change in emissions in this category (metric tons CO2e)

423

% change in emissions in this category

30

Please explain

In 2020, company growth resulted in a total increase in electric consumption. We invested in our future , upgraded manual process and introduced automation.

Upstream transportation and distribution

Direction of change

Increased

Primary reason for change

Change in methodology

Change in emissions in this category (metric tons CO2e)

102

% change in emissions in this category

14

Please explain

Increase in air freight frequency due to increased customer shipments inside of standard shipping lead times due to supplied components delays through impact of COVID

Waste generated in operations

Direction of change

No change

Primary reason for change

<Not Applicable>

Change in emissions in this category (metric tons CO2e)

<Not Applicable>

% change in emissions in this category

<Not Applicable>

Please explain

As waste was an immaterial emissions source for Ballard's Canadian operations in 2018 and 2019, data for 2020 was not collected. Instead, waste production data from the previous year was extrapolated based on the number of employees in 2020. Actual waste data was collected for Ballard's European operations. Altogether, waste produced approximately 10 tCO2e of emissions in 2020, which contributed less than 1% of Ballard's total GHGs.

Business travel

Direction of change

Decreased

Primary reason for change

Change in physical operating conditions

Change in emissions in this category (metric tons CO2e)

1217

% change in emissions in this category

87

Please explain

Compared to the previous year, air travel emissions dropped precipitously. This decrease in emissions is due to the strict travel restrictions implemented at Ballard during the pandemic. GHG emissions were calculated directly from detailed flight records.

Employee commuting

Direction of change

Decreased

Primary reason for change

Change in physical operating conditions

Change in emissions in this category (metric tons CO2e)

368

% change in emissions in this category

37

Please explain

In 2020, the average commute distance (roundtrip) of Ballard Canada and Ballard Europe's employees was 14 km and 23 km, respectively. This is significantly lower than in 2019, due to a larger number of employees working from home, because of pandemic safety precautions.

Downstream transportation and distribution

Direction of change

Increased

Primary reason for change

Change in methodology

Change in emissions in this category (metric tons CO2e)

102

% change in emissions in this category

14

Please explain

Increase in air freight shipment due to extended supplier and shipping lead times due to COVID

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	3426.08	7273.42	10699.5
Consumption of purchased or acquired electricity	<Not Applicable>	20064	1056	21120
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	20064	1056	21120

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

6992.4

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

50.609

Unit

kg CO₂e per GJ

Emissions factor source

NIR (Part 2) 1990-2018: Greenhouse Gas Emission Sources and Sinks in Canada (2020); Calculated by converting m³ to GJ of natural gas

Comment

Canada Operations: 50.609 kg CO₂e/GJ - NIR (Part 2) 1990-2018: Greenhouse Gas Emission Sources and Sinks in Canada (2020) Denmark Operations: 51.800 kg CO₂e/GJ - Danish Energy Agency, Energy Statistics 2016 (pg. 39)

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

244.6

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

2.6417

Unit

kg CO₂e per liter

Emissions factor source

2018 BC Methodological Guidance for Quantifying Greenhouse Gas Emissions; Table 7 - Fleet Fuels (Standard Mixes)

Comment

Emissions Factor for a Light Duty Vehicle

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

36.42

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

2.331

Unit

kg CO2e per liter

Emissions factor source

2018 BC Methodological Guidance for Quantifying Greenhouse Gas Emissions; Table 7 - Fleet Fuels (Standard Mixes)

Comment

Emissions Factor for a Light Duty Vehicle

Fuels (excluding feedstocks)

Wood Chips

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

3426.08

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

58.4

Unit

kg CO2e per metric ton

Emissions factor source

UK Government GHG Conversion Factors for Company Reporting, 2020 v1.0; Tab: Bioenergy

Comment

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Other, please specify (BC Hydro is the sole energy provider for Ballard's Canadian facilities. BC Hydro is a Provincial Crown corporation that services the province.)

Low-carbon technology type

Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Canada

MWh consumed accounted for at a zero emission factor

0

Comment

BC Hydro is the sole energy provider for Ballard's Canadian facilities. BC Hydro is a Provincial Crown corporation that services the province, generating electricity mainly from hydropower. The emissions factor for BC Hydro is 10.67 tCO2e/GWh (2018 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions). In 2020, Ballard's Canadian facilities consumed 21,115.7 MWh of energy at 10.67 tCO2e/GWh. Ballard's European facilities used a location-based emissions factor for reporting electricity emissions in Scope 2.

C-CG8.5

(C-CG8.5) Does your organization measure the efficiency of any of its products or services?

	Measurement of product/service efficiency	Comment
Row 1	Yes	

C-CG8.5a

(C-CG8.5a) Provide details of the metrics used to measure the efficiency of your organization's products or services.

Category of product or service

Batteries (including fuel cells)

Product or service (optional)

Overall Fuel Cell Availability, 152 buses including two generations of the product in Europe and US.

% of revenue from this product or service in the reporting year

46.5

Efficiency figure in the reporting year

97.7

Metric numerator

Other, please specify (Days in Service)

Metric denominator

Other, please specify (All Calendar Days)

Comment

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

286.09

Metric numerator

TCO2e

Metric denominator (intensity metric only)

of employees

% change from previous year

2

Direction of change

Increased

Please explain

Company growth resulted in an increase in electric consumption.

Description

Waste

Metric value

9.83

Metric numerator

tCo2e

Metric denominator (intensity metric only)

of employees

% change from previous year

0

Direction of change

No change

Please explain

We are continuously improving our efforts to identify reusables and recyclables and minimize landfill waste as we grow our business.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	R&D investment was up 41% year-on-year to \$28.98 million USD in 2020. Research and product development activities occur in Canada and Denmark and are related to our next generation fuel cell products including the launch of our FCgen®-HPS High-Power Density Fuel Cell Stack for light-medium-and heavy-duty vehicles, the launch of our FCwave™ Fuel Cell Module for marine applications, and on the ongoing improvement of all 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.

C-CG9.6a

(C-CG9.6a) Provide details of your organization's investments in low-carbon R&D for capital goods products and services over the last three years.

Technology area

Electromobility components

Stage of development in the reporting year

Applied research and development

Average % of total R&D investment over the last 3 years

81 - 100%

R&D investment figure in the reporting year (optional)

28980000

Comment

R&D investment was up 41% year-on-year to \$28.98 million USD in 2020. Research and product development activities occur in Canada and Denmark and are related to our next generation fuel cell products including the launch of our FCgen®-HPS High-Power Density Fuel Cell Stack for light-medium-and heavy-duty vehicles, the launch of our FCwave™ Fuel Cell Module for marine applications, and on the ongoing improvement of all 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.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	No third-party verification or assurance
Scope 2 (location-based or market-based)	No third-party verification or assurance
Scope 3	No third-party verification or assurance

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, we are waiting for more mature verification standards and/or processes

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, and we do not anticipate being regulated in the next three years

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers

Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to education customers about your climate change performance and strategy

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

29

Portfolio coverage (total or outstanding)

<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement

Ballard publishes our Environmental, Social and Governance (ESG) Report annually. It is available to the general public via Ballard's website. The publication of the report is announced via a press release. We also notify subscribers to our email distribution list that the report has been published. 29% refers to the percentage of customer-related Scope 3 emissions attributed to shipping products to customers. The objectives of our on-going education campaign is to raise our customer awareness about our product carbon footprint and impact of product shipment on GHG emission. We have selected customers based on volume of business (active customers) and customers with recurrent numbers of shipment.

Impact of engagement, including measures of success

Expected impact is a shift from product air freight request to sea freight in order to reduce level of GHG emission linked to our product shipment. Measure of success will be a reduction of % of air shipments vs sea/rail/truck shipments. Target is to reduce air shipments by 20% of our product shipments

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

29

Portfolio coverage (total or outstanding)

<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement

Ballard published a brochure sharing the lifecycle analysis for our FCveloCity heavy-duty power module. The brochure communicated the carbon footprint of the product from cradle-to-gate. It also compared the emissions of the product versus competing technology (batteries). 29% refers to the percentage of customer-related Scope 3 emissions attributed to shipping products to customers.

Impact of engagement, including measures of success

The brochure is available on Ballard's website and shared with customers at their request.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Ballard products provides our customers with a power solution for zero emission vehicles. In order to further reduce the carbon footprint of the vehicles powered by our technology we are actively working with partners in the value chain for those vehicles to be powered by low carbon hydrogen fuel and preferably with green hydrogen produced from renewable energy.

Carbon intensity of the fuel used by our technology will have the biggest impact on emission level of the vehicles.

Therefore our strategy is to partner with suppliers of low carbon intensity hydrogen.

To that objective; we are working with a number of project developers and hydrogen suppliers in order to promote the use of green hydrogen along with our technology. A good example of this approach is the H2Bus Europe consortium we are part of in Europe where we have partnered with a bus manufacturer and 2 green hydrogen providers (RYSE and EVERFUEL) to offer an packaged offer with zero emission fuel cell bus powered by Ballard and green hydrogen fuel.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other, please specify (Zero emission vehicle mandate)	Support	Engagement with policy makers in Canada , US and Europe directly or through industry associations and NGO's to support zero emission vehicle mandate and emission reduction regulations.	We advocated and supported the following legislations: ICT (Innovative Clean Transit) and ACT (Advanced Clean Truck) regulations in California, Zero Emission Vehicle mandate in British Columbia, Truck emission regulations in EU.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

CUTRIC (Canadian Urban Transit Research & Innovation Consortium)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Promote clean transit solutions in Canada

How have you influenced, or are you attempting to influence their position?

As Board member we participate to the development of the organization strategy; provide inputs to outreach campaigns and sign support letters to legislations aligned with our position on climate change.

Trade association

CHFCA (Canadian Hydrogen and Fuel Cell Association)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Promote hydrogen and fuel cell industry which will lead to emission reduction in hard to abate sectors such as transportations - promote deployment of zero emission fuel cell vehicles

How have you influenced, or are you attempting to influence their position?

As a Board member we participate to the development of the organization strategy; provide inputs to outreach campaigns and sign support letters to legislations aligned with our position on climate change.

Trade association

CHBC (California Hydrogen Council)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Promote hydrogen and fuel cell industry which will lead to emission reduction in hard to abate sectors such as transportations - promote deployment of zero emission fuel cell vehicles

How have you influenced, or are you attempting to influence their position?

As Board member we participate to the development of the organization strategy; provide inputs to outreach campaigns and sign support letters to legislations aligned with our position on climate change.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

We are developing a corporate messaging guideline to reflect our overall climate change strategy. Such guideline will be used in our communication with trade organizations and policy makers. Such guideline will be used by Ballard global team in our interactions with different stakeholders.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In voluntary sustainability report

Status

Complete

Attach the document

BPS_ESG_Report_12April2021_Web (003).pdf

Page/Section reference

Throughout the document

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

We are gradually coming out of a global pandemic. For many companies, COVID-19 accelerated a transition to digital that was already underway. People are coming together online, and valuing brands that have a compelling story; brands whose core values are inspirational. Ballard is a perfect fit for these times: we are all about improving the quality of life for current and future generations as we work towards a cleaner future. We've been developing fuel cell stacks since 1986. Today, zero-emission power is no longer radical. The global transition to clean energy is well underway. The role of hydrogen in the decarbonization of hard-to-abate sectors is widely accepted. Demand is growing for hydrogen solutions and the market is accelerating quickly. OEMs, fleet operators, and policymakers are looking for a trusted, knowledgeable partner with a clear purpose to help decarbonization, with decades of proven real-world experience in implementing fuel cell solutions, and the stability to stand behind them for decades to come.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Vice President & General Counsel	Other, please specify (General Counsel)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public

Please confirm below

I have read and accept the applicable Terms