

Fiscal Year 2023

# Sustainability Report

Empowering Our  
Clean Energy Future



FuelCell  
Energy

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# Key Terms

- CDP:** formerly known as the Carbon Disclosure Project
- CO<sub>2</sub>:** carbon dioxide
- CO<sub>2</sub>e:** carbon dioxide equivalent
- DOE:** U.S. Department of Energy
- EHS:** environmental, health and safety
- EPA:** U.S. Environmental Protection Agency
- ESG:** environmental, social and governance
- FY:** fiscal year
- GHG:** greenhouse gas
- GRI:** Global Reporting Initiative
- HHV:** high heating value
- IEA:** International Energy Agency
- IPCC:** Intergovernmental Panel on Climate Change
- IRA:** Inflation Reduction Act
- ISO:** International Organization for Standardization
- kg:** kilogram
- LCA:** life cycle assessment
- MT:** metric ton
- MW:** megawatt
- MWh:** megawatt-hour
- NOx:** nitrogen oxides
- SASB:** Sustainability Accounting Standards Board
- SDGs:** Sustainable Development Goals
- SOEC:** solid oxide electrolyzer cell
- SOFC:** solid oxide fuel cell
- SOx:** sulfur oxides
- TCFD:** Task Force on Climate-related Financial Disclosures
- YOY:** year-on-year

# About This Report

This 2023 Sustainability Report is FuelCell Energy’s second annual report to cover our sustainability progress and performance. This report focuses primarily on fiscal year 2023 activities, unless otherwise noted. All references to a year throughout the report refer to FuelCell Energy’s fiscal years, unless “calendar year” is specified. FuelCell Energy’s fiscal year starts on November 1 and ends on October 31. Information in this report includes all our entities and global operations covered in our Annual Report unless otherwise stated.

This report was prepared in accordance with the Global Reporting Initiative (GRI) Standards as well as the Sustainability Accounting Standards Board (SASB) Fuel Cells & Industrial Batteries Sustainability Accounting Standard. We also provide a summary of our progress in addressing climate change in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

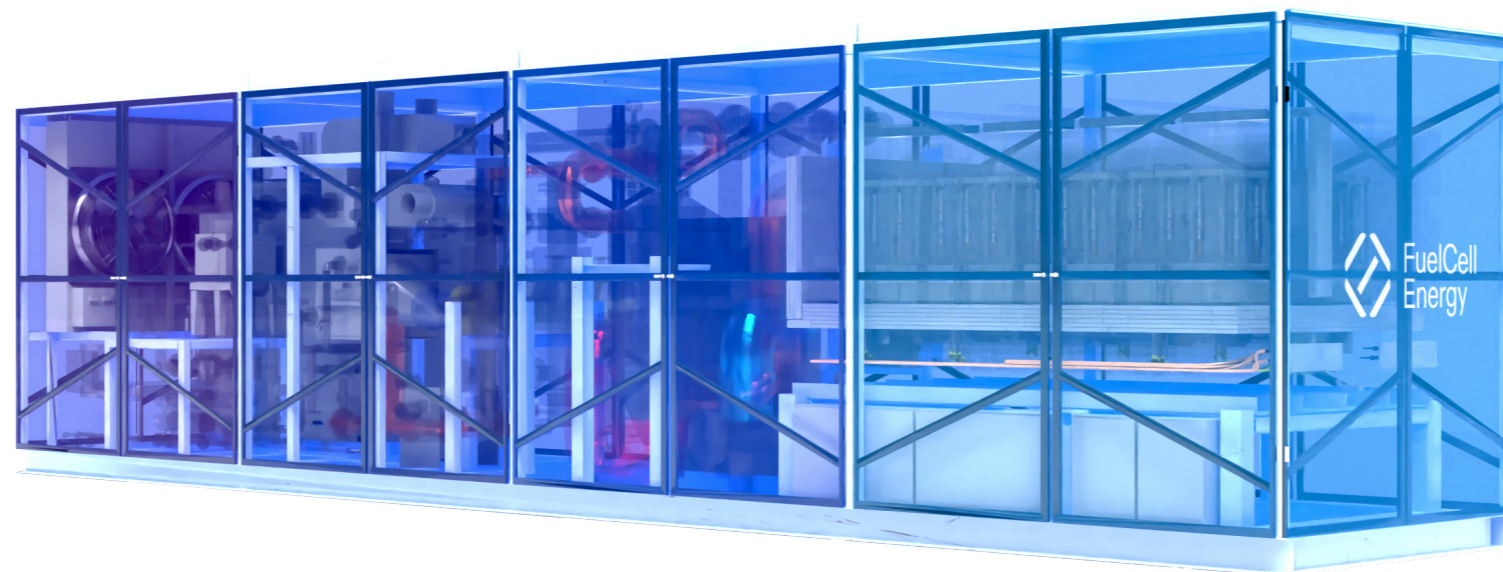
GRI reporting principles were applied in this report as defined in GRI 1: Foundation 2021. The principles are:

- **Accuracy:** We provide information that has been internally verified and is sufficiently detailed to allow an assessment of FuelCell Energy’s impacts.
- **Balance:** We have aimed to provide a fair representation of FuelCell Energy’s positive and negative impacts, including key challenges.
- **Clarity:** We report in a way that is accessible, using plain and clear language.
- **Comparability:** We disclose information in a way that enables analysis of changes in FuelCell Energy’s impacts over time, to the extent possible.
- **Completeness:** We provide information about our activities that have material impact to enable an assessment of FuelCell Energy’s impacts during the reporting period.

- **Sustainability context:** We report our sustainability impacts in the wider context of sustainable development with reference to global priorities and trends.
- **Timeliness:** We report on a regular schedule alongside our Annual Report, so that information is available in a timely manner for users to make decisions.
- **Verifiability:** We provide details of the basis of our reporting so that the information can be examined to establish its quality.

Information and data in this report have been internally verified and are believed to be an accurate representation of our performance. Additionally, our Scope 1 and 2 greenhouse gas emissions have been externally assured by an independent CDP Gold Accredited verifier. The Assurance Statement can be found [here](#).

We welcome your queries and feedback and invite you to contact us at [sustainability@fce.com](mailto:sustainability@fce.com).

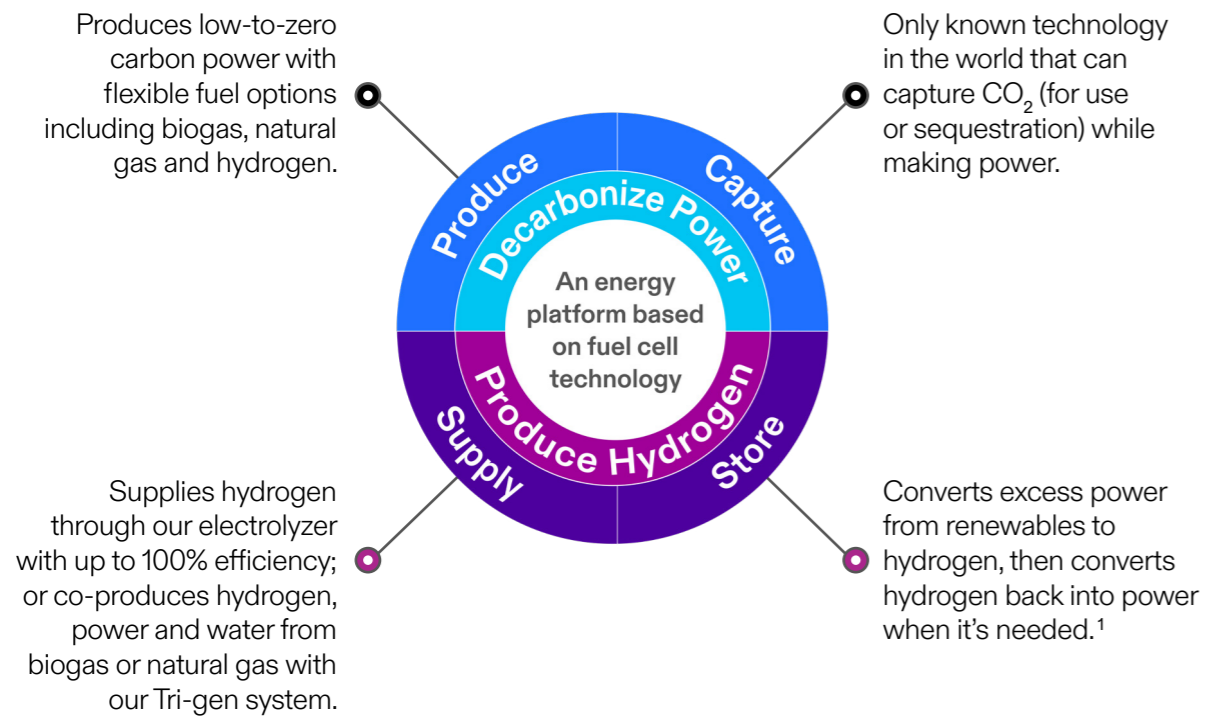


Our solid oxide electrolyzer produces hydrogen at up to 100% efficiency.

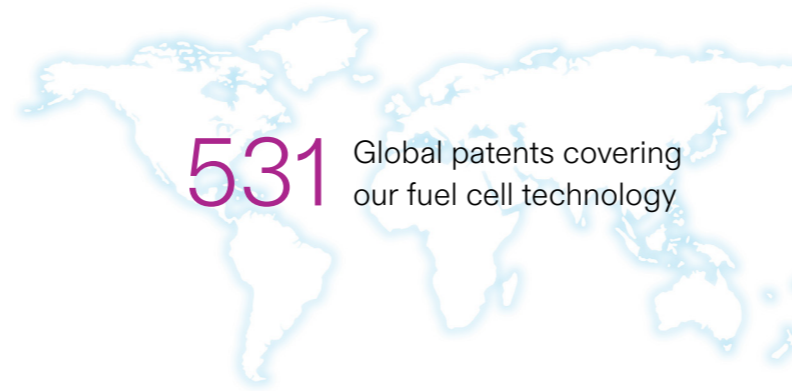
# About FuelCell Energy

FuelCell Energy is a clean energy technology company working at the forefront of solving today's energy challenges, delivering innovative low-to-zero carbon energy and hydrogen solutions to customers around the globe.

## Our Technology



## A global leader in fuel cell technology innovation<sup>2,3</sup>



## Company Highlights<sup>3</sup>

<b>HQ</b> Danbury, Connecticut	<b>3</b> Continents: customers in Asia, Europe and North America
<b>FCEL</b> Listing: NASDAQ	<b>188</b> Modules in operation <sup>4</sup>
<b>~600</b> Employees	<b>15</b> Million MWh generated with patented technology

## Our Values



**Safety**  
Physical & Psychological  
Foster a healthy and safe environment.



**Integrity**  
In everything we do.



**Innovation**  
Deliver impactful products to our customers.



**Accountability**  
To ourselves, our stakeholders and our community.

<sup>1</sup> Under development.

<sup>2</sup> Patents are for FuelCell Energy, Inc., and our subsidiary Versa Power Systems, Inc.

<sup>3</sup> As of the year ended October 31, 2023.

<sup>4</sup> As of December 2023, certain sites have multiple platforms. For example, our 14MW Derby, Connecticut, project site has five SureSource 3000 platforms containing a total of 10 modules.

# A Message From Our CEO

FuelCell Energy is dedicated to its mission to enable a world empowered by clean energy. As institutions globally seek to meet aggressive climate goals to secure a healthier and sustainable future, FuelCell Energy is offering solutions that will help them get there. And we are looking inward, as well, to ensure that our own organization operates in a manner that makes us worthy of playing such an important role in this journey.

Each day our team works with institutions around the world to help identify and incorporate our platform solutions to help them become more resource-efficient while advancing their climate objectives through our solutions that can:

- Capture carbon while simultaneously co-producing power and hydrogen and enabling that captured CO<sub>2</sub> to be permanently sequestered, thereby absolutely reducing carbon emissions; or purifying the CO<sub>2</sub> for use in food and beverage applications; or providing the CO<sub>2</sub> for use in industrial product applications.
- Produce hydrogen by converting water and renewable energy from hydro, nuclear, wind and solar via electrolysis. Leveraging electrolysis, we can utilize the produced hydrogen as an energy storage medium, store the hydrogen, reverse the hydrogen and use it for power generation when intermittent resources such as wind, solar and hydro are not available.<sup>5</sup>
- Produce power, hydrogen and water from a variety of fuels, delivering low-to-zero carbon intensity hydrogen while helping overcome water scarcity that is prevalent in so many regions.
- Generate power without combustion-based emissions such as NO<sub>x</sub>, SO<sub>x</sub> and particulates.

We believe that clean energy is not only about driving down greenhouse gas emissions. It represents an entire infrastructure that has the potential to transform the way we think about energy and the sources we use to create energy. Clean energy offers the ability to significantly lower the cost of and provide greater access to energy, continue to allow

commercial and industrial companies to produce the valuable products we all rely on, support growth in developing economies around the world and a host of additional benefits that are critical for sustainable development. Energy on its own won't solve global poverty and improve the standard of living for our global community, but without reliable, clean, always available power we will not solve poverty and improve the standard of living around the globe.

As we deliver on our promise to the world, we are also delivering on our promise to ourselves to operate as an ethical, robustly governed, people-focused sustainable company. In the past year, we have made significant progress in strengthening our Environmental, Social and Governance (ESG) strategy and creating momentum for moving forward.

- We have made a commitment to deliver net-zero emissions from our value chain by 2050, and we are putting in place all the necessary mechanisms to ensure we succeed.
- We are guided by a Board of Directors that is as committed to delivering our sustainability promise and our purpose to enable a world empowered by clean energy as we are.
- We have invested in our growing organization, using our values-based culture to create a diverse and inclusive organization and providing training and development for our workforce, underpinned by improved human resources processes and policies. We are surveying our employees to address areas where we can improve.
- We have adopted an intentional approach to protecting human rights and recently published a human rights policy.



We continue to advance along our path of dual promises and are optimistic about our shared future. We see an accelerated need for clean energy solutions and are joining the dialogue around the world among those committed to a clean energy future, including governments and industry, to align on sustainable development goals and plans.

In this report, we are pleased to provide an overview of what we have achieved, how we plan to continue on our practical sustainability journey and our commitment to the customers and communities we serve to help them achieve their sustainability objectives. I invite you to learn more about our efforts and to share your thoughts.

Sincerely,

**Jason Few**  
President and Chief Executive Officer

<sup>5</sup> Under development.

# A Message From Our Board of Directors

The Environmental, Social, Governance and Nominating Committee of the FuelCell Energy Board of Directors provides oversight for the definition, leadership, implementation and outcomes of the company's ESG Strategy. We are committed to this element of our role as we are to ensuring the company has effective corporate governance controls, risk management processes and overall accountability and integrity in the way it does business.

Our interest in supporting ESG goes beyond our formal obligation; it plays to the passions of each and every Board member to support FuelCell Energy in leveraging its capabilities and resources to accelerate the positive transformation of energy and supply systems around the world and to help mitigate climate change.

The health benefits of producing energy with virtually zero air pollutants cannot be underestimated for the health and well-being of people around the planet. The ability to access reliable locally generated energy can help businesses and communities in all countries thrive by overcoming disruption in energy supply through grid outages, the inconsistencies of intermittent renewable resources or simply the lack of available power. And, of course, the exceptional potential of zero-carbon hydrogen as the power source of the future will help enable global climate-change mitigation and create a cleaner, greener world for our collective future. As a Board, it's these outcomes that inspire our commitment to work with the management team supporting ESG at FuelCell Energy.

In the past year, we have been encouraged by the development of a structured approach to sustainability at FuelCell Energy, both as it impacts our customers and our markets and as it defines our ways of working. The delivery of a new ESG strategy and leadership structure,

our discussions on ESG targets and the commitment to achieve net-zero emissions across our value chain by 2050 are milestones in FuelCell Energy's sustainability journey. The Board has been engaged and involved in these activities at each step of the way. Alongside progress in advancing an inclusive working culture, improving the safety of our workplace and delivering a new human rights statement, we are confident that the company is making considerable progress.

We look forward to supporting this ongoing journey and to further progress in the coming year.

**Natica von Althann**

Director, Chair of the Environmental, Social, Governance and Nominating Committee

“ In the past year, we have been encouraged by the development of a structured approach to sustainability at FuelCell Energy. ”



# Leading Sustainability at FuelCell Energy

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# Leading Sustainability at FuelCell Energy

FuelCell Energy is committed to playing a strong role in sustainable development through technology, innovation and the development of climate-friendly solutions that will enable broadscale uptake of clean energy. Similarly, we are committed to operating in an ethical, responsible and transparent manner, harnessing the collective passion and capabilities within our organization to improve our impacts on people, society and the environment.

In fiscal year 2023, we pulled the different elements of our ongoing actions as a sustainability-minded company together to create a strategic approach to guide our ongoing actions. We also implemented a sustainability (ESG) leadership structure with the goal of ensuring oversight, management and implementation of our plans, including a key objective to reduce carbon emissions in our own operations and throughout our value chain to net zero by 2050.

## Defining Our Strategy and Leadership

ESG strategy prioritizes our key ESG responsibilities and stakeholder needs. The strategy was developed in discussion with our Senior Leadership Team and Board of Directors, and was informed by multiple engagements with customers, business partners, investors and analysts and our own employees throughout the business. We also considered current global trends and sustainability standards and frameworks including the United Nations Sustainable Development Goals (SDGs) and the Sustainability Accounting Standards Board Standards (SASB) specific to our industry and several other sources.

Our ESG Strategy encompasses 12 broad action areas that will guide our actions in the coming years. We are currently building out detailed action plans to support each pillar of the strategy and expect to define specific targets in the coming year.

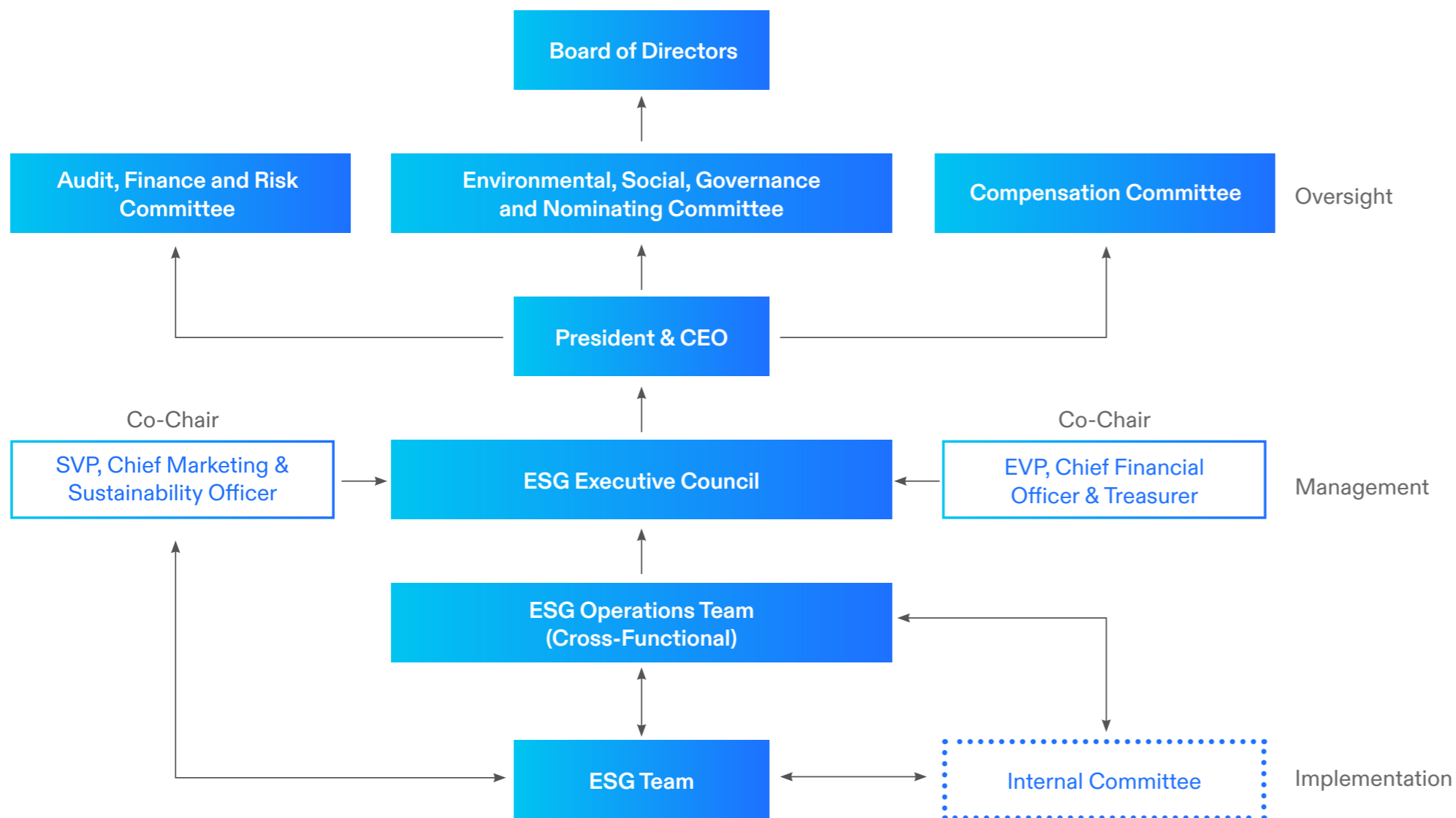


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# Sustainability Leadership

To support the leadership and implementation of our ESG strategy, we established a leadership model comprising a cross-functional team and executive team members overseen by the Environmental, Social, Governance and Nominating Committee of our Board of Directors.



“This year, we have taken a very systematic approach to bringing together all the different elements of sustainability at FuelCell Energy under one strategic plan that provides us with a shared language, clarity and inspiration. This is our North Star, underpinning who we are as a company and how we intend to leverage all our capabilities to deliver our purpose. Our customers can expect that we will continue to help them achieve their own clean energy goals as we expand our capacity to decarbonize power and produce hydrogen, knowing that, as a company, we are also committed to doing the right thing and operating as a good corporate citizen.”

**Betsy Schaefer,**  
Senior Vice President, Chief Marketing and Sustainability Officer, FuelCell Energy

# Understanding Our Stakeholders

We engage frequently with stakeholders throughout the year to understand their expectations of FuelCell Energy as well as their needs and concerns in a dynamic business environment. The insights we gain from these interactions inform our prioritization of ESG topics and contribute to the development of our sustainability strategy.

Stakeholder	Types of Interaction	Key Expectations of FuelCell Energy	Our Response
<b>Customers</b>	Regular, frequent interaction throughout the year to review performance and new requirements	<ul style="list-style-type: none"> <li>Affordable clean energy solutions</li> <li>Quality, reliability, cost-efficiency</li> <li>Ongoing support and service</li> </ul>	<p>See sections:</p> <ul style="list-style-type: none"> <li><a href="#">Progress in Empowering Our Clean Energy Future</a></li> <li><a href="#">Progress for People and Partners</a></li> </ul>
<b>Employees</b>	Regular, daily interactions and communications programs as well as individual performance reviews and Employee Engagement Survey	<ul style="list-style-type: none"> <li>Values-based culture</li> <li>Open and transparent communications</li> <li>Competitive reward</li> </ul>	<p>See section:</p> <ul style="list-style-type: none"> <li><a href="#">Progress for People and Partners</a></li> </ul>
<b>Suppliers</b>	Regular meetings and discussions to review our requirements, supplier performance and ongoing plans	<ul style="list-style-type: none"> <li>Fair opportunity to bid for our business</li> <li>Trust-based relationships</li> </ul>	<p>See section:</p> <ul style="list-style-type: none"> <li><a href="#">Prioritizing Customer Service and Responsible Supply</a></li> </ul>
<b>Investors</b>	Annual meetings with key investors to present our financial and ESG performance, quarterly earning calls, attendance at investor-focused conferences and events	<ul style="list-style-type: none"> <li>Positive financial returns</li> <li>Robust corporate governance</li> <li>Strong ESG performance</li> <li>Ethical conduct</li> </ul>	<p>See sections:</p> <ul style="list-style-type: none"> <li><a href="#">Leading Sustainability at FuelCell Energy</a></li> <li><a href="#">Progress in Governance and Risk Management</a></li> </ul>
<b>Government</b>	Frequent meetings and interactions to advocate for clean energy solutions and to support climate-friendly policy	<ul style="list-style-type: none"> <li>Continuous outreach and education</li> <li>Accelerating clean energy technology</li> <li>Applying data-driven expertise</li> </ul>	<p>See section:</p> <ul style="list-style-type: none"> <li><a href="#">Being Part of the Clean Energy Solution</a></li> <li><a href="#">How FuelCell Energy Empowers Communities</a></li> </ul>
<b>Communities and civil society</b> (including nongovernmental organizations, social and environmental organizations and local communities)	Engagement to address concerns or consider opportunities to advance low-carbon, clean energy solutions and improve community life	<ul style="list-style-type: none"> <li>Advancing clean energy solutions</li> <li>Supporting local communities</li> <li>Addressing environmental issues</li> </ul>	<p>See sections:</p> <ul style="list-style-type: none"> <li><a href="#">Progress in Empowering Our Clean Energy Future</a></li> <li><a href="#">Progress for People and Partners</a></li> </ul>

# Focusing on Material Topics

We have identified 10 sustainability topics that can impact our ability to create value over time (Financial Materiality). The list of topics was developed following an analysis of the demands of sector-based sustainability standards and investment analyst requirements, as well as global trends, peer benchmarking and customer interest. Similarly, we have examined these topics from the perspective of our impact as an organization on the economy, people and the environment (Impact Materiality) and incorporated this understanding into our overall sustainability strategy and practice.

Material Topic	Definition	Key Environmental and Social Impacts	Key Sustainability-related Financial Risks and Opportunities
<b>Climate Change and GHG Emissions</b>	Advancing access to affordable clean energy and minimizing operational GHG emissions across our value chain	<ul style="list-style-type: none"> <li>+ Improving global access to zero- or low-carbon energy</li> <li>- Emitting GHGs through our value chain</li> </ul>	<ul style="list-style-type: none"> <li>+ Major market opportunities for clean energy; increased revenue through demand for low- and zero-carbon solutions</li> <li>- Potential limits to rapid uptake of affordable clean energy growth due to legislation lagging not keeping pace with technological advances</li> </ul>
<b>Energy Management</b>	Minimizing use of energy and utilizing clean energy across our operations and supply chain	<ul style="list-style-type: none"> <li>+ Virtually no harmful air pollutants due to non-combustion technology</li> <li>- Use of natural gas-based energy generates GHG emissions</li> </ul>	<ul style="list-style-type: none"> <li>+ Advancement of fuel-free free, high efficiency power and hydrogen-generation technologies</li> <li>- Higher cost or lower availability of clean energy to support zero-carbon operations across the entire supply chain</li> </ul>
<b>Product Efficiency</b>	Driving innovation to improve the life cycle performance of fuel cells and related products	<ul style="list-style-type: none"> <li>+ Continuing to invest and deliver breakthrough technology to make fuel cells more efficient than ever</li> </ul>	<ul style="list-style-type: none"> <li>+ Continuous improvement creates opportunities in sales and value for utilities and other consumers</li> <li>- Return on investment in new technology slower than planned due to low market uptake or competitive products</li> </ul>
<b>Product End-of-Life Management</b>	Designing fuel cells for recyclability and ensuring safe disposal at end of life	<ul style="list-style-type: none"> <li>+ Advancing a circular economy</li> <li>- Potential unsustainable disposal of products at end of life</li> </ul>	<ul style="list-style-type: none"> <li>+ Reduced supply cost due to recycling/reuse; increased business resilience through improved control of materials and components</li> <li>- Potential high cost of designing for recyclability or implementing customer take-back schemes</li> </ul>
<b>Hazardous Waste Management</b>	Addressing hazardous waste and safe and sustainable disposal methods	<ul style="list-style-type: none"> <li>+ Continuous adherence and compliance to regulations governing hazardous waste</li> <li>- Hazardous waste impacts on human health and the environment</li> </ul>	<ul style="list-style-type: none"> <li>+ Increased product value due to improved recycling and reuse of hazardous waste</li> <li>- Potential cost of addressing hazardous waste pollution and product design process to minimize the use of hazardous substances</li> </ul>
<b>Product Life Cycle Management</b>	Managing life cycle impacts by design to minimize negative environmental impacts	<ul style="list-style-type: none"> <li>+ Enabling customers to achieve sustainable operations through use of fuel cell-based products</li> </ul>	<ul style="list-style-type: none"> <li>+ Increased revenue and product value through improved product operating life</li> <li>- Potential cost of technology required to address all life cycle impacts</li> </ul>
<b>Materials Sourcing</b>	Addressing resource scarcity of critical materials and ensuring ethical supply chains	<ul style="list-style-type: none"> <li>+ Reduced demand for raw materials as more than 90% of the carbonate fuel cell can be recycled or reused; our fuel cells do not contain tin, tungsten, tantalum or gold (conflict minerals)</li> <li>- Depleting limited non-renewable resources; potentially sourcing products from conflict areas</li> </ul>	<ul style="list-style-type: none"> <li>+ Decreased manufacturing cost due to the replacement of raw materials with the recycled and reused materials</li> <li>- Potential high cost of ensuring ethical supply of critical materials or replacing them in our product design</li> </ul>
<b>Product Safety</b>	Delivering products that are designed to be safely operated in the use phase	<ul style="list-style-type: none"> <li>+ Improving global access to zero- or lower-carbon energy that is safe for use for customers and communities and has no adverse effects on water, air and soil</li> </ul>	<ul style="list-style-type: none"> <li>+ Avoided cost associated with product recalls involving health and safety risks; strong product reputation supporting business growth</li> <li>- Potential cost of addressing unforeseen safety issues</li> </ul>
<b>Workforce Health &amp; Safety</b>	Advancing a safe working culture and providing a safe workplace free from safety hazards	<ul style="list-style-type: none"> <li>- Potential risks and hazards due to unsafe practices at work</li> </ul>	<ul style="list-style-type: none"> <li>+ Reduced cost of accidents; improved employee retention; reduced insurance cost</li> <li>- Potential cost increase and disruption to business of major safety incidents</li> </ul>
<b>Business Ethics</b>	Maintaining a compliant and ethical culture and providing opportunities for speaking up	<ul style="list-style-type: none"> <li>- Potential negative social impacts of corruption or ethical violations in our operations</li> </ul>	<ul style="list-style-type: none"> <li>+ Investor confidence in ethical business supports long-term sustainable growth</li> </ul>

# Fiscal Year 2023 Sustainability Highlights

**15 million MWh**

of power generated with patented technology as at end fiscal year 2023



**New net-zero approach**

across our value chain by 2050



**57%**

of waste diverted from landfills



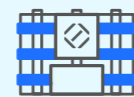
**57%**

of Board Directors are women



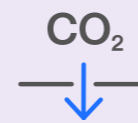
**155,000 MT of CO<sub>2</sub>e**

avoided in fiscal year 2023 by our plants and customers using our power generation platforms



**Introduced two new solid oxide platforms**

to further decarbonize power and produce hydrogen more efficiently than ever



**Advanced carbon capture technology**

with a new initiative to validate fuel cell performance in Rotterdam in partnership with ExxonMobil



**1.68**

recordable injury rate, down from 2.16 in fiscal year 2022



**391 MT of NO<sub>x</sub>**

avoided in fiscal year 2023 for our customers and operations using our power generation platforms



**10%**

reduction in absolute Scope 2 GHG emissions from prior year



**New ESG strategy and leadership structure**

to guide our sustainability actions and to support implementation of our ESG strategy



**13,600 hours**

of formal training hours delivered, amounting to 27 hours of training and development per employee



**First in the world**

Tri-gen plant for Toyota Motor North America commenced operations in California delivering renewable electricity, renewable hydrogen and usable water



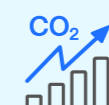
**5%**

reduction in total waste from prior year



**77%**

response rate in our Employee Engagement Survey



**First life cycle assessment**

of key products to inform carbon efficiency improvements going forward

# How FuelCell Energy Empowers Communities

At FuelCell Energy, we believe a community should never be forced to choose between having reliable access to energy and living in a healthy, thriving environment. Since the company's inception, our engineers, scientists and researchers have been dedicated to perfecting power generation technologies that are efficient and do not produce harmful emissions. With our latest generation of fuel cells and electrolyzers, two technological advancements that achieve this end, the possibilities for healthy communities seem endless.

We believe that by providing access to clean and reliable energy, we create opportunities within communities while benefiting our environment and climate. We strive to advance our technology and solutions to provide communities with clean and affordable power while supporting resiliency, economic development and social impact.

## FuelCell Energy provides clean power to improve community health

According to the research from Harvard University, air pollution from combusting fossil fuels is responsible for about one in five deaths worldwide.<sup>6</sup> In the U.S., 350,000 premature deaths in 2018 were attributed to fossil fuel pollution.<sup>7</sup> We design fuel cells that electrochemically combine fuel and air to create power without combustion. The electrochemical reaction in fuel cells is virtually free of nitrogen oxides (NOx), sulfur oxides (SOx) and particulate matter emissions, which makes our technology safe for communities. The fuel cell power plant's compact design, quiet operation and clean emissions profile make it easy to site in populated areas.

## FuelCell Energy embraces economic development to address communities' longstanding environmental concerns

It is estimated that there are more than 450,000 brownfields in the U.S.<sup>8</sup> Brownfields pose environmental exposure risks to community members via access to the sites or contamination of soil, air and/or water at the site. Cleaning up and reinvesting in these properties requires significant investments and resources.

Our platforms can be and have been situated on polluted properties where the project pays for remediation, returning the property to city tax rolls. When we situate our platforms on brownfields, we clean up and sustainably reuse the land which leads to improved local environmental quality as well as attracting businesses, creating jobs and providing additional tax revenue for local governments, all while enhancing local power reliability.

## FuelCell Energy minimizes land use to maximize community access to green space

Today, the U.S. uses 81 million acres of land to power its economy. To achieve the U.S. green energy transition, if the country pursues the most land-intensive plan to replace all fossil fuels and nuclear plants, wind and solar will require about 267 million additional acres by 2050<sup>9</sup>. Our fuel cell modules are land-efficient and suitable for use even in a dense residential area with limited space. One acre of land supports a fuel cell park capable of generating 10 MW of power, a small fraction of the land needed by a solar farm to generate the same output. A typical solar farm needs around 450 times the space required for the same annual megawatt-hour output. This means more land for parks, schools or other productive and sustainable uses.

## City of Derby

In 2023, we began delivering clean and affordable power to the City of Derby, Connecticut, as part of the state of Connecticut's effort to expand renewable energy sources. The second-largest fuel cell park in North America, following only FuelCell Energy's Bridgeport Park, this project supplies clean power to more than 10,000 households and generates substantial tax revenue for the city. Additionally, all the components of the fuel cell stacks in this facility were made locally, in FuelCell Energy's Torrington, Connecticut, factory. Our team is developing a second fuel cell project in Derby on Coon Hollow Road, under the state's Shared Clean Energy Facility program. When completed, it will produce 2.8 megawatts of power replacing polluting power generation with clean electricity for several thousands of additional households.



<sup>6</sup> Harvard T.H. Chan, C-Change, <https://www.hsph.harvard.edu/c-change/news/fossil-fuel-air-pollution-responsible-for-1-in-5-deaths-worldwide/>, accessed January 2024.

<sup>7</sup> Harvard T.H. Chan, C-Change, <https://www.hsph.harvard.edu/c-change/news/fossil-fuel-air-pollution-responsible-for-1-in-5-deaths-worldwide/>, accessed January 2024.

<sup>8</sup> EPA, <https://www.epa.gov/brownfields/overview-epas-brownfields-program>, accessed January 2024.

<sup>9</sup> Bloomberg.com, <https://www.bloomberg.com/graphics/2021-energy-land-use-economy/>, accessed January 2024.

## City of Long Beach

Last year, jointly with Toyota Motor North America (Toyota), we completed the first-of-its-kind Tri-gen system at Port of Long Beach, California, where neighboring communities are significantly impacted by the emissions from the ships, trucks, locomotives and cargo-handling equipment. For many years, the Los Angeles-Long Beach metropolitan area has been named the most ozone-polluted region in the nation<sup>10</sup> with the Long Beach port complex being one of the largest sources of air pollution. With the Tri-gen system completed, Toyota's port vehicle processing facility is powered by 100% renewable electricity, generated on-site and free of combustion-based emissions. The Tri-gen system, owned and operated by FuelCell Energy, produces renewable electricity, renewable hydrogen, and water from directed biogas. These carbon-neutral products at the Port of Long Beach will allow a reduction of air pollution in the neighboring communities by avoiding more than 9,000 tons of CO<sub>2</sub> emissions from the power grid and more than six tons of grid NOx each year.

### FuelCell Energy supports energy resilience for critical infrastructure

Fuel cells can ensure that a reliable energy supply is available to maintain operations in the event of a grid disruption due to storms and other events. Energy resilience can be very beneficial to communities during grid interruptions from severe weather or natural disasters. A 2.2 MW fuel-cell microgrid in Woodbridge, Connecticut provides power to a local high school and other nearby buildings. During power outages, the fuel cell switches to microgrid mode to provide reliable and uninterrupted power to seven critical town facilities.

“ FuelCell Energy is unique for two reasons: its technology and its approach to problem solving. Maybe it’s because of our culture; having spent five decades in essentially a laboratory environment focused on developing an exceptional product or maybe it’s because our engineers and scientists take a systematic approach to everything they do. Regardless, it puts us in the perfect position to help various groups of customers, from businesses to communities, find the right technology for the right project. ”

**Monique Valdez,**  
Sales Director, Industrial Applications, FuelCell Energy



### FuelCell energy enables local high-efficiency power generation

According to the U.S. Department of Energy, power transmission continues to be a challenge in many parts of the United States<sup>11</sup>. Transmission line losses average about 5% for the U.S. grid, which represents inefficiency, results in additional emissions and is a hidden cost to ratepayers. In addition, overhead transmission lines have contributed to the ignition of wildfires in certain regions.

At FuelCell Energy, our team of engineers, scientists and researchers have spent years advancing technologies that allow us to produce high-efficiency power locally, where the power is used, minimizing transmission losses and resulting in improved overall energy efficiency as well as enhanced grid reliability. Locating power near the user also often provides opportunities to use the waste heat from the fuel cell in combined heat and power applications, which provide additional sustainability benefits by reducing the use of thermal fuel.

The electrical efficiency of our carbonate fuel cell solutions ranges from approximately 47% to 60% upon initial operations of our platforms, depending on the configuration. When configured for combined heat and power, our system efficiencies can potentially reach up to 90%, depending on the application. This compares favorably to the average efficiency of the U.S. electrical grid of about 40%.

## City of Bridgeport

In December 2023, the Bridgeport FuelCell Park in Connecticut marked its 10th anniversary since it started cleanly, quietly and efficiently supplying power to the electric grid — enough to power about 15,000 homes. We helped convert this previously contaminated brownfield land into a valuable resource for the local community which served as an anchor for the redevelopment of that section of Bridgeport. Also, the Bridgeport FuelCell Park is one of the largest taxpayers for the City of Bridgeport.

<sup>10</sup> American Lung Association, <https://www.lung.org/research/sota/city-rankings/msas/los-angeles-long-beach-ca>, accessed January 2024.

<sup>11</sup> Energy.gov, National Transmission Needs Study, <https://www.energy.gov/gdo/national-transmission-needs-study>, accessed January 2024.

# How Hydrogen Supports a Clean Energy Future

We believe hydrogen is the clean energy carrier of the future, with unique properties. It can be made from non-renewable feedstocks with carbon capture, providing a path to inexpensive low-carbon hydrogen. Hydrogen can also be made by electrolysis with zero-carbon renewable or nuclear power, providing a path to zero-carbon hydrogen. These lower- or zero-carbon hydrogen products can drive significant carbon emissions reduction that can be readily scaled to deliver affordable clean energy everywhere.

**Hydrogen enables zero-emissions transportation** by utilizing a zero-carbon feedstock as the fuel to power cars, trucks, buses, ships, trains and, in the future, aircraft and other aerospace applications.

**Hydrogen can be used as fuel to produce high-grade heat for industrial applications** such as steel and glass production, in addition to its traditional uses for the refining process, in making ammonia, cement and chemicals, in-building heating, combustion power generation and residential heating.

**Hydrogen is an effective medium for the storage of energy**, offering an environmentally superior storage option in preference to mineral-based storage solutions such as lithium-ion batteries.

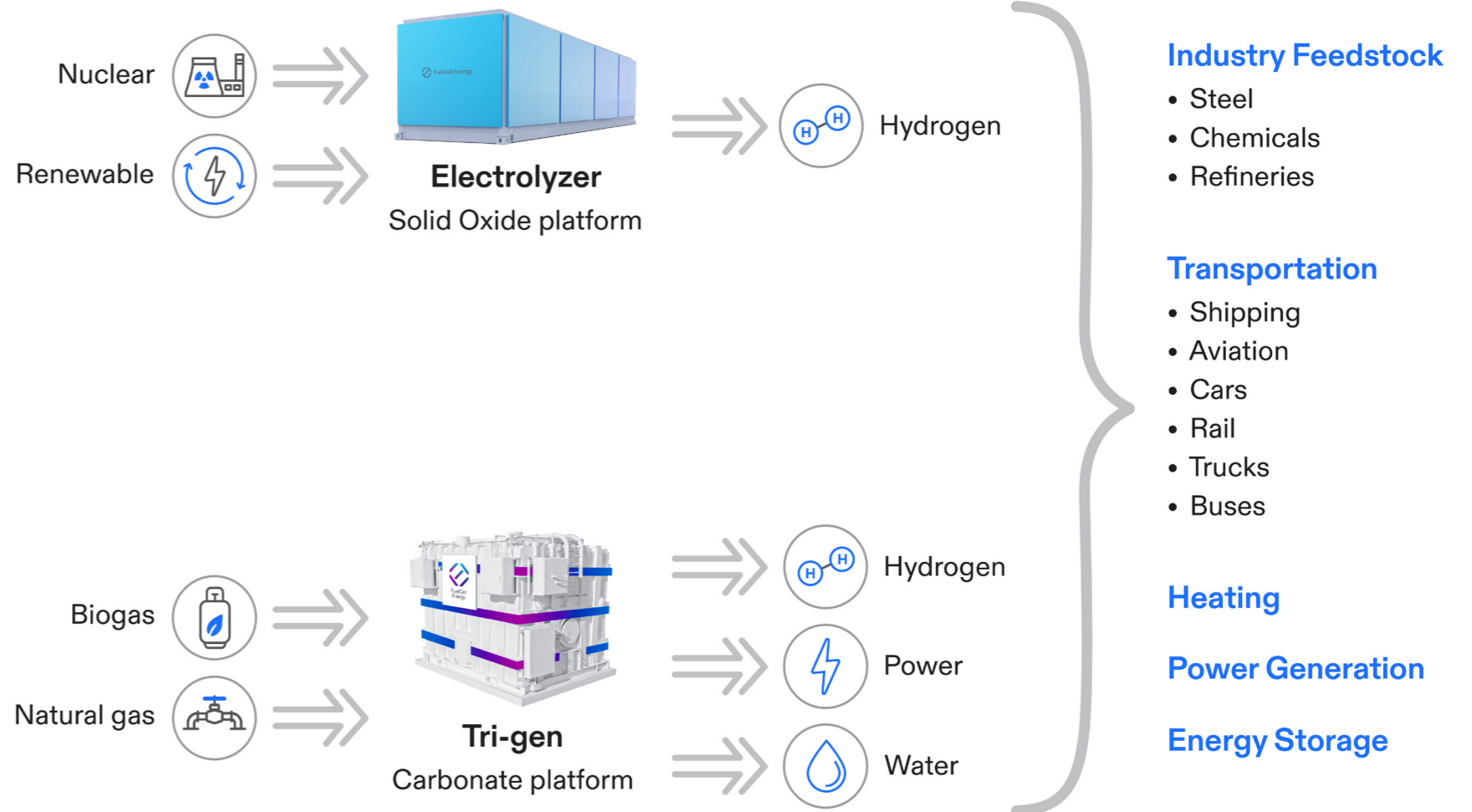
**Hydrogen can be produced near end users.** Distributed hydrogen production avoids transportation of compressed or liquid hydrogen and can avoid the significant transmission infrastructure needed to support large-scale electrolysis.

**Hydrogen provides continuous power** and, with the ability to store hydrogen, enables overall grid independence or supplements the intermittent energy production of renewables such as wind or solar.

The Biden administration continues to invest in the development of hydrogen resources with an allocation of \$7 billion to fund hydrogen production and delivery.

“Advancing clean hydrogen is essential to achieving the President’s vision of a strong clean energy economy that strengthens energy security, bolsters domestic manufacturing, creates healthier communities and delivers new jobs and economic opportunities across the nation.”<sup>12</sup>

## Flexible Hydrogen Solutions



<sup>12</sup> Biden-Harris Administration Announces Regional Clean Hydrogen Hubs to Drive Clean Manufacturing and Jobs October 13 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/13/biden-harris-administration-announces-regional-clean-hydrogen-hubs-to-drive-clean-manufacturing-and-jobs/>

# Progress in Empowering Our Clean Energy Future

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# Working to Deliver Our Clean Energy Future

Energy is a key driver of human progress and an essential element of economic and social development the world over. In recent years, a move away from fossil fuel-based energy sources and the adoption of renewable energy technologies have gone some way towards mitigating the harsh effects of climate change and addressing social injustices caused by inequitable access to energy resources. Efforts to drive efficiencies in energy consumption have helped lower the resource burden on the planet.

## But these measures are not enough.

For sustainable development to be achieved, our approach to energy must evolve further. We must ensure energy is clean, affordable and available for the populations in all corners of the world. We must ensure that all economies are able to access and benefit from affordable renewable energy. This is both what we believe at FuelCell Energy and also what we strive to enable. Our advanced power generation platforms offer fuel cell-based solutions for businesses, utilities, governments and municipalities worldwide, enabling them to generate low- or zero-carbon power while protecting air quality through avoidance of air polluting emissions. Similarly, our electrolysis, Tri-gen and carbon capture platforms offer opportunities to further decarbonize power through highly efficient, hydrogen-fueled platforms, recovering carbon from industrial processes for reuse as an input in different industries and even generating water to help conserve water resources.

We continue to enhance our core technologies and develop unique ways of decarbonizing power and producing hydrogen as an effective low-carbon fuel. In doing so, we are making considerable progress in

advancing our mission to enable a world empowered by clean energy, and, specifically, supporting our customers as they aim to achieve their own sustainable development objectives.

## Examples of progress made in the past year include:

<p>Commissioned a world-first <b>Tri-gen</b> facility with Toyota North America to supply renewable electricity, hydrogen and water</p> <p><a href="#">Page 18</a></p>	<p>Introduced two <b>solid oxide</b> platforms, one for power generation and one for electrolysis</p> <p><a href="#">Page 21</a></p>	<p>Advanced <b>carbon capture</b> technology to help accelerate decarbonization in industrial settings</p> <p><a href="#">Page 23</a></p>
<p>Partnered to assess <b>decarbonization of asphalt production</b> using hydrogen from electrolysis and nuclear power</p> <p><a href="#">Page 20</a></p>	<p>Signed MOU to scale up green hydrogen production in <b>Africa</b> (focus on low-polluting power generation)</p> <p><a href="#">Page 20</a></p>	<p>Progressed development of a <b>carbonate fuel cell technology</b> for CO<sub>2</sub> capture with a planned project at ExxonMobil's Rotterdam refinery</p> <p><a href="#">Page 23</a></p>
<p>Executed a new long term service agreement in <b>Korea</b></p> <p><a href="#">Page 19</a></p>	<p>Conducted an independently tested analysis of the efficiency of fuel cells in purifying exhaust gas to produce <b>beverage-grade CO<sub>2</sub></b></p> <p><a href="#">Page 25</a></p>	<p>Began exploring <b>AI technology</b> to improve fuel cell performance</p> <p><a href="#">Page 24</a></p>



# Tri-gen Milestone in Sustainable Clean Power

In 2023, we celebrated, along with our customer, Toyota Motor North America, Inc. (Toyota), a major milestone with the completion of a globally unique Tri-gen system that produces renewable electricity, renewable hydrogen and water from directed biogas. This system, constructed and operated by FuelCell Energy, is fueled by biogas from California organic waste to power Toyota's largest port facility in North America. Our innovative fuel cell technology supports Toyota's operations at the port through an electrochemical process that converts renewable biogas into electricity, while co-producing renewable hydrogen and usable water with a highly efficient, combustion-free process that emits virtually no air pollutants.

Tri-gen is an example of FuelCell Energy's ability to scale hydrogen-powered fuel cell technology, an increasingly important energy solution in the global effort to reduce carbon emissions and empower a clean energy future.

“By utilizing only renewable hydrogen and electricity production, this operation blazes a trail for our company. Working with FuelCell Energy, together we now have a world-class facility that will help Toyota achieve its carbon reduction efforts, and the great news is this real-world example can be duplicated in many parts of the globe.”

**Chris Reynolds,**  
Chief Administrative Officer, Toyota

## First in the World



The FuelCell Energy Tri-gen System installed for Toyota at the Port of Long Beach in California is the first in the world to generate renewable electricity, renewable hydrogen and usable water simultaneously, supporting the processing of about 200,000 Toyota vehicles per year through the port while delivering carbon-neutral products that are expected to reduce more than 9,000 metric tons of CO<sub>2</sub> emissions from the power grid each year.

The facility generates up to:

**2.3 MW**

of renewable electricity to power the site and deliver excess electricity to the grid

**1,200 kg**

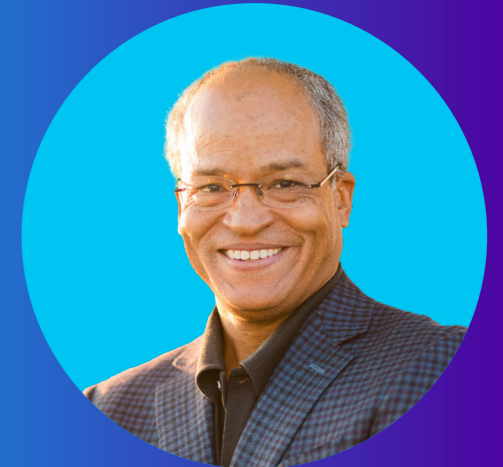
per day of hydrogen to fuel electric vehicles

**1,400 gallons**

per day of water for car wash operations

The Tri-gen facility will also help to avoid more than six tons of grid NO<sub>x</sub> emissions, which are harmful to both people and the environment, and has the potential to reduce diesel consumption by more than 420,000 gallons per year by using hydrogen-powered fuel cell trucks in port operations. Excess electricity is delivered to the local utility, Southern California Edison, under the California Bioenergy Market Adjustment Tariff (BioMAT) program, adding a renewable, resilient and affordable baseload electric generation resource to the electric grid.

\* The system is capable of producing up to 1270 kg of hydrogen a day.



“FuelCell Energy is committed to helping our customers surpass their clean energy objectives. By working with FuelCell Energy, Toyota is making a powerful statement that hydrogen-based energy is good for business, local communities and the environment. We are extremely pleased to showcase the versatility and sophistication of our fuel cell technology and to play a role in supporting Toyota's environmental commitments.”

**Jason Few,**  
President and Chief Executive Officer,  
FuelCell Energy

# Expanding Decarbonized Power Production

We continue to build on our long legacy of carbonate fuel cell platforms to provide efficient power production to support our customers around the world. With an installed base of 200 MW, our impact on emissions avoidance is significant.

## 1.5 million MW

Overall, using our fuel cell platforms to generate about 1.5 million MWh of power, we estimate that more than 155,000 metric tons of CO<sub>2</sub> and 391 metric tons of NOx were avoided last year. That's equivalent to the grid electricity consumption of more than 50,000 average U.S. households for one year.

Our customers are primarily utilities and independent power producers in the U.S. and other parts of the world. We provide fuel cell platforms and operate them on the basis of long term service agreements that enable our customers to gain the benefits of an efficient, reliable clean power supply for their users. With the option of running our power platforms using different fuels, including zero-carbon hydrogen, our customers can progressively improve their carbon footprint while delivering energy security for local populations and efficient energy continuity for businesses that bolster local economies.

In South Korea, for example, we have been supporting affordable clean energy for more than 20 years. We are contracted to operate and maintain a 20 MW power plant for Korea Southern Power Company. In 2023, we strengthened our engagement in South Korea to support the provision of clean energy through a new long-term service agreement for a 20 MW fuel cell plant owned by Noeul Green Energy, Co. Ltd.

Our fuel cell platforms in South Korea, including new contracts in 2023, help provide affordable clean energy in support of Korea's commitment at the UN Climate Change Conference in Glasgow (COP26) which includes plans to reduce its carbon emissions by 40% by 2030 from 2018 levels.<sup>13</sup>

Equally, given that fuel cell-based power generation emits negligible levels of noxious gases such as NOx, SOx and particulates, our platforms do not damage local air quality, a significant concern in Korea and especially in the Seoul Metropolitan Area which is among the most polluted cities in the world.<sup>14</sup>

### PROGRESSING OUR PURPOSE

### Clean Energy in Connecticut

In 2023, we made progress in supporting the state of Connecticut's Clean Energy Initiatives that aim to ensure clean energy for its residents. We celebrated the opening of our 14 MW baseload 10 fuel cell facility in Derby, CT, to supply affordable clean power to thousands of customers in the state through Eversource and United Illuminating utilities. All the components of the stacks in this facility were made in FuelCell Energy's Torrington factory in Connecticut.

**The Derby fuel cell facility is the second-largest fuel cell park in North America.**

We are also building an additional 2.8 MW facility in Derby that will augment the supply of affordable clean power for residents and industrial users.



<sup>13</sup> International Trade Administration, <https://www.trade.gov/country-commercial-guides/south-korea-energy-carbon-neutrality-initiatives>, accessed December 2023.

<sup>14</sup> International Energy Agency, <https://www.iea.org/reports/korea-2020>, accessed December 2023.

## Scaling up Clean Energy in Africa

At FuelCell Energy, we recognize the critical importance of delivering advanced energy technologies to Africa as part of a transition away from fossil fuel-based energy and toward a climate-friendly future. A major key to the sustainable development of African economies is the expansion of clean and renewable energy resources. Such an energy transition promises to deliver immense socio-economic benefits to countries across Africa, improving energy access and security, empowering industry and advancing livelihoods.

In Nigeria, for example, homes and businesses rely heavily on generators for back-up power supply. Around 84% of urban households use diesel or gasoline generators or solar-based systems, while about 86% of the companies in Nigeria own or share a generator. These fossil fuel generators create noise, particulate pollutants and elevate greenhouse gas emission levels. Additionally, access to energy is limited with approximately 43% of the country's population (more than 85 million Nigerians) unable to connect to the national grid.

To support the Nigerian Federal Government's Renewable Energy Master Plan that commits to increasing the share of renewable electricity to 30% by 2030 and net-zero greenhouse gas emissions by 2060, we are exploring ways to help Nigerian utilities and independent power producers reduce emissions, improve grid reliability and eliminate particulate matter emissions, all the while harnessing Nigeria's abundant natural renewable energy resources such as solar, wind and hydro efficiently. In 2023, we executed a memorandum of understanding with Oando Clean Energy to collaborate on the development of a 5 to 15 MW fuel cell-based power plant in Nigeria, with potential to expand across sub-Saharan Africa and also to leverage fuel cell carbon capture and sequestration technology in the future for additional sustainable benefits.

“FuelCell Energy's flexible, cost-effective, and state-of-the-art scalable technology gives us confidence that we have chosen a good partner to help Nigerians access reliable low-carbon energy.”

**Adewale Tinubu,**  
Chairman, Oando Clean Energy Limited

### PROGRESSING OUR PURPOSE

## Clean Power For The U.S. Navy

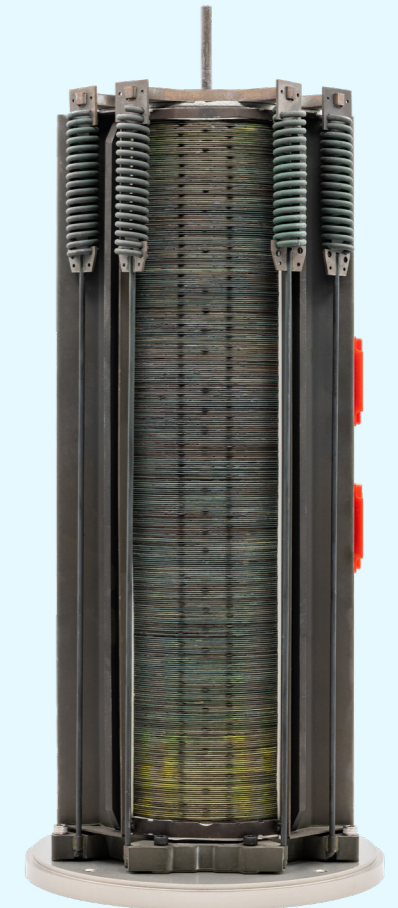
At the end of 2022, we completed the construction and commissioning of our 7.4 MW capacity clean power generation platform for the U.S. Navy Submarine Base in Groton, Connecticut. The platform is operated by FuelCell Energy under a long term service agreement, bringing clean energy to this critical infrastructure installation. A key benefit of the power generation platform is its grid resiliency, enabling continuous power for the Navy base, independent of local grid supply.

### PROGRESSING OUR PURPOSE

## Decarbonizing Asphalt Production

In 2023, we embarked upon a collaboration to explore the viability of using hydrogen to decarbonize asphalt production. This initiative is led by EDF Energy and partners in the Bay Hydrogen Hub Consortium as a possible way of decarbonizing the asphalt industry through distribution of hydrogen via high volume tankers as a power source for asphalt manufacturing sites. Asphalt is the main material used to line road surfaces; we believe that the use of hydrogen as a fuel for asphalt production, once proven, will be a first-in-the-world application of hydrogen-based power.

This new development is based on using FuelCell Energy's 1-Megawatt Solid Oxide Electrolyzer Cell (SOEC) with nuclear-generated heat and electricity to produce hydrogen in bulk. Repurposing waste heat from nuclear power plants as a power source for fuel cell manufacture enables a significant reduction in the cost of hydrogen, making the energy value chain cleaner and more affordable; we expect a potential increase in hydrogen production efficiency of more than 30% compared to low-temperature electrolysis technologies. As part of this initiative, our SOEC will be analyzed for use at the Nuclear Power Plant in Heysham (Northwest England) to produce hydrogen to replace the current mix of liquid fossil fuels that generates carbon-intensive energy for asphalt production.



# Producing Power and Hydrogen with Unprecedented Efficiency

Our patented solid oxide technology enables high-efficiency power generation for the low-cost production of low-carbon power. The solid oxide fuel cell introduces a highly efficient, fuel-flexible and hydrogen-ready platform to support customers as they seek to improve the sustainability of their operations.

## Up to 35%

Our solid oxide electrolysis platforms are expected to lower the energy requirement and cost of hydrogen production by up to 35% compared to low-temperature electrolysis technologies.

## By 2050

We believe our solid oxide platform offers one of the best chances of achieving the \$1 per kg levelized cost of hydrogen targeted by the U.S. Department of Energy by 2050.

Our current solid oxide operations are based in Calgary, Canada and Danbury, Connecticut and we are expanding our Calgary facility with the addition of dedicated manufacturing space to enable increased production volume to meet the demand of our customers. To enable our growth, solid oxide production capacity expansion is well underway in our Calgary facility and is expected to increase the capacity of the facility from 1 MW to 10 MW per year of SOFC production or from 4 MW to 40 MW per year of SOEC production in fiscal year 2024. In addition, we see the potential to leverage process improvements to further increase our annual production capacity at the same site to 80 MW for roughly the same capital investment. As part of this expansion in Calgary, we have hired and trained additional staff for a three-shift production operation to support the expansion to 40 MWs and would add additional staff as required to realize the potential 80 MW of solid oxide electrolysis capacity.

In 2023, we began commercialization of our unique solid oxide electrolysis platform, which we believe is among the most efficient available electrolysis technologies for the production of distributed hydrogen. As the largest factor in the cost of electrolysis-produced hydrogen is electricity, higher efficiencies mean lower energy costs for our customers.

Our new electrolysis platform offers customers unprecedented possibilities for producing clean hydrogen from renewable or nuclear power or from low-carbon hydrogen from natural gas, renewable biogas or other sources. Produced hydrogen can be used or stored, providing continuous power and reduced grid dependence with the possibility of shifting to 100% zero-carbon hydrogen in the future.

Two modular platforms are now available for our customers.



### Solid Oxide-Based Power Generation Platform

This platform is a 250 kW power generation module enabling 80% combined heat and power efficiency. This module can be powered by different sources including natural gas, biogas, hydrogen or blends and maintains the potential to use 100% pure hydrogen for the best efficiencies and environmental impact.



### Solid Oxide-Based Electrolysis Platform

This platform can deliver up to 600 kg hydrogen per day using 1.1 MW power input. It operates at up to 90% HHV electrical efficiency, which can be increased to 100% HHV efficiency when using external heat input as part of the power source.

“The new platform is the result of more than \$200 million in investment over more than 20 years of development and testing for applications including hydrogen electrolysis, long-duration hydrogen energy storage and power generation. The solid oxide platform also benefits from the decades of development and commercial production of FuelCell Energy’s carbonate power generation platform.”



**Tony Leo,**  
Chief Technology Officer, Executive Vice President, FuelCell Energy

## Collaborating for Green Hydrogen in Asia

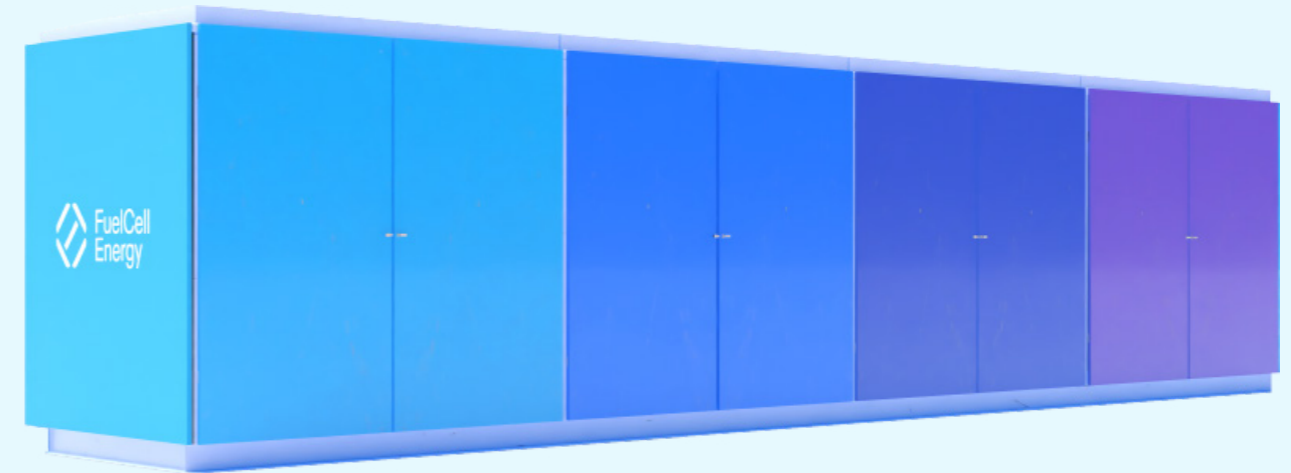
Lowering the cost of energy is a critical factor in scaling clean energy production and accessibility. Our new collaboration with Malaysia Marine and Heavy Engineering Sdn Bhd (MMHE) on the development of large-scale electrolyzer facilities in Asia, New Zealand and Australia, was established to do just that. We believe the design of these facilities will increase efficiency and reduce the cost of green hydrogen production, produced by electrolysis using electricity from renewables. This is highly advanced technology that will help transform access to energy resources in Asia and help reduce the carbon impact of power production in countries installing these electrolyzer facilities.



### PROGRESSING OUR PURPOSE

## Decarbonizing the Trinity College Campus

Trinity College in Hartford, Connecticut, U.S., a strong sustainability-minded institution and longtime FuelCell Energy carbonate fuel cell customer, is the first organization to acquire FuelCell Energy's 250 kW solid oxide fuel cell power generation system. Power and heat produced from the platform at Trinity's campus will lower energy costs and enhance energy reliability and security while minimizing air-polluting emissions.



## Developing a Clean Energy Pilot for Ukraine

FuelCell Energy's electrolysis technology is under evaluation at the U.S. Department of Energy's Idaho National Laboratory, which is conducting stack tests to evaluate its performance and durability. These independent third-party tests are important to validate our performance claims and ensure minimal risks as we scale and commercialize our platforms. So far, the results prove that our technology operates well, even in challenging test conditions. In 2023, we also confirmed our participation in a collaboration sponsored by the U.S. Department of State to develop a carbon-free hydrogen project in Ukraine. The goal of this project is to use our solid oxide electrolyzer platform with a small modular nuclear reactor to create green hydrogen and ammonia.

“ This collaboration is a significant milestone as we prepare to offer green hydrogen production for energy at a very large scale and lower cost. We look forward to working together to help decarbonize the globe. ”



**Mark Feasel,**  
Executive Vice President, Chief Commercial Officer,  
FuelCell Energy

# Advancing Carbon Capture with Unique Technology

Carbon emissions from energy combustion and industrial process account for 89% of energy-related greenhouse gas emissions, globally.<sup>15</sup> These emissions can be reduced dramatically through cost-effective and efficient carbon capture, using carbonate fuel cells that can capture and concentrate carbon dioxide from industrial and commercial exhaust streams. CO<sub>2</sub>-containing exhaust streams can be directed to a fuel cell, where electrochemical reactions produce electricity and hydrogen while capturing and concentrating carbon dioxide for utilization or permanent sequestration. At the same time, most of the NOx emissions in the exhaust streams are effectively destroyed.

## First

FuelCell Energy offers the first and only known platform that can capture CO<sub>2</sub> as it produces electricity and hydrogen.

In 2023, we advanced our ongoing joint development agreement with ExxonMobil Technology and Engineering Company (EMTEC) to include further progress related to manufacturing scale-up and advancing carbonate fuel cell technology for carbon capture applications in new settings. The modular design of the technology allows it to be used in a number of applications in a wide range of locations and enables high-efficiency operation while permitting businesses in hard-to-decarbonize industrial and commercial sectors to advance their goals.

Together with EMTEC, we are also progressing the development of a next-generation carbonate fuel cell technology for CO<sub>2</sub> capture from industrial point sources. ExxonMobil's affiliate, Esso Nederland BV, plans to build a pilot plant at its Rotterdam Manufacturing Complex to test our carbonate fuel cell technology for carbon capture developed under our joint development agreement with EMTEC. The pilot plant aims to obtain data on performance and operability of the carbonate fuel cell technology, jointly developed with FuelCell Energy. Additionally, the pilot aims to address potential technical issues that may occur in a commercial environment and better understand the costs of installing and operating a carbonate fuel cell plant for carbon capture. ExxonMobil's Rotterdam integrated manufacturing site will be the first place in the world to pilot this technology. Pending a successful demonstration, ExxonMobil could deploy this technology at its manufacturing sites around the world.

Carbonate fuel cells have a unique ability to capture CO<sub>2</sub> emissions from industrial sources before they are released into the atmosphere, while also making valuable co-products. This feature increases the overall efficiency of the capture process and provides additional value streams that reduce the cost of carbon capture and storage. Carbonate fuel cell technology is also modular, potentially enabling carbon capture across a wide range of deployment scales. When the carbonate fuel cell technology is technically ready for broadscale implementation, it could potentially offer economical decarbonization solutions for customers from a wide range of industries and serve the broader social goal of working towards a net-zero future.

## Next Big Thing

Carbon Capture technology is the Next Big Thing in decarbonization technologies. Our flexible carbonate fuel cell has the unique ability to capture CO<sub>2</sub> as it makes power, and it can also co-produce hydrogen and water. This technology holds tremendous potential to accelerate decarbonization in industrial settings.



“ We are confident that the carbonate fuel cell technology can play a key role as part of integrated carbon abatement solutions, which include carbon utilization and sequestration. We believe that this technology will address one of the largest environmental challenges of today, CO<sub>2</sub> emissions from industrial and commercial exhaust streams and power generation. We are committed as a company to help reduce carbon emissions worldwide. ”

**John Torrance,**  
Senior Vice President, Chief Commercialization & Solid Oxide Manufacturing Officer, FuelCell Energy




<sup>15</sup> EA, <https://www.iea.org/reports/co2-emissions-in-2022>, accessed December 2023.

## Collaborating to Operationalize Carbon Capture

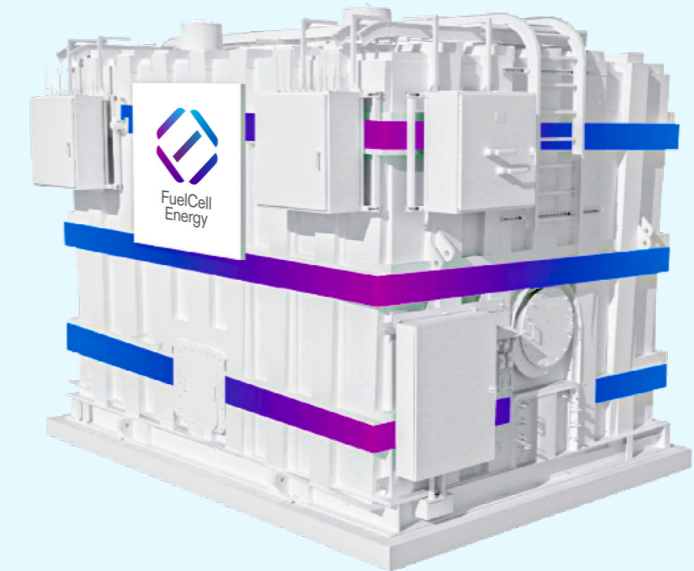
We have engaged with Chart Industries, Inc. to develop opportunities for delivering reliable and efficient carbon capture for use or sequestration, as well as generation and storage of gaseous or liquified hydrogen. While we bring our expertise in manufacturing fuel cell energy platforms for decarbonizing power and producing hydrogen, Chart's prowess is in the development of highly engineered equipment, including CO<sub>2</sub> and hydrogen compression and liquefaction, as well as supply chain equipment that can support every phase of the liquid gas supply chain. This equipment is complementary to FuelCell Energy's systems. Together we aim to holistically address customer needs for hydrogen and CO<sub>2</sub> liquefaction, compression, storage, beverage-grade CO<sub>2</sub> and transport.



### PROGRESSING OUR PURPOSE

## Using AI to Improve Fuel Cell Technology

We continue to explore new technologies to accelerate fuel cell-based solutions to climate change challenges. In 2023, we embarked upon a new partnership with IBM to develop ways to boost the performance of FuelCell Energy's technology using Artificial Intelligence (AI). Through the collaboration, IBM will research ways that FuelCell Energy can extend the life of its fuel cells through optimal control of operational parameters and their cost effectiveness for customers. IBM will create device-level models using AI and FuelCell Energy data to create fuel cell digital twins, helping provide a greater understanding of how various operating parameters impact a fuel cell's degradation, enabling potential improvements.



“ We hope that IBM's AI will help FuelCell Energy replace the traditional, time-intensive and expensive accelerated life-testing process when it comes to electrochemical energy production to quickly and efficiently propel forward the world's transition to clean energy. ”

**Alessandro Curioni,**  
VP IBM Research Europe and Africa and Director of IBM Research Europe, Zurich



# Accelerating Carbon Utilization for the Food & Beverage Industry

Many people may not realize that CO<sub>2</sub> is also a valuable raw material in many products and processes, especially in the food and beverage industry. In fact, the World Economic Forum described CO<sub>2</sub> as an industrial feedstock that could change the world, predicting trillion-dollar markets in the manufacture of products such as building materials, production of synthetic fuels, polymers and other minerals.<sup>16</sup> Currently, one of the main uses of CO<sub>2</sub> as a raw material is for carbonating soft drinks and beers.

## Carbon Capture

FuelCell offers the only known platform that can capture carbon from an external source while simultaneously generating power.

In addition to capturing carbon dioxide from an external source, our fuel cell power generation platforms have the capacity to extract and purify carbon dioxide produced by the fuel cell power generation process. Our carbon separation technology allows carbon dioxide to be extracted and purified for utilization or sequestration. This is a win-win because it both reduces the carbon footprint of generated power from our fuel cell platforms while at the same time, providing a valuable raw material for a range of industries, including the carbonated drinks sector.

## Future

In the future, all FuelCell Energy customers will be able to benefit from carbon capture technology, offering them a new way of further driving down their carbon footprint while benefiting from carbon utilization opportunities.

We are able to incorporate our carbon capture-ready modified fuel cell module into new platforms as well as retrofit existing systems during upgrades. Over time, as we replace fuel cell stacks in our deployed modules, we will integrate our carbon-separation technology, affording every FuelCell Energy customer the possibility of carbon separation and utilization.

FuelCell Energy whitepaper: [Fuel cells: a new source for beverage-grade CO<sub>2</sub>](#)

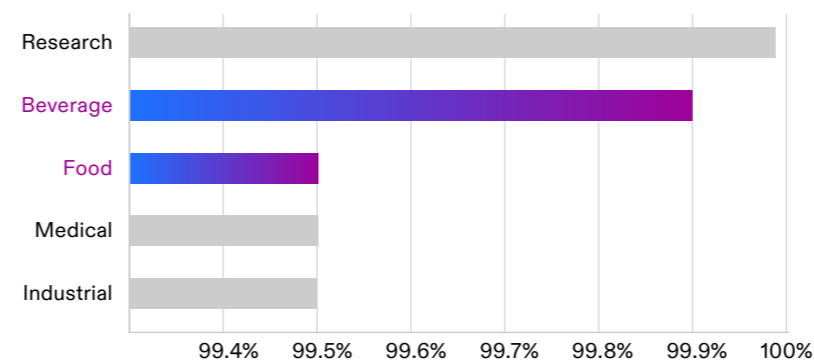
### PROGRESSING OUR PURPOSE

#### Soda-Ready Carbon

Without beverage-grade CO<sub>2</sub>, many carbonated beverages and other food products would not be possible. Many companies rely on a stable supply of beverage-grade CO<sub>2</sub> to keep their operations running. For food and beverage producers, the quality of the gas they use is of utmost importance to ensure the safety and consistency of their products. Beverage-grade CO<sub>2</sub> is required to keep carbonated beverages carbonated, preserve the shelf life of packaged foods, and even provide an inert atmosphere for food packaging and processing.

FuelCell Energy contracted with B&R Compliance Associates in collaboration with Analytical Sciences & Technologies to conduct a third-party, independently tested fingerprint analysis of the fuel cell's anode exhaust. The analysis concluded that fuel cell anode exhaust gas can be easily purified to exceed the International Society of Beverage Technologists (ISBT) spec for beverage-grade CO<sub>2</sub>.

CO<sub>2</sub> Purity Grade Scale



“Anode exhaust is some of the “cleanest” carbon dioxide feed gas we have seen to date. It is our opinion that the conventional carbon dioxide purification technologies widely used today to process other traditional feed gas sources are more than adequate for reliably and consistently processing fuel cell anode exhaust into commercial carbon dioxide meeting or exceeding the ISBT Beverage Grade Specifications.”

**B&R Compliance Associates**

<sup>16</sup> World Economic Forum, <https://www.weforum.org/agenda/2020/01/co2-as-industrial-feedstock>, accessed December 2023.

# Being Part of the Clean Energy Solution

At FuelCell Energy, we appreciate the enormous task ahead. According to the U.S. Energy Information Administration<sup>17</sup>, which collects data for the U.S. government, global energy consumption is set to significantly increase through 2050, due in part to population growth, increased regional manufacturing and higher living standards. So it's not enough to focus on decarbonizing the world we live in today. We have to pursue policies and business objectives and models that will provide reliable, clean energy for a world with energy demands that will be significantly greater than they are today.

At FuelCell Energy, our commitment is unwavering. Our company was founded by people who thought differently about how to power our world and we are certainly not alone. Over the course of the last few years, we have seen increasing signs that all stakeholders are focused on taking steps to address our global energy challenges. We recognize the extraordinary effort of the U.S. government, including the congressional passage and enactment of the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA), as well as the legislation that the EU and other governments have adopted over the past several years. There have also been ambitious commitments and bold actions at the industry and company levels across the globe.

At FuelCell Energy, we believe government has a prominent role in ensuring our clean energy goals are met and we are committed to engaging in public policy discussions related to:

- Maximizing the commitments that have already been made in the U.S., Europe and other regions and countries, including Korea, to drive the advanced technology sector, which specifically includes low- and zero-carbon solutions such as fuel cell and electrolyzer technologies.
- Identifying new policy opportunities to incentivize the accelerated development of the more nascent technologies that will play a definitive role in helping to achieve a world powered by clean energy.
- Supporting aggressive growth for the hydrogen market in the U.S., including rapid development of the U.S. Department of Energy's designated hydrogen hubs and efforts to incentivize use of hydrogen.

- Development of carbon capture recovery applications, particularly in industrial applications.
- Providing clean energy solutions for communities, with particular focus on complex projects seeking to solve more than one problem for a range of constituents.



Watch Jason Few, FuelCell Energy's President and CEO, deliver a TEDx talk on the benefits of hydrogen for a clean energy future.

<sup>17</sup> Reuters, <https://www.reuters.com/business/energy/global-energy-consumption-increase-through-2050-outpace-efficiency-gains-eia-2023-10-11/>, accessed January 2024.

# Progress in Climate and Environment

**In this section:**

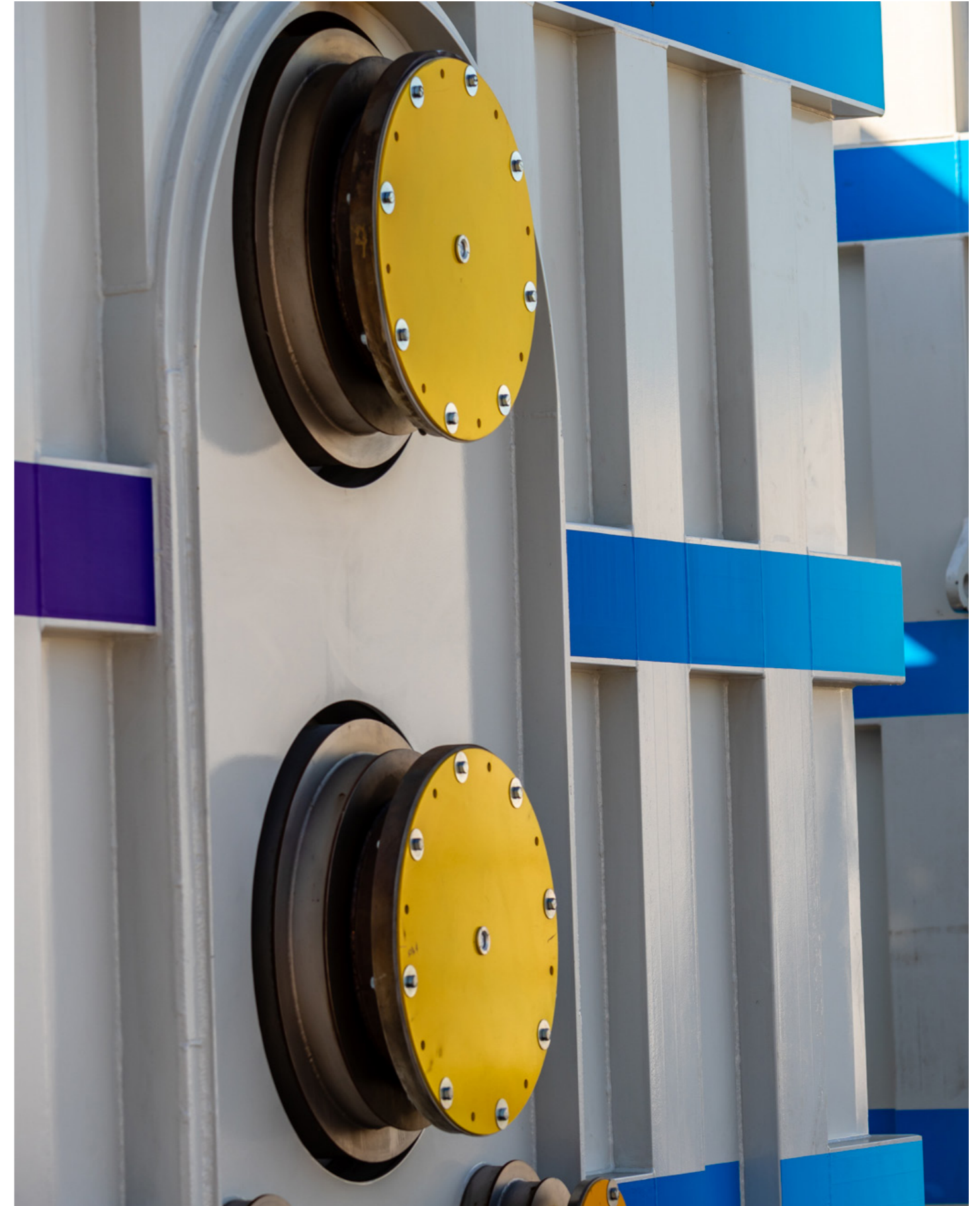
Moving Forward on Our Path to Net Zero .....28

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# Moving Forward on Our Path to Net Zero

As a business that delivers solutions for a greener future, with a purpose to enable a world empowered by clean energy, we generate our most significant positive climate and environmental impacts through our fuel cell technologies and offerings to our customers around the world. We continue to innovate and enhance current technologies and platforms to give our customers the best options for carbon management, emissions reduction and other environmental benefits.

In addition, as a manufacturing company with plans for growth, we are committed to ensuring the way we operate, as we grow, is consistent with global sustainable development objectives.

In fiscal year 2023, we made significant progress in addressing and managing the material impacts of our own operations. Our key areas of progress in climate and environment include:

- Completing a 2020-2023 carbon inventory for our own operations;
- Conducting product Life Cycle Assessments (LCAs) to understand our emissions through our value chain and determine mitigation plans throughout the value chain, from production through decommissioning;
- Defining our approach to net-zero carbon emissions and reinforcing our commitment to achieve net-zero across our Scope 1, 2 and 3 emissions covering our value chain by 2050;
- Developing an ESG strategy to prioritize and holistically address our key ESG responsibilities and stakeholders' needs, including the company's net-zero roadmap and targets; and
- Establishing an ESG governance model comprised of an ESG cross-functional team, including a Net-Zero Working Group.

Our plan to achieve net-zero emissions across our value chain will require FuelCell Energy to drive three action pillars simultaneously:

- Decarbonizing our own operations
- Decarbonizing our supply chain
- Decarbonizing downstream emissions including supporting our customers in achieving their carbon goals



# Net-Zero Carbon Emissions by 2050: Our Approach

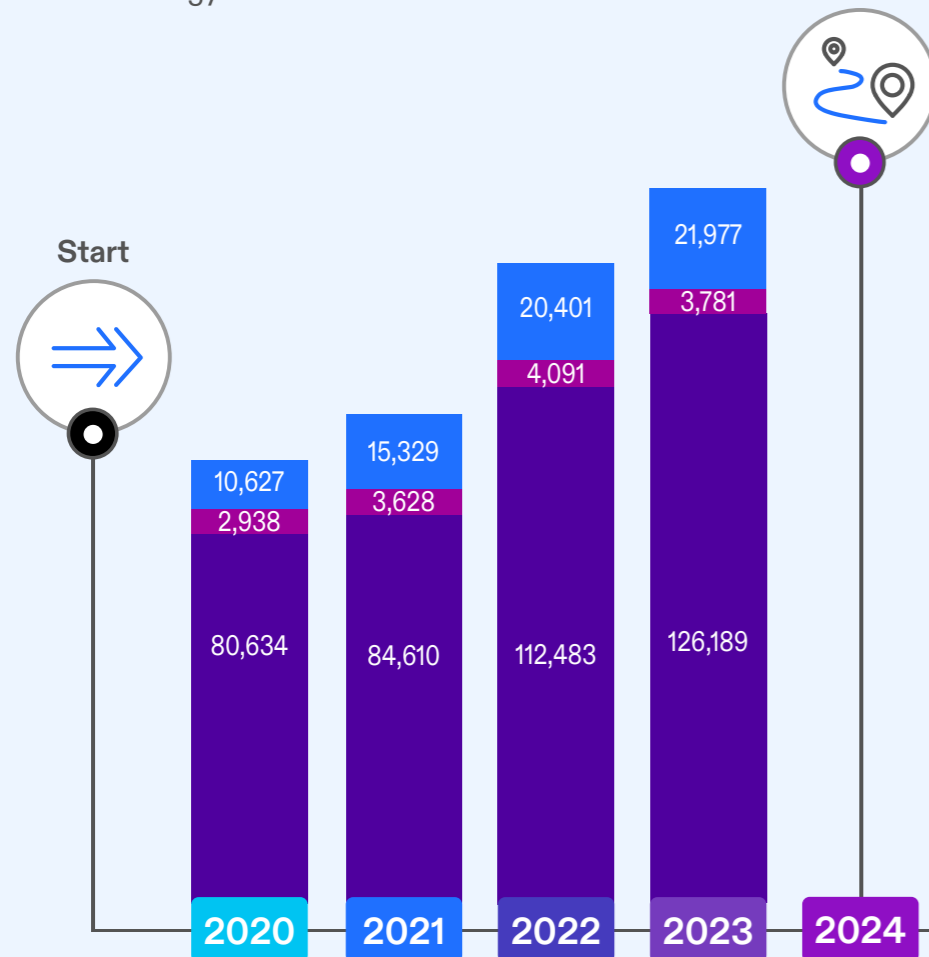
## Where we are now

### Our Achievements

- Annual carbon inventory
- Product-level LCA
- Climate risk assessment
- Net-zero action plan

### GHG Emissions: Scope 1, 2 & 3 (MT CO2e)

- Scope 1
- Scope 2
- Scope 3 category 3 from fuel- and energy-related activities



## How we will get there

### Key Action Areas

- Advancing our technology
- Driving energy and resource efficiency
- Increasing the use of renewable energy
- Engaging suppliers

### Our Technology

**Low-to-Zero Carbon Power**  
Power generation from carbonate and solid oxide fuel cell platforms

**Carbon Capture**  
Carbon capture from external sources and carbon recovery and utilization enabling carbon capture utilization and sequestration

**Tri-gen**  
Hydrogen production using carbonate-based Tri-gen to co-produce power, hydrogen and water

**Hydrogen Production**  
Distributed and large-scale hydrogen production using high-efficiency solid oxide electrolysis cell systems

**Energy Storage**  
Long-duration energy storage utilizing reversible solid oxide fuel cells

## Net Zero

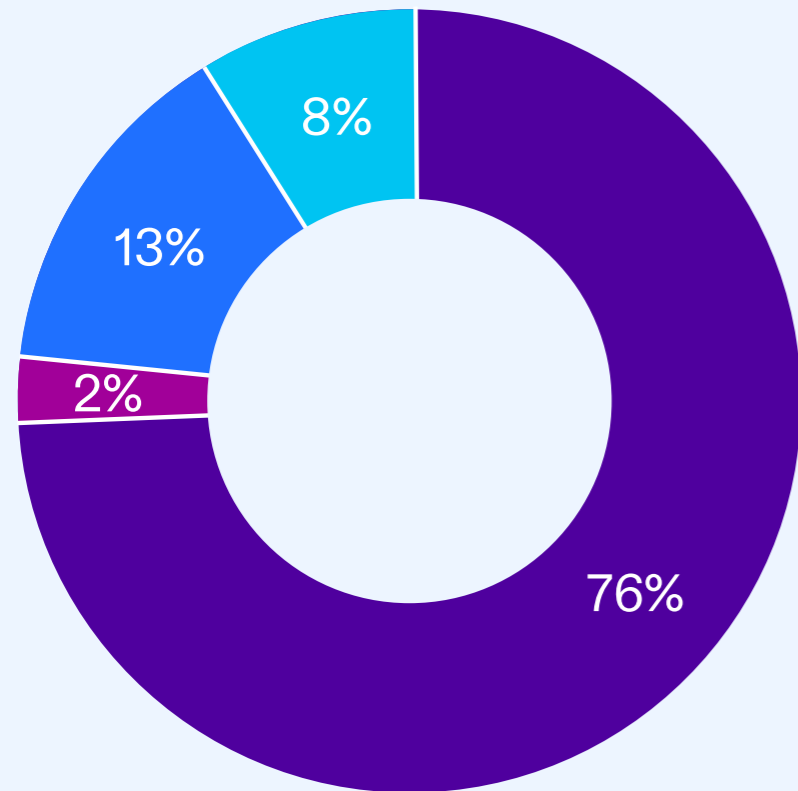


# Net-Zero Carbon Emissions by 2050: Our Action Plan

## Where we are now

### Our 2023 Carbon Footprint

We are committed to disclosing our carbon footprint as well as our action plan and progress. We account for our carbon footprint by following internationally recognized standards, including the Greenhouse Gas Protocol.


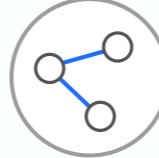



- Scope 1 from manufacturing and power generation
- Scope 2 from purchased electricity
- Scope 3 category 3 from fuel- and energy-related activities
- Biogenic emissions

## How will we get there

### Net-Zero Action Plan

We are committed to achieving net-zero carbon emissions across our value chain by 2050. While developing and advancing our technologies and solutions to help our customers achieve their decarbonization goals and enable a clean energy future, we have been working on programs and initiatives to address the emissions linked to our own operations, energy generation and supply chains.

 <b>Scope 1 &amp; 2 Own Operations</b>	 <b>Scope 3 Upstream Supply Chain</b>	 <b>Scope 3 Downstream Customers</b>
<ul style="list-style-type: none"> <li>• Accelerate energy efficiency across our own facilities and increase our generation and use of renewable electricity</li> <li>• Expand our deployment of product level life cycle analyses to identify and adopt opportunities to reduce carbon across our own operation and across our value chain</li> <li>• Continue to drive circularity in our design and production to eliminate waste and achieve maximum reuse of materials across our operations</li> <li>• Advance the use of biogas for power generation</li> <li>• Educate our workforce to drive carbon reduction and achieve maximum reuse and minimum waste</li> </ul>	<ul style="list-style-type: none"> <li>• Work closely with our suppliers to drive down their operational and logistics emissions through energy efficiencies, low- or zero-carbon across our supply chain</li> <li>• Use our product level life cycle analyses to identify and adopt opportunities to reduce carbon across our supply chain</li> <li>• Work with supplier on the design and procurement of our components to accelerate sourcing of low-carbon materials</li> </ul>	<ul style="list-style-type: none"> <li>• Expand the products and solutions we offer to customers and work closely with them in implementation and monitoring to help them achieve carbon reduction goals</li> <li>• Continue to invest in developing scalable technologies for producing hydrogen, including green hydrogen, and other carbon-friendly clean power solutions such as carbon separation, carbon capture and utilization</li> <li>• Continue to engage with governments and across industry to advance a low-to-zero carbon hydrogen economy within a global energy transition</li> </ul>

Having now set our long-range objective to achieve net-zero emissions across our value chain by 2050, we are working toward the development of interim targets that we expect to share in our next report. A key challenge is our expected significant uptake of fuel cell technologies for decarbonizing power and producing hydrogen in the coming years, especially given the strong support for decarbonization that we saw coming out of the 2023 United Nations Climate Change Conference (COP28) and regulation around the world that incentivizes clean energy

development. As we grow, serving more customers with our technologies and platforms across different industries, we expect our downstream emissions to intensify; however, we are factoring this into our plans and expect our technologies and support for customers in the coming years will accelerate faster than the growth in our Scope 3 emissions. Initially, we expect to drive down our own operational and supply chain emissions (Scope 1 & 2) in a consistent and systematic way.

Going forward, we will use new knowledge gained from our life cycle analyses performed this year on our carbonate fuel cell, including a carbon capture and a carbon recovery system to determine the most significant opportunities to reduce emissions throughout the value chain.



“ As a company committed to decarbonizing power for our customers and our markets, FuelCell Energy is also committed to decarbonizing our own operations. We have sought to drive efficiencies and reduce greenhouse gas emissions throughout our operations, with an overall focus on efforts that achieve our long-term business goals and net-zero emissions. Reducing the Scope 1 emissions in our own operations by addressing our natural gas consumption will be a critical factor in this plan. ”

**Michael Bishop,**  
Executive Vice President, Chief Financial Officer  
and Treasurer, FuelCell Energy

# Managing Resources Efficiently

We maintain a chain of custody and responsibility for our products throughout the product life cycle and strive for “cradle-to-cradle” sustainable business practices, incorporating sustainability in our corporate culture. Our Environmental Management System (EMS) is certified to the ISO 14001:2015 Standard at our facilities in the U.S. and Germany. In line with this standard, our facilities are regularly audited and we maintain ongoing continuous improvement processes.

## 11%

reduction in electricity consumption, reflecting ongoing efficiencies in our operations

We are modest users of water, which we use for power generation, manufacturing processes, R&D processes and non-production related maintenance processes. Our water consumption in fiscal year 2023 was 0.46 megaliters, 10% lower than fiscal year 2022. All the water we use is withdrawn from municipal systems; part of it is processed and released into the air while the remaining water is returned to the municipal systems. We strive to minimize our water use through water-saving mechanisms at all our facilities.

- Incorporation of waste minimization into management practices to ensure ongoing efforts to reduce waste in product design, production operations and maintenance;
- Incorporation of waste minimization as an integral part of organizational strategies to increase productivity and quality;
- Working with suppliers to develop products and procedures that will assist in reducing waste;
- Working toward internal targets for the reduction of both the volume and toxicity of waste streams; and
- Maintaining an employee awareness and training program to involve employees in waste minimization planning and implementation.

Most of the waste we divert to landfills is non-hazardous waste for which there is no current viable alternative. We maintain efforts as part of our Waste Minimization Program to replace input materials with non-hazardous options wherever possible and reduce overall waste in our processes.

## 93%

of our entire energy platform (on a weight basis) can be reused or recycled at the end of its useful life

## Operating for Circularity

Our commitment to sustainability is also evident in the design, manufacturing, installation and ongoing servicing of our fuel cell energy platforms, which are engineered for the circular economy. When our platforms reach the end of their useful lives, we have the capability to refurbish, reuse or recycle more than 90% of the unit by weight.

Our balance of plant (BOP), representing the mechanical and electrical components surrounding the fuel cell, is designed to have an operating life of 25 to 30 years, at which time metals such as steel and copper are reclaimed for scrap value.

## 57%

of our waste was reused or recycled, out of a total 436 MT of waste generated

## Minimizing Operational Waste

Our design and manufacturing processes aim to minimize waste throughout our production processes and optimize reuse and recycling of our operational waste. We generate modest amounts of waste through our manufacturing and R&D facilities, aiming to minimize waste at source, and reuse or recycle what we cannot. As part of our ISO-certified Environmental Management System, we maintain a Waste Management Policy designed to ensure that all waste types (including hazardous waste, non-hazardous waste and universal waste) are properly and safely managed from their generation through handling, storage and preparation for transportation or disposal. The policy defines how waste is managed in each waste stream in accordance with applicable federal, state and local regulations.

We also maintain a Waste Minimization Program in which we apply the following practices, among others:

- Pollution prevention efforts to reduce or eliminate pollution and waste at source including recovery of metals via recycling and energy recovery through the conversion of non-recyclable waste materials into usable heat, electricity or fuel;

## Respecting Biodiversity

FuelCell Energy is committed to protecting biodiversity and our manufacturing practices are designed to minimize disruption to our natural environment. We do not operate manufacturing facilities in areas of high biodiversity and believe we do not generate negative impacts on species on land or in water.

Our manufacturing facilities do not impact local air quality, in particular, our processes emit insignificant amounts of emissions such as NOx and SOx or particulates through our production and our power generating platforms. Similarly, we operate at low noise levels that do not affect local residents in the vicinity of our operations.





# Progress for People and Partners

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# Investing in Employee Engagement

At FuelCell Energy, we are a growing team, inspired by our purpose to enable a world empowered by clean energy. We believe in the power of difference and value the creativity and innovation that is unleashed when team members of different backgrounds and experiences come together to advance a shared goal. We offer a welcoming, inclusive, safe, values-driven workplace where people are energized by our commitment to a more sustainable world and engaged to deliver their best contribution.

In fiscal year 2023, we welcomed 180 new team members to FuelCell Energy, bringing our total workforce to 592 individuals, employed in six countries in North America, Europe and Asia.

**70%**  
FuelCell Energy's workforce has increased by 70% since 2021.



To better address the needs of our growing team, we restructured our Human Resources function, placing greater emphasis on supporting people to achieve business objectives. Our Human Resources strategy continues to focus on effective attraction and retention to meet our evolving requirements, employee engagement to deliver our purpose, enhancing diversity and equity in an inclusive culture and investing in employee learning and development.

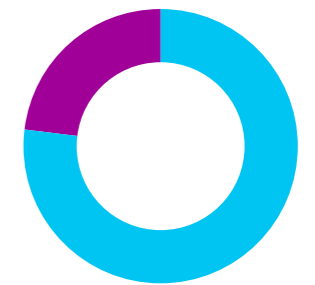
Progress we made in fiscal year 2023 to support our people and advance our business includes:

- Completing our Employee Engagement Survey in 2023 and following up with actions to address employee needs;
- Preparing a Remuneration and Rewards program for implementation from January 2024 to provide broader equitable access to rewards for all employees;

- Completing our year-end employee reviews and assessments to support all employees and provide customized learning plans, especially for those identified as high-potential performers;
- Enhancing learning and development to support performance management, including training for all managers in Crucial Conversations and Giving Feedback with plans in place to progress to training in Crucial Accountability in the coming year; and
- Accelerating diversity, equity and inclusion with our first Employee Resource Group with a focus on women and launching our Be You (BU) initiative to drive an inclusive culture.

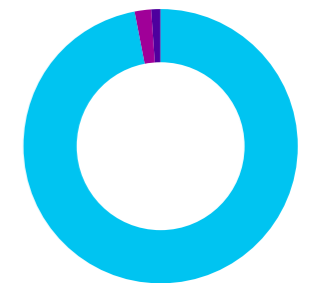
## Employees by Gender 2023

Women	23%
Men	77%



## Employees by Region 2023

U.S. & Canada	97%
Europe	2%
Asia	1%



## New Hires by Gender 2023

Women	31%
Men	69%



## New Hires by Age 2023

Age below 30	38%
Age 31-50	42%
Age above 50	20%



We launched our annual Employee Engagement survey with a comprehensive survey with 42 questions for all our employees. Responses were received from employees in all regions, with a global response rate of 77%.

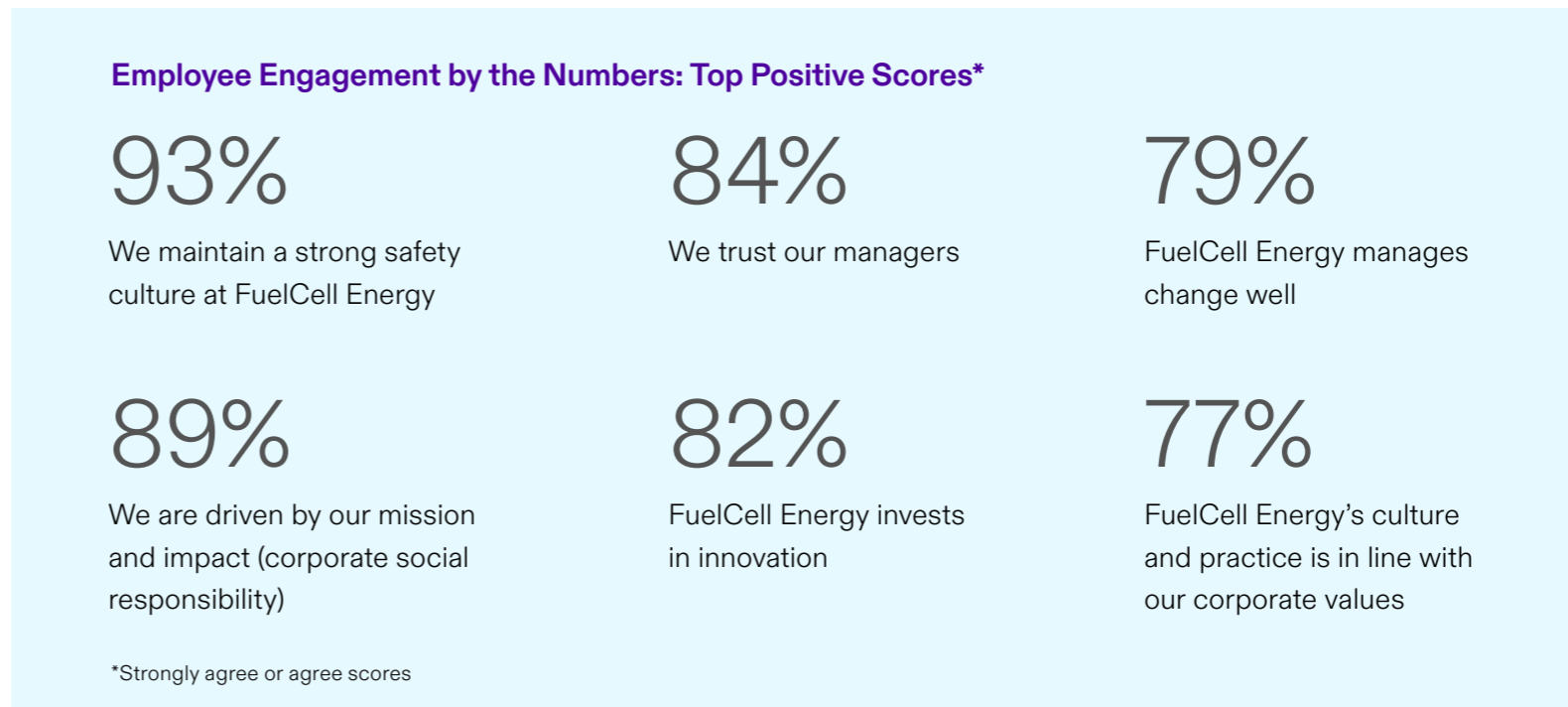
Areas that employees scored less favorably include remuneration and benefits, and opportunities for career growth, including career development and understanding performance evaluations.

The results were presented at a company-wide town hall and working groups were formed to address the key areas of concern noted above, both at the corporate level and at departmental levels across 13 functional groups.



“ With close to 600 employees and more to come, we have been gearing up our support for the business in an intentionally structured way to provide the best tools and resources for our team members while driving accountability, inclusion and engagement at all levels of the company. With our customers clearly in our sights, we are committed partners in the clean energy transition. ”

**Karen Farrell,**  
Senior Vice President, Chief Human Resources Officer, FuelCell Energy



## Leadership Development and Training

2

Two full-time employees at FuelCell Energy deliver in-person training across the organization year-round.

Approximately

**\$540,000**

invested in formal training for employees in fiscal year 2023.

80%

of employees strongly agreed or agreed that they were provided with sufficient training to perform their roles in our fiscal year 2023 Employee Engagement Survey.

27

hours of formal training per employee in fiscal year 2023 were delivered, supplementing significant on-the-job training for all employees.

100%

All FuelCell Energy employees are eligible for an annual performance review. In fiscal year 2023, 100% of employees received a review.

We invest in a wide range of learning and development programs to support performance and professional growth for our employees. Our suite of training programs includes mandatory job and conduct-related training and optional soft skills and technical skills training.

All strategic training is based upon needs assessments that are conducted as part of the annual performance review process and aligned with employee needs and performance to date. Employees have an individual training plan to follow and are supported by their managers during the year.

Training programs delivered in fiscal year 2023 include a range of topics to build leadership, raise awareness and build skills to advance diversity, equity and inclusion and ensure ethical conduct and compliance. Some training topics are relevant for all employees while others are determined based upon professional and development goals.

Additionally, we provide job-specific training for employees in different departments.

For example, procurement staff are trained in our supplier standards and labor rights in the supply chain.

We also provide a full suite of more than 70 training programs and courses in Environmental, Health and Safety (EHS) for all employees. Many of these EHS training sessions are conducted in-person and cover the full spectrum of topics including those defined in our Environmental Management System and safety processes.

In 2023, we introduced a summer internship program and welcomed our cohort of 12 paid interns, who joined us to learn about our industry and gain work experience. Each intern spent eight weeks at FuelCell Energy, hosted by different departments and supported by a dedicated mentor and supervisor. Alongside work activities, interns participated in “Meet and Greet” sessions with our senior leadership, professional development and team building activities.



# Celebrating Diversity, Equity and Inclusion

At FuelCell Energy, we celebrate and foster a diverse environment that inspires innovation while supporting and encouraging our employees to be their authentic selves. We are committed to our continued efforts to increase diversity and foster an inclusive work environment that supports the global workforce and the communities we serve.

## Workforce Diversity at FuelCell Energy, Fiscal Year 2023

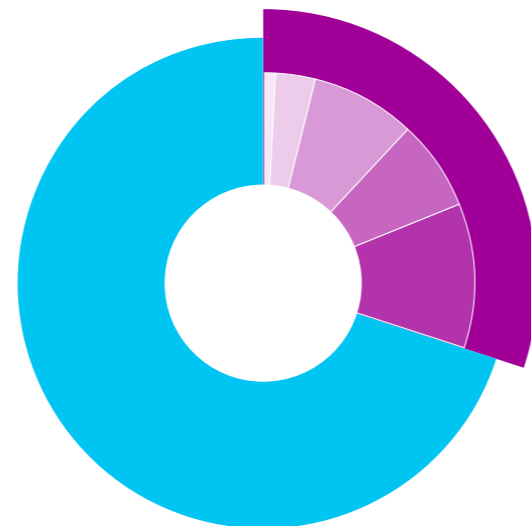
### Employees Diversity

<span style="color: #00AEEF;">■</span> White	70%
<span style="color: #800080;">■</span> People of Color	30%

### People of Color Representation in Workforce

(30% of total workforce)

<span style="color: #800080;">■</span> Asian	11%
<span style="color: #800080;">■</span> Hispanic or Latino	9%
<span style="color: #800080;">■</span> Black or African American	7%
<span style="color: #800080;">■</span> Two or More Races	3%
<span style="color: #800080;">■</span> American Indian or Alaskan Native	0.2%



We recruit the most suitable qualified employees regardless of gender, ethnicity or other protected traits and it is our policy to fully comply with all laws and regulations applicable to discrimination in the workplace. We reinforce our principles and culture of diversity, equity and inclusion through our Human Resources policies and in our employee training. In particular, in line with these policies, we aim to ensure the rights of indigenous peoples are upheld and respected throughout all our organizational policies and practices. We are committed to adhering to the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous Peoples.

“Be You” is our overarching program that includes initiatives under our diversity, equity and inclusion approach. We celebrate the YOUNIQUENESS of all our employees and promote appreciation of our similarities and differences. We encourage our employees to foster a deeper understanding of others, regardless of who they are, where they live or how they look. We engaged employees in developing and communicating our DEI strategy and created videos in which many colleagues shared personal stories to further raise awareness of what DEI means to us.

In 2023, all employees were assigned an e-learning course on Workplace Diversity and Inclusion. For managers, we launched a series of three mandatory, instructor-led DEI training sessions that included:

- Inclusive Interviewing
- Diversity and Inclusion Basics
- Navigating Generational Differences



Watch our video describing our DEI Strategy with personal insights from diverse FuelCell Energy colleagues.

**PROGRESSING OUR PURPOSE**

## Advancing Women

Our first employee resource group (ERG), called PowerFUEL Women, launched this year with an inaugural in-person event. PowerFUEL Women is open to all employees on a voluntary basis. All who identify as women are welcome to join as members and all other employees are welcome to join as integral allies. PowerFUEL Women's mission is to "empower and develop all who identify as women at FuelCell Energy by fostering an inclusive environment, creating strong and supportive connections and representing their voices in order to grow, inspire and thrive together." PowerFUEL Women is planning virtual and in-person events in the coming year, including networking opportunities, a pilot mentoring program and an educational "lunch and learn" speaker series.



Betsy Bingham



Cynthia Hansen



Donna Sims Wilson



Natica Von Althann

In March, we celebrated Women's History Month to honor the contributions women have made to society throughout history. To encourage awareness and reflection, with a focus on women in leadership, we invited all FuelCell Energy employees to a virtual event to meet the women serving on the company's Board of Directors. Four of our independent Board Members are women who bring a wealth of experience across manufacturing, energy, finance and operations to FuelCell Energy. The event was well attended and stimulated discussion around the opportunities and challenges of achieving gender equality.



“ A women’s network is not only about women: we all benefit from a more connected, engaged and diverse workforce. We look forward to engaging with women and allies at FuelCell energy to create a sense of belonging and forge deeper connections with our teammates. We are stronger together. ”

**Kix Ryen,**  
Vice President, Chief of Staff, PowerFUEL Women Chair

# Promoting Safety, Health and Wellbeing

We are committed to protecting the environment, health, security and safety of people and communities in which we operate. We recognize the importance of conducting business in a safe manner by promoting a culture of shared responsibility throughout the organization. Fostering a healthy and physically and psychologically safe environment is an integral part of the way we operate. All FuelCell Energy employees, onsite contractors and visitors must comply with the EHS Policy. In addition to upholding all applicable laws and regulations relating to occupational health and safety in our workplaces, we aim for zero injuries and zero safety incidents. We also expect partners in our supply chain to adhere to these standards.

## ISO

FuelCell Energy is certified to ISO 45001:2018 Occupational Health and Safety (OHS) Management Standard for all our manufacturing operations.

Overall, FuelCell Energy maintains a strong safety record, the result of ongoing education and training for our employees, risk and hazard assessments and continuous improvement in all areas, in line with our OHS Management Standard and policies. We strongly encourage reporting of near-misses to identify opportunities for improvement and we constantly evaluate our EHS protocols in an effort to keep our facilities and workspaces environmentally friendly and safe for our employees and all those who visit our sites. In 2023, our OHS system was externally audited and yielded no serious non-conformances.

## 22%

reduction in recordable injury rate in fiscal year 2023.



[Environmental, Health and Safety](#)



## PROGRESSING OUR PURPOSE

### Promoting Employee Health

To encourage employees to maintain their wellbeing and overall fitness, we promote activities throughout the year that help them stay fit. For example, our Annual Fitness Challenge engages employees in a range of active behaviors, connected through fitness wearables or smartphones to track activity. Our 2023 Fitness Challenge brought employees together in teams for a distance challenge that included walking and other activities that are converted into step equivalents to help compare progress.

**100 employees joined the 2023 Fitness Challenge and racked up a very positive result:**

12,300

miles walked

13

employees each achieved more than half a million steps

2,940

hours of activity

50

employees each spent more than 50 hours engaging in wellness activities

26.7 million

steps or step equivalents

# Prioritizing Customer Service and Responsible Supply

As many customers rely upon FuelCell Energy power plants to deliver continuous, reliable output to ensure their own business continuity, the quality of our customer service is a critical part of our offering. As a company that provides solutions, not only products, we are committed to an always-on, world-class standard of service with the goal of ensuring our customers' satisfaction and success. Similarly, FuelCell Energy's supply chain requires precision materials and components to meet the production needs of our hi-tech manufacturing facilities. To support our manufacturing, we source materials and components from a range of more than 2,000 suppliers around the world. We maintain a rigorous set of performance measures to monitor how our suppliers meet our quality and reliability standards.

## Striving for Excellence in Customer Care and Service

Our customer care team strives to anticipate and meet customer requirements and we meet regularly with our customers to review the performance of our power plants and the quality of our service. We survey our customers annually to understand how they perceive our service across several dimensions. In 2023, 57% of our customers responded to our survey and ranked our service overall very positively. In particular, customers appreciated low downtime due to immediate availability of spare parts and proactive mitigation of technical issues.

### PROGRESSING OUR PURPOSE

#### Launching a Customer Portal

This year, we launched a state-of-the-art customer portal to provide customers with an easy interface to view real-time plant performance data and resolve queries relating to any aspect of a power plant operation. Currently, customers can access multiple metrics to view aggregated performance data in different formats. Our plan is to grow the portal into an all-encompassing website for a complete customer experience that will include contract management and billing to make our customers' interactions with us smoother and more efficient. Customer information in the portal is protected by advanced security protocols within our information security environment.

## Maintaining Product Quality and Safety

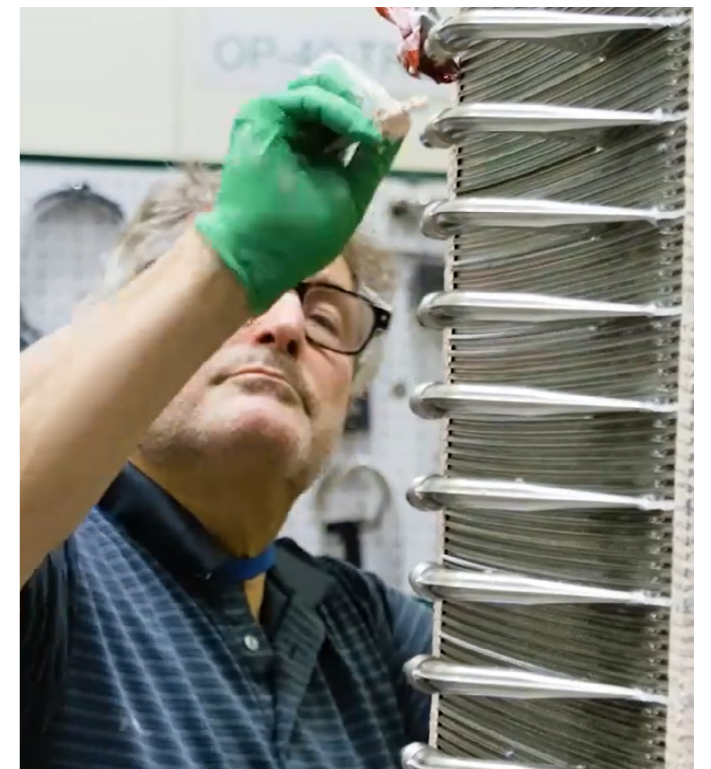
We aim to deliver quality products and services to our customers to meet their requirements in line with our Quality Policy. Our organization is committed to a Six Sigma culture that motivates us to drive continuous improvement in our capabilities and performance. In the past two years, we have certified more than 40 Six Sigma practitioners at our company at the green- and black-belt levels.

FuelCell Energy's operations are certified to three core ISO quality standards:

- ISO 9001:2015: Quality Management System (QMS)
- ISO 14001:2015: Environmental Management System (EMS)
- ISO 45001:2018: Safety Management System (SMS)

We have maintained a zero non-conformance result across our last three ISO 9001 external audits.

In line with these standards, we maintain rigorous processes for product and component quality and safety testing, using automation to improve efficiency and accuracy. All components received from suppliers are subject to an agreed inspection and testing plan.



We are developing and implementing many quality system improvements to fuel our vision to be world class in quality. In the past year, we have reinforced our quality culture and strengthened our quality organization to support our quality and reliability commitments to our customers.



**Richard Pawlaczyk,**  
Vice President, Quality





## Insisting on Ethical Supplier Conduct

FuelCell Energy require suppliers to comply with our Supplier Code of Conduct which specifies their obligations in terms of ethical and compliant business performance, upholding human and labor rights and operating in an environmentally responsible manner, among other things.

In fiscal year 2023, we piloted supply chain AI-powered risk management software that permits real-time monitoring of our global supply base across key risk attributes including financial risk, cybersecurity and environmental, social and governance (ESG) risks across our Tier I, II and III suppliers. When fully implemented, this software will augment our existing risk management processes and highlight opportunities to drive actions to mitigate risks for our business and for our customers.

In the coming year, we plan to introduce a program of social and environmental assessments with key suppliers to better understand the risks in our supply chain, evaluate performance and seek opportunities for improvement.

 [Supplier Code of Conduct](#)

## Eliminating Conflict Minerals in our Supply Chain

Our fuel cell power plants utilize minor amounts of 3TG minerals (tin, tungsten, tantalum and gold) that are classified as conflict minerals. Production of fuel cells, including the fuel cell components and completed fuel cell module, does not utilize 3TG minerals; however, components such as computer circuit boards utilize minimal amounts of 3TG minerals. In FY23, 3TG minerals accounted for less than 0.001% of the total shipment weight of our products.

In line with U.S. regulation, we monitor our supply chain for the presence of conflict minerals and disclose our results annually. In 2023, we contacted 137 suppliers with our conflict minerals questionnaire and 85% responded. The majority of suppliers confirmed they do not source 3TG metals for their products and others confirmed policies and plans to source 3TG metals in non-conflict areas. We continue to exercise due diligence in this area.

 [2023 Conflict Minerals Report on Form SD](#)

# Progress in Governance and Risk Management

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- Enterprise Risk Management ..... 43
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- Information Security and Data Privacy..... 45



# Maintaining Robust Corporate Governance

Robust corporate governance is essential to encourage trust in our business and enable our business continuity. We aim to ensure that our Board of Directors is engaged with and competent to oversee our sustainability strategy and performance as well as all processes that lead to ethical, responsible, accountable and transparent conduct throughout our organization.

Our Board of Directors is charged with overseeing company performance, compliance programs and procedures and effective risk management as well as providing guidance to the Chief Executive Officer and senior leadership on strategic matters. The Chairman of the Board is Mr. James.H. England.

**Board engagement on sustainability:** Our Board is fully committed to our ESG Strategy and the Environmental, Social, Governance and Nominating Committee supports the Board in decision-making in related matters, including ESG Strategy review, target setting and monitoring progress. The Board of Directors receives quarterly updates regarding our progress in ESG and annually reviews our sustainability report prior to publication and endorses its content. Similarly, members of our Board regularly engage with investors to discuss our business, including our sustainability plans.



[Corporate Governance](#)



[Environmental, Social, Governance and Nominating Committee Charter Board of Directors](#)

## FuelCell Energy Board of Directors\*

Total number of directors (including the Chair)	7
Separation of Chair and Chief Executive Officer roles	Yes
Independent directors	6 (86%)
Non-executive directors	6 (86%)
Directors with financial expertise	7 (100%)
Directors with technology expertise	3 (43%)
Directors with ESG expertise	7 (100%)
Women directors	4 (57%)
Directors from ethnically diverse groups	2 (29%)
Age span of directors	55-77 (average age: 65)
Tenure of directors	2-15 (average years: 6)

\* As at December 2023

**Board committees:** Our Board has three standing committees: the Audit, Finance and Risk Committee; the Compensation Committee; and the Environmental, Social, Governance and Nominating Committee, which is composed entirely of independent directors.

## Enterprise Risk Management

We continue to invest in improving the robustness of our risk management processes and in the past year, we created an Enterprise Risk Management Committee (ERMC) that comprises leaders from different functions across the company, chaired by our Chief Financial Officer. In 2022, we invited an external firm to perform a comprehensive risk assessment at FuelCell Energy to help guide our decisions on improving risk assessment and management processes. The team meets quarterly and oversees our formal annual risk management process in which approximately 30 executives and directors are interviewed. ERMC members are tasked with ensuring that risk management plans are in place for significant risks identified in each of their functional areas.

A key risk relating to sustainability that had been identified was our ability to track and disclose key sustainability metrics, and in response, this past year, we reinforced our team with the addition of an ESG Director. This focus is already yielding positive outcomes, including our very first comprehensive carbon inventory completed this year.



“ The Board is very engaged in our business and in how we are progressing our purpose. For example, our entire Board toured our new Tri-gen installation for Toyota Motor North America in California and also visited our Calgary operations and spent time with our teams there. Gaining first-hand experience of both our operations and customer needs is critical to effective decision-making at the Board level. ”

**Joshua Dolger,**  
Executive Vice President, General Counsel & Corporate Secretary, FuelCell Energy

# Upholding Ethical and Compliant Practices

FuelCell Energy is committed to conducting our business activities with honesty and in full compliance with the laws and regulations of the states and countries in which we do business. Our Code of Ethics sets out the expectations of all FuelCell Energy directors, officers and employees to conduct themselves in a compliant, responsible, ethical and respectful manner. In 2023, our Senior Leadership Team reviewed our Code of Ethics and implemented some updates to align with benchmarked best practice and the expectations of our investor community. We are committed to continuous improvement and strive to strengthen our policies and practices.

We conduct annual training in ethical conduct and all employees are expected to attend. Training in our Code of Ethics is an essential part of new hire orientation. This training also explicitly includes anti-corruption, in line with our anti-corruption policy.

All employees are encouraged to report suspected violations of our Code of Ethics, anonymously if they so wish, and without fear of reprisal. We also maintain a year-round program of proactive communications to employees to ensure awareness and willingness to report suspected violations. Our whistleblowing hotline is open to employees in all countries. In 2023, there were no reports made to the hotline.



## PROGRESSING OUR PURPOSE

### Insisting on Human Rights

At FuelCell Energy, respect for human rights is fundamental to the way we manage our business. This year, we articulated our approach to human rights in a policy that is now published on our website. We recognize that human rights are rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion or any other status. Human rights include, but are not limited to, the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression as well as the right to work and education. We maintain a confidential whistleblowing hotline for reports of suspected human rights violations in our business or supply chain supported by a non-retaliation policy that is intended to give team members the confidence to speak out about behaviors that may violate our Code of Ethics or put other team members or the business at risk.

Our approach to respecting and upholding human rights is informed by:

- The international human rights principles encompassed in the Universal Declaration of Human Rights (as part of the International Bill of Human Rights);
- The UN Guiding Principles on Business and Human Rights;
- The International Labour Organization’s Declaration on Fundamental Principles and Rights at Work; and
- The OECD Guidelines for Multinational Enterprises.



We provided training on human rights and the role and responsibilities of employees across the organization. This training is a required element of our mandatory annual training for all employees and for new hire orientation.

[Human Rights Policy](#)

[Code of Ethics](#)  
[Anti-Corruption Policy](#)

# Information Security and Data Privacy

FuelCell Energy maintains a proactive approach to securing our information systems and protecting the privacy of all those who entrust us with their data. We believe this is essential for our business continuity and also to retain the trust of all those we serve through our business.

In the past year, we have continued to make progress in renovating and upgrading older systems and providing layered protection across our entire information systems environment. Some of our progress includes:

- Appointing a new director of cybersecurity to oversee our ongoing program;
- Reviewing and revising our systems and processes to more closely align with the U.S. National Institute of Standards and Technology cybersecurity framework, recognized as a leading practice in the field.
- Revising or adding corporate policies on a range of topics including cybersecurity, acceptable use and several more;
- Introducing specific new information technology controls including perimeter detection, incident response, password protections, systems recoverability, updated firewalls and more; and
- Gaining a deeper understanding of potential vulnerabilities and how to address them through the efforts of ethical hackers we invited into our company to help assess our protection.

FuelCell Energy has partnered with a security operations industry leader

for continuous monitoring of our systems environment. This partnership strengthens our overall security posture by providing 24/7 cyber threat detection and mitigation services. Further, we place significant focus on cybersecurity and data privacy training; all new employees receive such training as part of their initial orientation and all employees take part in cybersecurity awareness exercises each quarter that include simulated phishing emails and other internet-related challenges. In 2023, we reached as high as 98% compliance with cybersecurity procedures which demonstrates a strong level of awareness and understanding across our workforce. The small number of employees who do not achieve full compliance are invited to complete additional training.

This year, as in prior years, FuelCell Energy has not been subject to any

breaches of our information systems or data. In order to maintain this position, we continue to invest resources, technology and education for all our employees across all dimensions of information security and data protection.

“ The cyber environment continues to be challenging and requires us always to be one step ahead. We block more than 6 million malicious or questionable emails every year and inspect more than 3 billion independent data points for cyber threats every quarter. We can never afford to be complacent and rely on robust systems and highly alert colleagues all across FuelCell Energy to help protect our information, customers, partners and employees. ”

**John Dutsar,**  
Global Vice President of Information Technology, FuelCell Energy



# Appendix

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SASB Disclosures .....55

TCFD Overview.....56

Forward-Looking and Cautionary Statements ..... 57



# GRI Content Index and Data Tables

<b>Statement of use</b>	FuelCell Energy Inc. has reported in accordance with the GRI Standards for the period November 1, 2022 to October 31, 2023.
<b>GRI 1 used</b>	GRI 1: Foundation 2021
<b>Applicable GRI Sector Standard(s)</b>	None

## GRI 2 General Disclosures 2021

	Location	Omission		Location	Omission
2-1	Organizational details	Page 4	2-16	Communication of critical concerns	Page 43
2-2	Entities included in the organization's sustainability reporting	Page 3	2-17	Collective knowledge of the highest governance body	Page 43
2-3	Reporting period, frequency and contact point	Page 3	2-18	Evaluation of the performance of the highest governance body	Page 43
2-4	Restatements of information	None	2-19	Remuneration policies	Page 43
2-5	External assurance	Page 3	2-20	Process to determine remuneration	Page 43
2-6	Activities, value chain and other business relationships	Pages 4, 13, 15	2-21	Annual total compensation ratio	Page 50
2-7	Employees	Page 50	2-22	Statement on sustainable development strategy	Page 5
2-8	Workers who are not employees	Page 50	2-23	Policy commitments	Page 8
2-9	Governance structure and composition	Page 43	2-24	Embedding policy commitments	Page 8
2-10	Nomination and selection of the highest governance body	Page 43	2-25	Processes to remediate negative impacts	Page 11
2-11	Chair of the highest governance body	Page 43	2-26	Mechanisms for seeking advice and raising concerns	Page 44
2-12	Role of the highest governance body in overseeing the management of impacts	Page 43	2-27	Compliance with laws and regulations	Page 44
2-13	Delegation of responsibility for managing impacts	Page 9	2-28	Membership associations	Page 50
2-14	Role of the highest governance body in sustainability reporting	Page 43	2-29	Approach to stakeholder engagement	Page 10
2-15	Conflicts of interest	Page 43	2-30	Collective bargaining agreements	None

## GRI 3 Material Topics 2021

	Location	Omission
3-1	Process to determine material topics	Page 11
3-2	List of material topics	Page 11

# GRI Content Index: Material Disclosures

Material Priority	GRI Standards		GRI Topic-Specific Disclosures	Page	Omissions
<b>Business Ethics</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 44	
	GRI 205: Anti-Corruption 2016	205-3	Confirmed incidents of corruption and actions taken	None	
	GRI 419: Socioeconomic Compliance 2016	409-1	Non-compliance with laws and regulations in the social and economic area	None	
<b>Climate Change and GHG Emissions</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 28	
	GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	Page 51	
		305-2	Energy indirect (Scope 2) GHG emissions	Page 51	
		305-3	Other indirect (Scope 3) GHG emissions	Page 51	
		305-4	GHG emissions intensity	Page 51	
<b>Energy Management</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 32	
	GRI 302: Energy 2016	302-1	Energy consumption within the organization	Page 51	
		302-3	Energy intensity	Page 51	
<b>Workforce Health &amp; Safety</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 39	
	GRI 403: Occupational Health and Safety 2018	403-1	Occupational health and safety management system	Page 54	
		403-2	Hazard identification, risk assessment and incident investigation	Page 54	
		403-3	Occupational health services	Page 54	
		403-4	Worker participation, consultation and communication on occupational health and safety	Page 54	
		403-5	Worker training on occupational health and safety	Page 54	
		403-6	Promotion of worker health	Page 54	
		403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Page 54	
		403-8	Workers covered by an occupational health and safety management system	Page 54	
		403-9	Work-related injuries	Page 54	Data by gender not available.
403-10	Work-related ill health	Page 54			
<b>Waste Management</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 32	
	GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	Page 32	
		306-2	Management of significant waste-related impacts	Page 32	
		306-3	Waste generated	Page 52	
		306-4	Waste diverted from disposal	Page 52	
		306-5	Waste directed to disposal	Page 52	
<b>Materials sourcing</b>	GRI 3: Material Topics 2021	3-3	Management of material topics	Page 41	
			Use of conflict or rare earth minerals (SASB RR-FC-440a.1)	Page 55	



# GRI Content Index: Material Disclosures

Material Priority	GRI Standards	GRI Topic-Specific Disclosures	Page	Omissions
Product Efficiency	GRI 3: Material Topics 2021	3-3 Management of material topics	Page 55	
		Average energy efficiency of fuel cells (SASB RR-FC-410a.2)	Page 55	
Product Safety	GRI 3: Material Topics 2021	3-3 Management of material topics	Page 40	
Product Life Cycle Management	GRI 3: Material Topics 2021	3-3 Management of material topics	Page 32	
		Percentage of products sold that are recyclable or reusable (SASB RR-FC-410b.1)	Page 55	
Product End-of life Management	GRI 3: Material Topics 2021	3-3 Management of material topics	Page 32	
		Weight of end-of-life material recovered, percentage recycled (SASB RR-FC-410b.2)	Page 55	

## Additional Indicators Reported Not Identified as Material

GRI Standards	GRI Topic-Specific Disclosures	Page	Omissions
GRI 402: Labor/Management Relations 2016	GRI 402-1 Minimum notice periods regarding operational changes	Page 53	
GRI 401: Employment 2016	GRI 401-1 New employee hires and turnover	Page 53	
	GRI 401-2 Benefits provided to full-time employees	Page 53	
	GRI 401-3 Parental leave	Page 53	
GRI 404: Training and Education 2016	GRI 404-1 Average hours of training per year per employee	Page 54	

## GRI 2-7 Employees

Employees by region, gender and contract	2022			2023		
	Women	Men	All	Women	Men	All
U.S. & Canada	112	386	<b>498</b>	134	440	<b>574</b>
Europe	1	9	<b>10</b>	1	10	<b>11</b>
Asia	1	5	<b>6</b>	1	6	<b>7</b>
<b>All employees</b>	<b>114</b>	<b>400</b>	<b>514</b>	<b>136</b>	<b>456</b>	<b>592</b>

### Notes:

- Europe includes Germany. Asia includes Japan, Korea and Singapore.
- Almost all employees are hired on permanent contracts. Almost all employees are on full-time contracts; in any given year, there may be up to three employees working part-time.

## GRI 2-8 Workers who are not employees

FuelCell Energy engages with external companies to provide on-site services such as cleaning, catering and security. We do not track the specific numbers of employees engaged by such companies to provide these services.

## GRI 2-21 Annual total compensation ratio

In fiscal year 2023, the ratio of the annual total compensation for the organization’s highest-paid individual to the median annual total compensation for all employees was 6.04. Median annual total employee compensation and total compensation for the highest paid individual increased by 4% in fiscal year 2023. We consistently review market information using an external compensation advisory service to evaluate our competitive position and review pay points across our company.

## GRI 2-28 Membership associations

Among the coalitions and alliances, we participate in are:

- The Fuel Cell and Hydrogen Energy Association (FCHEA) (Board membership)
- The U.S. Renewable Energy and Energy Efficiency Advisory Committee (REEEAC) (Board membership)
- The American Biogas Council
- Hydrogen Europe
- Hydrogen Council
- Petroleum Council
- World Economic Forum

We also participate in and support several industry associations in Connecticut and other U.S. states in order to provide expertise and advocacy for a clean energy future.

## GRI 302-1 Energy consumption within the organization

### GRI 302-3 Energy intensity

Energy consumption	Units	FY2020	FY2021	FY2022	FY2023	YOY
Non-renewable fuel (natural gas)	GJ	1,585,763	1,663,628	2,214,725	2,485,413	12%
Renewable fuel (biogas)	GJ	189,286	243,260	285,115	282,873	-1%
Purchased electricity	GJ	34,491	42,993	48,585	43,422	-11%
<b>Total energy consumption</b>	<b>GJ</b>	<b>1,809,540</b>	<b>1,949,881</b>	<b>2,548,425</b>	<b>2,811,708</b>	<b>10%</b>
Purchased electricity percentage	%	1.9%	2.2%	1.9%	1.5%	-0.4%
Renewable energy percentage (biogas)	%	10%	12%	11%	10%	-1%
<b>Energy intensity</b>	<b>GJ/\$M revenue</b>	<b>25,533</b>	<b>28,022</b>	<b>19,531</b>	<b>22,786</b>	<b>17%</b>

## GRI 305-1 Direct (Scope 1) GHG emissions

### GRI 305-2 Energy indirect (Scope 2) GHG emissions

### GRI 305-3 Other indirect (Scope 3) GHG emissions

GHG emissions	Units	FY2020	FY2021	FY2022	FY2023	YOY
Biogenic emissions	MT CO <sub>2</sub> e	9,342	12,006	14,071	13,961	-1%
Scope 1	MT CO <sub>2</sub> e	80,634	84,610	112,483	126,189	12%
Scope 2	MT CO <sub>2</sub> e	2,938	3,628	4,091	3,781	-10%
Scope 3 Category 3 (see note)	MT CO <sub>2</sub> e	10,627	15,329	20,401	21,977	8%
<b>Total GHG Emissions Scope 1 + 2</b>	<b>MT CO<sub>2</sub>e</b>	<b>83,572</b>	<b>88,238</b>	<b>116,574</b>	<b>129,980.5</b>	<b>11%</b>

**Note:** GHG emissions are calculated using emission factors sourced from: U.S. Environmental Protection Agency; Canadian Government; IPCC; IEA. Scope 2 factors are location-based. Scope 3 represents Category 3, Fuel and energy-related activities not included in Scope 1 or Scope 2. When calculating GHG emissions, FuelCell Energy applies the financial control approach as defined by the Greenhouse Gas Protocol.

## GRI 305-4 GHG emissions intensity

Scope	Units	FY2020	FY2021	FY2022	FY2023	YOY
Scope 1 + 2	MT CO <sub>2</sub> e/\$M revenue	1,179	1,268	893	1,053	18%

### GRI 303-3 Water withdrawal

### GRI 303-4 Water discharge

### GRI 303-5 Water consumption

Water metrics	Units	2022	2023	YOY
Water withdrawal (third-party water)	Megaliters	10.13	9.10	-10%
Water discharge	Megaliters	9.62	8.65	-10%
Water consumption	Megaliters	0.51	0.46	-10%

**Note:** All water is third-party water and all water is discharged to municipal waste streams. Data represents our facilities in the U.S. Water use at our facilities in Canada, Germany and Korea represents less than 1% of our overall water withdrawal; and is not monitored in detail.

### GRI 306-3 Waste generated

Waste generated by type	Units	2022	2023	YOY
Metals	MT	109.9	98.3	-11%
Other recyclable	MT	133.8	149.1	11%
Other waste	MT	217.8	188.9	-13%
<b>Total waste generated</b>	<b>MT</b>	<b>461.5</b>	<b>436.3</b>	<b>-5%</b>

### GRI 306-4 Waste diverted from disposal

	Type	Units	2022	2023	YOY
Hazardous waste diverted from disposal	Preparation for reuse	MT	10.8	15.4	
	Recycling	MT	2.6	2.7	
<b>Total hazardous waste diverted from disposal</b>	<b>MT</b>	<b>13.4</b>	<b>18.1</b>	<b>35%</b>	
Non-hazardous waste diverted from disposal	Preparation for reuse	MT	24	5.4	
	Recycling	MT	218.8	212.8	
	Other recovery operations	MT	0.9	11	
<b>Total non-hazardous waste diverted from disposal</b>	<b>MT</b>	<b>243.7</b>	<b>229.2</b>	<b>-6%</b>	
<b>Total waste diverted from disposal</b>	<b>MT</b>	<b>257.1</b>	<b>247.3</b>	<b>-4%</b>	

### GRI 306-5 Waste directed to disposal

	Type	Units	2022	2023	YOY
Hazardous waste directed to disposal	Incineration (with energy recovery)	MT	0.2	0	
	Incineration (without energy recovery)	MT	2.1	3.4	
	Landfill	MT	0.7	0.1	
	Other disposal operations	MT	4.5	6.6	
<b>Total hazardous waste directed to disposal</b>	<b>MT</b>	<b>7.5</b>	<b>10.1</b>	<b>35%</b>	
Non-hazardous waste directed to disposal	Incineration (with energy recovery)	MT	0.3	0.9	
	Incineration (without energy recovery)	MT	1.7	3.6	
	Landfill	MT	194.9	172	
	Other disposal operations	MT	0	2.4	
<b>Total non-hazardous waste directed to disposal</b>	<b>MT</b>	<b>196.9</b>	<b>178.9</b>	<b>-9%</b>	
<b>Total waste directed to disposal</b>	<b>MT</b>	<b>204.4</b>	<b>189</b>	<b>-8%</b>	
<b>Total waste generated</b>	<b>MT</b>	<b>461.5</b>	<b>436.3</b>	<b>-5%</b>	
<b>Waste diverted from disposal</b>	<b>%</b>	<b>56%</b>	<b>57%</b>	<b>1%</b>	

## GRI 401-1 New employee hires and turnover

New hires and turnover		Women <30	Women 30-50	Women >50	Men <30	Men 30-50	Men >50	All Men	All Women	Total
<b>2023: New hires</b>	U.S. & Canada	25	22	9	42	53	27	122	56	178
	Europe	0	0	0	1	0	1	2	0	2
	Asia	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>25</b>	<b>22</b>	<b>9</b>	<b>43</b>	<b>53</b>	<b>28</b>	<b>124</b>	<b>56</b>	<b>180</b>
<b>2023: New hire rates</b>	U.S. & Canada	4%	4%	2%	7%	9%	5%	20.6%	9.5%	30.1%
	Europe	0%	0%	0%	0%	0%	0%	0.3%	0.0%	0.3%
	Asia	0%	0%	0%	0%	0%	0%	0.0%	0.0%	0.0%
	<b>Total new hires</b>	<b>4%</b>	<b>4%</b>	<b>2%</b>	<b>7%</b>	<b>9%</b>	<b>5%</b>	<b>20.9%</b>	<b>9.5%</b>	<b>30.4%</b>
<b>2023: Turnover</b>	U.S. & Canada	17	14	5	25	23	18	66	36	102
	Europe	0	0	0	0	1	1	2	0	2
	Asia	0	0	0	0	1	0	1	0	1
	<b>Total</b>	<b>17</b>	<b>14</b>	<b>5</b>	<b>25</b>	<b>25</b>	<b>19</b>	<b>69</b>	<b>36</b>	<b>105</b>
<b>2023: Turnover rates</b>	U.S. & Canada	3%	2%	1%	4%	4%	3%	11.1%	6.1%	17.2%
	Europe	0%	0%	0%	0%	0%	0%	0.3%	0.0%	0.3%
	Asia	0%	0%	0%	0%	0%	0%	0.2%	0.0%	0.2%
	<b>Total turnover</b>	<b>3%</b>	<b>2%</b>	<b>1%</b>	<b>4%</b>	<b>4%</b>	<b>3%</b>	<b>11.7%</b>	<b>6.1%</b>	<b>17.7%</b>

**Note:** new hire rate = new hires/ total workforce; turnover rate = terminations/ total workforce.

## GRI 401-2 Benefits provided to full-time employees

FuelCell Energy provides a range of market-competitive non-salary benefits to provide our employees with additional financial and health-related security. Our policies apply to key operational locations in the U.S. Employees in other markets may have different plans that align with regulations or market norms. Key benefits include:

- Life insurance plans
- Health plans with a choice of medical, dental and vision options
- Disability and invalidity coverage including short-term disability at 70% of base pay for 60 days and 60% thereafter, as well as long term disability after 180 days at 60% of base pay
- Parental leave at four weeks of paid leave for birth or adoption
- Retirement provision with an employer contribution equivalent to 50% of the employee contribution up to 6% of base pay. Employees may contribute more without employer matching.
- Employee Stock Purchase Plan: In 2022, we expanded the stock ownership to all salary employees and plan to extend this for hourly employees at management discretion during merit reviews. All stock plans are approved by FuelCell Energy's Board of Directors.

## GRI 401-3 Parental leave

Parental leave in fiscal year 2023	Women	Men	Total
Employees entitled to parental leave	96	354	450
Employees who took parental leave	1	2	3
Employees returning to work after parental leave ended	1	2	3
Employees returning to work and still employed after 12 months	1	2	3
Return to work and retention rates of employees that took parental leave	100%	100%	100%

### GRI 402-1 Minimum notice periods regarding operational changes

We aim to provide employees with reasonable notice of changes in our business that may affect their employment circumstances to allow them to accommodate changes as needed. Employees are offered notice periods beyond legal minimum requirements if these are compatible with operational needs.

### GRI 403-1 Occupational health and safety management system

At FuelCell Energy, we are committed to conducting business in a safe and environmentally sound manner by promoting a culture of shared responsibility throughout the organization. We integrate environmental, occupational health and safety management practices in all aspects of our business. Our EHS systems and related performance targets promote continual improvement, the prevention of injuries and incidents and compliance with all applicable statutes and regulations. We are certified to ISO 45001:2018. This standard is our framework to assess, monitor and reduce exposure of the workforce to human health hazards. Our Senior Director of EHS and Security is accountable for our OHS performance.

### GRI 403-2 Hazard identification, risk assessment and incident investigation

Work-related hazards are identified through workplace inspections and safety observations as defined in our OHS Management System.

### GRI 403-3 Occupational health services

FuelCell Energy does not provide occupational health services onsite.

### GRI 403-4 Worker participation, consultation and communication on occupational health and safety

Safety Committees operate at all our manufacturing sites in line with our OHS and include representation from management and employees.

### GRI 403-5 Worker training on occupational health and safety

We provide OHS training for all new employees and additional training where required covering specific risks associated with identified roles.

### GRI 403-6 Promotion of worker health

FuelCell Energy promotes health and wellness and aims to raise awareness among employees through our Annual Fitness Challenge and other activities throughout the year. We provide health and wellness-related benefits in different countries in line with local market norms, such as medical insurance, dental insurance and more.

### GRI 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

Our Supplier Code of Conduct requires our suppliers to ensure safe working conditions and a healthy work environment for their workers and uphold a detailed list of OHS standards. We audit our suppliers regarding conformance to our Code.

### GRI 403-8 Workers covered by an occupational health and safety management system

All FuelCell Energy employees are covered by our OHS management system.

### GRI 403-9 Work-related injuries

Work-related injuries and injury rates		2022	2023
Hours worked	Hours	1,018,519	1,071,429
<b>Injuries</b>			
Fatalities	Number	0	0
Recordable work-related injuries	Number	11	9
High-consequence work-related injuries	Number	0	0
<b>Injury rates</b>			
Fatalities	Rate	0	0
Recordable work-related injuries	Rate	2.16	1.68
High-consequence work-related injuries	Rate	0	0

**Note:** Injury rates are calculated on the basis of 200,000 work hours. Contractor hours are not included and represent less than 0.5% of our total work hours. Gender split of data is not available at this time.

### GRI 403-10 Work-related ill-health

FuelCell Energy has not identified any significant cases of work-related ill health in 2023.

### GRI 404-1 Average hours of training per year per employee

Training hours in 2023	Women	Men	Total
All employees	2,053	11,590	13,643
Average training hours per employee per year	22.56	28.00	27.02

**Note:** Much of the training at FuelCell Energy takes place as on-the-job training (in-person and virtual) throughout the organization but these are not recorded in our Learning Management System and therefore not reflected in the above data. We do not compile training data by employee category and will review the possibility to address this in future reports.

# SASB Disclosures

## Fuel Cells & Industrial Batteries Sustainability Accounting Standard, October 2018

Topic	Code	Accounting Metric	Measure	Response
<b>Energy Management</b>	RR-FC-130a.1	(1) Total energy consumed (2) Percentage grid electricity (3) Percentage renewable	GJ, %	See GRI 302-1, page 51
<b>Workforce Health &amp; Safety</b>	RR-FC-320a.1	(1) Total recordable incident rate (TRIR) (2) Fatality rate	Rate	See GRI 403-9, page 54
	RR-FC-320a.2	Description of efforts to assess, monitor and reduce exposure of workforce to human health hazards	N/A	See GRI 403, page 54
<b>Product Efficiency</b>	RR-FC-410a.1	Average storage capacity of batteries, by product application and technology type	Wh/kg	Not relevant. FuelCell Energy does not manufacture batteries.
	RR-FC-410a.2	Average energy efficiency of fuel cells as (1) electrical efficiency and (2) thermal efficiency, by product application and technology type	%	The electrical efficiency of our fuel cell power plants starts at 47% and declines slightly over stack life, averaging about 45% with slight variations due to local conditions, such as elevation or extreme temperatures. Our platforms also co-produce other energy streams, usually thermal but also (in the case of our Tri-gen platform) hydrogen. Total thermal efficiency depends on the customer use of these thermal streams, and ranges from 60% to 90%.
	RR-FC-410a.3	Average battery efficiency as coulombic efficiency, by product application and technology type	%	For the hydrogen based reversible solid oxide system we are developing, energy efficiency (the combination of coulombic and voltaic efficiency plus system losses) will range from 60% to 70% depending on the application and the age of the stacks. The main driver for energy efficiency is stack voltage in discharge (fuel cell) mode and system losses. Coulombic efficiency of the stacks will be in the 90% range.
	RR-FC-410a.4	Average operating lifetime of fuel cells, by product application and technology type	Hours	Fuel cell life for our carbonate platform ranges from five to seven years, depending on the year of manufacture. Our latest stack module designs have a 7-year target design life.
	RR-FC-410a.5	Average operating lifetime of batteries, by product application and technology type	Number of cycles	Not relevant. FuelCell Energy does not manufacture batteries.
<b>Product End-of-life Management</b>	RR-FC-410b.1	Percentage of products sold that are recyclable or reusable	%	By weight, 93% of the entire power plant can be reused or recycled at the end of its useful life. We are conducting a product life cycle analysis (LCA) and expect to have detailed information in the coming year.
	RR-FC-410b.2	Weight of end-of-life material recovered, percentage recycled	Metric tons, %	
	RR-FC-410b.3	Description of approach to manage use, reclamation and disposal of hazardous materials	N/A	
<b>Materials Sourcing</b>	RR-FC-440a.1	Description of the management of risks associated with the use of critical materials	N/A	Our use of conflict or rare earth minerals is virtually zero. Trace amounts of 3TG minerals add up to less than 0.0005% of our total shipments by weight (in FY23).
<b>Activity Metric</b>	RR-FC-000.A	Number of units sold		This information is not available.
<b>Activity Metric</b>	RR-FC-000.B	Total storage capacity of batteries sold		Not relevant. FuelCell Energy does not manufacture batteries.
<b>Activity Metric</b>	RR-FC-000.C	Total energy production capacity of fuel cells sold		This information is not available.

# TCFD Overview

The Task Force on Climate-related Financial Disclosures (TCFD) framework, developed by the Financial Stability Board (FSB), is a voluntary framework that facilitates effective climate-related disclosures that could promote informed investment and other financial decisions. The following is an overview of our current operations in line with the TCFD framework.

## Governance

**Board oversight:** FuelCell Energy's Board of Directors is actively engaged in guiding our sustainability strategy and Environmental, Social, Governance (ESG) performance. The Board is supported by the ESG and Nominating Committee, which has oversight of the evaluation, management, mitigation and communication of our climate-related risks and opportunities. The Board also reviews and approves specific climate-related goals and targets, including our target to deliver net-zero value chain emissions by 2050. The Senior Vice President of Investor Relations provides quarterly reports to the Board on climate risks, opportunities and performance against our net-zero target.

**Management's role:** Accountability for our net-zero strategy and performance rests with our Chief Financial Officer and Chief Marketing and Sustainability Officer who are supported by a cross-functional team of senior leaders including the Chief Operating Officer and the Chief Technology Officer. This team monitors performance and provides support and guidance to the organization to help reach our goal.

## Strategy

Our corporate purpose is to empower a clean energy future. To support this, and our business strategy, we have formalized an ESG Strategy that encompasses 12 broad action areas that will guide our actions in the coming years, including those related to climate change and achieving net-zero emissions. We incorporate climate and carbon considerations into every aspect of our business.

**Climate-related risks and opportunities:** For FuelCell Energy, we assess that climate change opportunities outweigh the risks, since our company is focused on driving emissions down across the value chain through facilitation of access to affordable clean energy, including zero-carbon hydrogen as an essential power source. As the need for clean energy grows in the U.S. and around the world, and governments become bolder in incentivizing a transition to clean energy, we expect to grow our business in a sustainable manner. Our manufacturing operations are not located in areas that are deemed high-risk in terms of climate impact and we therefore assess physical risks to be minimal.

## Risk Management

**Process and management of risk:** An assessment of climate-related financial risks is included in our annual enterprise risk management process which is led by our senior leadership team and approved by the Board of Directors. Short, medium and long-term risk factors across current and emerging ESG-related risks, including climate-related risks, are assessed and prioritized for mitigating action.

**Climate change integration:** Mitigating climate change is an integral consideration across all of our business activities, in line with our purpose of empowering a clean energy future. Our goal is to help our customers reduce their carbon footprint and climate change impact, and in doing so, we aim to ensure our own operations achieve this goal. Resource efficiency and energy and emissions reduction are key objectives within our operations from design to delivery to customer service, and are addressed at every stage of our planning, manufacturing and supply. Our Environmental Management System, that is certified to ISO14001:2015 and internal policies and procedures serve to support the integration of climate change considerations throughout our operations.

## Metrics

**Metrics:** We measure our Scope 1, 2 and 3 emissions, as well as biogenic emissions.

**Performance:** During fiscal year 2023, we made significant progress in calculating our carbon inventory, developing our approach to achieving net-zero emissions by 2050, including defining a net-zero action plan. For details, see the section: Moving Forward on our Path to Net Zero in our 2023 Sustainability Report. For our emissions performance, see the data tables in response to GRI Standard GRI 305: Emissions.

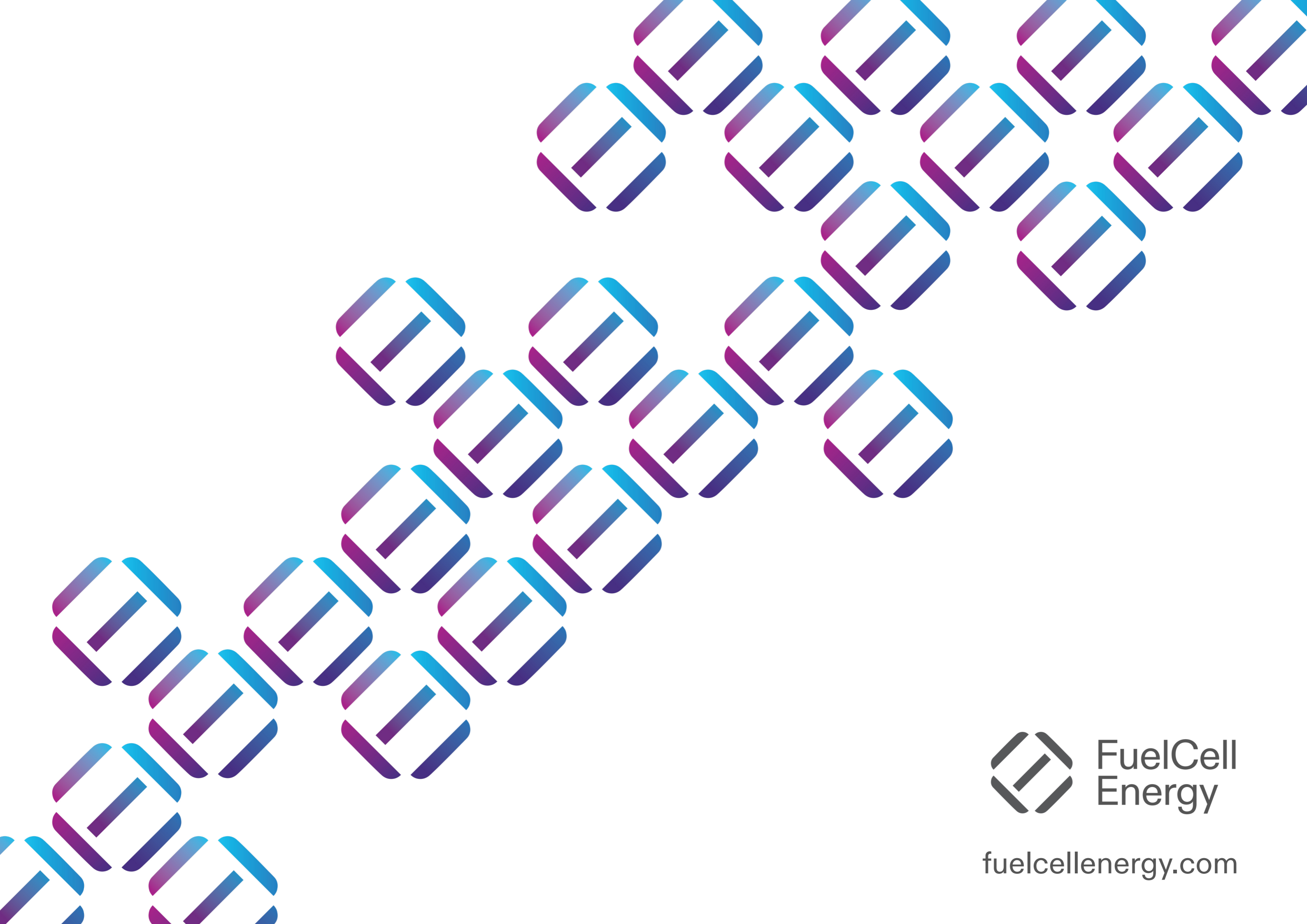
**Targets:** We are committed to achieving net-zero emissions across our value chain by 2050 and have defined our net-zero path to deliver this target.



# Forward-Looking and Cautionary Statements

This Sustainability Report (this “report”) contains forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 regarding future events or our future financial performance that involve certain contingencies and uncertainties, including those discussed in our Annual Report on Form 10-K for the fiscal year ended October 31, 2023 in the section entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations”. The forward-looking statements include, without limitation, statements with respect to the Company’s anticipated financial results and statements regarding the Company’s plans and expectations regarding the continuing development, commercialization and financing of its current and future fuel cell technologies, the expected timing of completion of the Company’s ongoing projects, the Company’s business plans and strategies, the Company’s capacity expansion and the markets in which the Company expects to operate. Projected and estimated numbers contained herein are not forecasts and may not reflect actual results. These forward-looking statements are not guarantees of future performance, and all forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected. Factors that could cause such a difference include, without limitation: general risks associated with product development and manufacturing; general economic conditions; changes in interest rates, which may impact project financing; supply chain disruptions; changes in the utility regulatory environment; changes in the utility industry and the markets for distributed generation, distributed hydrogen, and fuel cell power plants configured for carbon capture or carbon separation; potential volatility of commodity prices that may adversely affect our projects; availability of government subsidies and economic incentives for alternative energy technologies; our ability to remain in compliance with U.S. federal and state and foreign government laws and regulations and the listing rules of The Nasdaq Stock Market; rapid technological change; competition; the risk that our bid awards will not convert to contracts or that our contracts will not convert to revenue; market acceptance of our products; changes in accounting policies or practices adopted voluntarily or as required by accounting principles generally accepted in the United States; factors affecting our liquidity position and financial condition; government appropriations; the ability of the government and third parties to terminate their development contracts at any time; the ability of the government to exercise “march-in” rights with respect to certain of our patents; our ability to successfully market and sell our products internationally; our ability to develop new products to achieve our long-term revenue targets; our ability to implement our strategy; our ability to reduce our levelized cost of energy and deliver on our cost reduction strategy generally; our ability to protect our

intellectual property; litigation and other proceedings; the risk that commercialization of our new products will not occur when anticipated or, if it does, that we will not have adequate capacity to satisfy demand; our need for and the availability of additional financing; our ability to generate positive cash flow from operations; our ability to service our long-term debt; our ability to increase the output and longevity of our platforms and to meet the performance requirements of our contracts; our ability to expand our customer base and maintain relationships with our largest customers and strategic business allies; and concerns with, threats of, or the consequences of, pandemics, contagious diseases or health epidemics, including the novel coronavirus, and resulting supply chain disruptions, shifts in clean energy demand, impacts to our customers’ capital budgets and investment plans, and impacts on the demand for our products, as well as other risks set forth in the Company’s filings with the Securities and Exchange Commission, including the Company’s Annual Report on Form 10-K for the fiscal year ended October 31, 2023. The forward-looking statements contained herein speak only as of the date of this report. The Company expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any such statement contained herein to reflect any change in the Company’s expectations or any change in events, conditions or circumstances on which any such statement is based.



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