

June 12, 2024

**Via publicaccess.bpu.state.nj.us**

Board Secretary Sherri L. Golden  
New Jersey Board of Public Utilities  
44 South Clinton Avenue, 1<sup>st</sup> Floor  
P.O. Box 350  
Trenton, New Jersey 08625-0350

**Re: Docket Number QO24020126**

Dear Secretary Golden:

FuelCell Energy, Inc. (“FuelCell Energy”) submits these comments in response to the Request for Information (“RFI”) published by the New Jersey Board of Public Utilities (“BPU” or “the Board”) on May 14, 2024, regarding key discussion questions for the 2024 update to the State’s Energy Master Plan (“EMP”). FuelCell Energy thanks the Board for this opportunity to provide comments in response to the RFI and for the opportunity to participate in the four Public Hearings held regarding the EMP.

**I. FuelCell Energy Overview**

FuelCell Energy is proud to be among the companies that have been dedicated to clean energy innovations since our inception five decades ago. The company was founded in the United States in 1969 by two scientists devoted to pursuing technological innovations that address a wide variety of energy priorities through patent-protected U.S. innovation and compound combinations that produce and use energy in ways that are smarter and cleaner. Today, FuelCell Energy has over 600 employees, 188 modules in operation, and more than 15 million MWhs generated with our patented technology.

Our current product portfolio includes two dynamic electrochemical platforms: molten carbonate and solid oxide. Both platforms can support power generation and combined heat and power applications from a variety of fuels, including natural gas, renewable biogas, or hydrogen. These fuel cells react with fuel electrochemically, without combusting the fuel, which avoids emissions produced by fuel combustion such as oxides of nitrogen, oxides of sulfur, and particulate emissions. In the electrochemical process, fuel and air are reacted in separate chambers in the fuel cell stack. As a result, the reactions producing CO<sub>2</sub> occur without mixing fuel and air. Thus, CO<sub>2</sub> remains concentrated and easy to remove. Both molten carbonate and solid oxide fuel cell systems can benefit from this unique feature, with modifications enabling the capture of their own CO<sub>2</sub> for use or sequestration before it is emitted into the air.

FuelCell Energy’s molten carbonate fuel cell is unique in its ability to also capture CO<sub>2</sub> from an external source, such as a power plant, an industrial boiler, or a steam methane reformer. Our solid oxide fuel cell can operate on pure hydrogen as a feedstock, emitting zero CO<sub>2</sub>, which will become increasingly important as the uses of hydrogen for fuel become more widely adopted, and which complements the nation’s current emphasis on deploying technology that enables hydrogen-based

energy storage. Our solid oxide electrolyzer produces hydrogen from power and water, which is well suited to partner with renewable energy projects and/or hydrogen storage infrastructure.

FuelCell also manufactures a platform called Tri-gen that co-produces power, hydrogen, and water. On September 7, 2023, FuelCell Energy and Toyota Motor North America announced the completion of the Tri-gen project at the Port of Long Beach in California (“Tri-gen Project”). FuelCell Energy’s Tri-gen Project is the world’s first deployed generation facility that uses biofuel to produce up to 1,200 kg/day of hydrogen, 2.35 MW of renewable electricity, and 1,400 gallons water per day. Toyota uses these resources to power its operations at the port, fuel hydrogen vehicles, and to operate a car washing facility. Any Tri-gen Project electricity unused by Toyota supports the local grid in southern California.

FuelCell Energy is proud that our multi-featured platforms can be configured to provide multiple value streams, including electricity, hydrogen, high grade heat including steam, water, and CO<sub>2</sub> for sequestration and or utilization. In addition, as a global leader in electrochemical technology, FuelCell Energy and its subsidiary Versa Power Systems, Inc. have: 163 U.S. patents covering their fuel cell technology, 43 U.S. patents pending, 368 patents in other jurisdictions covering their fuel cell technology, and 124 patents pending in other jurisdictions.

## **II. General Comments**

At the outset, FuelCell Energy wishes to thank the BPU for its continued commitment to facilitating meaningful and productive stakeholder discussions regarding New Jersey’s clean energy future. It is evident that the Board has dedicated and continues to dedicate substantial resources towards updating the EMP in a way that will catalyze investment in New Jersey, create an actionable framework across a variety of sectors that impact the State’s energy supply and grid resiliency, and pave the way for a holistic and sustainable transition towards the State’s clean energy goals in the near-term and beyond. FuelCell Energy recognizes that the EMP is a multi-faceted plan that touches upon the many important efforts that the Board—and other agencies—have undertaken since the 2019 EMP was published. FuelCell Energy appreciates the significant time and resources the Board has dedicated to making the goals of the EMP a reality over the last five years, and FuelCell Energy is eager to continue participating in discussions and opportunities that build upon the Board’s existing successes. To that end, FuelCell Energy would be grateful for any chance to participate in future stakeholder working groups that will continue to shape the EMP.

## **III. Specific Comments to RFI Questions**

### **A. Strategy 1 of the 2019 EMP.**

1. What could the evolution of transportation electrification incentives look like? On which sectors should the State focus for spurring electrification (for instance, used EVs, medium- and heavy-duty vehicles, and/or ports)? Where will incentives no longer be necessary and when?

While the evolution of transportation electrification incentives could take many forms, FuelCell Energy respectfully posits that electrification of the transportation sector

could be more efficiently accomplished if incentives are more broadly structured to include Zero-Emission Vehicles (“ZEVs”) as well as Electric Vehicles (“EVs”). As the federal government continues to implement the IRA and embraces this broader technological category, FuelCell Energy respectfully encourages the Board to do the same. While New Jersey has achieved considerable success in deploying EVs and EV-charging stations across the state, the next version of the EMP should broaden this goal to incorporate those new and emerging technologies that will complement its existing efforts and maximize the success that New Jersey has already achieved through its innovative solutions and programs.

#### **B. Strategy 2 of the 2019 EMP.**

1. What mechanisms are needed to ensure clean energy development incentives are aligned to match generation and load?

To ensure that clean energy development incentives are aligned to match generation and load, FuelCell Energy respectfully suggests that the Board should continue to consider the ways in which emerging technologies, such as fuel cells, can be integrated with existing generation sources to increase the overall resiliency and reliability of renewable resources. One great example of the Board’s adoption of this approach is in the N.J. Storage Incentive Program, in which the Board embraced a technology-neutral definition of storage technology. Not only will this inevitably allow emerging technologies to demonstrate their effectiveness while helping New Jersey reach its goals in an innovative manner, but incorporating a similarly broad definition into the substantive aspects of the 2024 EMP will similarly create the flexibility needed to allow New Jersey to remain at the forefront of the clean energy transition.

#### **C. Strategy 4 of the 2019 EMP.**

1. In April 2024, the NJBPU approved a revised program that will offer financial incentives for construction of new buildings that achieve high levels of energy efficiency and that reduce greenhouse gas emissions. How can New Jersey achieve net zero emissions new construction, whether through the new construction incentive program or through additional mechanisms or initiatives? In addition to offering incentives to electrify existing oil- and propane-fueled buildings, as well as buildings heated with older and inefficient electric technologies, what else should New Jersey be doing to successfully achieve its goals of electrifying buildings heated with these technologies?

FuelCell Energy appreciates the Board’s willingness to thoughtfully craft and implement incentives for new construction that achieve net zero emissions, and further appreciates the Board’s corresponding commitment to provide incentives for projects that achieve emissions reductions in existing buildings. These two strategies should remain complementary, as the Board appears to aptly recognize that new construction (even net zero construction) is only half of the equation. Though the goal of electrifying buildings understandably guided the 2019 EMP, FuelCell Energy respectfully posits that the Board’s implementation of the 2024 EMP and/or corresponding incentives for

existing buildings should embrace new and emerging technologies beyond those classified as enabling “electrification” and those directly related to building construction or renovation. Given the critical role that public entities and municipalities play in overseeing construction and redevelopment within their communities, continued consideration should be given to the potential that microgrids hold to support existing facilities while reducing emissions. Private entities can similarly contribute to these same goals. FuelCell Energy appreciates that the Board’s existing DER Microgrid Feasibility Study Program recognizes the need to ensure that any barriers to microgrids and generation facilities are appropriately planned around while embracing broadly-defined types of generation facilities. FuelCell Energy encourages the Board to structure any future incentives for public entities developing microgrids from those feasibility studies or otherwise in a technology-neutral way to maximize the benefits realized therefrom, and to do the same for private entities looking to invest in New Jersey’s clean energy transition through microgrids or other generation facilities. Much the way that the Inflation Reduction Act (and specifically 26 U.S.C. § 48C) has embraced the goal of reducing existing GHG emissions, New Jersey will achieve the greatest success by focusing on which technologies achieve the most impactful emissions reductions. Fuel cells are one such solution, and they are unique in their versatility. Because fuel cells do not involve combustion, they can achieve meaningful emissions reductions while running on a variety of feedstocks. In the short term, this quality is incredibly important, as fuel cells can serve as both a temporary solution to existing construction running on non-renewable resources, and as a more permanent solution because alternative feedstocks could later be used therein. As the Board well knows, existing buildings and operations in hard-to-decarbonize sectors hold a great deal of potential during the clean energy transition and also present unique challenges – fuel cells can help reduce emissions in the short term while the State’s renewable market penetration continues to grow and develop in time.

#### **D. Strategy 5 of the 2019 EMP.**

1. How should the state incorporate emerging and existing technologies such as long-duration energy storage, clean hydrogen, and demand response in net-zero emission modelling scenarios that align state emission reductions with the Global Warming Response Act of 2009?

As noted elsewhere herein, the Board’s emphasis on technology-neutral incentives has already proven useful, and New Jersey should continue to craft incentives in technology-neutral ways that allow meaningful participation across a variety of sectors. As it pertains to incorporating clean hydrogen, long duration energy storage, and demand response technologies specifically, New Jersey should partner with technology providers to establish demonstration projects in the state to allow New Jersey to begin to realize the benefits of fuel cells. Because the state’s electric and gas utility providers are well-positioned to identify prime locations for such demonstration projects while ensuring that the benefits provided thereby are distributed in areas that will deliver the most positive impact to the grid, the state’s electric and gas utility providers should be involved in these deployments and/or should be given broad authority to implement

some of these incentives. The benefits of fuel cells – and the most impactful ways in which they can and should be incorporate in New Jersey – are best reflected by a spin on a familiar phrase in the energy world. It’s often said, “The cheapest energy is the energy we don’t use,” but what about the energy we don’t think of as energy? What makes fuel cells so unique is their ability to run on feedstocks that would otherwise remain unutilized, such as biogas from wastewater treatment facilities or landfills. By embracing fuel cells in these ways, New Jersey can reduce emissions that would otherwise remain unabated, increase grid resiliency, and create clean energy from sources that would otherwise go to waste (no pun intended). At the same time, fuel cells can use feedstocks like natural gas while substantially reducing the emissions that would otherwise result therefrom if used within a combustion system. Given the myriad of ways in which fuel cells can provide benefits to the State, they should be incorporated into incentive programs in as many corresponding ways as possible to maximize those benefits.

## **Conclusion**

At FuelCell Energy, we are particularly proud of our history as an energy technology innovator and we celebrate the women and men on our team who have, for over five decades, been driven to create and share new technologies that produce multiple value streams for our customers worldwide. We are proud to source the vast majority of our technical manufacturing equipment (i.e., the equipment we use daily that we have not invented) almost exclusively from U.S. based manufacturers across the country. We are also proud that we have an opportunity to demonstrate our commitment to empower a world with clean energy by partnering with the Department of State to deliver our differentiated highly efficient electrolysis platform to Ukraine for the production of hydrogen and ammonia, demonstrating America’s energy technology leadership around the world.

We thank you for the opportunity to submit these comments and appreciate your willingness to consider our recommendations and thoughts. Should you need any additional information, please contact the undersigned.

Sincerely,

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