

**NEW YORK STATE**  
**CLIMATE ACTION COUNCIL**

DRAFT SCOPING PLAN : July 1, 2022

**FUELCELL ENERGY, INC. COMMENTS**

FuelCell Energy, Inc. (“FuelCell Energy”) is pleased to offer its comments on the December 31, 2021 Draft Scoping Plan released by the Climate Action Council (“Council”) for comment.<sup>1</sup>

**INTRODUCTION**

Headquartered in Danbury, Connecticut, FuelCell Energy. (NASDAQ: FCEL) has leveraged five decades of research and development to become a global leader in delivering environmentally responsible distributed baseload power platform solutions through its proprietary fuel cell technology. As an innovator and an American manufacturer of fuel cell clean power platforms, FuelCell Energy’s current commercial technology delivers clean, distributed generation, distributed hydrogen, as well as heat, carbon separation and utilization, and produced water.

As a frontrunner in decarbonizing power and producing hydrogen through its proprietary fuel cell technology, FuelCell Energy is uniquely positioned to provide innovative solutions to help meet New York’s climate goals now, during the transition to net zero, and in the future. FuelCell Energy’s multi-featured platforms can be configured to provide a number of value streams, including electricity, high quality usable heat, water and hydrogen, and to concentrate and separate CO<sub>2</sub> from industrial applications using fossil fuels.

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<sup>1</sup> New York State Climate Action Council Draft Scoping Plan (Dec. 31, 2021) (“Draft Plan”).

## COMMENTS

FuelCell Energy has read the comments submitted by the National Fuel Cell Research Center (“NFCRC”) and agrees with NFCRC’s recommendations. In the Final Scoping Plan, the Council should recognize that fuel cells, electrolyzers, and hydrogen are all essential elements to meeting New York’s climate goals now, during the transition to net zero, and in the future.

New York’s Climate Directives are:<sup>2</sup>

- 85% Reduction in GHG Emissions by 2050
- 100% Zero-Emission Electricity by 2040
- 70% Renewable Energy by 2030
- 9,000 MW of Offshore Wind by 2035
- 3,000 MW of Energy Storage by 2030
- 6,000 MW of Solar by 2025
- 185 trillion Btu of end-use energy savings

Fuel cells, electrolyzers, and hydrogen can advance each of these directives directly (e.g., by avoiding the GHG emissions associated with combustion of fuels, providing long-duration storage, etc.) and indirectly (e.g., by supporting intermittent renewable generation).

### **I. TECHNOLOGIES ARE AVAILABLE TODAY TO FURTHER NEW YORK’S CLIMATE GOALS**

The Draft Plan finds that mitigating greenhouse gas (“GHG”) emissions will provide direct benefits.<sup>3</sup> The Draft Plan also recognizes indirect benefits “such as reducing air pollutants produced by GHG emissions sources (‘co-pollutants’),”<sup>4</sup> like particulate matter (“PM”), nitrogen

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<sup>2</sup> Draft Plan, at 17.

<sup>3</sup> Draft Plan, at 8.

<sup>4</sup> Draft Plan, at 8.

oxides (“NOx”) (which contribute to PM and ozone formation), and air toxics.<sup>5</sup> However, the Draft Plan contemplates that new technologies will be necessary to achieve these benefits while maintaining reliability.<sup>6</sup>

Fuel cell resources can deliver on many of New York’s climate goals – today – without inviting the reliability risks that are associated with so many other resources. Power is produced electrochemically in fuel cells, without combusting fuel. This reduces carbon emissions and avoids the generation of harmful pollutants such as particulates, NOx and SOx that are the direct result of burning with combustion flames and have a real time effect on communities.

In fact, fuel cells can actually avoid more carbon emissions than intermittent renewable systems. For example, as demonstrated in Table 1, based on published data from the United States Environmental Protection Agency (“EPA”), a 100 MW fuel cell project actually displaces more carbon emissions from the grid than a 100 MW solar project.

**Table 1**

<b>Capacity: 100 MW</b>	<b>Solar</b>	<b>CHP Fuel Cell</b>	<b>Fuel Cell w/Carbon Separation</b>	<b>Fuel Cell Fueled by Biogas</b>
Capacity Factor	18% <sup>7</sup>	90%	90%	90%
Annual MWh <sup>8</sup>	157,680	788,400	788,400	788,400

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<sup>5</sup> Draft Plan, at 38.

<sup>6</sup> Draft Plan, at 9 (“To achieve a more resilient, efficient, and balanced grid, new technologies will be required to replace the phase down of fossil fuel resources that are currently relied upon.”).

<sup>7</sup> Solar PV capacity factors in the US – the EIA data, <http://euanmearns.com/solar-pv-capacity-factors-in-the-us-the-eia-data/> (last visited Jul. 1, 2022), Figure 3 (listing New York at approximately 18%).

<sup>8</sup> 100 MW x 8760 hours x capacity factor.

<b>Capacity: 100 MW</b>	<b>Solar</b>	<b>CHP Fuel Cell</b>	<b>Fuel Cell w/Carbon Separation</b>	<b>Fuel Cell Fueled by Biogas</b>
Avoided CO2 (lbs/MWh)	1,007 <sup>9</sup>	269 <sup>10</sup>	786	1,007
Avoid CO2/year (metric tons) <sup>11</sup>	72,023	96,198	281,084	360,116

As shown above, the fuel cells avoid greater levels of CO2 because of the higher capacity factor of a fuel cell as compared to a solar installation, and when one accounts for the fuel cells’ unique ability to capture carbon or operate on biogas, CO2 avoidance is multiple times that of solar. Moreover, fuel cells are baseload power generation systems so they provide these benefits 24 hours a day while also ensuring reliability.

As the Draft Plan recognized, “[c]limate change . . . requires a holistic approach . . . .”<sup>12</sup> Fuel cells, electrolyzers, and hydrogen are available and capable of furthering New York’s climate goals immediately, during the transition to net zero and in the future. As such, they (along with other technologies like solar and battery storage) should be recognized as part of the “holistic approach” for achieving those goals.

**II. THE BENEFITS ARE QUANTIFIABLE**

The benefits provided by fuel cells, electrolyzers, and hydrogen are quantifiable. “DEC, in consultation with NYSERDA, established the Value of Carbon guidance to help State agency

<sup>9</sup> The EPA eGrid non-baseload emission rate for New York is 1,007 lbs/MWh. See EPA eGrid 2020, [https://www.epa.gov/system/files/documents/2022-01/egrid2020\\_data.xlsx](https://www.epa.gov/system/files/documents/2022-01/egrid2020_data.xlsx) (last visited Jul. 1, 2022). EPA suggests using the non-baseload rate to calculate avoided emissions for renewables. See How to use eGRID for Carbon Footprinting Electricity Purchases in Greenhouse Gas Emission Inventories (July 2012) (available at: <https://www3.epa.gov/ttnchie1/conference/ei20/session3/adiem.pdf>) (last visited Jul. 1, 2022), at 10-11. The solar emission rate is zero, meaning solar power avoids 1,007 lbs CO2 per MWh produced.

<sup>10</sup> The FuelCell Energy SureSource platform using combined heat and power (“CHP”) emission rate is 738 lb/MWh, avoiding 269 lbs CO2 for every MWh produced.

<sup>11</sup> (Avoided CO2 (lbs/MWh) \* Annual MWh) / 2,204.62.

<sup>12</sup> Draft Plan, at 13.

decision-making by placing a monetary value for the avoided emissions of GHG.”<sup>13</sup> As demonstrated in Table 2, the reduction of CO2 from fuel cells provides substantial value:

**Table 2**

<b>Capacity: 100 MW</b>	<b>CHP Fuel Cell</b>	<b>Fuel Cell w/Carbon Separation</b>	<b>Fuel Cell Fueled by Biogas</b>
Avoid CO2/year (metric tons) <sup>14</sup>	96,198	281,084	360,116
2022 Value @ 1% discount rate (\$53) <sup>15</sup>	\$5,098,494	\$14,897,452	\$19,086,148
2022 Value @ 2% discount rate (\$124) <sup>16</sup>	\$11,928,552	\$34,854,416	\$44,654,384
2022 Value @ 3% discount rate (\$411)	\$39,537,378	\$115,525,524	\$148,007,676

Fuel cells, electrolyzers, and hydrogen also offer “[i]mprovements in health outcomes due to improved air quality”<sup>17</sup> through the reduction of other pollutants that create health risks - benefits which also can be quantified.<sup>18</sup> Given these significant benefits, these technologies should be recognized as part of the plan for achieving New York’s climate goals.

### **III. ADVANCING PILLARS OF PLAN**

In addition to the fundamental strategies developed for each sector, the Draft Plan includes the following key pillars:<sup>19</sup>

- Public Health Benefits

<sup>13</sup> Draft Plan, at 21; *see also* New York State Department of Environmental Conservation, Establishing a Value of Carbon: Guidelines for Use by State Agencies, [https://www.dec.ny.gov/docs/administration\\_pdf/vocguid22.pdf](https://www.dec.ny.gov/docs/administration_pdf/vocguid22.pdf) (last visited Jul. 1, 2022) (“Value of Carbon Guidance”).

<sup>14</sup> *See* Table 1 *supra*.

<sup>15</sup> *See* Value of Carbon Guidance, at 34.

<sup>16</sup> The Department of Environmental Conservation (“DEC”) “specifically recommends that State entities provide an assessment using a central value that is estimated at the 2 percent discount rate as the primary value for decision-making, while also reporting the impacts at 1 and 3 percent to provide a comprehensive analysis.” Value of Carbon Guidance, at 4.

<sup>17</sup> Draft Plan, at 78.

<sup>18</sup> *Cf.* Draft Plan, Appendix G, Annex 3 (Health Analysis Supplemental Data).

<sup>19</sup> Draft Plan, at 31.

- Climate Justice
- Just Transition

The Draft Plan also recognizes that “[r]eliability and resiliency of energy systems is critical to providing robust systems that respond to changing demand in real-time and withstand unexpected events.”<sup>20</sup> Fuel cells, electrolyzers, and hydrogen not only advance the fundamental strategies (as discussed more fully below), they also help advance these other key pillars while ensuring reliability and resiliency.

These technologies provide public health benefits and advance Climate Justice. As the Draft Plan noted, strategies that reduce “GHG emissions . . . also reduce co-pollutants, leading to corresponding benefits to Disadvantaged Communities.”<sup>21</sup> Power is produced electrochemically in fuel cells, without combusting fuel, avoiding the generation of harmful pollutants such as PM, NO<sub>x</sub> and SO<sub>x</sub>. Hydrogen can also be made without any combustion, meaning no carcinogenic or smog-forming pollution. The use of hydrogen provides “reduction of criteria pollutants (e.g., sulfur, particulates, and nitrogen oxides) *and* grid reliability and resilience, especially in combination with fuel cell use to convert hydrogen back to electricity and heat without pollution.”<sup>22</sup>

Fuel cells can also advance other strategies that benefit Disadvantaged Communities. In its feedback on the Draft Plan, the Climate Justice Working Group stressed “the need to balance . . . large-scale renewables [deployment] with significant investment and technical support for

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<sup>20</sup> Draft Plan, at 31.

<sup>21</sup> Draft Plan, at 38.

<sup>22</sup> Columbia University School of International and Public Affairs, Center on Global Energy Policy, “Green Hydrogen in a Circular Carbon Economy: Opportunities and Limits” by Zhiyuan Fan, Emeka Ochu, Sarah Braverman, Yushan Lou, Griffin Smith, Amar Bhardwaj, Dr. Jack Brouwer, Dr. Colin McCormick, Dr. Julio Friedmann August 2021, <https://www.energypolicy.columbia.edu/research/report/green-hydrogen-circular-carbon-economy-opportunities-and-limits> (last visited Jul. 1, 2022) (emphasis added).

Disadvantaged Communities to develop behind-the-meter microgrids to reduce grid strain, increase resiliency and affordability, and diversify the State’s energy portfolio.”<sup>23</sup> FuelCell Energy’s microgrid solutions deliver energy security, economic benefits and help deliver on the environmental goals of low CO<sub>2</sub>, near zero criteria pollutants. In most instances, these microgrids operate in a combined heat and power mode, delivering thermal energy benefits in addition to electricity generation.

In addition, the Draft Plan identifies incentives for fleet electrification including drayage fleets serving port areas, and distributed energy resources (“DERs”) targeted to Disadvantaged Communities as just two examples of strategies that will advance Climate Justice.<sup>24</sup> Fuel cells, electrolyzers and hydrogen can play a key role in both those strategies. For instance, FuelCell Energy is currently developing a project that supports Toyota vehicle fueling activities at the Port of Long Beach, California where Toyota is importing fuel cell passenger vehicles and operating fuel cell trucks. The project is fueled with directed biogas and will produce renewable power and renewable hydrogen, plus clean water for car washing operations. The power generation facility will supply Toyota Logistics Services’ operations at the Port, and the location will be the first 100% renewable Toyota facility globally.

FuelCell Energy is also advancing the use of electrochemical platforms in electrolysis applications – producing hydrogen from power instead of producing power from fuels. Coupled with zero carbon renewable energy these systems can provide large scale or distributed green hydrogen - avoiding cost and emissions associated with delivery from central generation.

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<sup>23</sup> Draft Plan, at 159.

<sup>24</sup> Draft Plan, at 38.

The Draft Plan also calls for consideration “to businesses and jobs not only in installation, but also in manufacturing and the entire supply chain.”<sup>25</sup> Fuel cells, electrolyzers, and hydrogen will also support the just transition pillar. In fact, FuelCell Energy is already advancing this effort through its use of various New York suppliers to support its current manufacturing operations.

FuelCell Energy has also been selected as a partner in the New York-led consortium to develop a proposal to become one of at least four regional clean energy hydrogen hubs designated through the federal Regional Clean Hydrogen Hubs program included in the Bipartisan Infrastructure Investment and Jobs Act.<sup>26</sup> Recognition of the value and support of projects that utilize hydrogen in the final scoping plan will foster New York’s leadership in pursuing a regional “hydrogen hub that connects the entire value chain of hydrogen producers, users, technology and equipment manufacturers, and the research and development community including national labs and universities.”<sup>27</sup> As the Governor recognized, “[e]xpanding the hydrogen market is critical to New York’s aggressive pursuit of clean-energy alternatives that will supercharge our economy and advance our climate goals.”<sup>28</sup>

#### **IV. CENTRAL COMPONENTS OF ELECTRICITY SECTOR STRATEGIES**

Fuel cells, electrolyzers and hydrogen should be recognized as key elements to advancing the strategies in the electric sector for the reduction of GHGs. Fuel cells are the clean, efficient alternative to traditional combustion-based power generation. They are a solution that delivers the continuous power needed to complement the intermittency of renewable technologies.

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<sup>25</sup> Draft Plan, at 43.

<sup>26</sup> Governor Hochul Announces Multi-State Agreement Signed with Major Hydrogen Ecosystem Partners to Propose a Regional Clean Energy Hydrogen Hub, <https://www.governor.ny.gov/news/governor-hochul-announces-multi-state-agreement-signed-major-hydrogen-ecosystem-partners> (last visited Jul. 1, 2022).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*



Power is produced electrochemically in fuel cells. The electrochemical conversion of fuel to energy is very efficient, reducing the carbon footprint of power produced from natural gas, and fuel flexible, allowing the platforms to efficiently use renewable fuels such as wastewater treatment plant digester gas.

Fuel cells also play an important role in aiding the widespread deployment of other clean power sources, such as solar and offshore wind.<sup>29</sup> The flexibility of fuel cells allows energy storage systems to adapt to the variability of renewable energy sources while meeting energy demands. The United States Department of Energy has found:

Electrolyzers can . . . make use of excess renewable electricity during times of low demand, ultimately increasing renewable energy utilization and lowering the cost of hydrogen. And hydrogen can be used as a form of energy storage for renewables, either feeding power back to the grid or using hydrogen as a fuel or feedstock for other applications.<sup>30</sup>

Hydrogen offers one of the only economic, modular, and geographically flexible means for zero emission long-duration (e.g., seasonal) storage of renewable power.<sup>31</sup> In addition, hydrogen is a powerful tool that will help integrate renewable energy across our economy and society leading to a cleaner and more resilient future. In fact, hydrogen does a much better job storing energy over days, weeks, and months than batteries. By storing energy as hydrogen, the power of wind or sun can be held until needed – providing a powerful tool to enhance grid reliability while reducing carbon emissions.

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<sup>29</sup> See U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, Fuel Cells Fact Sheet, [https://www.energy.gov/sites/prod/files/2015/11/f27/fcto\\_fuel\\_cells\\_fact\\_sheet.pdf](https://www.energy.gov/sites/prod/files/2015/11/f27/fcto_fuel_cells_fact_sheet.pdf) (last visited Jul. 1, 2022).

<sup>30</sup> U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, Five Things You Might Not Know About H2@Scale, <https://www.energy.gov/eere/articles/five-things-you-might-not-know-about-h2scale> (last visited Jul. 1, 2022).

<sup>31</sup> See U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, Hydrogen and Fuel Cell Technologies Office Webinar, H2IQ Hour: Long-Duration Energy Storage using Hydrogen and Fuel Cells: Text, <https://www.energy.gov/eere/fuelcells/h2iq-hour-long-duration-energy-storage-using-hydrogen-and-fuel-cells-text> (last visited Jul. 1, 2022).

## **V. ADVANCING STRATEGIES THAT PROVIDE EMISSION REDUCTIONS IN ALL SECTORS**

The Draft Plan finds that “emission reductions are needed from all sectors of the economy to achieve the goals and requirements of the Climate Act.”<sup>32</sup> To achieve this, the Draft Plan sets forth various strategies for achieving those reductions in each sector. Fuel cells, electrolyzers, and hydrogen can help advance strategies in each of those sectors.

### ***Transportation Sector***

The Draft Plan includes strategies for transitioning to zero-emission vehicles and equipment.<sup>33</sup> As part of those strategies, the Draft Plan also recognizes “the State should begin investing prudently in the required supporting infrastructure to enable these vehicles to play a larger role in transportation emission reductions beyond 2030.” Projects like the one FuelCell Energy is developing at the Port of Long Beach (discussed above) provides a model that can be adopted at the numerous ports in New York.<sup>34</sup>

### ***Building Sector***

In the building sector, the Draft Plan proposes “switching from equipment and systems powered by burning gas, oil, or other fossil fuels to highly efficient equipment and systems powered by emissions-free energy sources.”<sup>35</sup> Backup diesel generators not only release greenhouse gases, but also release PM, volatile organic compounds (VOCs), NOx and sulfur dioxide (SO<sub>2</sub>) - all harmful pollutants that create smog and exacerbate respiratory harm. A growing list of academic studies indicate that fossil-fuel combustion’s public health impacts are underestimated and that these burdens are disproportionately borne by communities of color and

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<sup>32</sup> Draft Plan, at 22.

<sup>33</sup> Draft Plan, at 101 (Table 8).

<sup>34</sup> See, e.g., World Port Source, New York Port Index (*available at: [http://www.worldportsource.com/ports/index/USA\\_NY.php](http://www.worldportsource.com/ports/index/USA_NY.php)*) (last visited Jul. 1, 2022).

<sup>35</sup> Draft Plan, at 119-20.

low-income neighborhoods.<sup>36</sup> Fuel cells offer combustion-free based forms of energy conversion avoiding the generation of harmful pollutants such as PM, NOx and SOx. Hydrogen can also be made without any combustion, meaning no carcinogenic or smog-forming pollution.

### ***Industry Sector***

The Draft Plan finds:

In the industrial sector, in addition to the potential use of green hydrogen . . . for the power generation sector, carbon capture and sequestration could reduce GHG emissions. Depending on the specific technology, carbon capture and sequestration may also reduce emissions of some other pollutants, but in many cases does not.<sup>37</sup>

FuelCell Energy’s technologies can provide capture carbon *and* reduce or eliminate emissions of carbon and other pollutants. Because they do not use combustion, fuel cells reduce emissions of carbon and eliminate emissions of other pollutants. They can also leverage biofuels, and renewable natural gas - delivering carbon neutral to carbon negative power. In addition, FuelCell Energy platforms can be retrofitted with carbon capture systems, collecting most of the carbon dioxide that would otherwise be emitted to be used in industrial applications. In addition, the company is developing technology to use fuel cells to capture carbon from external sources, such as industrial boilers.

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<sup>36</sup> Schraufnagel, Dean E., John R. Balmes, Clayton T. Cowl, Sara De Matteis, Soon-Hee Jung, Kevin Mortimer, Rogelio Perez-Padilla, et al. 2019. “Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies’ Environmental Committee, Part 1: The Damaging Effects of Air Pollution.” CHEST 155 (2): 409–16, <https://doi.org/10.1016/j.chest.2018.10.042>; Miranda, Marie Lynn, Sharon E. Edwards, Martha H. Keating, and Christopher J. Paul. 2011. “Making the Environmental Justice Grade: The Relative Burden of Air Pollution Exposure in the United States.” International Journal of Environmental Research and Public Health 8 (6): 1755–71, <https://doi.org/10.3390/ijerph8061755>; Tessum, Christopher W., Joshua S. Apte, Andrew L. Goodkind, Nicholas Z. Muller, Kimberley A. Mullins, David A. Paoletta, Stephen Polasky, et al. 2019. “Inequity in Consumption of Goods and Services Adds to Racial–Ethnic Disparities in Air Pollution Exposure.” Proceedings of the National Academy of Sciences 116 (13): 6001–6, <https://doi.org/10.1073/pnas.1818859116>.

<sup>37</sup> Draft Plan, at 68.

## *Agriculture & Forestry*

The Draft Plan recognizes “agriculture and forestry also provide carbon sequestration benefits and can provide significant contribution toward achieving net zero total emissions from all sectors in the State.”<sup>38</sup> In order to achieve these benefits, the Draft Plan seeks “to maintain and increase carbon storage and sequestration on the land base in New York and in agricultural and forestry products through the avoided conversion of farm and forest lands . . . .”<sup>39</sup> The installation of fuel cells can reduce the conversion of farm and forest lands needed for the siting of renewable energy facilities. For example, FuelCell Energy’s SureSource fuel cells occupy less than an acre of land per 10MW installed, as compared to approximately 70 acres per 10MW of solar installed and, because of the much higher capacity factor, the smaller fuel cell installation will deliver 500% more annual MWh of clean energy to the grid.

## *Waste*

One of the components of the strategy for reducing emissions from the waste sector is the strategic use of biogas.<sup>40</sup> Moreover, the Climate Justice Working Group “favors on-site use of biogas captured from waste management . . . .”<sup>41</sup> Fuel cells produce low-to-zero carbon power from a flexible array of inputs including biogas, resulting in significant carbon emissions reductions.<sup>42</sup> Thus, as the Draft Plan recommends, the evaluation of the strategic use of biogas “should stress the use of fuel cells for electricity in lieu of generators or pipeline use . . . .”<sup>43</sup>

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<sup>38</sup> Draft Plan, at 194.

<sup>39</sup> Draft Plan, at 193.

<sup>40</sup> Draft Plan, at 250-51.

<sup>41</sup> Draft Plan, at 245.

<sup>42</sup> See Table 2 *supra*.

<sup>43</sup> Draft Plan, at 250-51.

## **VI. SUPPORT STATEWIDE AND CROSS-SECTOR STRATEGIES**

In addition to the sector strategies, the Draft Plan also sets forth economy wide, natural gas transition, land use, and local government strategies.<sup>44</sup> Fuel cells, electrolyzers and hydrogen can aid in the achievements of these strategies as well.

### ***Economy Wide***

The Climate Leadership and Community Protection Act requires the scoping plan to “identify measures to maximize reductions of both GHG emissions and co-pollutants in disadvantaged communities.”<sup>45</sup> As discussed above, fuel cells not only reduce or eliminate carbon emissions,<sup>46</sup> they also avoid the generation of harmful pollutants such as PM, NOx and SOx. Hydrogen can also be made without any combustion, meaning no carcinogenic or smog-forming pollution.

### ***Natural Gas Transition***

The costs associated with the transition of the natural gas system can be reduced by repurposing the infrastructure for hydrogen use. Thus, as NFCRC recommends, the Council should conduct further analysis on the cost of decommissioning versus conversion of those systems, including the detailed impacts on ratepayers.

### ***Land Use***

The Draft Plan finds that “[n]atural and working lands in many parts of the State are under pressure from development and conversion, which is causing a steady decline in the amount of CO<sub>2</sub> being absorbed each year.”<sup>47</sup> As a consequence, the Draft Plan recommends that

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<sup>44</sup> See generally Draft Plan, Chapters 17-20.

<sup>45</sup> Draft Plan, at 257.

<sup>46</sup> See Table 1 *supra*.

<sup>47</sup> Draft Plan, at 275.

the impact from renewable energy projects on land uses, especially forests, be reduced.<sup>48</sup>

FuelCell Energy's SureSource fuel cells occupy less than an acre of land per 10MW installed, as compared to approximately 70 acres per 10MW of solar installed and, because of the much higher capacity factor, the smaller fuel cell installation will deliver 500% more annual MWh of clean energy to the grid. Thus, the installation of fuel cells can reduce the conversion of forest lands needed for the siting of renewable energy facilities.

## **VII. RECOGNIZE VALUE IN LOCAL GOVERNMENT STRATEGIES**

Like other parts of the Draft Plan, the local government strategies focus on the value of solar. For instance, the Draft Plan calls upon "NYSERDA, in collaboration with the *solar* industry, [to] evaluate options to reduce interconnection costs for municipally owned priority sites."<sup>49</sup> However, as demonstrated above, other clean and renewable technologies, such as fuel cells, can also further New York's climate goals. Thus, the plan should require that this collaboration include stakeholders from all aspects of the clean and renewable power industries.

## **VIII. CLIMATE RESILIENCE BENEFITS**

The Draft Plan concludes that "[c]limate change mitigation strategies alone are not sufficient to prepare for the impacts of present and future climate change. Therefore, New York State must take bold action to adapt to climate change and enhance resilience in communities, infrastructure, and systems."<sup>50</sup> To increase resilience in the energy sector, the Draft Plan calls upon NYSERDA (in consultation with other state agencies and local governments) to "develop a comprehensive strategy to support development of islandable microgrids and district systems using renewable sources of energy to provide locally generated power, especially in critical

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<sup>48</sup> Draft Plan, at 283.

<sup>49</sup> Draft Plan, at 307 (emphasis added).

<sup>50</sup> Draft Plan, at 308.

facilities during grid emergencies.”<sup>51</sup> Fuel cells can offer 24/7 clean baseload power for microgrid solutions that not only provide climate resilience benefits but also help deliver on the emission reduction goals of the Draft Plan.

### CONCLUSION

For all the foregoing reasons, the Council should ensure that the final scoping plan recognizes the value that fuel cells, electrolyzers and hydrogen can provide in advancing every aspect of the strategies needed to ensure New York meets its climate goals today, during the transition to net zero, and in the future.

Respectfully Submitted,  
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<sup>51</sup> Draft Plan, at 318.