

STATE OF CONNECTICUT

ENERGY & TECHNOLOGY COMMITTEE

**Governor's Bill No. 7036- AN ACT PROMOTING THE USE OF FUEL CELLS FOR
ELECTRIC DISTRIBUTION SYSTEM BENEFITS AND RELIABILITY**

**Written Testimony of
William Corvo
on Behalf of
CT Energy & Technology, LLC**



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February 21, 2016
Written Testimony of William Corvo, President, CT Energy & Technology, LLC
before
Connecticut Energy & Technology Committee

House Chair Reed, Senate Chairs Formica and Winfield, Vice Chair Doyle, Ranking Member Ackert and members of the Energy & Technology Committee of the Connecticut State Legislature, my name is William Corvo. I am President of CT Energy & Technology, LLC (“CT E&T”), a Connecticut company. I respectfully submit these comments on new legislation proposed by the Governor in Bill No. 7036 – AN ACT PROMOTING THE USE OF FUEL CELLS FOR ELECTRIC DISTRIBUTION SYSTEM BENEFITS AND RELIABILITY.

CT E&T supports the Governor’s bill to the extent that it promotes the use of fuel cells as a Class I renewable energy source to provide important benefits to Connecticut’s electric distribution system. Fuel cells are uniquely capable of continuously generating clean and affordable renewable energy within Connecticut and are extremely reliable. Further, Connecticut is home to world recognized leaders in developing fuel cell technologies and manufacturing fuel cells. CT E&T applauds the bill as it promotes an important industry in Connecticut’s high tech manufacturing economy, which sustains Connecticut based jobs and provides tax revenue to the state.

CT E&T respectfully suggests, however, that the bill be amended to provide for a more robust procurement of fuel cell projects. Currently the bill caps the fuel cell facilities to be acquired at a nameplate capacity of ten megawatts in the aggregate. Based on CT E&T’s technical review, we believe that a larger fuel cell procurement is necessary to achieve the positive impacts on the electrical distribution system outlined in the Governor’s proposed bill.

For Connecticut to fully realize the intended benefits fuel cells can provide to its electric distribution system, a significantly higher cap is essential. A bill that provides for acquiring more fuel cells will benefit Connecticut’s electric distribution infrastructure and provide the state with the opportunity to procure affordable, clean and reliable in-state Class I renewable electricity. This furthers Connecticut’s renewable energy policy and goals as described in the Comprehensive Energy Strategy and as mandated by the Renewable Portfolio Standard. Further, this approach provides for substantial economic benefits to the state in the form of sustained jobs, growth in the fuel cell industry and significant tax revenue.

CT E&T suggests expanding the cap from ten megawatts to one hundred fifty megawatts. This significantly higher cap is in the long-term interest of the Connecticut ratepayers and will benefit Connecticut by:

- Creating the opportunity for development of substantial in-state Class I base load renewable energy projects that use fuel cells to enhance system reliability and provide increased electric grid reliability and stability during high demand levels;

- Greatly increasing the likelihood that Connecticut will achieve 20% renewable energy generation goal by 2020;
- Creating a powerful economic development opportunity which will provide jobs for Connecticut companies; and
- Increasing Connecticut sales tax, income tax and municipal tax revenues without the State of Connecticut having to spend any funds to make these benefits happen.

These amendments are important for the following reasons:

1. Fuel cell projects will provide for increased electric grid reliability and stability during high demand levels and will help to mitigate the effects of more intermittent generation sources. Such projects will provide a significant amount of base load relief in the areas in the Connecticut grid system where the electrical system is highly constrained and where there are heavy electrical loads.
2. Increasing capacity from ten megawatts to one hundred fifty megawatts allows for the inclusion of larger, grid-scale fuel cell projects at critical locations around Connecticut.
3. Connecticut energy policy has clearly defined a collective state goal to achieve 20% renewable energy generation by 2020. Utilizing current procurement methodology, it is doubtful that goal will be achieved. Our suggested amendment increases the probability that Connecticut will achieve this goal.
4. Development of substantial fuel cell developments in Connecticut will demonstrate that fuel cell technology can be an essential part of the solution to the clean energy challenges facing Connecticut and the nation and will open new market opportunities for Connecticut fuel cell companies.

BENEFITS OF INCREASING THE CAP FROM 10 MEGAWATTS TO 150 MEGAWATTS

Increasing the cap from ten megawatts to one hundred and fifty megawatts allows larger scale, base load, permitted and shovel ready fuel cell projects to compete for power purchase agreements which are necessary for such projects to be developed. By allowing such projects to compete, Connecticut can immediately realize the benefits of such projects.

For example, The Beacon Falls Energy Park (the “Project”), a fully permitted and shovel ready project (see Schedule A) developed by CT E&T, illustrates the positive impacts on local grid reliability and stability, furtherance of Connecticut renewable energy policy and goals and economic benefits to Connecticut of in-state fuel cell generation projects. This 63.3 megawatt fuel

cell facility will be the largest fuel cell project in the world and the largest base load Class I renewable energy project in Connecticut. The Project will use 20 Connecticut-manufactured fuel cells to generate affordable, ultra-clean and reliable base load energy.

The Project will provide for increased grid reliability and stability in the local area at the 115Kv transmission level during high demand levels and will help mitigate the effects of more variable intermittent generation sources. The electrical interconnection point is in close proximity to the project site and does not require lengthy transmission lines, thereby lowering the risk of disruption.

As a baseload project, the Beacon Falls Energy Park will provide significant base load relief to the southwest Connecticut area of the New England transmission system where such relief would be beneficial. ISO-New England confirmed the beneficial impact of the project under scenarios it analyzed in its Facility Study of the project and found no negative impact from the project. Further, in addition to active power support, the Project will be capable of absorbing or producing up to 48 MVAR of reactive power support.

The fault ride-through capabilities of the Project's inverters will also enhance electricity reliability by ensuring the Project's power output is maintained during bulk system transients. Certification of the new California Rule 21 Smart/Grid-Support Inverter is scheduled for completion in early 2017. Low Voltage Ride Through (LVRT) capability will meet the protective relay settings for large power generators as defined in NERC PRC 024-2.

In-state base load renewable energy projects like the Beacon Falls Energy Park are in accord with Connecticut's energy policy as stated in the Comprehensive Energy Strategy including but not limited to contributing to reliability of the electric system and adding to fuel diversity. Further, Connecticut's Renewable Portfolio Standard ("RPS"), as stated in §16-245a(a)(15), mandates that by 2020, 20% of the state's electricity must be generated by Class I renewable resources. Under the current methodology, the state will not reach this goal. Large, grid-scale, base load renewable energy projects like the Beacon Falls Energy Park are needed for Connecticut to meet this goal. As a base load Class I renewable energy facility, the Project will yield 9,760,000 RECs over its 20-year life. (See Schedule B). Further, as a Class I renewable, the Project will lead to an actual reduction in air pollution emission in Connecticut. (See Schedule C).

Development of the Beacon Falls Energy Park will provide direct manufacturing and engineering jobs for hundreds of people in Connecticut. The Beacon Falls Energy Park will use fuel cells manufactured by FuelCell Energy, Inc. (FCE) at their plant in Torrington, Connecticut. These jobs will be sustained for the 20-year life of the Project as FCE will operate, maintain and re-supply the equipment pursuant to an operation and maintenance agreement. The Project will also provide 115 trade and professional jobs for individuals with skills in mechanical systems, civil engineering, engineering and general labor during the two-and-a-half-year construction period for the project. (See Schedule D)

Additionally, the Project will pay Connecticut sales tax on the Connecticut-manufactured fuel cell equipment as well as sales tax for the operations and maintenance of the equipment for the life of the operations and maintenance agreement. The Project will also provide substantial tax revenue to its host community. The Town of Beacon Falls has entered into a twenty-year tax agreement with the project which provides the Town with nearly \$50 million dollars over the term of the agreement. (See Schedule D)

CONCLUSION

Connecticut is a recognized leader among the states in developing and implementing clean and renewable energy policies aimed at reducing pollution while providing affordable and reliable electricity to its residents. By increasing the cap on the total megawatts that can be procured under Bill No. 7036 from ten megawatts to one hundred and fifty megawatts, Connecticut can demonstrate how fuel cells can be used to solve energy challenges such as grid reliability and stability it sets an example that can be replicated elsewhere.

Connecticut is fortunate to be home to world recognized leaders in innovating and manufacturing fuel cell technologies that provide clean and reliable electricity. By implementing policies that make it possible for base-load fuel cell projects like the Beacon Falls Energy Park to be developed, Connecticut can immediately realize the benefits from such projects. Such benefits include improvements in the state's electric distribution system reliability and grid stability as well as economic benefits which include sustained jobs in the state's fuel cell manufacturing sector and significant tax revenue. By promoting the use of fuel cells as base load projects, the state provides a basis for expanded use of fuel cells in broader energy markets that will further benefit Connecticut-based fuel cell manufacturers and provide for organic growth and stability in that industry. Growth and stability in Connecticut's fuel cell industry will create and sustain additional employment in advanced manufacturing jobs in-state, increase tax revenue and cement Connecticut's leadership position in fuel cell technology for the world.

Respectfully submitted,



William Corvo
President
CT Energy & Technology, LLC

SCHEDULE A

BEACON FALLS ENERGY PARK – FULLY PERMITTED & SHOVEL READY

- The Beacon Falls Energy Project is in late-stage development and fully permitted. The Project has site control, and has been approved by the Connecticut Siting Council. (*See Connecticut Siting Council #1184 Petition for a Declaratory Ruling. Approved 1/7/2016*)
- The Project has obtained its air permit from the Connecticut DEEP. (**Approved December 15, 2016**)
- Beacon Falls Energy Project has completed the ISO System Impact Study and is finalizing its LGIA interconnection agreement with ISO New England and Eversource Energy.
- The Project has held discussions with Yankee Gas company relative to having them provide a new gas line to meet the project's needs. Natural gas will be provided to the project using a new 4-mile natural gas pipeline under a firm, long-term gas agreement. The new gas line will also benefit residential and commercial customers along the route as well as the Beacon Falls Industrial Park adjacent to the project.
- The Project has had extensive detailed discussions with Aquarion Water Company and made arrangements to have all of its water requirements met by that company.
- The Project has conducted a number of informational and public hearings with the Town of Beacon Falls. In addition, the Project has entered into a long-term tax stabilization agreement with the Town.
- By moving expeditiously forward with all permitting elements Beacon Falls Energy Park avoids risks associated with more remote, out of state, unpermitted projects such as Maine Wind Farm Number 9 (*See- CT PURA Docket 13-09-19, Motions 8 and 9*).
- The Project has the support of Connecticut's Congressional and Senate delegation. (See attached letter of support).

SCHEDULE B

BEACON FALLS ENERGY PARK – REC and RPS COMPLIANCE ADVANTAGE

- The Beacon Falls Energy Park will be located on approximately 8 acres of a 25-acre parcel. It will generate 63.3MW of baseload renewable power available twenty-four hours a day seven days a week from its 8-acre base. A solar farm with comparable capacity, but only 20% availability, capable of producing an equal number of RECs would require 1,440 acres of land. A wind farm would require more than 300 acres of land to generate a comparable quantity of electricity and still would only be available approximately 38% of the time.
- The Project makes optimal use of a former sand and gravel mine and will have minimal visual and sound impacts.
- The net MW production of this Class I Renewable project will yield **9,760,000** RECs over the life of the Project. This will help Connecticut avoid the need to make Alternative Compliance Payments by helping achieve its stated goal of 20% renewable energy resources by 2020. A comparable sized solar farm would require **284.85 MW** of “nameplate” capacity to achieve the same quantity of RECs.
- In-state renewable investments in base load fuel cells would provide the largest potential for growth in Connecticut based Class I resources. (*Restructuring Connecticut’s Renewable Portfolio Standard- Final – April 26, 2013 page 9*)
- In-state projects bring local economic, environmental and human health benefits to the state that do not accrue from out-of-state resources. (*Restructuring Connecticut’s Renewable Portfolio Standard- Final – April 26, 2013 page 15*)
- While fuel cell projects appear to cost more than other renewable resources, the State of Connecticut actually benefits the most in terms of revenue, employment and economic development of in-state resources. These projects expand the need for growth of manufacturing, installation and operational employment to service the renewable energy systems. (*Restructuring Connecticut’s Renewable Portfolio Standard- Final – April 26, 2013 page 25 and 26*)
- DEEP has estimated the State of Connecticut would increase jobs at the rate of 670 jobs annually for each 100 MWs of in-state fuel cell development. (*Restructuring Connecticut’s Renewable Portfolio Standard- Final – April 26, 2013 page 27*)
- In addition to initial manufacturing and construction jobs the Project will also provide years of good-paying in-state jobs for manufacturing to provide replacement stacks as well as operations and maintenance work.

SCHEDULE C

BEACON FALLS ENERGY PARK

REDUCTION IN AREA EMISSIONS / CLEANEST BASELOAD POWER GENERATION

- The Beacon Falls Energy Park will be a base load fuel cell facility with extremely low air pollutant emissions compared to combined cycle combustion-based generating facilities. (NO_x - .01 lbs./MWh, SO_x - .0001 lbs./MWh, PM10 - .00002 lbs./MWh- data supplied by FuelCell Energy, Inc. DFC-3000 product specifications)
- The use of a base load fuel cell system provides a magnitude drop in pollutants including SO_x, NO_x and Particulate matter. (Locational Margin Unit pollutants –NO_x- .34 lbs./MWh, SO_x - .55 lbs./MWh, PM10 - .04 lbs./MWh – data from ISO NE Electric Generator Air Emission Report- January 2016 – page 9)
- When compared to the entire Connecticut combustion generating fleet its CO₂ emission rate will be 18% less while its NO_x emission rate will be 48 times less and the SO_x emission rates will be 216 times less. (*Data from 2012-EPA Generation Resource integrated database -eGRID*)

SCHEDULE D

BEACON FALLS ENERGY PARK – ECONOMIC BENEFITS

The Beacon Falls Energy Park is a large-scale economic development project. It is a \$300 million-dollar project that will add substantial new economic activity, employment and significant additional tax revenue to Connecticut.

JOBS AND ECONOMIC ACTIVITY

- The Project will create approximately 100 trade and 15 professional jobs for O&G Industries, Inc., of Torrington, Connecticut¹ and its contractors with the possibility for employment of recent graduates and apprentices. A majority of the jobs will be in the \$45,000 - \$75,000 range.
- The Project will create and sustain hundreds of manufacturing and operation jobs at FuelCell Energy, Inc., at its facilities in Danbury and Torrington, Connecticut. Many of the jobs will be sustained over the 20-year life of the project because of re-stacking, operation and maintenance of the fuel cells. This will provide stability for the company and promote organic growth.
- Because of the size and scope of the Project, there will be a measured increase in economic activity that will benefit a diverse set of workers in other sectors of Connecticut's economy.

SIGNIFICANT ADDITIONAL STATE AND LOCAL TAX REVENUE

The Project will add significant additional tax revenues to the State of Connecticut and the Town of Beacon Falls.

- \$12.7 million dollars in sales tax will be paid to the state during construction of the Project.
- \$22 million dollars in additional sales tax will be paid to the State of Connecticut over the 20-year life of the Project for re-stacking of the fuel cells and operation and maintenance of the Project.
- More than \$18 million dollars in income taxes from the withholding taxes of the people employed by the Project will be paid to the State of Connecticut.
- More than \$50 million dollars will be paid to the Town of Beacon Falls pursuant to a tax stabilization agreement between the Town and the Project.

¹ O&G Industries, Inc. is the parent company of CT E&T and Beacon Falls Energy Park, LLC, the developers of the Project.

**LETTER OF SUPPORT FOR
BEACON FALLS ENERGY PARK
FROM THE
CONNECTICUT CONGRESSIONAL DELEGATION**

Congress of the United States
Washington, DC 20510

December 1, 2015

Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1184 – Beacon Falls Energy Park, LLC

Dear Ms. Bachman,

We write in support of the Beacon Falls Energy Park development project under consideration in the town of Beacon Falls. This project, when completed, will bring extraordinary benefits to the community and region through its clean energy generation, economic development of a former industrial site, and manufacture and use of Connecticut-based fuel cell technology.

Once completed, the Beacon Falls Energy Park will be the largest fuel cell project in the nation – generating substantial energy for residential use while making significant contributions towards Connecticut renewable energy goals. FuelCell Inc., a Connecticut-based company, has a proven record of developing and installing clean energy fuel cell projects in communities across the state, helping to bring new energy options to markets and demonstrating the significant capacity for this technology's benefits.

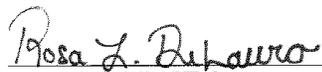
Connecticut continues to be a national leader in developing renewable and clean energy alternatives, and the Beacon Falls Energy Park promises to be the latest in a series of successful fuel cell projects. Its reuse of an industrial site is consistent with the goal of rehabilitating such sites and restoring them to economic viability. We understand some minor issues have been raised regarding the site including water main capacity, noise, and light, and that those issues are being worked on by all parties. Resolution of those concerns can be addressed by the Siting Council through conditions on any approval of the application.

The Beacon Falls Energy Park project is an extraordinary opportunity to expand the use of clean energy on a large scale, giving Connecticut residents a strong example of alternative energy sources to meet current and future energy demands through a community compatible use of a formerly polluted property. Therefore, we fully support this project and ask for the Council's full and fair consideration of the application.

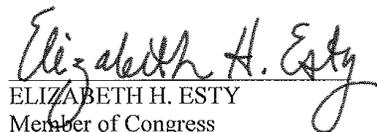
Sincerely,



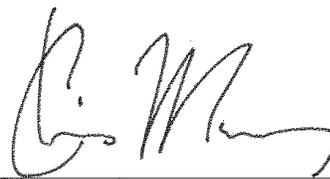
RICHARD BLUMENTHAL
United States Senate



ROSA L. DELAURO
Member of Congress



ELIZABETH H. ESTY
Member of Congress



CHRISTOPHER S. MURPHY
United States Senate



JOHN B. LARSON
Member of Congress