PETITION NO. 1184 - Beacon Falls Energy Park, LLC petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction, operation, and maintenance of a 63.3 Megawatt AC fuel cell facility located on Lopus Road, Beacon Falls, Connecticut.	}	Connecticut Siting Council

January 7, 2016

Opinion

On August 31, 2015, Beacon Falls Energy Park, LLC (BFEP) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction, maintenance, and operation of a 63.3 megawatt (MW) fuel cell facility on Lopus Road in Beacon Falls, Connecticut.

The proposed project is in response to Connecticut's renewable energy policy that encourages development of renewable energy sources to the maximum practical extent. The fuel cell facility is considered a Class I renewable energy source, and as such, the Council is required to approve the project by a declaratory ruling as long as the project meets Department of Energy and Environmental Protection (DEEP) air and water quality standards.

The proposed fuel cell facility would be located on a 25-acre parcel owned by O&G Industries, Inc., (O&G), south of Lopus Road, north and west of the Metro-North Railroad and Railroad Avenue, and east of Gruber Road. The site property is located in the Town's Industrial Park District and was formerly a gravel extraction area operated by O&G. Adjacent land use includes vacant property owned by O&G to the north, residential use along Lopus Road to the northwest, residential use along Gruber Road to the west, a railroad corridor and industrial use to the south and east.

The site property is predominately flat, although significant slopes formed from past extraction activities rise from the flat area along the northern and western extent of the property. Gruber Road and Lopus Road are approximately 50 feet higher in elevation than the flat central area of the property. Given that the site property is in an industrial zone, was significantly disturbed by past activities, and is of sufficient size for the project, the Council finds the project site suitable for the facility.

Construction of the project would be within a 13.7-acre area in the central and eastern portions of the property. Of that, an eight-acre area would be established to accommodate the fuel cell power block that consists of 21 fuel cell units, four desulfurization skids, a natural gas meter station, a nitrogen fuel station, a 27-foot tall, 250,000 gallon process water storage tank, four water treatment skids, a control shelter, and an electrical switchyard.

The fuel cell units would be manufactured by Fuel Cell Energy, Inc. (FCE). Two types of FCE units would be used for the project: the FCE DFC3000 unit, rated at 2.8 MW with a 47 percent electric power generation efficiency, and the FCE HEFC unit, rated at 3.7 MW with a 59 percent electric power generation efficiency. BFEP intends to install 16 DFC3000 units and 5 HEFC units over a two year period beginning in mid-2016. Since the HEFC units are not yet commercially available, BFEP would install the DFC3000 units first, transitioning to the HEFC units when they become commercially available in mid-2017.

The fuel cells use molten carbonate technology that requires natural gas for fuel and water for fuel processing. The fuel cells use chemical reactions to convert the incoming natural gas into electrical power that is exported to the electrical grid at the 115 kV transmission level. The fuel cell units are 70 to 100 feet long depending on the type, 43 feet wide and 25.5 feet tall. Each fuel cell unit would be constructed at an FCE manufacturing facility and trucked to the site.

The fuel cell facility would be accessed by a new 500-foot long paved access drive extending south from Lopus Road. The 12-foot wide access drive would descend from Lopus Road at a grade of eight percent to the fuel cell compound entrance area. Although the Town expressed reservations of placing the access drive entrance at the base of a curve on Lopus Road, there is no other practical way into the parcel. An entrance farther west on Lopus Road would require significant earthwork and would result in a steeper access drive. An entrance farther north on Lopus Road would require significant upslope grading and the construction of a retaining wall along the Metro-North rail line. To address the Town's safety concerns, BFEP would improve sight lines by excavating an embankment on the north side of Lopus Road and remove trees in the access entrance area. BFEP would also enlarge the entrance apron to prevent travelers from mistaking the access drive entrance as part of Lopus Road.

The project would use 7,707 cubic feet of natural gas per minute. Natural gas would be provided to the site by extending a new eight inch gas main from existing service on Pondview Circle, approximately 2,000 feet west of the site, down Lopus Road into the project gas metering station for distribution to the fuel cell units. Final details on the gas line installation are still in the design phase and final design would be submitted as part of the Development and Management (D&M) Plan for the project.

The project would use approximately 300,000 gallons of water per day, obtained by connecting the facility to an existing Aquarion Water Company water main on Railroad Avenue, immediately east of the Metro-North rail corridor and the site. Due to potential water main pressure concerns, the project would have supplemental on-site water storage. A final water supply configuration would be submitted as part of the D&M Plan for the project.

The project would generate approximately 150,000 gallons of wastewater per day resulting from the purification potable water for fuel cell process use and the draining of fuel cell day tanks during necessary maintenance activities. The wastewater would be discharged to groundwater via on-site infiltration basins located at the south end of the site. Wastewater discharge from daily fuel cell facility operations as well as draining of the individual fuel cell day tanks for maintenance would require a DEEP General Permit for the Discharge of Water Treatment Wastewater.

The fuel cell facility would be connected at a voltage of 115-kV to Eversource's Beacon Falls Substation on Cold Springs Road, approximately 2,500 feet northwest of the site. Although BFEP is currently designing the interconnection with Eversource, the preliminary design may require the installation of new electric transmission towers on an adjacent parcel owned by O&G that fronts Cold Springs Road. A final interconnection design would be submitted as part of the D&M Plan for the project.

Site construction would occur in the central and eastern area of the property, mostly in the former gravel extraction area that is now dominated by xeric meadow and scrub shrub vegetation. An approximate 0.9-acre mixed hardwood forest area would be cleared at the north end of the site to construct the access drive. The most valuable habitat, a hardwood forest surrounding a pond on the southern extent of the property, would be left mostly intact with minimal clearing along its southeastern edge.

The site contains suitable habitat for the brown thrasher and the eastern hognose snake, both State Special Concern Species. Field surveys identified a single brown thrasher on the property but no hognose snakes. Site development would remove some scrub shrub habitat favored by the brown thrasher but other areas of scrub shrub vegetation would remain along the along the periphery of the construction footprint. Although no eastern hognose snakes were found, BFEP would implement DEEP recommended construction practices designed to reduce impacts to snake populations.

The project is not in a designated flood zone. Development of the site would have no effect on historic properties or archeological resources. Visual impact would be mostly from areas surrounding the site. To reduce visibility impact of the facility, BFEP would maintain as much of the natural vegetation as possible and would install landscaping around the perimeter of facility. Operational night lighting would use Dark Sky recommended features to reduce light migration off-site.

Project noise would be mitigated by using a "low noise option" installed on each fuel cell. Further noise reduction would be accomplished by installing a sound mitigation barrier on the west side of the site to prevent noise from exceeding regulatory criteria at the residential properties along Gruber Road. As part of the D&M Plan, the Council will require that BFEP further analyze the placement of the sound mitigation barrier to ensure the barrier does not reflect noise emanating from traffic along Route 8 back towards the residences on Gruber Road.

Operation of the facility would produce minimal air emissions of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compounds. Although the project would produce carbon dioxide emissions 14 percent less (per lb/megawatt-hour) than a single cycle fossil fuel plant, the Council expresses reservations regarding the total quantities of carbon dioxide emitted per year (265,372 tons) for a project classified as a Class I renewable energy source. Although the Council is cognizant that BFEP must obtain a DEEP air permit for carbon dioxide emissions that address New Source Review and Title V air permitting requirements that entails a detailed examination of options that could reduce the amount of carbon dioxide emitted by the facility, including but not limited to, the use of different fuels, equipment or procedures, the Council recommends BFEP utilize the FCE HEFC unit to the greatest extent possible, as these units are more efficient and produce approximately 25 percent less carbon dioxide emissions than the DFC3000 unit or explore the utilization of other alternative technology, operational method, equipment or fuels to reduce the amount of carbon dioxide emitted by the facility.

The project would have no effect on water quality as site development would not affect any wetlands or watercourses. Stormwater would be collected in catch basins in the paved fuel cell compound area that would discharge into three bio-infiltration basins adjacent to the compound. The basins would be vegetated to reduce potential erosion and scouring and each basin would have an outlet pipe that would discharge high rain event flows into a rip-rap lined splash pad. BFEP would be required to obtain a DEEP General Permit for Stormwater and Dewatering Wastewaters from Construction Activities. In order to reduce the volume of collected stormwater and to reduce the overall cost of the compound area, the Council will order BFEP to examine in its final project design submitted with the D&M Plan whether it is feasible to reduce the amount of paving in the compound area.

Based on the record in this proceeding, the Council finds that there would be no significant adverse environmental effect associated with the construction of a 63.3 MW fuel cell facility in Beacon Falls. The project would have no adverse environmental effect on air or water quality: it would meet all applicable U.S. Environmental Protection Agency and DEEP Ambient Air Quality Standards and Water Quality Standards. Furthermore, the project would increase "the use of clean energy and technologies that support clean energy" in accordance with Section 1 of Public Act No. 11-80: *An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future*. In finding no adverse environmental effect, and consistent with the State's energy, climate change and air quality policies, the Council seeks to reduce the amount of greenhouse gas emissions emitted from the proposed facility, and thus recommends BFEP utilize the HEFC unit with its higher efficiency and lower greenhouse gas emissions to the greatest extent practical, or explore the utilization of other alternative technology, operational method, equipment, or fuels in the final design of the project. With this recommendation, the Council will issue a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for this project.