DRAFT

Petition No. 1462
Distributed Solar Operations, LLC and IKEA Property, Inc.
New Haven, Connecticut

Staff Report
November 12, 2021

Introduction

On August 20, 2021, Distributed Solar Operations, LLC and IKEA Property, Inc. (collectively, the Petitioner) submitted a notice of election to waive exclusion from the Connecticut Siting Council's (Council) jurisdiction, pursuant to Connecticut General Statutes (CGS) §16-50k(e), and a petition for a declaratory ruling (petition) pursuant to CGS–§4-176 and §16-50k for the construction, operation and maintenance of a 0.90-megawatt (MW) AC solar photovoltaic electric generating facility located on a canopy over a portion of the existing parking lot at the IKEA property at 450 Sargent Drive, New Haven, Connecticut.

CGS §16-50k(e) states, "Any person intending to construct a facility excluded from one or more provisions of this chapter may, to the extent permitted by law, elect to waive such exclusion by delivering notice of such waiver to the council. Such provisions shall thereafter apply to each facility identified in such notice from the date of its receipt by the council." Under CGS §16-50i(a)(3), the Council has jurisdiction over electric generating facilities utilizing renewable energy sources with a generating capacity *of more than one megawatt*. (Emphasis added).

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, on or about August 20, 2021, the Petitioner notified City of New Haven (City) officials, state officials and agencies, the property owner, and abutting property owners of the notice of election to waive exclusion from Council jurisdiction and the proposed project.

The Council issued interrogatories to the Petitioner on September 16, 2021. On September 30, 2021 the Petitioner submitted responses to the Council's interrogatories.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act (UAPA), an administrative agency is required to take an action on a petition for a declaratory ruling within 60 days of receipt. On October 7, 2021, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than February 16, 2022, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

Municipal Consultation

Prior to filing the Petition with the Council, the Petitioner met remotely with City officials to discuss the Project. The City was receptive to the project and had no concerns. Additionally, during a July 26, 2021 remote meeting, the City Planner stated the project is consistent the City's Long Wharf Responsible Growth Plan.

On August 20, 2021, the Council sent correspondence to the City stating that the Council has received the Petition and invited the City to contact the Council with any questions or comments by September 9, 2021. No comments were received from the City.

State Agency Comments

On August 20, 2021, the Council sent correspondence requesting comments on the proposed project from the following state agencies by September 9, 2021: Department of Energy & Environmental Protection (DEEP); Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Department of Labor (DOL); Department of Administrative Services (DAS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA); and the State Historic Preservation Office (SHPO).

No state agencies provided written comment on the proposed project.

Public Act 17-218

Public Act 17-218 requires, "for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a3j, the DOAg represents, in writing, to the Council that such project will not materially affect the status of such land as prime farmland or DEEP represents, in writing, to the Council that such project will not materially affect the status of land as core forest." The proposed facility has a generating capacity of 0.90 MW. Therefore, it is exempt from the provisions of Public Act 17-218.

Public Benefit

The project would be a distributed energy resource facility as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." The 2018 Comprehensive Energy Strategy (2018 CES) highlights eight key strategies to guide administrative and legislative action over the next several years. Specifically, Strategy No. 3 is "Grow and sustain renewable and zero-carbon generation in the state and region." Furthermore, on September 3, 2019, Governor Lamont issued Executive Order No. 3, which calls for the complete decarbonization of the electric sector by 2040. The proposed facility will contribute to fulfilling the State's Renewable Portfolio Standard and Global Warming Solutions Act as a zero emission Class I renewable energy source.

IKEA maintains an existing rooftop solar array and fuel cell facility[1] with a combined output of approximately 1,095 kW that provides power to the IKEA store on the property. The existing rooftop solar array and fuel cell facility together with the proposed parking canopy solar facility are designed to be roughly equivalent to the peak load of the on-site IKEA store. If the total output of the existing rooftop solar array, fuel cell facility and parking canopy solar facility exceeds the energy consumption of the store, excess energy would be exported to the local United Illuminating Company (UI) electric distribution system through a net metering agreement.

[1] On June 23, 2016, in Petition 1229, the Council issued a Declaratory Ruling to IKEA for construction, operation and maintenance of a customer-side 250-kilowatt fuel cell facility at the IKEA property at 450 Sargent Drive in New Haven. The fuel cell facility became operational on December 30, 2016.

A battery storage system is not proposed. The proposed facility is not designed to provide backup power to the IKEA store in the event of a power outage.

Proposed Site

The Petitioner proposes to construct the solar facility on a 2.5-acre portion of a 16.7-acre parcel owned by IKEA. The property, zoned Planned Development District-100, is developed with an IKEA store and associated parking areas.

The Petitioner would develop the project in the northwest portion of the paved parking lot, north of the existing IKEA store.

Land use in the immediate area is urban, with commercial development to the north, west and south, and Interstate 95 to the east. The Pirelli Tire Building, located on a 1.8-acre parcel, abuts the IKEA parking lot to the south.

Pursuant to CGS §16-50p(g), the Council has no authority to compel a parcel owner to sell or lease property, or portions thereof, for the purpose of siting a facility.[2]

Proposed Project

The Project consists of a 0.9 MW AC solar photovoltaic facility comprised of 3,886 panels (420 Watt) installed on new overhead parking canopies. Two separate solar canopy areas would be developed.

The solar panels would comprise the roof of the canopies. The canopies would be supported by steel columns installed on 36-inch diameter concrete piers. The piers would be set into the ground to a depth of 12 to 15 feet depending on specific soil conditions. The canopies would be a minimum clearance height of 14.5 feet above grade allowing for enough clearance for passenger vehicles to enter unimpeded.

The canopies would be located over existing parking spaces with the columns located (to the extent practicable) on the painted parking markings to retain as much of the existing parking as possible. Light poles within the project footprint would be removed and would be replaced by new lights under the canopies.

The solar panels would be oriented towards the south at an angle of about five degrees from the horizontal with the top edge approximately 17.6 feet above ground level (agl). String inverters would be mounted on the canopy support columns at a height of 10 feet agl. Underground cable within a utility trench would connect the inverters to an equipment pad in the parking lot, then to a utility room on the south side of the building which is interconnected to UI's electric distribution system through an existing main service connection. No other electrical interconnection infrastructure is required.

The proposed solar facility would utilize existing access to the IKEA property. No new access drives would be constructed. Eight trees on existing landscape islands within the project footprint would be removed.

The Project's net capacity factor is estimated to be 23 percent with an estimated annual degradation of approximately 0.54 percent. Energy production estimates include losses due to dust, pollen, and weather events.

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[2] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007); CGS §16-50p(g) (2019).

Construction is anticipated to commence in the first quarter of 2022 with site operation anticipated in the third quarter of 2022. Typical construction hours are Monday – Friday, 7:00 AM to 7:00 PM. Night work would occur from 11:00 PM to 3:00 AM, when necessary.

The estimated cost of the project is approximately $4.4 M.

Public Safety

The proposed project would comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards. The Petitioner would discuss emergency response procedures with local emergency responders if requested.

Damage to the facility from a vehicle fire beneath the canopy would be reduced due to the construction material (concrete and steel) and the fire rating of the solar panels. The canopy height would provide enough clearance for most types of emergency response vehicles.

The proposed facility would have a protection system to shut down or isolate the facility in the event of a fault or abnormal electrical disturbance. Inverter strings would be able to disconnect independent of the other inverter strings if there was a string failure or if maintenance was required on certain sections of the facility. The inverters are programmed to monitor grid voltage, ground faults, and array imbalances and would shut down during abnormalities. Circuit breakers and the main disconnect at the electrical pad would also provide system protection.

The structural design of the facility would comply with the Connecticut State Building Code. The design wind speed for the solar panels is 125 mph. The panels would be bolted directly to structural framing using four bolts per panel.

Lighting under the canopies would comply with City building codes. IKEA would be responsible for monitoring security in the canopy area.

Rain, snow, and ice would not slide/fall onto vehicles or pedestrians due to a gutter system that would be installed between the canopy solar tilt angles. The gutter downspouts would discharge at grade.

The proposed project limits would be located approximately 2.5 miles southeast of the Tweed-New Haven Airport. Per Federal Aviation Administration (FAA) guidelines, there would be no impact on air navigation and a glare analysis is not required. The FAA required that the Petitioner must notify the Yale-New Haven Hospital (helipad) if temporary cranes are used for construction.

Due to the existing high levels of urban noise around the IKEA store, the operational noise levels at the property lines would be in compliance with DEEP Noise Control Standards. The inverters are the main source of noise when the solar facility is operational, emitting a noise level of 65 dBA at 3.3 feet. Due to the distance to the property lines and the lack of nearby residential use, noise from the inverters would not exceed regulatory criteria.

Construction-related noise is exempt from DEEP Noise Control Standards.

The Site is located within a Federal Emergency Management Agency designated 100-year flood zone. The panels and inverters would be installed above the flood zone level.

Subsurface soils were investigated and determined to be nonhazardous.

Environmental Effects and Mitigation Measures

Historic and Recreational Resources

The proposed site is within a half-mile of three historic districts listed on the National Register of Historic Places; however, due to the low height of the canopy and intervening urban development, the proposed facility would not be visible from these districts.

The Pirelli Tire Building, a multistory building constructed in 1970 that is listed on the National Register of Historic Places, abuts the IKEA property to the south. IKEA purchased the building in 2003 and demolished the low rise section of the building to create parking for the IKEA store. IKEA sold the building in 2019. Although the proposed facility would be visible from the west side of the building, there would be no adverse effect on the building due to its location in an urbanized area.

Based on a review of historic maps and aerial photographs, the site has been heavily altered from past urban development and has no potential to yield intact subsurface cultural deposits.

No public parks or other publicly accessible recreation resources are located adjacent to the site.

Visibility

The proposed project would be visible year-round from 53 acres and seasonally visible from an additional l2 acres within a half-mile of the site. The areas of visibility consist of an urban landscape with commercial and transportation-related development.

The project would not be visible from the City's Long Wharf Park located approximately 0.25 mile south of the site, across Interstate 95.

Air Quality

The Project would not produce air or water emissions as a result of operation. The solar project would not produce air emissions of regulated air pollutants or greenhouse gases during operation.

Water Quality

The site parcel is not within a DEEP-designated Aquifer Protection Area or a mapped Public Drinking Supply Watershed. Groundwater in the area is not suitable for human consumption.

There are no wetlands or watercourses on the site.

The project would not require a DEEP Stormwater Permit. Drainage from the canopy downspouts would be directed to existing on-site catch basins.

Fuel for construction vehicles/machinery would be delivered to the site by a fuel service. Rubber mats would be used in the re-fueling area and spill kits would be kept on-site.

Wildlife

The site has no wildlife value and is not within a DEEP Natural Diversity Database Area.

The red knot, a federally-listed Threatened Species, is known to occur along the shoreline in Connecticut. Although the site is within 0.25 mile of the shoreline, no suitable habitat is present on the site, and thus, there would be no impact to this bird species.

Operation and Maintenance

The canopy support structures would be inspected for maintenance purposes on an annual basis. The operation of the solar array system would be monitored remotely on a daily basis.

Module cleaning would be conducted on an as needed basis with deionized water.

Damage from shorebirds dropping shells on the solar panels is not expected as the glass covering the solar panels is designed to withstand hail with a diameter of one inch.

Conclusion

The project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, would not materially affect the status of prime farmland or core forest, and would not have a substantial adverse environmental effect. The proposed project will not produce air emissions, will not utilize water to produce electricity, was designed to minimize environmental impacts, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources.

Recommendations

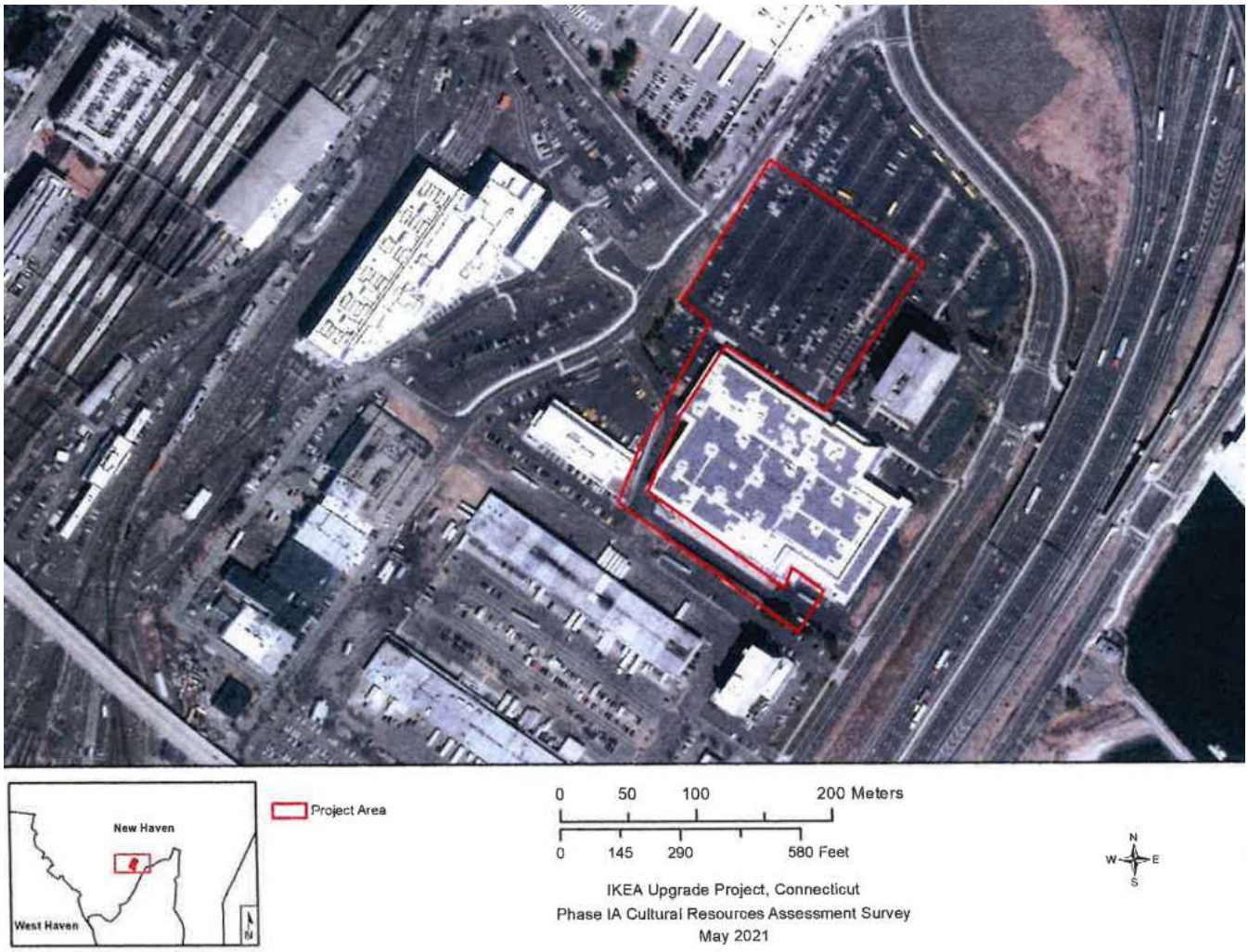
If approved, staff recommends the following conditions:

1. Approval of any project changes be delegated to Council staff;

2. Submit solar module specification sheets and Toxicity Characteristic Leaching Procedure test results that indicate the modules would not be characterized as hazardous waste under current testing criteria; and

3. Submit the final structural design for the canopy system stamped by a Professional Engineer duly licensed in the State of Connecticut prior to installation.

Site Location- Aerial View



Site Location in IKEA Store Parking Lot

Photograph of a Similar Solar Canopy System