

WALLINGFORD RENEWABLE ENERGY LLC

Development and Management Plan



February 2019



TETRA TECH

Petition No. 1339
Wallingford Renewable Energy, LLC
Oliver Creek Road and Pent Road, Wallingford

Development and Management Plan

Introduction

On January 10, 2018, Wallingford Renewable Energy LLC (WRE) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) 54-176 and §16-50k for the construction, operation and maintenance of a 19.99 MW alternating current (AC) solar photovoltaic generating facility located on three parcels totaling 158 acres and consisting of the Wallingford Landfill property located west of Pent Road and north of Ball Street and 2 parcels owned by the Materials Innovation and Recycling Authority (MIRA) located south of Oliver Creek Road and associated electrical interconnection to Wallingford Electric Division's Wallingford Substation in Wallingford, Connecticut. The Council approved WRE's petition on April 3, 2018, subject to several conditions, including the preparation of a Development and Management (D&M) Plan containing certain required information. This Plan serves as a fulfillment of sections 1.a-through 1.f and 1.h of the Council's Order. WRE has filed the required documentation with the Connecticut Department of Energy and Environmental Protection (DEEP) to obtain a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit) and will provide the Council with a copy of the General Permit, in satisfaction of section 1.g of the Council's Order once WRE obtains the General Permit.

Site Summary

The proposed solar project will be located within approximately 49 acres of a total of 158 acres, consisting of three parcels. Two parcels (MIRA Property), totaling 52 acres, are owned by MIRA. One parcel (Town Property), totaling 106 acres, is owned by the Town of Wallingford. All three parcels are located in the Town of Wallingford's Industrial District (I-40).

The Town Property, located west of Pent Road and north of Ball Street, consists of the Wallingford Landfill, a cleared grassy area, and forested lowland areas to the west, adjacent to the Quinnipiac River. Two electrical right-of-ways (ROW) traverse the Town Property. In 2002, the landfill was capped and closed and received certification of closure from DEEP in 2005. The Town of Wallingford continues to operate a residential drop-off area and bulky waste transfer station at the eastern side of the landfill (accessed by Pent Road), as well as a composting and mulch center on the north side of the landfill, accessible from John Street.

The MIRA Property is located immediately south of the Town Property and on the other side of Oliver Creek Road. An Algonquin natural gas pipeline ROW and an oil pipeline ROW currently extend through the western portion of the MIRA Property in a roughly north-south direction. The MIRA Property has a history of development and was the location of a trailer park and several single-family homes in the 1950s. In 2001, MIRA's predecessor purchased both parcels to gain the right of possession of the southern edge of the leachate plume from the Wallingford Landfill. All structures were demolished in 2001 and 2002.

To the north, the site is generally bounded by industrial development, including the Town of Wallingford's Water Pollution Control Facility, the Wallingford Energy electric generating facility, and a retired steel mill. To the east of the site, there is industrial and commercial development, including three chemical and manufacturing facilities, the Wallingford Resource Recovery Facility and warehouse facilities. South of the site is a chemical manufacturing facility and its industrial property. To the west is the Quinnipiac River, which flows in a north-south direction.

The Solar Project

As is indicated in greater detail in the enclosed drawings, the solar field would include a total of approximately 56,000 solar photovoltaic panels at 390 Watts DC each on fixed rack systems oriented to the south, for a total of about 21.8 MW DC. These panels would be tilted on an angle of 10 degrees with the horizontal. The solar panels would reach a maximum height approximately seven feet above grade, depending on local grade and topography. Ballast-mounted racks would be used as necessary to protect the landfill cap, and post-mounted racks would be utilized in other areas where subsurface constraints do not exist. The ground clearance under the panels would be at least 2.5 feet for the ballast-mounted racks, and ground clearance would be at least two feet for the post-mounted racks.

On the landfill area, the inverters and their associated transformers would be located on concrete pads. In the areas outside of the landfill cap, the inverters would be mounted to (driven) posts, resulting in smaller transformer pads with dimensions of approximately 10-foot by 6-foot. The tallest electrical equipment at the site would be approximately six feet above the tops of the concrete pads, and the tops of the concrete pads would be approximately four to six inches above grade.

The power produced would be fed into the local distribution system, less any minimal auxiliary loads to operate inverters and other equipment. There would be three electrical interconnection points. The first point of interconnection would be a dedicated feeder that would be hung on existing wood poles beginning at Ball Street and continuing approximately 0.33 miles to the off-site existing Wallingford Substation. The second point of interconnection would be a tap on an existing distribution line that runs on the same poles on which the dedicated feeder would be located. The third point of interconnection would be at the northeastern corner of the proposed project. All of the interconnections combined would require up to 12 new wooded poles roughly 60 feet high above grade. All three electrical interconnections (with their associated array configurations) would be independent and could be shut down with the remainder of the facility still remaining active.

All solar arrays and related electrical equipment would be surrounded by a seven-foot tall chain link fence. An anti-climb design has not been proposed. A six-inch gap under the fence for wildlife to pass through would be included for all fencing located on the MIRA Property adjacent to wetland areas. On the landfill and other areas with subsurface constraints, the fence would utilize a ballast design that would not require posts driven into the ground.

Entrances for the proposed project would be located at the end of Pent Road and the corner of Pent Road and Ball Street. The surrounding roadway network already serves numerous industries and would be expected to readily support construction-related traffic.

Existing access roads on the proposed site would be used (and improved with gravel as necessary) and additional gravel access would be constructed. Where new access roads would be constructed, they would be 16 feet wide (unless wetland constraints dictate more narrow access). A total of 0.3 miles of existing access roads would be used, and an additional 0.3 miles of new access would be constructed. The new access roads would be constructed with an improved subgrade, with approximately six inches of processed gravel placed above existing grades. Minor grading may be required along the proposed

access roads depending on topography, stormwater flow management, and erosion and sedimentation control.

Access and operations for the proposed solar facility have been planned to avoid interference with the daily operations of the Town of Wallingford resident waste drop-off area, the bulky waste transfer station in the eastern side of the landfill, or the composting and mulch center on the north side of the landfill. Temporary laydown areas would be located within the proposed project site boundaries. No additional tree clearing would be necessary for the laydown areas.

Land preparation and site work would be expected to begin as soon as the D&M Plan is approved by the Council and is anticipated to continue through the end of summer 2019, with the final installation of array equipment in fall 2019. Final site stabilization, testing and commissioning would be expected in the fall 2019. Construction would occur Monday through Saturday from 7:00 a.m. to 9:00 p.m. Sunday hours might be necessary, but are unlikely.

The proposed project would comply with the National Electrical Code, the National Electrical Safety Code and the National Fire Protection Association code. The proposed solar facility would have an internal protection system to shut down a portion of or the entire solar facility, as appropriate, should a fault occur. The solar facility design would also include the ability to automatically isolate the facility during abnormal grid disturbances or during other power outage events.

Ruling by the Siting Council

On March 29, 2018, the Council considered and ruled that the WRE project meets air and water quality standards of Department of Energy and Environmental Protection and would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need. The Council subsequently issued an order on April 3, 2018 to this effect, with the following conditions:

1. The Petitioner shall prepare a Development and Management Plan (D&M) for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Department of Energy and Environmental Protection, Bureau of Water Protection and Land Reuse, Water Planning and Management Division, and the Towns of Wallingford, Hamden and North Haven for comment and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a. A final site plan including, but not limited to, final solar panel design, electrical interconnection, fencing and equipment pads;
 - b. Plans for ballast mount delivery to site or plans to pour concrete on-site;
 - c. Final Vernal Pool Survey results and associated protective measures;
 - d. Plans to comply with DEEP Natural Diversity Database Comments dated March 9, 2018 including, but not limited to, final turtle protection plan, final bat protection plan and plans for additional NDDB invertebrate surveys or relocation of solar panels outside of the sand barren habitat;
 - e. Final seed mixture and any associated pollinator species as applicable;
 - f. Final erosion and sedimentation control plan consistent with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control*;
 - g. Copy of DEEP General Permit; and
 - h. Consideration of relocation of solar panels from the southern portion of the site to the northwest portion of the landfill to minimize fragmented solar panel installation and to further maximize wetland buffers.

In accordance with the Council's Order, WRE hereby submits this D&M Plan. The D&M Plan includes the following elements as provided below.

Site Plans

A final site plan including, but not limited to, final solar panel design, electrical interconnection, fencing, and equipment pads. Attachment 1 contains construction plans for the project that include final solar panel design, electrical interconnection, fencing, and equipment pads.

Plans for Concrete Use

All ballast blocks are specified as pre-cast, to be manufactured offsite. Please see Attachment 1, drawing sheets PV 61, SG301, SG302, and SG303 in the final site plan for typical design detail of pre-cast foundations for WRE's solar racking system. The detailed plan for delivery of pre-cast ballast blocks to the site is contained in Attachment 1-2. Please note in Attachment 1-2 the project plan to use a temporary lay-down area for staging and delivery of the pre-cast ballast blocks.

Final Vernal Pool Survey

The Final Vernal Pool Survey results and associated protective measures was submitted to the Siting Council by WRE. A copy of the Council's acceptance of this submittal is included at Attachment 2 to this D&M Plan.

DEEP Natural Diversity Database ("NDDB")

The Council requested that WRE provide the Council with plans to comply with DEEP Natural Diversity Database ("NDDB") Comments dated March 9, 2018 including, but not limited to, the final turtle protection plan, the final bat protection plan, and plans for additional NDDB invertebrate surveys or relocation of solar panels outside of the sand barren habitat. As indicated in the letter from the Council included as Attachment 2 to this D&M Plan, this material has already been accepted by the Council.

Since that time, WRE has been in further consultation with NDDB in response to NDDB's July 27, 2018 letter. WRE commissioned a plan, prepared by SWCA and dated January 14, 2019, to protect a population of false mermaid weed located outside of the project construction area. Attachment 3 contains SWCA's plan to protect this special plant in addition to written concurrence from NDDB approving the project's special plant protection methodology.

Final Seed Mixture and any associated pollinator species as applicable

The final seed mixture for the project includes a mix of Kentucky Bluegrass, Perennial Ryegrass, and Fine Fescue. Specifics for this seed mixture can be found in drawing number C-119 of the Stormwater Pollution Control Plan submitted to DEEP for review. In addition, the project will include the usage of a modified seed mix that will include pollinator species from a regional nursery. Below are the specific varieties that will be included in this seed mix at an application rate of 50 pounds per acre

Botanical Name	Common Name	Percent by Weight
Panicum clandestinum (Dichanthelium)	Deer Tongue	35.0
Festuca rubra	Red Fescue	30.5
Festuca brevipila	Hard Fescue	17.0
Chamaecrista fasciculata	Partridge Pea	10.0
Desmodium canadense	Showy Tick Trefoil	5.0
Agrostis perennans	Upland Bentgrass	2.0
Juncus tenuis	Path Rush	0.5

Final erosion and sedimentation control plan

The final erosion and sedimentation control plan, consistent with the 2002 Connecticut Guidelines for Erosion and Sediment Control, is included in Attachment 1, drawing sheets G-002 through C-112. This plan was also submitted to DEEP as part of the Stormwater Pollution Control Plan application package for General Permit.

DEEP General Permit

Attachment 4 contains the Stormwater Pollution Control Plan package submitted to DEEP for review, prepared by TetraTech and dated January 2019. When WRE receives a copy of the General Permit, it will provide that General Permit to the Council, in accordance with section 1.g of the Council's Order. WRE will not begin construction of the project until the Council has received a copy of the General Permit.

Possible Relocation of Panels

Per the Council's suggestions, WRE investigated the possibility of relocating some of the solar panels from the southern portion of the site to the northwest portion of the landfill to minimize fragmented solar panel installation and to further maximize wetland buffers with DEEP. WRE investigated this possibility with DEEP personnel. Unfortunately, there is a metal hydroxide sludge disposal cell in that area that will not support construction on that cell. Because of this metal hydroxide sludge disposal area, relocation of some of the solar panels to this part of the landfill was deemed to not be possible.