Interrogatory CSC-1

Q-CSC-1: How did UI become aware of the site property?

A-CSC-1: Through its regular interactions and partnerships with the City of Bridgeport, UI became aware of the City's sustainability initiatives, as well as its desire to attract renewable generation. UI and the City then identified a number of sites with limited potential for development, and included the proposed site, based on its status as a landfill.

Q-CSC-2: Did UI investigate any other properties as potential locations for this project? If so, identify these properties.

A-CSC-2: Yes, UI considered ten sites in its evaluation process:

Municipal/Landfill Properties

1. Pleasure Beach – Bridgeport, (Municipal Property)
2. New Haven Landfill – New Haven, adjacent to Middletown Avenue
3. Seaside Landfill – Bridgeport, located off of Barnum Dyke Road
4. West Haven Landfill – West Haven
5. 2803 State Street – Hamden (Private Landfill)

UI/UIL Owner Properties

6. 1 Waterfront Street – New Haven
7. 39 Pine Street – Bridgeport
8. 450 Wordin Avenue – Bridgeport
9. 347 Chapel Street – New Haven

Customer Property

10. Water Pollution Control Authority – Connecticut Avenue, New Haven

Interrogatory CSC-3

The United Illuminating Company
Petition 1104

Witness: Thomas Judge

Q-CSC-3: What were the factors that led UI to choose the site property over any other properties it may have considered?

A-CSC-3: Seaside Landfill met nearly every requirement UI had for the development of the project, while each of the other properties considered contained numerous issues and impediments. The main factors that led UI to choose the site property over others include:

- Use of land with limited potential for development
- City of Bridgeport's support for the project
- Suitable size and topography for development of a 2.2 MW of solar array and a 2.8 MW fuel cell on one site, thus lowering interconnection costs
- The City's willingness to enter into a long-term lease on reasonable terms
- No apparent environmental, visual or historical impacts

Q-CSC-4: Describe the land use within a 0.5 mile radius of the fuel cell facility and the solar field facility.

A-CSC-4: The following is a general description of the land use within a 0.5 mile radius:

North: The site is immediately abutted by Cedar Creek Harbor, a small body of water. On the opposite side of the bank sits Captain's Cove Marina and a number of small docks. Just inland from the marina and within 0.25 miles of the site lies several large industrial facilities including the Wheelabrator Bridgeport, L.P. waste-to-energy plant along Howard Avenue, O&G's material processing facility along Bostwick Avenue, and the Bridgeport West Side Waste Water Treatment Facility. Beyond those facilities to the northeast are multiple additional commercial and industrial properties. Further to the northwest, the area is primarily residential.

South: Immediately abutting the landfill to the south is a narrow strip of parking space and beach located along Long Island Sound.

West: West of the site within 0.25 miles is Cedar Creek Harbor and Black Rock Harbor. Between 0.25 miles and 0.5 miles, there are several small marinas followed by primarily residential properties.

East: Within 0.25 miles, immediately east of the landfill and between the landfill and the proposed fuel cell facility is the City of Bridgeport's composting facility and a large unused paved parking area. To the South of Barnum Boulevard, within 0.25 miles is a portion of Seaside Park. Between 0.25 miles and 0.5 miles north of Atlantic Street is an industrial facility operated by Sikorsky Aircraft Corporation. South of Atlantic Street is Seaside Park.

Please *see* Attachment CSC-4.

Interrogatory CSC-5

Q-CSC-5: Is the landfill and/or fuel cell portions of the project within the boundaries of Seaside Park? If so, are these areas presently accessible to the public? If not, how are these areas regulated?

A-CSC-5: A thorough review of the land records provided no evidence that the boundaries of Seaside Park extend or include the landfill area. The State Historic Preservation Officer determined that the City of Bridgeport, in its application for Seaside Park's designation as a National Historic Park, specifically excluded the landfill area (where UI proposes to install the solar and fuel cell facilities). After conducting a review at UI's request, the City did not provide information to UI that demonstrated that the landfill area is part of the park.

UI understands that the landfill area is neither designed nor designated for public use. The City of Bridgeport controls access to the site.

Interrogatory CSC-6

Q-CSC-6: Provide the acreage of the following:

a. Landfill;
b. Proposed solar field project area;
c. Solar panels;
d. Fuel cell location; and
e. Seaside Park

A-CSC-6: The below acreages are depicted on Attachment CSC-6.

Area	Size (acres)
Landfill	$41^{+/-}$ *
Solar Field Area	11.3
Solar Panel Area	3.85
Fuel Cell Area	.387
Seaside Park	$195^{+/-}$ **

* The area depicted in the Stewardship Permit granted to the City of Bridgeport
** Based on the City of Bridgeport's Graphical Information System

Interrogatory CSC-7

The United Illuminating Company
Petition 1104

Witness: Thomas Judge

Q-CSC-7: Provide site plans on 11x17 paper depicting the following:

a) Property boundaries for the parcels that comprise the project site, with any existing structures;
b) Environmental features that will be altered by the installation (trees to be cleared, fields to be utilized, habitat for notable plant/animal species, existing grades that will be altered);
c) A solar field site layout including panel array, access roads, excavation areas, detention basins, embankments, interconnection points, distance to nearby notable public park features, and the 500-year flood line;
d) Details of the solar panel racking/foundation system, ballast pads, inverters, fencing, drainage features, access road, grass planting, excavation depths;
e) A fuel cell facility site layout including details of the various components, fencing, access, interconnection, the 500-year flood line, and distance to any nearby notable public park features; and
f) Details of the fuel cell facility components, fencing and landscaping.

A-CSC-7: Site plans provided in Attachment CSC-7 as follows:

a) A-CSC-7 Pages 1-2 (Lease Drawings)
b) A-CSC-7 Page 3 (Environmental Features Impact Plan)
c) A-CSC-7 Page 4 (Solar Field Site Layout) *
d) A-CSC-7 Page 5 (Solar Panel Details); at this time, the design is not advanced enough to include grass planting details.
e) A-CSC-7 Page 6 (Fuel Cell and Interconnection Site Plan); from this location, there are no nearby notable public park features. *
f) A-CSC-7 Page 6 (Fuel Cell and Interconnection Site Plan); at this time, the design is not advanced enough to include landscaping.

* According to the most current FEMA Flood Mapping (Panels 0437G and 0439G), there is no 500 year flood line (0.2% chance annual flood) within close proximity to the project limits so none has been depicted. This flood limit typically does not occur in close proximity to coastal areas unless near a river/stream tributary outlet. The 100 year flood line (Zone AE) has been depicted as taken from FEMA Flood Mapping (Panels 0437G and 0439G).

Interrogatory CSC-8

Q-CSC-8: What is the design wind speed of the solar panel ballast mount? How are the panels adhered to the ballast mount? What prevents the solar panels from separating from either the racking or the foundation during high winds?

A-CSC-8: The ballast mounted system is designed for a wind speed of 110 MPH per the Connecticut State Building Code. To prohibit the panels from separating from either the racking or the foundation during high winds, the panels are fastened to the racking system using a top down mounting clamp. The racking system is then bolted or cast into the concrete ballast foundation.

Interrogatory CSC-9

Q-CSC-9: What is the maximum slope of the solar field in this proposal? What is the maximum ground slope design for the selected ballast mount?

A-CSC-9: UI will deploy the solar array in an area where the maximum slope is approximately 14%. UI will use gravel to adjust the maximum ground slope under ballast blocks to approximately 7%.

Interrogatory CSC-10

Q-CSC-10: Describe any excavation necessary for solar field construction. Would there be any alteration of existing landfill elevations/grade?

A-CSC-10: The only mandatory excavation is 4-6 inches for electrical equipment pads and approximately 12 inches for fence post foundations. Current plans call for an optional (up to 6 inches) excavation for ballast pads where needed for leveling purposes. UI will not alter the existing landfill elevations/grade.

Interrogatory CSC-11

Q-CSC-11: How many solar modules are proposed? Will all of the modules be of the same make/model? What is the height above grade of the panels at the bottom and top?

A-CSC-11: UI proposes 8,550 solar panels.

All modules will be of the same make and model.

The height from the bottom of the panel to grade is 2 feet, and from the top, is 4.2 feet.

Interrogatory CSC-12

Q-CSC-12: What is the efficiency of the proposed photovoltaic modules? Does efficiency decrease over time? Does UI anticipate switching to more efficient modules at some point during the project's life?

A-CSC-12: Proposed module efficiency is approximately 16%.

Although panel efficiencies will not decrease over time, age, weather, and other contributing factors will lead to some degradation of power output.

UI currently does not anticipate switching to more efficient panels.

Interrogatory CSC-13

Q-CSC-13: At what pitch do the selected solar modules provide optimal energy production? What is the pitch of the modules in this proposal?

A-CSC-13: Optimal pitch is approximately 35°. The panels for the proposed project are pitched at 20° to allow for increased capacity, so as to minimize shading losses and increase total production.

Interrogatory CSC-14

Q-CSC-14: What is the status of the two-acre hazardous waste area, as mentioned on page 7 of the petition? How would construction and operation of this project affect this area of the landfill? What is UI's responsibility in the closure and/or maintenance of this area, if any?

A-CSC-14: The two-acre hazardous waste area is governed by a Stewardship Permit granted to the City by the Connecticut Department of Environmental Protection. This area is not considered closed until the City meets all its obligations under the permit.

The hazardous waste area is outside the boundaries of both the project site and the lease agreement. Further, UI does not plan to disturb the hazardous waste area in any way through its construction and operation of the solar and fuel cell facilities.

UI bears no responsibility for the closure or maintenance of this area.

Interrogatory CSC-15

Q-CSC-15: What is the composition of the landfill closure cover material? Is the 24-inch depth described on page 7 of the petition uniform throughout the landfill? How was this information determined?

A-CSC-15: UI has no knowledge of the soil composition that makes up the closure cover material beyond its soil permeability rating of 10^{-5} cm/sec (meaning it is a uniformly compacted material). Generally, materials that meet this permeability rating consist of mixtures of sand, silt, and clay.

UI has no knowledge that the landfill cover material is not distributed in a uniform fashion in contravention of the closure documents.

UI obtained this information from documents on file with the Department of Energy and Environmental Protection.

Interrogatory CSC-16

Q-CSC-16: Was a landfill cover settling study conducted? If not, is one necessary for this type of project?

A-CSC-16: UI conducted a settlement analysis and determined that the landfill experienced an expected level of settlement consistent with its age and composition. UI does not expect further settlement to impact the landfill cap or the proposed project.

Interrogatory CSC-17

Q-CSC-17: Describe how construction vehicles would access the landfill. Would the use of heavy vehicles disturb the landfill cap? Are there any permits required for vehicle access on top of the landfill?

A-CSC-17: Construction vehicles will access the top of the landfill via the existing access road off of Barnum Dyke Road (adjacent to the existing composting operation). Based upon the condition of the access road, UI may improve the road to ensure the cap will not be negatively impacted by the weight of the vehicles and any potential rutting that may occur.

UI understands that the Connecticut Department of Energy and Environmental Protection will permit vehicle access to the landfill via an Authorization Application for Disruption of a Solid Waste Disposal Area (Disruption Permit).

Interrogatory CSC-18

Q-CSC-18: Would UI plant new grass in the solar field area? If so, what types? Describe the maintenance of the grass/vegetative surface in the fenced solar field area.

A-CSC-18: UI will cut down the vegetation to a lower level prior to the start of work. If there are areas of the site that are disturbed during construction that require reseeding, UI will use a shade tolerant seed mixture. Long term maintenance within the solar array includes seasonal cutting of the vegetation to a level below the panels. This grass cutting is consistent with appropriate landfill maintenance strategies.

Interrogatory CSC-19

The United Illuminating Company
Petition 1104

Witness: Thomas Judge

Q-CSC-19: Provide the outstanding studies/documentation as described in Section 6.7 of the petition.

A-CSC-19: Please see Attachment CSC-19.

Interrogatory CSC-20

Q-CSC-20: Has there been any research as to water bird collisions with ground mounted solar panels adjacent to waterways? If so, what were the study conclusions? Has the United States Fish and Wildlife Service issued any type of directive or recommendations regarding water bird impacts?

A-CSC-20: UI is not currently aware of any research into water bird collisions with ground mounted solar panels adjacent to waterways.

UI is not aware of any directive or recommendations regarding water bird impacts. The United States Fish and Wildlife Service regional office for California, Arizona, and Nevada issued a letter to developers of solar facilities in those states. The letter advised them of relevant federal laws and asked them to consult with its office throughout the planning, construction, and operation of any such facility. UI will communicate its plans to construct a solar facility to the Service's regional office based in Hadley, Massachusetts and determine if any similar recommendations exist.

Interrogatory CSC-21

Q-CSC-21: What is the color of the solar panels? Are other colors available? Is the glass casing reflective? Are there solar panels available with non-reflective glass?

A-CSC-21: The solar cells are dark blue.

UI is not aware of other possible colors.

The glass casing is brushed aluminum. A mill finish aluminum frame creates an approximately 0.4" border around the edge of each module which is reflective.

The module glass which comprises 97.5% of the module area is finished with an anti-reflective coating. This coating reduces but does not completely eliminate the reflection of sunlight from the surface of the module. There are no solar modules which are entirely non-reflective.

Interrogatory CSC-22

Q-CSC-22: In regards the stormwater management report, why is the area under each panel characterized as unchanged when rainfall would be blocked from hitting the ground area underneath?

A-CSC-22: When analyzing stormwater management, the peak rate of runoff is the calculation used to determine whether or not there is an increase in runoff from the proposed solar facilities. This calculation is based upon: groundcover, time of concentration, and drainage area. As UI is not altering the area beneath the panels, the existing groundcover remains in place to facilitate proper drainage. Additionally, both the time of concentration and the drainage area will remain unchanged.

This practice is consistent with accepted engineering and industry standards used throughout the country in calculating stormwater runoff for fixed mount solar facilities.

Interrogatory CSC-23

Q-CSC-23: What effect would runoff from the drip edge of each row of solar panels have on the landfill cap? Would channelization along the drip edge be expected? If not, why not?

A-CSC-23: The erosion of soil below the lower drip edge of the solar panels has been identified as a possible location for erosion of the landfill cap. The theory is that the falling water from the modules could damage the grass, exposing the soil, leading to erosion. UI is not aware of any erosion below the modules at existing solar modules in the Northeast. There are several factors that would limit the likelihood or severity of such erosion. These include: the tall grass cover, flat landfill slopes below the modules; and, the grass buffer strips between sub arrays. One option to limit erosion would be to install mulch or gravel splash strips below each module drip-edge. Rather than undertaking such a large scale and possibly unnecessary disruption of the landfill surface, operational monitoring will be enhanced during the first year of operation. Monthly inspection of the landfill cover beneath the array will be performed by experienced personnel. The objective of the inspection would be to identify any splash damage to the grass cover and vegetative soil layer before significant damage occurs. If localized areas of damage are noted, stabilizing of the surface using organic materials such as wood chips, mulch, coconut fiber matting or other long life organic erosion control material will be used.

Interrogatory CSC-24

Q-CSC-24: What side/area of the landfill is the solar field draining to?

A-CSC-24: The proposed construction of the solar facilities does not include any grading that would change the existing drainage patterns of the landfill. The existing drainage patterns are based on the topography of the landfill. The *Stormwater Management Report*, Exhibit XV to the Petition, demonstrates that the solar facilities will not significantly change to the stormwater management system. The landfill primarily drains to the east and west sides of the landfill, as shown in plans DA-1 and DA-2, included within Exhibit XV of the Petition.

Interrogatory CSC-25

The United Illuminating Company
Petition 1104

Witness: Weston & Sampson

Q-CSC-25: Provide the figures and appendices related to the Environmental Report in Exhibit VI (bulk file is appropriate).

A-CSC-25: *See* Attachment CSC-25 (submitted via bulk file).

Interrogatory CSC-26

Q-CSC-26: In regards to Section 6.4 of the Petition, please submit the visual analysis report that includes all 11 photo locations in the viewshed index. For each photo location, include a description as to whether the solar field is visible and, if so, indicate the percentage of the solar field that would be visible. Describe how the simulations were prepared.

A-CSC-26: Please see Attachment CSC-26, *Visibility Analysis Report.*

Interrogatory CSC-27

The United Illuminating Company
Petition 1104

Witness: Mike Libertine

Q-CSC-27: Describe the distance to and visibility of the project from the following:

a. Seabright Avenue Beach
b. Fayerweather Yacht Club on Brewster Street
c. Eames Boulevard
d. Arthur Street
e. Ferris Street
f. Yacht Street
g. Soccer field area of Seaside Park
h. Barnum Drive
i. Barnum Boulevard

A-CSC-27:

27	Describe the distance to and visibility of the project from the following:	Photos	Orientation	Distance	Visibility
27a	Seabright Avenue Beach	No photos	Northeast	0.34mi	Year Round
27b	Fayerweather Yacht Club on Brewster Street	Photo 11	Northeast	0.20mi	Year Round
27c	Eames Boulevard	Photo 8	Northeast	0.79mi	Year Round
27d	Arthur Street	No photos Photo 5 is one street over	Southeast	0.36mi	Year Round
27e	Ferris Street	Photo 5	Southeast	0.38mi	Year Round
27f	Yacht Street	No photos	Southeast	0.39mi	Partial year round views. Mostly Seasonal
27g	Soccer field area of Seaside Park	Photo 10	Southwest	0.57	Year Round
27h	Barnum Drive	Believed to be Barnum Dyke Photo 12 from additional set.	Southwest	0.26	Year Round
27i	Barnum Boulevard	Photo 1	Northwest	0.08	Year Round

Interrogatory CSC-28

Q-CSC-28: Were photo simulations prepared of the fuel cell units from area receptors? If so, please provide. If not, why not.

A-CSC-28: Originally, UI did not prepare a photo simulation of the fuel cell units, due to its proposed location. After submitting its Petition, UI did prepare a photo simulation of the fuel cell units, and it is now included as part Attachment CSC-26 *Visibility Analysis Report* (photo number 14).

Interrogatory CSC-29

Q-CSC-29: Describe any necessary training required for local fire departments in the event of a fire at either the fuel cell facility or the solar field? If so, in what type of emergencies are specialized procedures required?

A-CSC-29: No specialized procedures are required. However, UI will develop an emergency response plan as the project develops.

Interrogatory CSC-30

Q-CSC-30: What noise levels are expected from operation of the fuel cell units?

A-CSC-30: The noise produced by the fuel cell unit produces a sound level of 72 dBA at a distance of 10 feet.

Interrogatory CSC-31

Q-CSC-31: Describe any excavation necessary for fuel cell construction.

A-CSC-31: Excavation for the fuel cell equipment will be minimal due to the fact that UI will elevate the facility using engineered soil. Excavation will be limited to forming the equipment pads and footers, along with trenching required for the installation of underground utility lines.

Interrogatory CSC-32

The United Illuminating Company
Petition 1104

Witness: Thomas Judge

Q-CSC-32: How much fill is required at the fuel cell location to attain an elevation above the 500-year flood line?

A-CSC-32: UI anticipates using approximately 2,300 cubic yards of fill material to raise the fuel cell/service entrance equipment above the 100-year flood line.*

* According to the most current FEMA Flood Mapping (Panels 0437G and 0439G), there is no 500 year flood line (0.2% chance annual flood) within close proximity to the project limits so none has been depicted. This flood limit typically does not occur in proximity to coastal areas unless near a river/stream tributary outlet. The 100 year flood line (Zone AE) has been depicted as taken from FEMA Flood Mapping (Panels 0437G and 0439G).

Interrogatory CSC-33

Q-CSC-33: Was there any consideration of utilization of potential landfill methane for production of electricity?

A-CSC-33: No. There is no gas ventilation system within the landfill. Additionally, UI performed a landfill gas survey in 2013. This study indicates that no gas exists at the landfill.

Interrogatory CSC-34

Q-CSC-34: Were there any photo simulations prepared for the fuel cell units from area receptors? If so, please provide. If not, why not?

A-CSC-34: Please refer to UI's response to Interrogatory 28.