Mercer County Improvement Authority Solar Project at
Mercer County Community College

May 15, 2012

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1. Project Benefits

Benefits generated by the Project will include:

- The utility energy generation avoided by the output from the Project will equal an annual atmospheric carbon dioxide reduction equivalent to the benefit gained from a forest containing more than 1,500 acres of pine or fir trees[1].
- The electricity generated from the 8.0 MW Project is equivalent to the electricity needed to power over 850 homes every year[1].
- The Project will reduce the burden on the electricity grid, especially during periods of high electricity usage, increasing the reliability of the aging grid network.
- The Project will reduce our dependence on foreign sources of energy.
- Every year, the Project will prevent the following pollutants from entering the atmosphere[2]:
    - 7,500 tons of carbon dioxide (CO2), a major greenhouse gas
    - 20 tons of sulfur dioxide, (SO2)
    - 8.5 tons of nitrogen oxides (NOx)
      (Sulfur dioxide and nitrogen oxides cause smog, acid rain, and trigger asthma and other respiratory defects[3])

[1,3]Information published by the US Department of Environmental Protection (www.epa.gov)
[2]Information published by the US Department of Energy, Energy Information Administration (www.eia.gov)

2. Project Size / Location

The Project will consist of approximately 33,500 high efficiency American-made solar panels arranged in an array covering approximately 45 acres.

The 45 acre Project will be located within the east side of the Mercer County Community College campus within a 67 acre parcel of currently undeveloped land.

The Project size will be approximately 8.0 MW. The energy output from the project will offset approximately 70 % of the Mercer County Community College's annual electric usage. All of the electricity generated by the Project will be supplied directly to MercerCountyCommunity College; this electricity would otherwise have been provided by the local utility company, PSE&G.

It should be noted that the Mercer County Community College Project is a behind-the-meter installation that offers the "dual benefit" of environmental and economic benefits (economic savings to the College and certain "green" attributes). This distinction makes it a top-priority type of project under Governor Christie's 2011 Energy Master Plan, finalized last December.

The College will enjoy substantial savings from implementing this solar project.

3. Project Ownership

The ownership of the Project has been structured as a Lease – Purchase transaction. The Mercer County Improvement Authority is the title owner of the Project under State law. Mercer County Improvement Authority and Mercer County Community College have entered into a 15-year lease with the SunLight General Mercer Solar company. The lease transfers all benefits and burdens of ownership to SunLight General Mercer Solar, including the right to sell energy to the College. SunLight General Mercer Solar is able to offer energy from the Project to Mercer County Community College at a rate of 3 cents per kilowatt hour as opposed to the 14 cents per kilowatt hour that Mercer County Community College currently pays to its local utility, PSE&G.

4. Project Construction

The Project will be constructed by MasTec Renewables Construction Company. Based upon the currently contemplated schedule, construction should begin sometime in June 2012 and is expected to be completed within 3-4 months.

5. Use of Energy

All energy derived from the Project will be directed to the Mercer County Community College, and the Project will be "Net-Metered". Simply put, this means that the project will supply electricity to the College at a connection point that is behind the College's PSE&G utility electricity meter.

Net-Metering means that, if at any given time, the College is consuming *more* electricity than the Project can provide, then additional electricity will be drawn from the utility grid to make up the difference. At those times the College will be charged for that electricity provided by the utility. Conversely, if at any given time the College is consuming *less* electricity than the Project can provide, then the College's meter will 'run backwards'. At these times electricity will be provided back to the utility grid, and the College will receive a credit from the utility company for that electricity. During the course of an entire year the College's utility meter will have run forwards more often than it has run backwards, meaning that the College will remain as a net *consumer* of electricity from the grid during each year.

All on-site solar projects in New Jersey utilize Net-Metering. Net-Metering laws prohibit a project from generating more electricity than the host facility can utilize on an annual basis. For this reason, the Project has been sized to generate less energy than MercerCountyCommunity College uses on an annual basis.

To be clear, the Project will **NOT** be selling wholesale electricity to the electric grid. The College's electricity meter will sometimes run backwards, but it will run forwards more often. Consequently, taken over the course of a year, all of the electricity produced by the Project will be consumed by the College.

Finally, Net-Metering laws do not allow electrical energy from the Project to be distributed to any specific off-site location, other than in accordance with the Net-Metering process.

6. Communication with Residents

Mercer County Community College, Mercer County Improvement Authority and SunLight General Capital have held meetings with residents in the area of the Project to discuss the Project and provide information. The parties have also planned additional meetings to take place during the construction process. These meetings include:

1. **June 21 2011 – 7:00pm Initial Meeting at Mercer County Community College -** Residents were briefly informed about the Project, but only preliminary information was provided because not all project-related details were known
2. **April 4, 2012 – 6:30 pm at Mercer County Community College** – a presentation was provided to the attendees, followed by a two-hour question-and-answer period. Specific visual concerns will be reviewed and addressed on a resident-by-location basis. The College committed to scheduling a follow-up meeting a couple of weeks after construction was initiated to make sure the residents are kept fully informed.
3. **April 11, 2012 – 9:00 am at Mercer County McDade Administration Building (Mercer County Planning Board and Engineering Dept)** – the Project details were presented by the team, and questions were asked by the Mercer County Planning Board, the Mercer County Engineer, and the Mercer County Soils Conservation District. Additionally, local residents were given an opportunity to ask questions. The project was approved by the Planning Board and by the Engineer.
4. In addition, there were several publicly-advertised meetings between the MCIA, Mercer College and the Board of Chosen Freeholders to discuss the Project during the Request for Proposal and subsequent stages.

7. Specific Responses to Resident Concerns

The following responses have been provided to local resident concerns on multiple occasions, and are provided here in addition and for the record:

a. From what materials are the panels made? Do they contain cadmium?
The solar panels are manufactured primarily from glass, silicon, copper and aluminum. These materials are non-hazardous, non-toxic and non-polluting. The solar panels do not contain cadmium.

b. Will the solar PV system have any effect upon groundwater contamination?
The solar PV system will have no effect upon any existing groundwater contamination conditions.

c. Will the solar PV system cause flooding or change the water flow patterns in the area?
The solar PV system will have no effect upon flooding, wetlands, and water runoff volume or water runoff patterns. The system is subject to New Jersey Department of Environmental Protection (DEP) criteria and standards, including wetlands impact and storm-water impact. The DEP is unable to approve any project if it adversely impacts wetlands or storm-water management. Soil hydrology studies have been performed to verify this.

d. *Will herbicides be used to remove existing vegetation prior to construction, or will they subsequently be used to manage vegetation growth?*
No, herbicides will not be used in either case. The solar PV array is designed to allow the entire array area to be mown on a periodic basis in order to control vegetation growth within the array fence-line.

e. *Is the system safe?*
The system is designed, and will be built, in full accordance with the requirements of the International Building Code (IBC). Key elements of the IBC include compliance with the National Electrical Code (NEC) and ASCE-7. The NEC specifies the minimum electrical design and construction requirements of this system, and ASCE-7 specifies the minimum civil engineering design and construction requirements of the system. The ASCE-7 engineering design and construction requirements address the maximum expected wind loads, seismic loads, and snow loads for the locality.

The system components are designed and tested for compliance with all applicable codes and standards. These include Underwriter's Laboratories (UL), the Institute of Electrical and Electronic Engineers (IEEE), and the American Society for the Testing of Materials (ASTM).

f. *Will the system catch fire?*
No. The system is designed, and will be constructed, in full accordance with the requirements of the National Electrical Code, a publication of the National Fire Protection Association. The system will be constructed by the highly skilled New Jersey local union labor force, and construction and installation quality control will be performed at multiple levels including by MasTec Renewables Construction Company, the Sunlight General Capital, Mercer County Improvement Authority and its Construction Manager (BSG), PSE&G, and the Township of West Windsor.

In addition to their existing knowledge and experience with electrical and solar PV system emergency response practices, the local fire departments will be trained in the layout, operation and specific details of this particular solar PV system.

g. *Is the system noisy?*
Solar panels are silent in operation. The inverters generate low noise levels during daylight hours when in operation, the sound level being analogous to the noise emitted by a modern automobile when standing still and with the engine idling. This sound cannot generally be heard beyond a distance of 30ft from the inverter. The inverters are silent at night. The inverters, which are distributed around the site, have been located at least 150ft from all neighboring residences. At that distance, they do not present any noise issue to any nearby residence.

h. *What will be planted under the panels?*
A State (Mercer County Soils Conservation District) specified and approved seed mix will be planted underneath the panels. This is tailored to the full-shade / partial-shade conditions encountered in these areas.

i. *Will the land be permanently damaged by the PV system?*
A construction plan has been developed with, and approved by, the Mercer County Soils Conservation District. This construction plan is designed to prevent soils compaction and topsoil/subsoil co-mingling. Following construction and vegetation planting, the condition of the array site will actually be better than its present post-farmed condition.

j. Concerns have been raised that farmland is being eradicated in order to build the solar project. Is this true?

This property is not currently being used as farmland, and was never planned to be used as farmland by the College or the College's Master Plan. It is property owned by the College, and has always intended to be used to support the operations of the College.

k. Why not install the system on college rooftops?

All of the rooftops within the college have been fully reviewed for their solar PV system viability. In each and every case the roofs are either small, highly shaded due to differing roof heights and other rooftop equipment, heavily obstructed with rooftop HVAC and communications equipment, too old, not sufficiently strong to support additional equipment, or a combination of several of these factors. In summary, the college rooftops are not a viable option for a solar PV system.

l. Why not install the system on college parking lots?

The college's parking lots are not suitable for the installation of a solar PV system. The parking lots are not oriented appropriately for solar PV electricity production.

m. What type of screening will be implemented for the Project?

Discussions concerning vegetative screening along Old Trenton Road have been had with West Windsor Township's Director of Community Development and Landscape Architect. Additional discussions will be held directly with individual residents concerning screening of individual properties. It is anticipated that West Windsor Township's Director of Community Development and Landscape Architect will attend these meetings along with members of the project team.

n. Is the land zoned for this use?

Yes, the land is zoned for educational use and the solar PV system serving only college operations and instructional programs is a valid primary use for that land under this zoning distinction.

o. What will the system look like?

An 8-foot high fence will surround the solar PV array site. At this time, it is anticipated that an evergreen arborvitae screening hedge will be planted in areas where the fence-line is adjacent to a neighboring domestic residence, which will block the view of both the fence and the solar PV array from those residences.

Final details of the screening will be discussed with the residents and the West Windsor Landscape Architect.

p. Will deer be able to get into the array site?

The fence height is designed to minimize the chances of deer entering the array site. This is in accordance with the USDA National Wildlife Research Center guidelines for white-tailed deer.

q. Will the solar array cause more deer to be killed by traffic?

The solar array site does not present a barrier to deer movement in the area, and the solar array fence-line does not border any roadways. Deer can walk near the array fence-line without being forced onto or near to active public roadways.

r. *Will there be any affected endangered or threatened species?*
The DEP confirmed that there will be no endangered or threatened species affected by the solar PV system.

s. *Will the solar PV system be monitored for under-performance and damage?*
Yes, the solar array is continuously monitored for under-performance and damage using an on-site monitoring system that communicates information via the internet. Additionally, the array will be subject to an ongoing inspection and maintenance regime. This regime includes:

- System inspections, including a visual inspection of each panel in the array.
- Electrical and mechanical tests, inspections and maintenance
- Site maintenance, including vegetation management

t. *Will the solar PV system cause an adverse impact on vehicle traffic in the area?*
No. When in operation, the only traffic will result from the periodic visit by site maintenance and inspection teams. Typically there will up to six people on site for a total of approximately eight weeks per year (generally four two-week visits).

During construction, there will be up to 100 people working at the array site and they will access the site using access roads from MCCC parking lots. Nearby roads such as South Post Road will not be used for construction access or transportation needs for the project. The construction duration will be approximately 3 to 4 months, with fewer workers at the start and end of construction. The project has been approved by the Mercer County Planning Board, the authority with jurisdiction as pertains to vehicle traffic.

u. *Have federal funds been received for this project?*
Most qualified, fully-constructed solar projects receive federal support under the American Recovery and Reinvestment Act, including this Project. This allocation from the federal level directly benefits the residents of New Jersey, as the federal funding is based on qualification only, and could be distributed to any states in any combination or size.