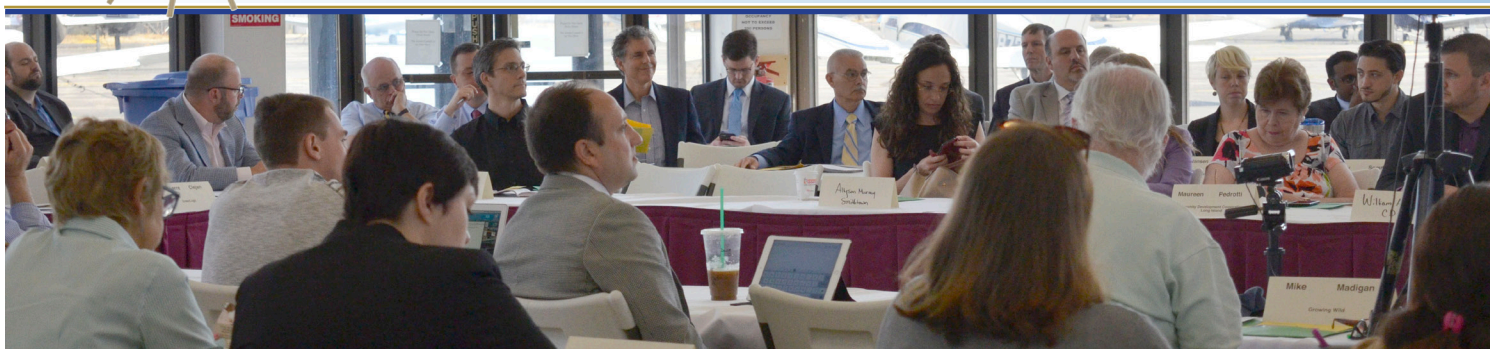




**LONG ISLAND
CLEAN ENERGY LEADERSHIP
TASK FORCE**

Mission: Facilitate the exchange of information and ideas and work to identify regional leadership that advances the promotion of plans, policies, and programs to reduce our carbon footprint, cut local air pollution, save energy and money, build a clean energy sector on Long Island, and create green jobs. — A project of the Sustainability Institute at Molloy College

Molloy College Suffolk Center, Farmingdale, NY



Keynote Address



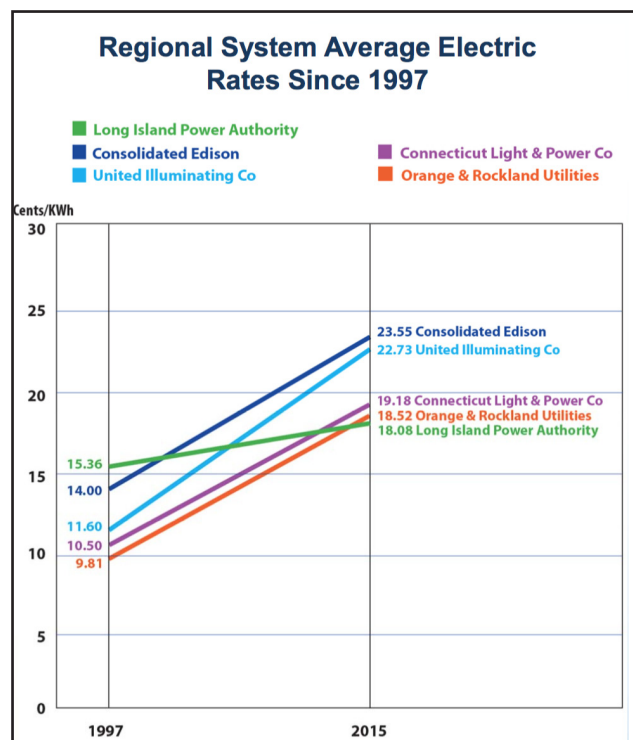
The June 2016 meeting featured LIPA CEO Thomas Falcone addressing the group. Mr. Falcone updated the group about the progress that had been made since the LIPA reform act was passed.

The reform clearly aligns the interests of LIPA and PSEG, by paying incentives to PSEG based on performance on defined metrics. Among these metrics are customer service and customer satisfaction. Based on after-call surveys, customer service has improved from a score of 65% to 93% favorable. Customer complaints are down 26% and are now the lowest in the State.

Mr. Falcone described the rate process in 20 years, which included input from LIPA, the Department of Public Service, and the public through hearings and written comments, as laid out in the LIPA reform. He believed the process went well. It was an open process that required PSEG to prove the costs they were basing the request for a rate increase on. The delivery charge increase that was approved is helping to pay for system improvements.

In order to align incentives with LIPA-set priorities, PSEG Long Island receives bonuses based on achieving specific metrics and is performing well. Currently there is an almost \$2 billion investment going on. This investment in infrastructure is double the historic rate for LIPA. They are focusing on improving the specific electric circuits that have been responsible for the most problems. The goal set for energy efficiency efforts is a 520 MW reduction by 2018, and based on current performance, they are on track to make that goal.

The LIPA Chairman addressed the issue of high rates. He explained that LIPA's high rates are due to several factors, including fuel costs, labor costs, and taxes, all of which are higher on Long Island than in many other parts of the country. Additionally servicing the debt from buying LILCO adds to LIPA's expenses. When compared to other utilities that have similar costs, Mr. Falcon asserted that LIPA's rates are not the highest. When the LIPA debt is retired in 2033, rates will be reduced significantly.



From the LIPA Annual Report

The floor was then opened to questions and answers.

Neal Lewis – The rate increases of a half percent, two percent, then another two percent over the next three years is substantial compared to 17 years prior, during which there had only been two increases of just about 2% each in that whole time. Why did that have to be done?

Mr. Falcone – The increase may see like a lot relative to before, but not a lot relative to other utilities. Previously, there had been a hesitance to do anything that would make rates go up, so spending on things like tree trimming and storm hardening were not as aggressive. Now those investments have been accelerated.

Neal Lewis – Regarding the long-range Integrated Resource Plan, one thing that I disagreed with when LIPA was reformed is that PSEG was put in charge of long-range planning. I believed it should be in the hands of LIPA, which is charged with protecting the public interest. Is the Clean Energy Standard a central component of the IRP? They looked at compliance with the CES. Offshore wind sites might be needed by other utilities to meet State CES goals. Will the IRP come before the LIPA Board to be approved?

Mr. Falcone – I'm comfortable with PSEG being in charge of the IRP analysis, because they have the information and the day-to-day experience with running the utility. LIPA and the DPS are also involved in the IRP process. After reviewing the plan, we asked them to go back and rework the IRP to include the Clean Energy Standard.



David Schieren – What about the status of substations? Many of them are at capacity and can't accept more solar PV. Can they be improved and made omnidirectional, so that more solar can be installed?

Mr. Falcone – The preferred thing is to inject the most solar at the least cost, by putting it in locations where additional grid investment is not needed. We have to look at the system. Since utility solar will be sited where there is less population, more investment in the system will be needed.

Jay Best – I understand that NYSERDA's residential efficiency programs are being handed over to utilities on Long Island. How will they continue?

Mr. Falcone – There is still State funding for low and moderate-income programs for the short term. Rebates for solar have been reduced, and are being phased out, the main incentive for solar is now the Federal tax credit.

Neal – The rest of the state is moving to fuel neutrality in efficiency programs. Could LIPA agree to fuel neutrality?

Mr. Falcone – Fuel neutrality is an open discussion. We will see something there.



Suffolk County Legislator Al Krupski asked about solar during the Q&A





**LONG ISLAND
CLEAN ENERGY LEADERSHIP
TASK FORCE**

Mission: Facilitate the exchange of information and ideas and work to identify regional leadership that advances the promotion of plans, policies, and programs to reduce our carbon footprint, cut local air pollution, save energy and money, build a clean energy sector on Long Island, and create green jobs. — A project of the Sustainability Institute at Molloy College

Molloy College Suffolk Center, Farmingdale, NY



Utility-Scale Solar PV and Open Space: 'Green vs. Green'?

Background of the Debate

The development of utility scale solar PV projects on Long Island has become controversial. The first discord was community opposition to a solar farm that was constructed on a former sod farm in Shoreham. Since then, more proposed solar projects have been opposed by environmentalists, open space advocates and civic leaders who are concerned with the preservation of open space, and particularly woodlands. Several articles have appeared in *Newsday* and other media highlighting the debate on the relative value of renewable generation and preserving open space as a 'Green vs. Green' conflict.

Some of the projects that have drawn opposition include an undeveloped but industrially zoned 100-acre site in Mastic near the Forge River, a golf course in the Shoreham area, and the largest solar PV facility ever proposed in New York State, at the former Shoreham nuclear power plant site.



This solar farm in Shoreham on the site of a former sod-farm generated community opposition.

At the June 24, 2016 meeting of the **Long Island Clean Energy Leadership Task Force**, the Sustainability Institute brought together a panel of environmental stakeholders with different points of view of the issue which has been growing more contentious. This resulted in an informed, respectful discussion of the issue.

"This is a debate between people who are all concerned with protecting the environment, but who either have different priorities, or have drawn different conclusions from the facts. When people who agree on most things do disagree on a particular issue, it can become heated." Neal Lewis, executive director of the Sustainability Institute, who moderated the panel.

Last December in Paris, almost 200 countries came to an agreement to take action on global warming and set a goal of keeping global warming to no more than a 2°C increase, with no more than 1.5° C being preferable. Meeting this challenge will require a conversion of the electric power sector to renewable generation.

Continued inside...

A video of the panel discussion can be seen on Vimeo.

Part #1: <https://vimeo.com/172192908>

Part # 2: <https://vimeo.com/172213194>.

Use the password: CleanEnergy2016

Thank you to civic leader and open space advocate Mike Madigan for recording and making the discussion available online.

In addition to global warming concerns, Long Island has an interest in preserving open space, especially forested land and productive farmland, to protect drinking water, biodiversity, community character, and to combat sprawl. Open space advocates argue that the environmental benefits of solar power do not trump the need to protect open space and habitat, and that woodland and farmland should not be sacrificed for solar, which could be sited on roofs, parking lots and highway medians.

However, some argue that to meet State renewable energy goals economically, utility-scale facilities that require significant space to generate large amounts of electricity may be required. It has been calculated that by offsetting the use of fossil fuels, utility-scale solar installations reduce greenhouse gas emissions by 20 times or more what would have been sequestered by the trees that are cleared for them. Since the cost for large, ground-mounted solar PV is lower than for solar carports or rooftop installations, including ground mounted solar in the mix will achieve more renewables faster, for the same investment and ratepayer cost. Also, we do not know whether there are sufficient appropriate rooftops, parking lots and other developed locations to host enough solar PV to meet the new aggressive NY State goals.

The tension between these two environmental objectives has resulted in conflicts over specific projects and the relative benefits of utility-scale solar versus preserving woodland or agricultural land among groups of people who are all concerned with protecting the environment. Some groups and individuals have come to the conclusion that in no case should existing woodland and agricultural land be used for solar PV development.

A recent study carried out in the southern UK looked at outcomes for biodiversity on 11 solar PV farms (The Effects Of Solar Farms On Local Biodiversity: A Comparative Study; H. Montag, G Parker & T. Clarkson. 2016.), found that biodiversity was generally better on the solar sites than nearby control sites that were “under the same management as the solar farm was prior to its construction.” Many of these sites were agricultural land or meadows, but some included forested areas.

A paper by Damon Turney and Vasilis Fthenakis of Brookhaven National Labs found that 22 of the considered 32 impacts to be beneficial. Of the remaining 10 impacts, 4 are neutral, and 6 require further research before they can be appraised. None of the impacts were found to be negative relative to

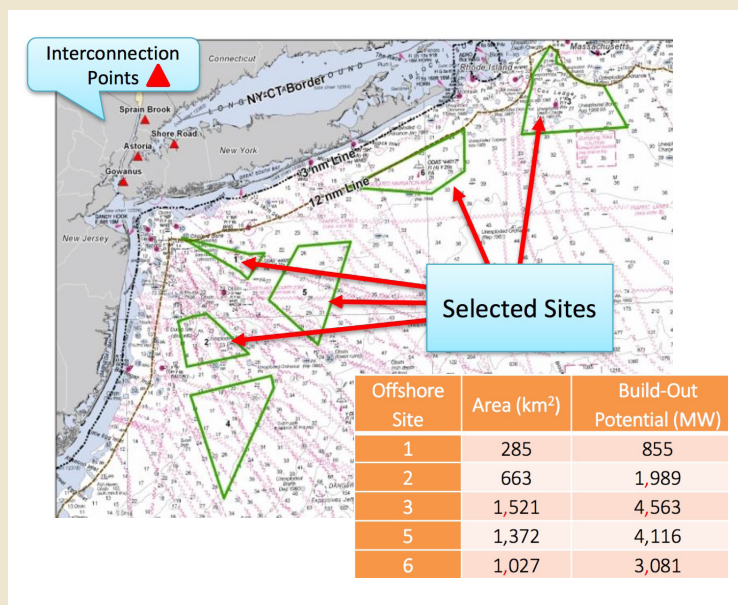
traditional power generation. They ranked the impacts in terms of priority, and find all the high-priority impacts to be beneficial.

Scope of the Challenge

Gordian Raacke of *Renewable Energy Long Island* opened the panel discussion by describing the urgency of the problem and the scale of change necessary to address it. In order to lower greenhouse gas emissions by 80%, which is the goal for 2050, not only does the electric system need to be de-carbonized, but enough additional energy needs to be generated to power transportation, industry, heating and agriculture as those are taken off fossil fuels and switched to electric power. Mr Raacke exhorted the group that to meet the challenge, “We must act collectively and immediately.” He urges that the next step needed is a comprehensive LIDAR analysis of Long Island’s solar potential.

Neal Lewis, *Sustainability Institute*, provided context for the discussion by noting that the New York State has released a **Clean Energy Standard** that calls for at least 50% the State’s electricity to be generated from renewables by 2030 (sometimes referred to simply as *50 by 30*). Long Island’s contribution to that goal calls for between 22% and 25% of our electricity to be generated by renewables. Currently, L.I., which leads NY State gets only 1.6% percent of its electricity from solar PV.

Solar PV represents one of two technically and commercially feasible technologies that could make



The ocean off Long Island has the potential to generate lots of wind energy, although that energy is likely to be shared with other regions of New York to help them meet their clean energy goals.



a significant contribution towards the goal set by the NY State Clean Energy Standard. The other is offshore wind power. PSEG Long Island projects that to meet the CES goal, Long Island will need an annual 4,718 GWH of renewable generation by 2030. This is roughly equivalent to 21,160 acres of utility-scale solar power roughly equivalent to 120 BNL solar farms, or 225 offshore wind turbines at six MW each. The numbers for one potential scenario to meet the CES goal was reviewed with the panel, consisting of 113 offshore wind turbines, 160,000 residential PV rooftops (about 1 in 5 L.I. homes), 1,875 acres of carparks (half of L.I. parking lots over 1 acre), 13,400 commercial PV roofs, and still a significant amount of ground mounted solar would still be necessary, as much as 2,325 acres.

David Schieren, CEO of *SunPower by EmPower Solar*, outlined some of the things that could be done starting now. He said that with energy efficiency, geothermal heating and solar power, “the construction of zero energy homes is now in reach.”

The So-Called ‘Green vs. Green’ Conflict

Ground-mounted, utility scale solar benefits from economies of scale and simpler engineering that reduce its cost significantly as compared to other PV options, including residential and commercial rooftops and carparks on parking lots.

Lisa Broughton, Energy Director of *Suffolk County* described how, as a leader on clean energy, the County has moved on all these fronts. Suffolk has installed solar carparks at six sites generating a modest total of 12.8 MW, and rooftop PV on 7 large buildings, for a total

capacity of just 250 kW. A recent study of county owned roofs found that only one out of the 30 roofs examined was suitable for solar PV. They have also been reviewing potential locations for ground-mounted installations. A proposal to develop a ground-mounted solar PV facility on County owned land once considered for development of County facilities was recently put off due to concerns raised by legislators about protecting woodland.

Adrienne Esposito of *Citizens Campaign for the Environment* said that some of the opposition to solar has been based on misinformation or misunderstanding. She said that there shouldn’t be a wholesale ban on clearing trees for solar projects, but that each proposal needs to be evaluated individually. Some of the criteria she laid out were whether the land is zoned for industrial development (commercial or industrial development such as stores, warehouses, parking lots, etc.) and what the impact of other likely development would be as compared to solar; if the land has important environmental attributes, is there is a realistic mechanism for preservation; in the case of open space that is publicly owned and safe from development pressure, she is against solar development.

Dick Amper, Executive Director of the *Pine Barrens Society* addressed the issue of appropriate siting of projects. He said that even if his only concern were solar, he would try to avoid public pushback on solar projects that could occur if they are not sited properly. He called for better planning to identify the places where solar is the best use, and incentives to direct solar development to those areas.

There was discussion among the panel of what entity would be best to provide



Aerial view of solar carparks at Suffolk County Riverhead Complex

planning for the development of solar. PSEG Long Island has much of the information that is needed for such planning, but does not see itself as the proper entity for land use planning. Some panel members pointed out that PSEG might not have the incentives to maximize the adoption of solar.

Some of the information that is needed to create a strategy for meeting clean energy goals with solar includes the number of suitable rooftops and their total MW potential and where substations exist that have the capacity to accept large amounts of solar power. It was mentioned that the requirements for interconnection were more restrictive in the PSEG's service territory than in the rest of the state.

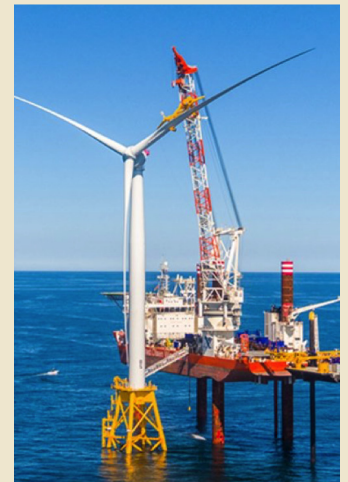
Common Ground

Despite disagreement on the use of open space, woodlands or agricultural lands for utility-scale solar PV facilities, there was broad agreement on a number of action that need to be taken to promote renewable energy on Long Island:

- Targets and goals demanded by Paris agreement and set by Albany need to be translated into

enforceable policy and action. The challenge is great and the response must be community-wide.

- The Clean Energy Standard of 50% renewable energy by 2030 must be supported.
- Local governments should adopt a 'Merton Rule' requiring new commercial construction to meet a percentage of expected energy consumption with on-site renewable generation.
- Energy efficiency to reduce both total use and peak demand is vital, as it both immediately reduces greenhouse gas emissions, and ultimately reduces the total investment in renewable generation that will be needed.
- A significant commitment to offshore wind will be necessary to meeting the 50 by 30 goals.
- Increasing the number of solar rooftops and carports must be a priority.
- More data is needed about the potential of rooftops and carports and their costs relative to utility scale, ground-mount solar. Specifically, a LIDAR analysis of the MW capacity of Long Island's built environment, including residential, commercial buildings, and parking to locate solar PV.



Offshore wind, utility scale solar PV, solar carports, commercial PV roof and residential PV are all potential sources of renewable energy for Long Island. They all present benefits and challenges.



If you would like receive copies of any meeting handouts or materials, please call the Sustainability Institute at 516-323-4510.



Thank you to the RAUCH Foundation for supporting Long Island Green Homes



Helping Long Islanders Make a Difference

Thank you to the Kraft Fund at the LI Community Foundation for a grant supporting the launch of the Sustainability Institute in 2009.