

6th Annual NYC Solar Summit

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The Graduate Center, CUNY
365 Fifth Avenue New York, NY



Morning Keynote: Christopher O'Connor, Vice President, Industry Solutions

Software IBM Smarter Cities

Mr. O'Connor stressed the importance of bringing public and private sectors together to form an integrated system to deal with aging infrastructure, increasing population, and other challenges. To be a part of the solution agencies must also be able to work well together as well as with the communities at large (like hospitals). We need a process among agencies so they can easily work together. One example of this is the NYPD real time crime center where they can analyze the probability of where crime will occur by using identities of people and incidence rates. Another example is in Singapore where they are now able to forecast traffic. This is important because heavy traffic events might affect important public events, transportation, etc. In Washington DC they were able to create a water and sewer authority that is able to analyze data to perform proactive maintenance. We see the same opportunity in NYC for solar energy. The first step is to organize digital information and make it available so that the data may be used in many different ways. This data can then be used to look at trends and predict possible outcomes. We can think about this as a leveraged ecosystem where you can use programs to get what you want done. The Smart Cities system focuses on all key aspects of a city like water, transportation, asset management, and social programs.

Panel #1: Solar America and SunShot Initiative Update

Moderator: Tria Case, University Director of Sustainability, CUNY, said that

The NYC solar market is growing exponentially and there has been an 800% increase in solar energy use in NYC.

SunShot Working Groups: Ryan Peck, NYC Solar Ombudsman, CUNY

The DOE SunShot initiative aims to dramatically decrease the total costs of solar energy systems by 75% before the end of the decade. This is a collaborative national effort to make the United States a leader in the global clean energy race by fueling solar energy technology development. The Rooftop Challenge, as part of the SunShot initiative, was created to make installing rooftop solar photovoltaics (PV) easier, faster, and cheaper for homeowners and businesses. There are twenty-two teams from across the country taking this Rooftop Challenge. These teams are made up of local and state governments as well as professionals such as utilities, installers, non-governmental organization, and others to make solar energy more accessible and affordable. These teams cover 50% of the country. The goal is to streamline and standardize processes that will dramatically improve local market conditions. They have SMART NY working groups set up to tackle these challenges.

Net Metering and Interconnection Standards: Margaret Jolly, P.E., DG Ombudswoman, Con Edison

Con Edison is working to address policy and permitting issues. New York still has the highest cost of installation for solar panels, even though the cost has significantly decreased since last year. A quarter of the costs have to do with interconnection and permitting, which are non-hardware systems costs. Agencies are now working to see where they can streamline the permitting system, since it currently takes up to a year. This is especially important because there has been an exponential increase of applications coming in. To streamline the process, they are looking at net metering, reviewing standards to see if any improvements can be made, and surveying stakeholders on how the system can be improved. Process improvements have included: understanding what developers can expect the Department of Buildings (DOB) to inspect, coordinated or joint third party inspection for ConEd, DOB, and the New York State Energy Research and Development Authority (NYSERDA), and the development of joint due diligence requirements between DOB and NYSERDA. They are also reviewing options of “no construction” permits for standard systems in NYC. The next phase will be to introduce this streamlined system to the rest of New York State.

Permitting and Interconnection: John Lee, RA, LEED AP, Senior Architect, NYC Department of Buildings

The Department of Buildings wants to support sustainability while ensuring the safety and preservation of infrastructure. There is room for improvement in terms of permitting and they have set out 4 primary objectives:

1. Streamline process: the creation of an online solar portal with the availability of a permit tracker
2. Adopt solar ABCs: identify work types that warrant reduced levels of review and inspection
3. The “get it done together”: this is to address multi agencies, bringing them in one room so everyone involved can be present
4. Transparency and accountability: give the power of information to the consumer

Mr. Lee asks that the solar community keep building, build it right, and keep rattling the Department of Buildings' cage. Currently the process is under study to allow relief for small job types while maintaining the highest level of safety and oversight. They continue to streamline the NYC permitting and interconnection processes.

Financing Options: David Gilford, Assistant Vice President, Center for Economic Transformation, NYCEDC (New York City Economic Development Corporation)

As financing is a huge issue in the solar industry, the goal is to understand challenges to solar financing and trying to remove these barriers. One of the biggest challenges to overcome is the upfront expenses for the solar installation and technology. There are lots of incentives but bringing them together is difficult. Their objective is to research current status, survey solar developers and financial institutions and analyze cities building stock and assess financing needs. Their initial focus is third party ownership where the financing company would initially own the solar installation. There are also power purchase agreements and solar leases which allows for monthly payments. There is also something called crowdfunding, like Kiva and Solar Mosaic, where many individuals can pool their funding to invest in a solar project. There is On-bill where the utility bill can be used as the methods of payment (Hawaii is exploring this). Berkeley, California used PACE, a low interest loan for solar panels, for residential purposes. The most important goal is to ensure that we are generating reliable and affordable energy.

Planning and Zoning: Howard Slatkin, Director of Sustainability, Deputy Director of Strategic Planning, NYC Department of City Planning

Most of the basic zoning provisions were designed in 1961 and must now be changed to incorporate environmental requirements. Currently some zoning requirements discourage or prohibit green buildings, which is why they have created a solar component of Zone Green. First of all there are two ways to regulate building height: sky exposure plane and maximum height limit. By changing the zoning regulations they have allowed more flexibility for green infrastructure. These are the new regulations:

Up to 4 feet: any building can now put solar on the roofs ? Higher than 4 feet: elevated structure to allow fire fighters to pass through.

Can go up to 6 feet and are limited to 25% roof coverage (portion above 6 feet). You can also apply solar to bulkhead equipment.

For more information on zoning regulations visit: nyc.gov/zonegreen



Panel #2: Intelligent Operations and the New York Economy

Intelligent Operations Centers: Operation and Usage: Shoel Perelman, Director of Development, Industry Software Solutions, IBM

IBM is creating software that allows people to work together and share information. For example, Rio De Janeiro where mudslides are prevalent the mayor got together representatives from all departments to predetermine a slide and warn residents. The goal of the Intelligent Operation Center is to leverage info across all city agencies and departments so that all data may be in one place. This will help to minimize the impact of disruptions and to anticipate problems. With this system agencies will be able to coordinate resources so that they may respond to issues rapidly and effectively (to establish proactive emergency management preparedness to help mitigate certain events). Some of the special features include geospatial mapping, data modeling and integration, and incident management. Examples of how Intelligent Operation Centers have been used:

Debuque: compare resource consumption with neighbors

Miami-Dade Park: compare parks' water usage

South Bend, Indiana: to reduce combined sewer overflow incidents, manhole covers with sensors, hot spots crews to the right places for maintenance

SMART NY: Check waiting times for a permit

Intelligent Energy Planning: Ariella Maron, Deputy Commissioner for Energy Management, Department of Citywide Administrative Services

Energy is data driven. You need to know what data you need to make decisions, where you can get the data, and how you should analyze it. Hubs were created to oversee efforts to reduce energy consumption and greenhouse gas emissions by 30% by 2030 (from 2006 FY06 baseline). We need information to track greenhouse gas emissions. An integrated approach is to use benchmark data to prioritize facilities and track building performance over time. They hope to identify cost-effective retrofits based on audit findings and use real-time data to inform operational decisions and better manage peak loads. Utility data will be released to allow for better management, accountability, and recognition. Problem areas are in small buildings. EC3 was developed to allow better communication between agencies so they may be able to improve and find their mistakes. The enterprise metering system will offer real time info and analysis so that we may look for trends and identify issues, and it will conveniently operate on the city's wireless network. Training is critical; 1250 people have been trained and CUNY has been helping with the building operator certification. With this there has been \$42 million in energy savings. These efforts have resulted in 5-10% reduction in energy use year after year. Most important points: know what you want, why, and what technology you need, take time to get quality data, do not start out too big, and institute IT project management best practices for any data related effort.

The New York Solar Economy: Vincent Cozzolino, Founder and CEO, the Solar Energy Consortium

There is an effort by the Consortium to get the solar technology manufactured in the US. The Solar Energy Consortium is a SunShot partner. So far Solar Liberty and Hudson Energy are the two biggest manufacturers of solar products. California is currently leading the way in terms of the number of solar jobs available and New York is currently ranked 15th. Manufacturers in the US are highly automated, which is why we need skilled automators rather than cheap labor, as in China. Governor Cuomo started the NY Sun Initiative, which aims to have 300% growth in annual PV installation by 2013. NYSERDA funding for PV will be doubled to \$432 million over the next 4 years and NYSERDA and NYPA are collaborating in a NY-Sun balance-of-system (BOS) initiative. Everyone is thinking about initiatives from an economic standpoint. The Photovoltaic Manufacturing Consortium (PVMC) is looking into what will be next for the solar industry.

Afternoon Keynote: Robert M. Hallman, NYS Deputy Secretary for Energy and Environment

Our biggest concerns currently as a society are economic development and jobs. We need to make sure we achieve our goals for a clean energy program, making compatible economics and sustainability. Some of the challenges in New York City include: aging buildings, upgrades on grid system, high price electricity and low natural gas prices. We live with constant uncertainties about the costs of renewable energy and clean energy policy. The following are initiatives that are working towards greening New York City energy:

- Power NY is an initiative to reform the power plant siting process and to put in place emissions standards.
- The Energy highway initiative is focused on suppling and upgrading transportation. There are 170 project proposals that we need to work through and create an action plan for. There are task forces to decide on the action plan by the end of the summer
- A master plan for energy efficiency has been established for state buildings. There has been authorization of 500 million dollars and there has been great support from NYPA. \$350 million have been given to help local governments and municipalities to upgrade buildings.
- The financing bill is being used to encourage residential and small businesses to do audits, to increase efficiency, and to get funding.

- NY has been a leader in renewables with 2000 MW excluding hydro. The attention is now turning to solar.
- NY Sun initiative has increased investment in and keeps an eye on fluctuations in prices. They hope to have flexible and balanced policies, doubling solar installations by the end of this year, triple by next year, and have agreed to double investments to \$800 million a year, which would be \$32 billion dollars over the next few years. This will be enhanced by the competitive procurement.
- Long island has a standard rebate program. There will be \$15 million to support 35 MW in solar facilities.
- NYPA plans to use a feed-in tariff program over 20 years. They will invest 12- 15 million dollars in this program. NYPA plans to standardize the permitting process while NYSERDA and NYPA have teamed up to address the balance of system costs. They plan to focus on areas of research, development, training and demo projects.
- The State Energy Planning Process is preparing a comprehensive energy plan, due by September 1st. There will then be 10 public hearings for stakeholder input.

Panel #3: Shaping the New Energy Equation Moderator: Wilson Rickerson, CEO, Meister Consultants Group

We have gone past expectations in terms of solar and renewable energy technology in general. We often get it wrong when predicting where we are going to go in the future. Germany last year went from 6% to 20% renewables and they plan to be at 80% by 2050. Germans do not have a demand response strategy where mechanisms are used to manage consumer electricity consumption in response to supply conditions. New York City is aware of the societal requirements needed to absorb the changes that come as a result of renewable energy systems.

PlaNYC and Energy: Steven Caputo, Jr., Policy Advisor, NYC Mayor's Office of Long- term Planning and Sustainability

It is expected that there will be over 1 million more people coming to NYC in the next decade. The Mayor's Office of Long-term Planning and Sustainability has 3 goals: air quality (peak summer days, a lot of harmful emissions, cleanest air quality, get rid of heavy heating oil), Energy (cleaner energy supply, more efficient), and climate change (30% clean energy by 2030). **Most of the positive change will come from efficient buildings and clean energy. The deeper challenge is how do we get to 80% renewables by 2050? (There currently is a NYCERDA grant used to develop plans for 80% renewables).**

Objectives:

1. Create an energy data marketplace: the Greener, Greater Buildings Plan. NYC's landmark energy efficiency laws. Greater than 2 billion square feet in NYC has been benchmarked. We will publicize the energy use of buildings. Go to nyc.gov/cleanheat to see buildings that are using dirty fuel (honestbuildings.com).
2. Coordinate buildings and utility investments:, install solar performance data monitoring network on solar sites to have an active real stream data. We can then see how solar performs. We need to create economies of scale for gas system investments as there has been a huge growth in demand. NYC Clean Heat is working to cluster buildings to minimize costs.

3. Foster innovation through public-private partnerships: the city is trying to get the model to work here. They are receiving energy financing through NYCEEC (New York City Energy Efficiency Corporation). They will use a pool of money to leverage private financing.

Energy Planning: Ronny Sandoval, Senior Specialist, Energy Efficiency, Con Edison

New York City requires 13 000 MW for peak demand. In an electric system you have: the generation station, transmission substations, transmission lines, area substations, transformers, and then the homes. Con Edison has a load relief planning process that is done for the 10-year horizon and ensures their system capacity is sufficient to meet projected growth in peak demand. Load forecasts are developed annually after each summer. We need to examine the capability of existing equipment to supply future lead growth. Demand side planning considerations: having lower demand lowers the amount of capital expenditures. Solar empowerment zones allow us to try to identify areas where the demand is almost going to pass capacity. We chose those areas that are “day-peaking” and which have sufficient square footage to accommodate solar installations. We need more info on performance of solar production during system or regional peak conditions to try to figure out where we have the greatest potential for solar.

Afternoon Conversation: SunShot, NY SUN and PlaNYC, Leveraging Federal, State and City Initiatives

Moderator: Laurie Reilly, Communications Director, Sustainable CUNY Rachel Tronstein, Deputy Director, SunShot Initiative, U.S. Department of Energy

The key is to make solar cost effective without subsidies. Subsidies are constantly changing and we want to create a predictable market.

Frank Murray, Jr., President and CEO, New York State Energy Research and Development Authority (NYSERDA)

The governor is action oriented and wants to push the envelope. We need to make informed decisions if we want to achieve our goal of doubling the use of renewable energy. We need aggressive goals like this to make politics happen.

Gil C. Quiniones, President and CEO, New York Power Authority

We have a history of the use of hydropower, but we are now moving slowly towards solar. The government needs to set the conditions right for innovation and for research and development so that the private sector can leverage these efforts.

Robert LiMandri, Commissioner, NYC Department of Buildings

New York City is 2nd to Honolulu as the greenest city. We have the opportunity to turn buildings into energy sources. We need to make sure that energy is the primary goal in terms of the building code. We must be able to give permits more quickly and we need to educate concerning energy efficiency savings.

Sergej Mahnovski, Director of Energy Policy, New York City Office of the Mayor

There have been tremendous amounts of innovation in technology and infrastructure development. We want solutions to be cost effective, enhance reliability and reduce environmental pollution. In NYC 80% of emissions come from buildings. The city's role is to support capital investment and to spend money efficiently. One way of doing this is to expand tax abatement for efficiency investment.

Topics of Discussion

What can we do to make solar more current:

We have a grassroots kind of opportunity where we can make investments in buildings and people make investments in their home. There have been issues in the past with solar in certain areas and we must make sure that people know that it works and can get reliable information.

New York has 200 MW of renewable energy, which is more than NJ, CT and MA combined. We are advancing in terms of solar in a smart way. We are trying to build incrementally and try different approaches (without subsidies) as a more sustainable method. New Jersey only has solar but New York is going to pursue all renewable technologies that makes economic and environmental sense in research and development.

Grid Parity

We have seen large cost decreases, and renewables are getting close to grid parity with conventional fuels. Solar has only become more challenging because of cheap natural gas. The key is to find those locations where solar has more value.

Side Note on C40 Cities:

C40 Cities Climate Leadership Group (C40) is a network of large and engaged cities from around the world committed to implementing meaningful and sustainable climate-related actions locally that will help address climate change globally. The organization's global field staff works with city governments, supported by technical experts across a range of program areas.

The current chair of the C40 is New York City Mayor Michael R. Bloomberg who – with the support the C40 executive leadership team – guides the work of the C40, along with the members of the C40 Steering Committee: Berlin, Hong Kong, Jakarta, Johannesburg, Los Angeles, London, New York City, Sao Paulo, Seoul and Tokyo. A total of 58 global cities are members of the C40 Cities Climate Leadership Group.

Climate Leadership Group. C40 Cities, 2011. Available at <http://www.c40cities.org/>.