

LIPA- Market Transformation for Photovoltaics

Long Island Power Authority's Solar Pioneer Program

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Topic: Program Development and Implementation

How do renewable energy programs continue to grow while reaching the goals of energy savings, customer satisfaction, balancing a budget and achieving market transformation of the technology?

We are all affected by the energy challenges that the United States and the world are experiencing. As a general rule, energy conservation and renewable energy typically brings an initial higher cost. Photovoltaics (PV) is not excused from this rule. On average, in 1999, we saw an approximate installed cost of PV at \$12.00 per installed DC watt on Long Island. Currently, we are seeing around \$7.50 to \$8.00 per installed DC watt. What is the reason for this cost reduction? Let us review how the Long Island Power Authority (LIPA) is helping in the market transformation of energy with LIPA's Clean Energy Programs.

LIPA Overview

LIPA's Clean Energy Programs (CEI) are achieving market transformation for renewable energy technologies and energy conservation measures. LIPA is working to achieve acceptance of these technologies as common practice. As the market place accepts these new energy trends, the need for incentives will decrease, creating a self sufficient market.

In May of 1998, LIPA became Long Island's primary electric service provider. Operating as a non-profit entity, LIPA has continued to serve Long Island's growing population with a consistent commitment to cost- containment, efficiency and service reliability. Long Island is in the south east part of New York State. Being an island creates unique challenges to the generating needs of Long Island. Not in My Backyard (NIMBY) is a common slogan for building new power plants and there are limited resources of electric distribution electric lines to help supply LIPA's 1.1 million customers.

With the demand for electricity growing at a record-breaking pace, priorities at LIPA continue to focus on the customer -- upgrading and enhancing the electric system, advancing energy efficiency, and developing and expanding alternative energy resources. The LIPA slogan -- "**More choice... Better service!**" -- summarizes its dedication to improving the quality of life for everyone within the LIPA service territory.

In May of 1999, LIPA's Board of Trustees approved a ten year, 355 million dollar effort to significantly improve the efficiency in which energy is used in LIPA's service territory. These programs are known as LIPA's Clean Energy Initiative (CEI). The CEI portfolio consists of over twelve programs, offering services to *all* customer types. Programs range from targeting Lighting and Appliances to Cool Homes to working with ESCO's to sell energy conservation (RECAP) and to photovoltaics (PV).

LIPA's Solar Pioneer Program

The Long Island Power Authority's (LIPA's) Solar Pioneer Program promotes the use of solar electricity generated by PV systems as an environmentally clean and viable alternative to energy generated from fossil fuels. LIPA's program currently offers rebates up to 10 kW in system size. The total DC installed capacity now exceeds 4.1 MW. The chart below lists the distribution of rebates by customer type.

Customer Type	Paid Rebates	Rebate Dollar Amounts	kW (DC)
Residential	678	\$17,489,943	3,756
Not for Profit, Gov., Schools	23	\$949,188	147
Commercial	34	\$1,258,270	265
Totals	735	\$19,697,401	4,169

*As of 9/12/06

The Solar Pioneer Program has worked to identify and reduce key barriers (e.g., high PV system costs, under developed delivery infrastructure, and lack of consumer knowledge) that inhibit widespread adoption of PV systems. Key program objectives include:

- Increasing consumer education, awareness and demand for PV systems;
- Accelerating the reduction of system costs and increasing performance and the development of a self-sustaining local infrastructure of PV systems;
- Implementing new mechanisms to overcome financial barriers for PV systems.

LIPA offers direct financial incentives to reduce a system's installed cost - making the cost of installing a PV system within its service territory among the most affordable in the country. The level of these incentives has varied over time (rebating approximately 50% of the installed costs), to match market conditions and market demands.

Rebate Level	Date Rebate Started	# of Rebates	Rebate Dollars	kW (D/C)
\$3.00	6/29/00	15	\$106,740	36
\$6.00	12/5/01	195	\$5,320,742	974
\$5.00	7/31/02	219	\$6,080,424	1,223
\$4.50	9/11/03	143	\$4,067,899	906
\$4.00	11/11/04	151	\$3,893,980	975
\$3.75	11/29/05	12	\$227,616	56

*As of 9/12/06

The current direct incentive is \$3.75/Watt for residential and commercial systems up to 10kW. Schools, municipalities and non-profit organizations are eligible for an extra \$1.00/Watt (for a total LIPA rebate of \$4.75) as a direct program incentive. The program continues to support a broad range of market development activities that include LIPA sponsored customer seminars and conferences, consumer outreach and education, tax credit information, outreach to industry partners and support for infrastructure development and work with local jurisdictions to identify and reduce barriers to system installations.

Residential Market: With almost 1 million residential customer accounts in LIPA's service territory, there is significant opportunity to grow the PV market. Currently, LIPA has rebated 678 residential

customers for their PV systems. There are many additional customers with properly sited roof areas making the residential market a strong growth opportunity.

Not For Profit, Government and Schools Market: On Earth day of 2005, LIPA announced the addition of an extra one dollar per watt above the LIPA's current rebate level. This extra one dollar per watt was to help offset the tax advantages available to the residential and commercial markets. The interest from this customer segment has been very strong, with excellent growth opportunities.

Commercial Market: There are approximately 100,000 commercial accounts on Long Island. Many of these customers have unobstructed flat roofs. The current Federal tax credits of 30% (with no dollar caps) and the accelerated depreciation make PV very economical. There are significant growth opportunities for PV as shown below.

Business owners and commercial users are uniquely positioned to capitalize on the other important factors:

- PV's electrical output matches patterns of energy use in commercial buildings, promoting effective management of electricity demand.
- PV applications are now being integrated directly into building roofs, walls and surrounding spaces; and these technologies are evolving rapidly.
- Business-owned PV systems are eligible for tax advantages, such as accelerated depreciation and a thirty percent Federal income tax credit with no financial cap.
- Investing in renewable energy sends the message that you care. The environmental benefits are realized both at your commercial building and in the global community. Renewable energy can help reduce the nation's reliance on foreign energy suppliers.

Results/Achievements/Concepts:

Since the program's inception in 1999, the program has rebated more than 19.7 million dollars for 735 installations for a total of 4,169.55 kW (DC). LIPA's Solar Pioneer program continues with steady progress towards the goal of developing a self-sustaining solar electric industry on Long Island. Some of the highlights are:

Renewable Energy Long Island (RELI)- LIPA works with RELI which is a local not for profit agency that promotes the concept of renewable energy and energy conservation. RELI has been a strong supporter of LIPA's CEI and Solar Pioneer programs. With LIPA and RELI working together, the Solar Corps was created. The Solar Corps is volunteer group of customers who have installed a PV system. The Solar Corps group can speak about their personal experiences with PV and help to advocate for the technology.

Solar Tour- Working with RELI and the Solar Corps membership, Long Island will participate in the second annual Solar Tour. The National Solar Tour is considered to be the largest public renewable energy education event in the world. It is a free, self-guided tour of homes, businesses and other buildings with solar features including passive solar design, solar hot water and solar-electric (PV) generating systems

Contractor Meetings- LIPA's invites the PV contractor ally's and advocacy groups to meetings throughout the year to help develop program policy and to provide updated program information.

Free Public Seminars- LIPA hosts free public seminars throughout LIPA's service territory to provide information about the PV technology and LIPA's Solar Pioneer program. Over 4,100 people have attended these free seminars to learn more about PV.

Habitat For Humanity (HFH)- LIPA has been working with HFH to install PV onto Habitat houses. Fifteen PV installations have been rebated. Recently, HFH organized a blitz build of 5 homes in 5 days. With the assistance from LIPA, this blitz build included PV and Energy Star ratings for all five homes. LIPA assisted to expedite the rebate process, and helped to find a vendor and installer willing to install the systems at no cost to HFH. LIPA just received an additional five PV applications for existing HFH homes.

New Construction Market- LIPA is working with new construction builders to incorporate PV during the construction process. This can offer a lower per watt installation cost and the cost of the PV can be rolled into the mortgage. Marketing materials and additional installation time are some of the measures that LIPA is assisting with to grow this market.

New York Institute of Technology (NYIT) Solar Decathlon- The students at NYIT were selected to participate in the National Solar Decathlon. The Solar Decathlon was a competition among colleges to build a solar home and to display the home on the mall in Washington DC. The NYIT students took on the challenge and incorporated PV and hydrogen (for a fuel cell) to be a self-sufficient home. LIPA provided financial and technical support to NYIT for this project.

United States Merchant Marine Academy (USMMA)- Upon completion of NYIT's Solar Decathlon home, the home was transferred to the USMMA in Kings Point NY. The dedication of America's first PV/Hydrogen home took place on graduation day at the USMMA with President Bush in attendance.

Building Codes Seminars- Over 400 representatives from the building and code enforcement community have attended free seminars hosted by LIPA to learn more about the PV technology. Continuing Education Credits were offered to those who attended the seminar.

Solar Conferences- LIPA has been a mega sponsor of three annual solar conferences held at Farmingdale University. This conference was designed to offer information in residential and commercial tracks. Over 667 people have attended these conferences.

LIPA's Solar Pioneer Web Site- LIPA hosts a very comprehensive web site (www.lipower.org/solar) offering technical and program information to customers. The web site contains links to program forms, rebate availability, tools to assist in sizing a PV system and links to other solar resources.

The idea of market transformation for PV *is* working on Long Island! LIPA's program is unique in that we are constantly monitoring the overall costs of PV and adjusting the rebate levels to drive the overall market costs down. The overall cost to install a PV system on Long Island has been decreasing, creating an even higher demand for the technology. These systems are estimated to produce more than 5,321 MWh of solar electricity annually and off-set over 2.08 MW of summer peak system demand.

LIPA's Solar Pioneer program has evolved as adoption of the technology has grown. A well-designed solar energy program will send a powerful message to your customers that your organization is supporting their innovative and practical efforts to deliver clean energy services.