



## **Clean Energy Initiative**

# **Annual Report 2008**

**May 22, 2009**

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## **Programs Implemented**

LIPA's Clean Energy Initiative consisted of several efficiency programs as well as a number of research, development and demonstration (RD&D) projects. In 2009, LIPA has embarked upon Efficiency Long Island (ELI), a 10-year, \$924 million energy efficiency program that will make a wide array of incentives, rebates and initiatives available to LIPA's residential and commercial customers to assist them in reducing their energy usage and thereby lowering their bills. Efficiency Long Island is intended to succeed and expand upon LIPA's Clean Energy Initiative that expires at the end of 2008. At the conclusion of the program as of December 31, 2008, the Clean Energy Initiative consisted of the following:

### **Residential**

Energy Efficient Products Program  
Cool Homes Program  
Residential Energy Affordability Partnership  
Solar Pioneer Program  
Information and Education Program  
New York ENERGY STAR<sup>®</sup> Labeled Homes  
Home Performance with ENERGY STAR<sup>®</sup>

### **Commercial / Industrial**

Commercial Construction Program  
Retrofit Energy and Capacity Program

### **Multi-Sector**

LIPAE<sup>®</sup> Program

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## **I. EXECUTIVE SUMMARY**

In May 1999, the LIPA Board of Trustees approved the Clean Energy Initiative (“CEI” or “the Initiative”), “a five-year, \$160 million effort targeted at achieving energy and capacity savings for LIPA, delivering electric bill savings to customers and providing environmental benefits to society.” In 2001 the overall commitment through 2003 was increased by \$10 million to a new total of \$170 million. In 2003, LIPA earmarked \$185 million for the CEI from 2004 through 2008. The CEI was a 10-year, \$355 million dollar commitment through 2008 to promote clean new electric generation technologies. In 2009, LIPA has embarked upon Efficiency Long Island (ELI), a 10-year, \$924 million energy efficiency program that will make a wide array of incentives, rebates and initiatives available to LIPA’s residential and commercial customers to assist them in reducing their energy usage and thereby lowering their bills. Efficiency Long Island is intended to succeed and expand upon LIPA’s Clean Energy Initiative that expires at the end of 2008. The Board articulated eight policy objectives for the CEI:

1. Further customers’ ability to control their energy bills
2. Provide a stimulus to the local economy
3. Enhance customer retention
4. Defer or reduce capacity needs
5. Build customer trust and LIPA brand loyalty
6. Promote a positive image for LIPA
7. Reduce power plant emissions
8. Contribute to a sustainable energy future

The original CEI portfolio contained eleven programs that pursued investments in energy efficiency, renewable energy, peak load reduction, and a variety of research, development and demonstration (RD&D) projects. Among the key characteristics of these programs were their flexibility, multi-year commitments and their combined treatment of all customer classes.

In 2008, the CEI encompassed ten energy efficiency programs as set forth in Table 1 and cutting-edge RD&D initiatives. In 2004, the annual report presented a comprehensive review of the first five years of the Initiative. This report presents cumulative overall results as well as specific program results for the year-ending 2008.

The CEI was primarily conducted through National Grid who oversaw the activities of a host of contractors carrying out implementation efforts in the field. A few of LIPA’s most active contractors are; Conservation Services Group (CSG) who are involved with our ENERGY

STAR® Homes Program, Home Performance with ENERGY STAR® Program, and RECAP; Applied Proactive Technologies (APT) who assist in our Lighting and Appliance Program and our Commercial Construction Program; and Honeywell who helps in our delivery of our Residential Energy Affordability Program (REAP).

During its eight years (1999 through 2008), the CEI has produced significant savings for Long Island. Along with the reductions in energy use come a variety of benefits from the pollutants that were not generated. The CEI, including RD&D, has resulted in a total of approximately 3,106,000 MWh of energy saved and/or produced to date, which resulted in reduced emissions of over 1,934,800 tons of CO<sub>2</sub>, over 2,628 tons of NO<sub>x</sub> and over 8,040 tons of SO<sub>2</sub>. These energy savings translate into fuel savings of more than 5.00 million barrels of oil, or more than 31.10 million decatherms of gas.

Throughout this report, except where stated otherwise, all energy and demand savings are expressed as cumulative annual, with the savings in each year added up from program inception in 1999 through 2008. In other words, cumulative annual savings are the total energy savings achieved in this year alone, from all of the program activity to date over the six year time period (1999 incremental savings plus 2000 incremental savings, and so on, through 2008).

The measures installed from CEI inception through 2008, excluding RD&D efforts, has resulted in 208 MW of peak demand savings and 700,493<sup>1</sup> MWh of energy savings in the year 2008, 3% higher and 10% lower, respectively, than the originally projected savings of 203 MW and 777,619 MWh for the same period.<sup>2</sup> By all measures of electricity savings and economic impacts, the Initiative has been a highly successful investment for Long Islanders. The portfolio of programs has met or exceeded initial goals.

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<sup>1</sup> Total energy saved or produced for the time period of 1999 through 2008 was 3,096,000 MWh. This number is used to calculate emission reductions. Total energy savings/produced to date are determined by adding the cumulative annual savings resulting in each year to all following years in the time period. For example, the total energy savings/produced by year end 2000 equals the 2000 cumulative annual savings, plus the 1999 cumulative annual savings, (or the 2000 incremental annual savings plus two times the 1999 incremental annual savings). This is because the incremental savings that occurred in 1999 continue to accrue in subsequent years.

<sup>2</sup> Totals no longer include the Peak Reduction Program which was included in the original CEI targets, but was moved to LIPA's Retail Service offering in 2002 and is no longer part of the CEI portfolio. Also, the Resource Conservation Manager program, due to findings in its pilot stage introduction that found it would not likely result in originally estimated adoption and savings levels, is also not included in the Totals. Results for three programs that were not envisioned in the original CEI portfolio are included: LIPAE<sub>edge</sub>, AC Turn-In Bounty (Keep Cool), RECAP and Energy Star® Labeled Homes. Research Development and Demonstration results are excluded here, but are contained in LIPA's 2008 RD&D Report.

**Table 1**

The following table shows Clean Energy Initiative results for participants, cumulative annual energy savings, and cumulative annual peak demand savings from inception in 1999 through year-end 2008 (December 31, 2008).

<b>LIPA Clean Energy Initiative Results To Date: 1999 through December 31, 2008</b>	<b>Participants (Units, Customers, Applications, Certifications)</b>	<b>Cumulative Annual Energy Savings (MWh)</b>	<b>Cumulative Annual Peak Demand Savings (MW)</b>
<b>Program</b>	<b>1999 through December 31, 2008</b>		
<b>Residential</b>			
Energy Efficient Products (EEP) formerly RLA	5,000,835	302,786	24.9
Cool Homes (HVAC)	42,621	31,746	47.3
Energy Affordability Partnership (REAP)	38,864	44,106	5.1
Solar Pioneer (Photovoltaics)	1,640	12,351	5.5
Information and Education	108,306	23,795	8.5
Energy Star <sup>®</sup> Labeled Homes	764	1,997	1.4
Home Performance with Energy Star <sup>®</sup>	252	375	0.3
Keep Cool AC Bounty (phased out in 2003)	93,512	20,324	26.4
<b>Commercial/Industrial</b>			
Commercial Construction (CCP)	4,324	185,141	35.9
<b>Multi-Sector</b>			
Customer-Driven Efficiency (CDE) (residual savings)	2,690	19,657	2.0
LIPAedge Events*	27,398	-	38.9
<b>RD&amp;D</b>	N/A**	N/A**	N/A**
<b>Total All Programs</b>	<b>5,322,342</b>	<b>700,493</b>	<b>208.3</b>
Retrofit Energy and Capacity (RECAP)	1,136	58,215	12.0
<p>*LIPAedge Events are the greatest number of controlled units that responded over the called hours and days (peak time), and also, the MW savings associated with those events. Although no event was called in 2008, the 2007 event numbers are representative of what would have been achieved if an event was called in 2008. LIPAedge net installed capacity reported for 2008 is 33,853 participants and 50.7 MW.</p> <p>**N/A denotes Not Applicable in regards to the RD&amp;D portfolio results being not applicable to the CEI Portfolio of savings.</p> <p>Note: Results are not included for programs no longer a part of the CEI (Resource Conservation Manager and Peak Reduction).</p>			

**Table 2**

The following table shows Clean Energy Initiative results for actual budget dollars (nominal) in millions from inception in 1999 through year-end 2008 (December 31, 2008) for each program of the CEI portfolio.

<b>LIPA Clean Energy Initiative Results To Date: 1999 through 2008 Nominal \$ in millions</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Cumulative 1999 - 2008</b>
<b>Residential</b>											
Lighting and Appliances (RLA)	2.48	6.35	10.90	1.24	3.44	2.64	4.70	3.98	5.13	3.94	44.80
Cool Homes (HVAC)		4.40	2.71	3.86	3.54	3.73	3.65	2.78	1.85	2.01	28.53
Energy Affordability Partnership (REAP)		2.05	3.01	2.27	2.74	3.11	3.15	3.73	2.83	3.56	26.45
Solar Pioneer (Photovoltaics)		1.06	0.69	6.27	5.37	4.91	5.00	8.80	7.83	12.62	52.55
Information and Education		0.47	0.57	0.38	0.69	0.52	0.51	0.43	0.51	0.39	4.47
Energy Star® Labeled Homes					0.18	2.52	1.88	2.08	2.90	1.80	11.36
Home Performance with Energy Star®				0.04	0.06	0.06		2.90	2.73	0.53	6.32
Keep Cool AC Bounty (phased out in 2003)				14.34	2.21	0.14					16.69
<b>Commercial/Industrial</b>											
Commercial Construction (CCP)	2.47	4.88	5.98	6.56	7.83	7.00	8.62	7.89	5.76	6.89	63.88
<b>Multi-Sector</b>											
Customer-Driven Efficiency (CDE)		0.55	0.30	0.40	0.33	0.54	0.79	0.55	0.79	-	4.25
LIPALedge Installed Capacity**			7.20	7.72	5.61	2.16	3.39	2.58	2.57	1.58	32.81
<b>RD&amp;D</b>		3.60	12.42	10.25	6.58	4.13	2.76	2.19	1.89	2.19	46.01
<b>Total All Clean Energy Programs</b>	<b>4.95</b>	<b>23.36</b>	<b>43.78</b>	<b>53.33</b>	<b>38.58</b>	<b>31.46</b>	<b>34.45</b>	<b>37.91</b>	<b>34.79</b>	<b>35.52</b>	<b>338.13</b>
Retrofit Energy and Capacity (RECAP)						0.06	0.15	1.72	10.69	0.87	13.49

## II. PROGRAM SUMMARY

LIPA's Initiative aids the transformation of specific markets (how professionals make energy-related decisions, how manufacturers determine which products to develop, how various market participants involved in energy product distribution and delivery interact with each other) so that investments made now to encourage energy efficiency will continue to reap efficiency returns in the future. The CEI's initial five-year term (which ended in 2004) and its continuance through 2008, sent a clear signal to equipment manufacturers and building construction professionals that their investments in product development, marketing and skills development on Long Island will have time to pay dividends.

To accomplish its objectives, LIPA continues to collaborate with a number of regional and national groups sharing similar purposes, including NYSERDA (New York State Energy Research and Development Authority), NEEP (Northeast Energy Efficiency Partnerships), the U.S. Department of Energy (DOE), AIA (American Institute of Architects), US Green Building Council (USGBC) and CEE (Consortium for Energy Efficiency). LIPA also works with an ever-expanding network of trade, business and consumer groups on Long Island (e.g. International Brotherhood of Electrical Workers (IBEW), Hauppauge Industrial Association (HIA), Associations for a Better Long Island (ABLI), Long Island Builders Institute (LIBI) and the Long Island Solar Energy Industry Association (LISEIA).

**Table 3**

*The following table lists the existing CEI programs by sector and the status of each of those programs*

Program	Status		
	Existing	Newly-Proposed	Phased Out
<b>Residential</b>			
Lighting and Appliances	X		
Cool Homes (HVAC)	X		
Energy Affordability (REAP)	X		
Solar Pioneers (Photovoltaics)	X		
Information and Education	X		
New Construction (NY ENERGY STAR® Labeled Homes)	X		
Home Performance with ENERGY STAR®	X		
Keep Cool (AC Turn-In Bounty)			2003
<b>Commercial/Industrial</b>			
Commercial Construction	X		
Retrofit Energy and Capacity (RECAP)	X		
Peak Reduction*			2002
Resource Conservation Manager			2001
<b>Multi-Sector</b>			
Customer Demand Management (LIPAge)ge)			2008
Customer-Driven Efficiency	X		
* Currently included in LIPA's Retail Service's product offerings.			

### III. CLEAN ENERGY INITIATIVE SUMMARY OF RESULTS

#### A. Total Results from 1999 through 2008

Since program inception, the CEI Initiative, *excluding RD&D efforts*, has saved and/or produced 3,096 GWh of energy, resulting in the displacement of over 1,931,500 tons of CO<sub>2</sub>, over 2,622 tons of NO<sub>x</sub> and over 8,023 tons of SO<sub>2</sub>. This energy savings represents a fuel savings of more than 4.99 million barrels of oil, or more than 31.01 million decatherms of gas.

#### B. 2008 Clean Energy Initiative Programs Total

##### Year-End Performance

The following table presents the 2008 annual results for the Year ending December 31, 2008<sup>3</sup>, and goals for the total of all CEI Initiative Programs (which does not include RD&D efforts).

**Table 4**

*Annual results for the year ending December 31, 2008*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	144,514	95,787	151%
MW (demand savings)	22.28	21.74	102%

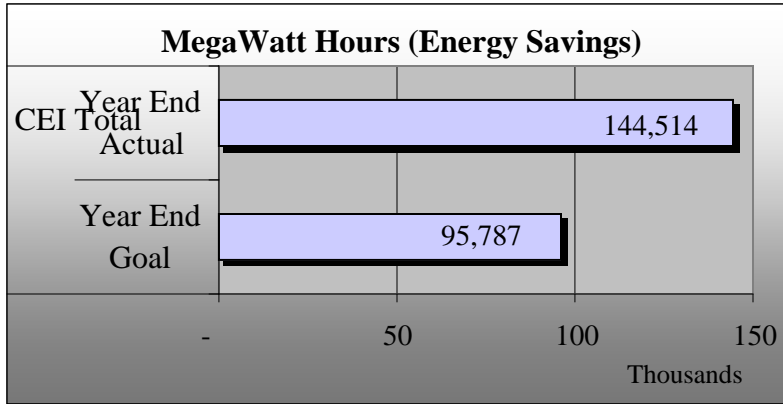
The following two graphs show Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

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<sup>3</sup> The installed capacity of the LIPAEedge program with 33,853 participants and 50.730 MW savings potential has not been included in the CEI portfolio year to date for 2008.

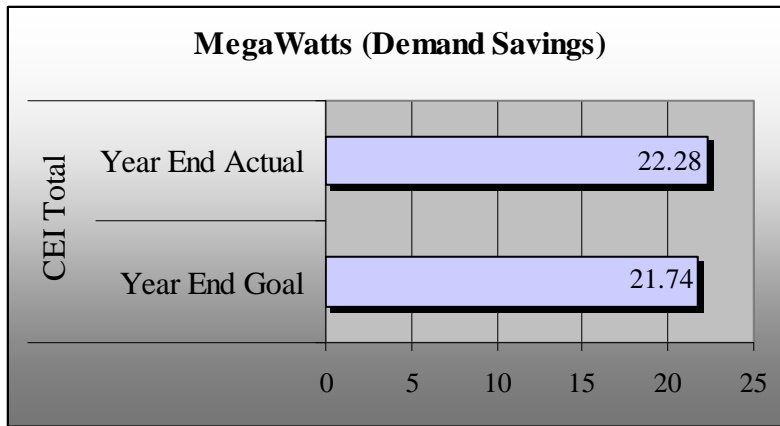
**Graph 1**

*Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh*



**Graph 2**

*Results and Goals for the year ending December 31, 2008 for Demand Savings in MW*



## C. Societal Benefits & Costs and Levelized Costs 1999-2008

### Total All Programs

The following table shows different measurements by which the programs can be judged. Cost-effectiveness is determined using all societal benefits and costs associated with the programs. This means the customer portion of the investment in energy efficiency is combined with the utility investment on the cost side, and the non-electricity savings are included on the benefit side. For instance, the fossil fuel and electricity savings stemming from new efficient shell measures are tallied together. The overall benefit/cost ratio is shown for the portfolio excluding RD&D efforts. Each market program section that follows lists the market program-specific societal benefits and costs, net societal benefits and societal benefit/cost ratios.

As shown in the following table, the CEI portfolio has yielded over \$393.75 million in net societal benefits and a 2.08 benefit/cost ratio.

Table 5

<b>Total All Programs (2008\$ million)</b>	<b>Through 2008</b>
Societal Benefits (a)	\$759.60
Societal Costs (b)	\$365.85
Net Societal Benefits (a-b)	\$393.75
Societal Benefit/Cost Ratio (a/b)	2.08

Levelized costs are a way to readily compare electric efficiency energy savings with electric energy production in the same terms. The way this is calculated is to amortize program expenditures over the life of the efficiency measure and then to divide that by the annual energy savings of the same measure. The overall levelized cost of the CEI portfolio is \$0.048 per kWh which compares favorably with LIPA's cost of generation.

### Residential Market Programs

As shown in the following table, the CEI residential programs<sup>4</sup> have produced over \$164.98 million in net societal benefits along with a 1.61 benefit/cost ratio.

Table 6

<b>Total Residential Programs (2008\$ million)</b>	<b>Through 2008</b>
Societal Benefits (a)	\$437.10
Societal Costs (b)	\$272.13
Net Societal Benefits (a-b)	\$164.98
Societal Benefit/Cost Ratio (a/b)	1.61

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<sup>4</sup> The CEI residential programs benefits and costs include Solar Pioneer and LIPAedge.

The overall levelized cost of the CEI residential programs is \$0.062 per kWh which compares favorably with LIPA's cost of generation<sup>5</sup>.

## Commercial Market Programs

As shown in the following table, the commercial programs<sup>6</sup> have produced \$228.77 million in net societal benefits along with a 3.44 benefit/cost ratio.

*Table 7*

<b>Total Commercial Programs (2008\$ million)</b>	<b>Through 2008</b>
Societal Benefits (a)	\$322.50
Societal Costs (b)	\$93.72
Net Societal Benefits (a-b)	\$228.77
Societal Benefit/Cost Ratio (a/b)	3.44

The overall levelized cost of the CEI commercial programs is \$0.030 per kWh which compares very favorably with LIPA's cost of generation.

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<sup>5</sup> The CEI residential programs levelized cost does not include LIPAedge.

<sup>6</sup> The CEI commercial programs benefits and costs include Customer Driven Efficiency.

## **IV. 2008 RESIDENTIAL MARKET PROGRAMS**

### **A. Energy Efficient Products Program**

#### **Program Overview**

The overall goal of the Energy Efficient Products (EEP) program is to transform the consumer products marketplace in such a manner so that high energy efficiency choices become a routine part of the decision process for LIPA's customers when purchasing lighting, consumer electronics, and appliances. Program participation will result in significant energy savings for LIPA customers, lower their overall electric utility costs and provide environmental benefits to all customers.

#### **Energy Efficient Products 2008 Rebate Summary**

As of the end of December the LIPA 2008 Energy Efficient Products Program promoted and processed 10,736 ENERGY STAR® qualified clothes washer rebates for residential customers. In addition, this year LIPA added rebates on ENERGY STAR® qualified dehumidifiers and a seasonal rebate on ENERGY STAR® qualified room air conditioners. To date 2,063 dehumidifiers and 18,974 room air conditioners have been rebated. The Energy Efficient Products Program has rebated 1,384,442 ENERGY STAR® qualified compact fluorescent light bulbs and cold cathode bulbs, and 14,515 ENERGY STAR® qualified fixtures to date. These numbers reflect the increasing consumer demand for the quality, energy-efficient products promoted by LIPA. Rebates for ceiling fan lighting kits were eliminated in 2008 as there was little customer activity.

#### **2008 Rebate Structure**

- **Select ENERGY STAR® qualified Specialty Bulbs**  
(globes, A-lamps, 3-way and dimmable bulbs):
  - January 1-December 31, 2008: \$2.00 per package
- **Select High Heat tested Reflector Lamps:**
  - January 1-December 31, 2008: \$2.50 per package
- **Select Cold Cathode Light Bulbs:**
  - January 1-December 31, 2008: \$2.00 per package
- **ENERGY STAR® qualified bare spiral Compact Fluorescent Light bulbs (CFLs):**
  - Seasonal Promotions for single and multiple bulb packages
  - March 1-May 31 and September 1-November 30: \$.50 per bulb
- **LED Holiday Lights:**
  - November 1 – December 25, 2008: \$2.00 per package

- **ENERGY STAR® qualified Portable and Hardwired Light Fixtures:**
  - January 1-December 31, 2008: \$10.00-\$15.00
  
- **Clothes Washers:**
  - Select ENERGY STAR® qualified models. Must have a Modified Energy Factor (MEF) of 2.20 or higher and a Water Factor (WF) of 4.5 or lower.
  - January 1-December 31, 2008: \$50.00 mail-in rebate
  
- **Dehumidifiers:**
  - All ENERGY STAR® qualified models
  - January 1-December 31, 2008: \$10.00 mail-in rebate
  
- **Room Air Conditioners:**
  - Select ENERGY STAR® qualified models.
  - April 1-June 30, 2008: 5,000-6,000 BTUs: \$50.00 rebate and 6,001-8,000 BTUs: \$35.00 rebate

### **Room Air Conditioner Program Summary**

In 2008 LIPA piloted a three-month room air conditioner program on ENERGY STAR® qualified models between 5,000-8,000 BTUs. The room air conditioner rebate was \$50 back on the purchase of an ENERGY STAR® qualified room air conditioner between 5,000 and 6,000 BTUs, and \$35 back on the purchase of an ENERGY STAR® qualified room air conditioner between 6,001 and 8,000 BTUs. In conjunction with the mail-in rebate program, LIPA offered a room air conditioner markdown at the six Costco stores on Long Island. Costco carried two models that qualified for each rebate; a 5,000 BTU Daewoo model and an 8,000 BTU Sharp model.

As of year end 2008, a total of 18,974 ENERGY STAR® qualified room air conditioners rebates were submitted – 13,416 through mail-in rebates processed at Electronic Fulfillment Incorporated (EFI-LIPA contractor) and 5,540 through the Costco markdown. Seventy (70%) of the units were rebated through mail-in rebates, while 30% were purchased through the Costco markdown.

The promotion ran for three months, April 1-June 30, and was a huge success. LIPA estimated rebating close to 10,000 units; by the end of the promotion LIPA rebated over 18,000 units. The majority of the units rebated were the 5,000-6,000 BTU units, with 12,579 rebates received.

### **Field Visits Summary**

Between January 1 and December 31, 2008, the LIPA Energy Efficient Products Program field representatives completed 6,295 site visits to a total of 517 enrolled appliance and lighting stores on Long Island. There are currently 112 appliance stores and 405 lighting stores enrolled in the LIPA program. Through LIPA's efforts, 100 percent of Long Island appliance retail stores now carry ENERGY STAR® qualified refrigerators, dishwashers, and clothes washers. In 2008,

LIPA increased the number of participating lighting retailers from 159 to 405 through the new retailer outreach program, which targets new retailers such as grocery and drug stores. The campaigns below reflect a sample of this year's activities.

### **Activities Summary**

**Earth Day Promotion** – Between March 1 and May 31, LIPA offered a lighting promotion of \$0.50 off per bulb for ENERGY STAR® qualified CFLs in single and multiple bulb packages. More than 473,470 ENERGY STAR® qualified CFLs were sold as a result of this promotion.

**Change A Light/Change the World with ENERGY STAR® Promotion** – Between September 1 and November 30, LIPA offered its second seasonal lighting promotion of the year. LIPA residential customers were eligible to receive \$0.50 off per bulb for ENERGY STAR® qualified CFLs in single and multiple bulb packages. To date more than 261,374 ENERGY STAR® qualified CFLs have been sold as a result of this promotion.

**Change A Light Pledge Campaign** – Wednesday, October 1 launched the EPA sponsored Change A Light/Change the World with ENERGY STAR® campaign. LIPA sponsored the Change A Light pledge campaign on the LIPA Efficiency Web site ([www.lipower.org/efficiency](http://www.lipower.org/efficiency)). More than 2,000 pledges were received in 2008. The LIPA ENERGY STAR® Change a Light web page received a total of 4,485 pledges have been received from 2006 to 2008. Through this campaign Long Islanders have saved over 8 million pounds of greenhouse gas emissions.

**LED Holiday Light Rebate** - In November, LIPA offered its fourth LED Holiday Light rebate. LIPA residential customers were eligible for an instant coupon of \$2.00 off the purchase of an LED Holiday Light package purchased at participating stores between November 1 and December 25. A total of 13,526 LED holiday light packages were purchased between November 1 and December 25, 2008. Due to the lag time between the end of year and customers' ability to redeem rebates, 12,888 were rebated in 2008 with the difference rolling over into January and February 2009.

**Co-op Advertising Program** – LIPA continued its Cooperative Advertising Program for LIPA ENERGY STAR® lighting and appliance retail partners. The co-op advertising program assists retailers in promoting ENERGY STAR® qualified products by reducing their advertising costs. In 2008, there were 390 cooperative advertisements, including print, radio, newspaper and Web site advertising. The LIPA 2008 cooperative advertising program resulted in 26,831,488 impressions and leveraged \$179,581.95 in industry funds.

**In-Store Promotions and Community Events** – LIPA Energy Efficient Products Program field representatives participated in various activities throughout the year to educate retailers and consumers on the benefits of ENERGY STAR® qualified appliance and lighting products in addition to the LIPA program rebates and incentives. During these events, LIPA representatives informed customers of LIPA's instant lighting coupons, the "Earth Day" and "Change the World" seasonal lighting promotions, the features and benefits of ENERGY STAR® qualified

lighting and appliance products, and the LIPA clothes washer and dehumidifier appliance rebate programs.

- **In-Store Promotions:** LIPA Energy Efficient Products Program field representatives conducted a total of 104 in-store promotions in retail stores across Long Island. An estimated 10,122 ENERGY STAR® qualified CFLs were sold and 3,625 customers were reached during these promotions.
- **Community Events** – In 2008 LIPA Energy Efficient Products Program field representatives conducted three community events: a Green Fair held in May at the Oakwood Primary Center in Huntington; a Green Fair held in October at the Huntington Jewish Center; and an educational presentation held in December at the Molloy Institute for Lifelong Learning in Farmingdale. A total of 106 people attended these events.
- **Home Show** – In October LIPA participated in the Home Show at Nassau Coliseum. LIPA held a free drawing for LIPA customers in which they had a chance to win a free ENERGY STAR® qualified dehumidifier.

### **Year-End Performance**

The following table shows the actual results for the year ending December 31, 2008.

**Table 8**

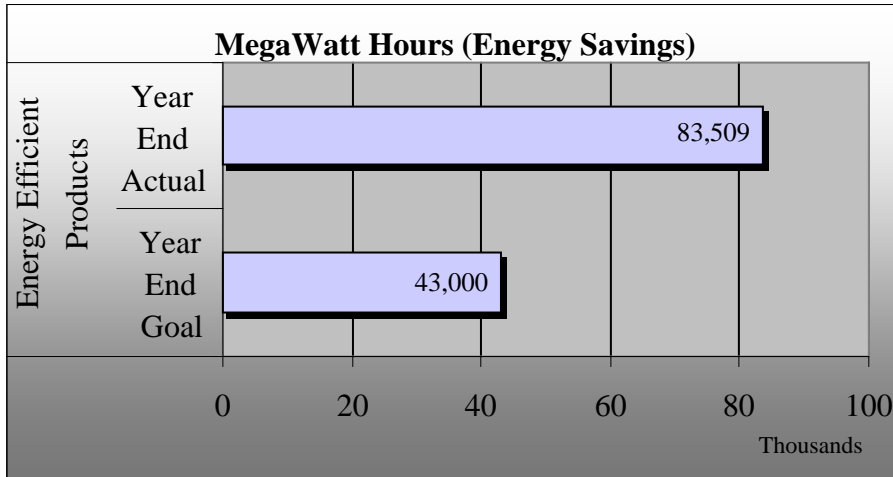
*Actual results for the year period ending December 31, 2008 for LIPA’s Residential Energy Efficient Products Program (EEP):*

<b>Category</b>	<b>2008 Actual</b>	<b>2008 Goal</b>	<b>Actual vs. Goal</b>
<b>MWh (energy savings)</b>	<b>83,509</b>	<b>43,000</b>	<b>194%</b>
<b>MW (demand savings)</b>	<b>6.90</b>	<b>3.33</b>	<b>207 %</b>

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

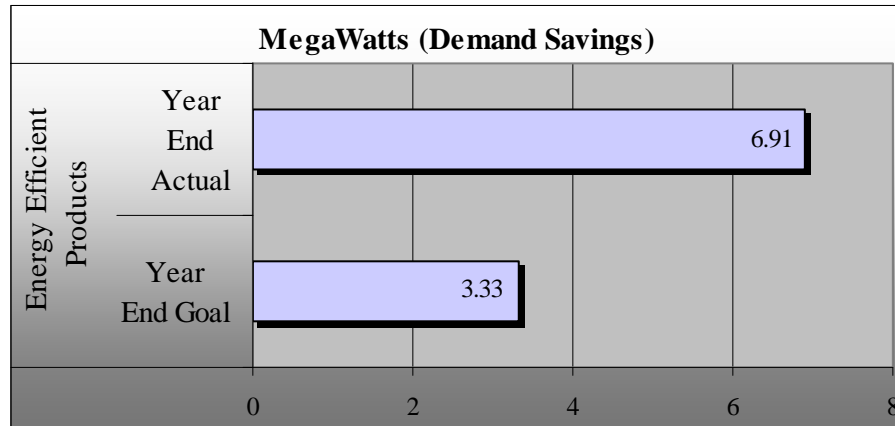
**Graph 3**

*Actual Results and Goals for the year ending December 31, 2008 for Residential Energy Efficient Products Program (EEP) Energy Savings in MWh*



**Graph 4**

*Actual Results and Goals for the year ending December 31, 2008 for Residential Energy Efficient Products Program (EEP) Demand Savings in MW*



## **B. Cool Homes Program**

### **Cool Homes Program**

The Cool Homes Program encourages customers to purchase and install energy-efficient central air conditioners (CAC) and geothermal heat pumps by providing financial incentives to offset a portion of the equipment's higher initial cost. Cool Homes' long-range goal is to encourage Quality Installation of energy efficient equipment while moving the entire CAC and heat pump market toward greater energy efficiency.

In 2008 there were 1,274 applications processed containing a total of 1,674 units that qualified for \$1,385,000 in rebates. These installations resulted in savings of 1,307 MWH and 2.3 MW. Contractor participation in Cool Homes increased in 2008 due to targeted communications to HVAC service providers in LIPA service territory. The implementation of CheckMe! digital testing on all HVAC and heat pump installations, ensuring third party verification of a quality installation has placed LIPA in the forefront in the energy efficiency community. LIPA continued to offer contractor incentives implemented in 2007 including a partial reimbursement for software and tools required to perform the installation. Customer incentives remain assignable to contractor (contractors can offer instant rebate to customers) and ductless systems remain eligible. 2008 saw a decline in the number of central air conditioning units installed in the region, largely as a result lower level of new residential construction than was anticipated. Reviews of shipping data provided by the Air Conditioning, Heating and Refrigeration Institute (AHRI) illustrates the steady decline in the manufacture and sales of central air systems since 2006. These factors, plus the generally poor economy had a restraining effect on the Cool Homes program which did not make goal in 2008.

For 2009, a full implementation of the Tune Up Program will attempt to capture savings by utilizing CheckMe! technology to verify a proper installation on existing CAC units. Corrections and/or repairs done by contractors, which will increase efficiency, equates to savings for the customer and the utility. The Tune Up Program emphasizes the importance of maintenance on existing systems to ensure continued efficiency.

### **Program Management**

- LIPA's Cool Homes Program published and communicated its Program Guidelines for 2008 to the HVAC contractor community. The guidelines highlight the federal minimum efficiency standards and changes in the market. The national minimum efficiency standard for split central cooling equipment increased from a Seasonal Energy Efficiency Ratio (SEER) of 10 to a SEER of 13 as of January 1, 2006. Therefore, ***LIPA only provides an incentive to contractors for SEER 13 equipment.***

- To be eligible to participate in the 2008 Cool Homes program, contractors agreed to adhere to the guidelines and sign the Contractor Participation Agreement. Recognized participants of the Cool Homes Program are eligible for equipment and installation related incentives, and are listed on LIPA's Cool Homes Web site. They also benefited from a comprehensive marketing campaign in the spring of 2008.

The LIPA Web site was updated to include information on quality installation. A quality installation can save the customer hundreds of dollars on their electric bill year after year, reduce maintenance costs, and lengthen the life of new equipment. A quality installation requires units to be properly sized and for the equipment be installed with the proper airflow and the ducts to be free from leaks. The info-line representatives were also re-trained so that they can pass this information along to customers that call.

**Table 9**

**Program Components:**

*For Cool Homes participant installations between January 1 and December 31, 2008*

<b>2008 Customer Energy Efficient Equipment Installation Incentive</b>			
<b>Tier</b>	<b>Eligible Equipment</b>	<b>Efficiency Requirements</b>	<b>Customer Incentive</b>
<b>1</b>	<b>a)</b> Split Central Air Conditioners <b>b)</b> Air Source Heat Pumps <b>c)</b> Ductless Mini Split Systems	<b>a)</b> SEER $\geq$ 14 and EER $\geq$ 12.0 <b>b)</b> SEER $\geq$ 14 and EER $\geq$ 12.0 and HSPF $\geq$ 8.2 <b>c)</b> SEER $\geq$ 14 and EER $\geq$ 11.5	\$250/unit
<b>2</b>	<b>a)</b> Split Central Air Conditioners <b>b)</b> Air Source Heat Pumps	<b>a)</b> SEER $\geq$ 15 and EER $\geq$ 12.5 <b>b)</b> SEER $\geq$ 15 and EER $\geq$ 12.5 and HSPF $\geq$ 8.5	\$400/unit
<b>3</b>	<b>a)</b> Split Central Air Conditioners <b>b)</b> Air Source Heat Pumps	<b>a)</b> SEER $\geq$ 16 and EER $\geq$ 13 <b>b)</b> SEER $\geq$ 16 and EER $\geq$ 13 and HSPF $\geq$ 8.5	\$600/unit

<b>2008 Contractor Quality Installation Incentive</b>		
<b>Eligible Equipment</b>	<b>Efficiency Requirements</b>	<b>Contractor Incentive</b>
<b>a)</b> Split Central Air Conditioners <b>b)</b> Air Source Heat Pumps <b>c)</b> Ductless Mini Split Systems	<b>a)</b> SEER $\geq$ 13 <b>b)</b> SEER $\geq$ 13 <b>c)</b> SEER $\geq$ 13	<b>a&amp;b)</b> \$150 for 1st qualifying unit on an application, +\$50 for each additional qualifying unit on the same application (see requirement # 7) <b>c)</b> \$50 for each qualifying unit

- LIPA's Cool Homes program has over 60 HVAC contractors as participants in the 2008 Cool Homes program.
- Advertisements in the Yellow Pages, Newsday, LIPA Bill Inserts and LIPA commercials that run on local cable stations encourage the use of Participating Contractors in order to assure quality installation of central air conditioning equipment. These consistent marketing tools succeed in educating customers. In addition a half-page LIPA advertisement appears in the monthly Air Conditioning Contractors of America (ACCA) newsletter promoting quality installation to HVAC contractors and invites them to participate in the program.
- LIPA's Cool Homes program worked closely with contractors to coordinate and schedule-in-house training on the CheckMe! digital testing system, Manual J and System Charging classes. This was to assure that contractors would be prepared to offer the program parameters to LIPA customers.

### **Contractor Benefits and Training**

- Participating contractors are listed on the Cool Homes Web site and benefit from a marketing effort geared towards educating customers about the benefits of quality installation of central air conditioning. The same list is handed out to customers along with the Cool Homes brochure at various trade shows and events.
- LIPA's Cool Homes Program staff ran classes on Manual J Version 8 and System Charging and Airflow. Contractors participating in these classes learned how to perform Manual J loads properly. This information is vital for residential customers to be eligible for rebates on high efficiency HVAC equipment. Manual J Version is calculated and then present in report form through ACCA approved Software. The System Charging and Airflow class covers instruction on volume-velocity-pressure, duct system performance, measuring system pressure with instruments and understanding charging methods.
- Contractors who signed up as participating in the Cool Homes Program also took a CheckMe! Class, which is also offered by LIPA throughout the year. Technicians learned the important steps necessary to verify quality installation of central air conditioning. The steps are outlined below:
  1. Cool Homes participating technician phones data from charge and air flow testing at the customer installation site to the CheckMe! hotline operator.
  2. Real time data analysis generates results of refrigerant charge and airflow test data *in less than five minutes.*

3. If the results show that the equipment is not operating to manufacturer specifications, CheckMe! technical support suggests solutions, and helps the technician to retest the unit.
4. Customer receives a certificate by mail declaring that the unit has been correctly installed and explaining the testing.

### **Marketing and Presentations**

- Contractors who joined LIPA’s Cool Homes program in 2008 benefitted from a marketing effort geared towards driving customers back to the Web site where they are listed as participating in the program.
- A coordinated marketing approach was launched for the spring 2008 season that incorporated Newsday ads, Yellow Pages ads, Web site home page and bill inserts educating customers on the benefits of quality installation for central air conditioning and a commercial on local cable stations.
- A bill insert educating customers on the benefits of quality installation for central air conditioning was delivered to over 960,000 residential customers.

### **Year-End Performance**

The following chart shows the actual results for the year ending December 31, 2008. The increasing participation of contractors assisted, but was not enough to turn around the program performance in time to meet goal in 2008. The continuing decline in the economy, which directly affects CAC sales, was a major obstacle with regards to meeting goal.

***Table 10***

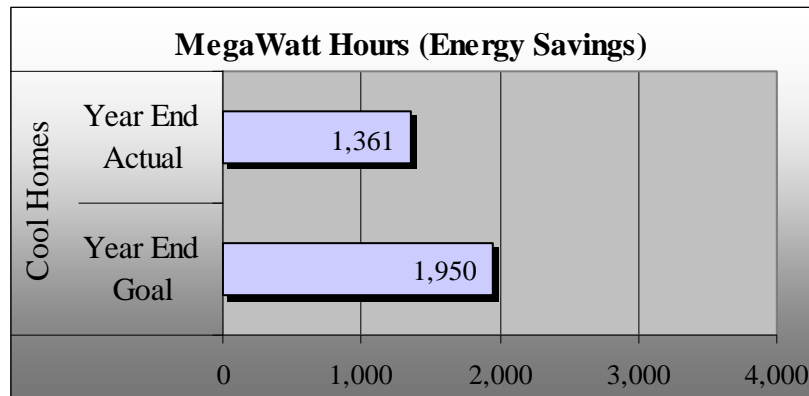
*Actual results for the year ending December 31, 2008 for the Cool Homes Program*

<b>Category</b>	<b>2008 Actual</b>	<b>2008 Goal</b>	<b>Actual vs. Goal</b>
<b>Participants</b>	<b>1,711</b>	<b>3,740</b>	<b>46%</b>
<b>MWh (energy savings)</b>	<b>1,361</b>	<b>1,950</b>	<b>70%</b>
<b>MW (demand savings)</b>	<b>2.386</b>	<b>3.750</b>	<b>64%</b>

The following three graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

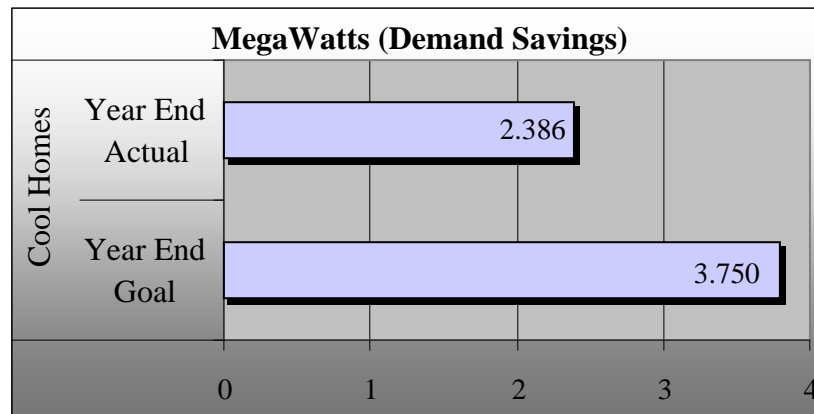
**Graph 5**

*Actual Results and Goals for the year ending December 31, 2008 for Cool Homes Program Energy Savings in MWh*



**Graph 6**

*Actual Results and Goals for the year ending December 31, 2008 for Cool Homes Program Demand Savings in MW*



### **C. Residential Energy Affordability Program (REAP)**

LIPA's Residential Energy Affordability Partnership (REAP) program improves energy affordability for LIPA's lower income households through the free installation of a comprehensive set of cost effective energy efficiency measures and extensive energy education and counseling.

The fundamental program objective is to improve energy affordability for LIPA's low-income customers, with a special emphasis on customers who are payment troubled and in the greatest need of assistance. Achieving these goals provides significant economic and social benefits for participating households and also reduces LIPA's costs associated with collections and bad debt.

Honeywell's contract with LIPA/REAP was set to expire at the conclusion of 2008. A meeting was held toward the end of the third quarter of 2008 to discuss the future of REAP. The meeting resulted in a proposal submission by Honeywell that resulted in a proposed 12 month extension, the addition of telemarketing, neighborhood canvassing and multi-family canvassing.

LIPA/REAP completed 3,945 REAP visits in 2008. Participants saved a cumulative of approximately 6,436.827 MWh or an average of 1.632 MWh per customer. We replaced 1,007 refrigerators, 67 torchiere lamps, and 46,588 energy-efficient light bulbs for REAP participants.

Total energy savings related to Electric Water Heating was 117.97 MWh. Refrigerator replacement savings totaled 1,431.5 MWh. Heating and Cooling savings totaled 84.136 MWh. Lighting retrofit including torchiere and CFL replacement savings totaled 4,431.5 MWh.

An added benefit of this program is the ability to identify health and safety issues. We identified and obtained assistance for 28 LIPA customer homes with gas leaks and two LIPA customer homes with high Carbon Monoxide situations.

#### **Implementation Highlights:**

1. A home in Huntington during a June audit had a significant gas leak. The leak detection meter rose to the maximum reading as the technician descended the steps on the way to the combustion appliance zone (CAZ). Calls went out to gas utility and then the REAP supervisor. Technician and residents were then evacuated from home until assistance arrived to remedy the situation.
2. An instance involving a probable mold problem was found in a Rocky Point, electrically heated home in June. During the visit there was a strong odor of mold/mildew present which became more pronounced in the basement area. A mold like substance was seen in the attached garage and basement ceilings of the home. The technician inquired and was informed of a history with water leaks in the bathroom overhead of the worst areas in the basement and garage. No air sealing measures were done as a result and the customer was advised to consult with specialist for testing and probable remediation. The customer called in November to thank the REAP program for the expert advice. He confirmed the presence

of harmful mold and added that he and his family were feeling better physically since the remediation was completed.

3. Three new technicians have been added to the list of Residential Energy Auditors during 2008, expediting the pace of REAP visits.
4. There were two targeted mailings in the course of the year.
5. LIPA contractor Conservation Services Group (CSG) began Quality Control inspections on REAP audits during the second quarter of 2008. 101 inspections have been performed for the 2008 calendar year. Honeywell received a score of 99.722 out of a possible 100, thus proving the program's dedication to quality installations and efficiency to the customer.

### **Marketing**

LIPA continues to host the annual Low Income Energy Forum. LIPA staff chaired the planning committee, hosted the event, and provided the "emcee" (thus keeping REAP in the limelight for the entire day). Over 225 guests representing over 80 outreach agencies and parish organizations serving Long Island attended the event. Conference speakers included Lisanne Altmann of LIPA, Tonya Simmons, Susan West, Kate Ruta, Richard Maklary, and Akil Friday of National Grid, and representatives of NYS HEAP, the United Way of Long Island, Nassau Suffolk Law Services, the Community Development Corp of LI, and LIPA REAP. The participation of these agencies reinforces their professional relationships with REAP and leads to more referrals.

One participant wrote, "I look forward to coming to this forum every year. I get a lot of information to help my community."

Some comments referred specifically to the LIPA REAP presentation. For example: "Great information which I will personally pass as it is helping me now!"

- In order to improve the quality of REAP presentations, the Marketing Coordinators developed a set of Power Point resources that are easily adapted for the needs of each presentation, including a "tabletop" slideshow to attract attention during tabling events.
- The LIPA REAP Senior Marketing Coordinator continued to represent LIPA REAP on the Steering Committee for the state-wide Low Income Forum on Energy (LIFE), ensuring that the concerns of Long Islanders are included in the Committee's work. The LIFE Statewide Conference was held in May in Albany, at which time the LIPA REAP Senior Marketing Coordinator received the LIFE Achievement Award. The event provided excellent networking opportunities, especially to promote REAP in the Rockaways. LIPA also serves on the LIFE Newsletter subcommittee.
- During 2008, the REAP Marketing Department held 125 meetings with community groups, social workers and advocates throughout LIPA territory. In addition to educating the consumers present at the meetings, each presentation has a "ripple effect" in the

community for REAP and for other LIPA efficiency programs. For example, after participating in a REAP workshop, an administrator from St. Vincent de Paul contacted REAP for advice regarding several group homes that are ineligible for REAP. The Marketing Department referred him to the Commercial Energy Analysis program, which has the capacity to deal with larger assisted living facilities.

- In addition to these relatively focused events, REAP representatives also staffed outreach tables at 25 community events, many of which we marketed to senior citizens.
- The LIPA REAP Marketing Coordinators networked aggressively to promote LIPA REAP and strengthen relationships with agencies and professionals serving lower income Long Islanders. LIPA REAP participated in 220 networking events during 2008. These networking events also produce a “ripple effect” for LIPA REAP. For example, as a result of our solid relationship with the Anti-Hunger Task Force, the Health & Welfare Council of Long Island sent an email to Task Force members, reminding them to refer all of their clients to REAP. This email was unsolicited by the Marketing Department and was the fruit of our ongoing networking relationship. Another example: while attending a World AIDS Day ceremony, the Marketing Coordinator garnered an invitation to meet with clinic outreach staff at the Nassau University Medical Center. That meeting was so well received that a follow up meeting between the Marketing Coordinator and clinic patients was had in January 2009.
- The 2008 marketing highlight was the honoring of LIPA REAP’s Marketing Coordinator, Ellin Boyd, in May, as the recipient of the statewide Low Income Forum on Energy (LIFE) Achievement Award. Sponsored by NYSERDA and the PSC, the LIFE Award recognizes “unsung heroes who have gone above and beyond the call of duty in helping to address the needs of low-income consumers as they deal with the challenge of energy affordability,” Ms. Boyd was honored for a lifetime of generous service, including her work with the customers of LIPA REAP. The nomination process involved community partners of REAP, thus offering the opportunity to further solidify networking/referral relationships.
- The Marketing Coordinators continue to make LIPA REAP a positive presence in the community, especially among agencies serving a variety of eligible customers. For example:
  - Continued an ongoing series of trainings for new employees at Utopia Home Care.
  - Provided bilingual staff to serve Spanish-speaking customers at outreach events.
  - Attended meetings outside normal business hours in order to accommodate our customers and colleagues.

**In 2008, customers were referred to dozens of programs at agencies including:**

Adelante of Suffolk County  
America's Job Bank  
Catholic Charities Central Intake  
Catholic Charities NOEP (Nutrition Outreach & Education Program)  
Catholic Charities Senior Housing Program  
Catholic Parish Outreach offices throughout LIPA territory  
Circulo de la Hispanidad  
The Community Development Corporation of Long Island  
Family Service League  
Federation Employment and Guidance Service (FEGS)  
HEAP and alternate certifier agencies  
Health & Welfare Council NOEP  
Hospice Care Network  
Jewish Association Services for the Aged (JASA) in Nassau, Suffolk, & Rockaways  
The Long Island Association for AIDS Care (LIAAC)  
LICIL (Long Island Center for Independent Living)  
Nassau County Dept for Senior Citizen Affairs  
Nassau County Dept of Social Services  
NYS Dept of Labor "One Stop Centers" in Nassau and Suffolk  
Peconic Community Council  
Project Warmth  
Pronto of Long Island  
Rebuilding Together Long Island  
S.A.G.E. (Services and Advocacy for GLBT Elders)  
St. Vincent de Paul Society  
The Suffolk Independent Living Organization (SILO)  
The Suffolk County Department of Health  
Suffolk County Dept of Social Services  
Suffolk County Office of the Aging

In addition to promoting REAP, the REAP Marketing Coordinators also informed customers about LIPAedge, Assisted Home Performance, Home Performance with ENERGY STAR®, and LIPA Special Services. Customers with specific issues were directed to LIPA Customer Service or the Energy Wise Infoline, often using a REAP cell phone to make the call right then and there.

The REAP Program will be incorporated into our new Home Performance Direct Program in 2010.

## **Assisted Home Performance (AHP) with ENERGY STAR®**

A related low-income initiative is the Assisted Home Performance with ENERGY STAR® Program. This limited pilot program has been offered to low-income customers through a partnership effort between the New York State Energy Research and Development Authority (NYSERDA), the Long Island Power Authority (LIPA) and Community Development Corporation (CDC) of Long Island.

Assisted Home Performance takes the Residential Energy Affordability Partnership (REAP) Program one step further by offering customers the opportunity to additionally improve the overall energy efficiency performance of their home. Through Assisted Home Performance, customers homes are evaluated by a Certified Home Performance Contractor, and using state-of-the art techniques and current diagnostic equipment, he/she will maximize the comfort and efficiency of the home, in addition to saving the homeowner up to 25 percent in energy costs. The Assisted Home Performance Program provides financial incentives, in the forms of homeowner subsidy and low-interest loans, to enhance the delivery of eligible energy efficiency services to one-to-four family residences with household incomes not exceeding 70% of the area median income.

In its fifth full year of operation, the Assisted Home Performance Program had 43 customers complete the program in 2008.

The Assisted Home Performance Program will reach the end of its planned pilot phase and will conclude in 2009. The work and customer base served under this effort will be incorporated into the new Home Performance Direct Program in 2010.

### **Year-End Performance**

The following chart shows the actual results for the year ending December 31, 2008.

***Table 11***

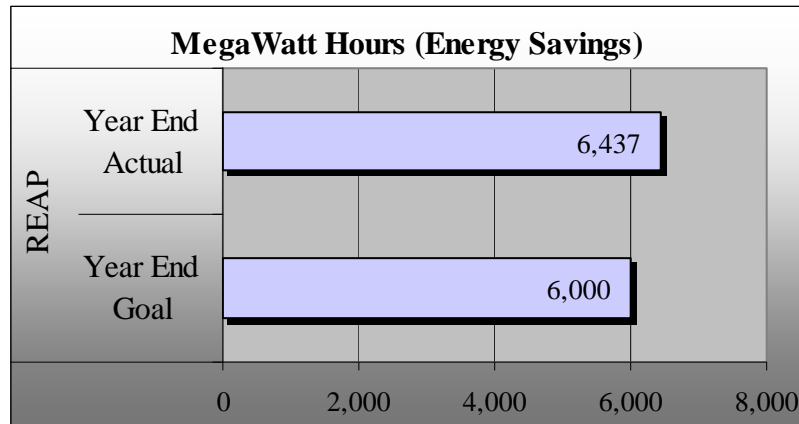
*Actual results for the year ending December 31, 2008 for the Residential Energy Affordability Partnership (REAP) Program*

<b>Category</b>	<b>2008 Actual</b>	<b>2008 Goal</b>	<b>Actual vs. Goal</b>
<b>MWh (energy savings)</b>	<b>6,437</b>	<b>6,000</b>	<b>107%</b>
<b>MW (demand savings)</b>	<b>0.622</b>	<b>0.678</b>	<b>92%</b>

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

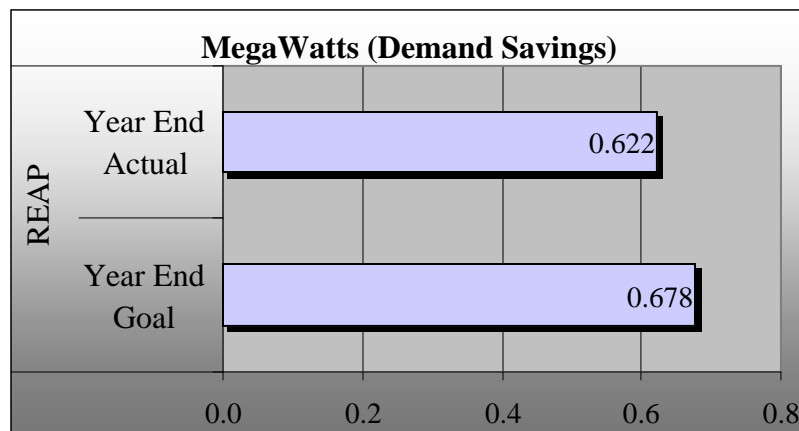
**Graph 7**

*Actual Results and Goals for the year ending December 31, 2008 for Residential Energy Affordability Partnership (REAP) Program Energy Savings in MWh*



**Graph 8**

*Actual Results and Goals for the year ending December 31, 2008 for Residential Energy Affordability Partnership (REAP) Program Demand Savings in MW*



## ***D. Solar Pioneer Program***

The LIPA Solar Pioneer Program provides customers the opportunity to supplement their energy needs with clean, renewable solar power. Also known as photovoltaic's (PV), this environmentally sound source of electricity is becoming more affordable. LIPA's Solar Pioneer rebate program has helped build an infrastructure for PV in LIPA's service territory and has helped lower the customer costs towards PV system installations.

Since commencing in 2000, the Solar Pioneer program has been expanding at a rate of 30-40 percent annually and has, thus far, installed over 1,650 photovoltaic systems ("PV") at a total customer rebate cost of more than \$40 million. LIPA's investment in cost-effective, customer-sited PV generation has provided customers with the opportunity to lower their electric bills, reduce LIPA's exposure to volatile fossil-fuel prices, and help to enhance system reliability. Importantly, LIPA's investment in renewable energy has also contributed to developing a burgeoning industry and efforts to improve the air quality on Long Island.

The Washington D.C.-based Solar Electric Power Association (SEPA) released their first annual utility solar market rankings that compare U.S. electric utilities by the total amount of solar electricity installed in their service territories at the end of 2007. The rankings are based on information provided through a survey of utilities and independent research.

LIPA ranked in SEPA's top ten for Utility Solar Integration Rankings amongst all U.S. investor and public power companies in the category of Total Solar Electric Capacity (MW). The top public power utility was Los Angeles Department of Water and Power (CA), followed by the Sacramento Municipal Utility District (CA) and Long Island Power Authority (LIPA).

Previous to the LIPA Solar Pioneer program, the Long Island PV market was almost non-existent. The installed costs from the few contractors were as high as \$12 per watt. Currently, the market has numerous contractors installing PV for an average installed cost of approximately \$8.00 per watt. The initial rebate offered to customers was \$3.00 per watt in the year 2000, providing customers financial assistance with approximately 25% of the PV system installed costs. Rebates were typically offered in blocks of 1,000 kW.

The program adjusts the rebate levels to reflect the overall cost effectiveness of the PV technology. To stimulate the PV market, in December of 2001, LIPA introduced the rebate level of \$6.00 per watt. Since 2001, rebate levels have been designed to reflect approximately 50% of the installed costs for PV systems. Continuing its long-term incentive plan, in July 2002, LIPA introduced the \$5.00 per watt rebate. In September of 2003, LIPA introduced the next rebate level of \$4.50/watt rebate. In November of 2004, the next rebate level of \$4.00 per watt was introduced. On Earth day in 2005, LIPA announced an extra dollar per watt (above the current rebate level) for schools, not for profits and government customers. This is to help offset the tax advantages for residential and commercial customers. In November of 2005, the next rebate level of \$3.75 was introduced. Due to market prices, on January 7th 2007, LIPA opted to maintain the rebate level of \$3.75. An additional block of \$3.75 was offer in May of 2007. This third rebate block expired on December

31st, 2007. The rebate level was \$3.50 per watt throughout 2008, with municipalities, schools, and not-for-profits still receiving an extra \$1/watt.

**2008 Highlights**

For the year 2008, LIPA’s Solar Pioneer program offered rebates for PV systems up to 10 kW (DC) in system size. The average PV system size installed in 2008 was 6.0 kW. The results are listed below.

PV systems installed from Jan 1, 2008 to Dec 31, 2008	Participants	Rebate Amount	System Size (DC)
Commercial	18	\$632,334.00	157.37 KW
Residential	489	10,674,717.25\$	2,898.44 KW
<b>TOTALS</b>	<b>507</b>	<b>11,307,051.25\$</b>	<b>3,055.81 KW</b>

From the program inception up to December 31<sup>st</sup>, 2008, the chart below shows the total number of PV systems that LIPA has supported.

PV systems installed from Jan 1, 2000 to Dec 31, 2008	Participants	Rebate Amount	System Size (DC)
Commercial	81	\$3,005,170.50	681.97 KW
Residential	1559	\$37,457,867.68	8,913.94 KW
<b>TOTAL REBATES</b>	<b>1640</b>	<b>\$40,463,038.18</b>	<b>9,595.91 KW</b>

## **2008 Milestones**

In 2008, the LIPA Solar Pioneer Program rebated its 1,600th solar PV installation. By the end of year, the total number of residential PV systems stood at 1559 and commercial systems with 81 rebated. In 2008, the total number of installations rebated reached 489 residential and 18 commercial PV systems.

LIPA participated with Renewable Energy Long Island (RELI) in the fifth National Solar Tour on October 6th, 2008. The Solar Tour is free for interested customers to visit existing solar energy homes. This recent solar tour had numerous host sites with 1,251 guest passes issued. Tabulations estimated that a total of 3,500 site visits were completed by those 1,251 guests.

We are witnessing the positive efforts of market transformation for the Solar Pioneer program. In 2008 the number of solar PV installation contractors has grown to over 50.

Local contractors have seen a reduction in the cost of PV panels, which are the main component for PV systems.

LIPA was the first in the State to approve a revision to the Tariff for Electric Service authorizing Net Metering of certain types of Renewable Generation for commercial customers, effective January 1, 2009. This revision effectively affords commercial customers who have installed solar or wind generating equipment at their site with the opportunity to net meter their excess generation back to the utility.

The Solar Pioneer Program hosted two Solar Contractor Ally meetings. Over 100 contractors and associates were in attendance for the Fall 2008 meeting. These meetings continue to grow in size as the number of solar PV installation contractors continues to expand. The meeting included topics on LIPA's Solar Pioneer Program updates, New York ENERGY STAR® Homes Program, Building Code Standards, future PV Seminars/Events, and new commercial net metering tariff conditions.

## **Education**

Ten public Solar Pioneer Program seminars were held throughout LIPA's service territory. Locations included town halls and libraries from Southampton to Far Rockaway. A total of 683 customers attended these seminars. These open forums provide information about PV technology and LIPA's Solar Pioneer program. The Solar Pioneer Public seminars were combined with public outreach for LIPA Home Performance with ENERGY STAR® Program.

## **Continued Public Outreach**

LIPA staff continues to work with Renewable Energy Long Island (RELI) to further promote solar energy and to provide information to the public with public seminars including the Solar Homes Tour.

## **In House Training**

LIPA frequently sets up training sessions on a periodic basis to provide program updates for the Electric Sales & Marketing Department Infoline staff. The presentation includes a global picture of PV, the components of a PV system, how the technology works, understanding net metering, expected electric output and dollar savings.

With a greater understanding of the technology, Infoline staff can continue to promote the program in a more informed manner.

## **2009 Program Changes**

Congress passed and the President signed into law an extension to the individual and corporate Federal Tax for an additional eight years. The Legislation also calls for the elimination of the \$2,000 financial cap on the residential 30% tax credit.

The overall objective of the Solar Pioneer Program is to support LIPA's commitment to the advancement of new energy technologies by diversifying investments in cost-effective distributed generation resources. This means that the Program will extend its reach into local markets that have not yet been fully addressed in order to acquire increasing amounts of customer-sited PV electric generation. In 2009, the Program anticipates 409 new residential systems, 21 new commercial customer systems and 20 new municipal customer systems to come on line.

The 2009 program will expand to include a Solar Entrepreneur component for commercial, municipal, school and not-for-profit sectors:

- Rebate change to a multi-tiered structure for commercial, municipal, school and not-for-profit sectors.
- Net-metering for Solar Entrepreneurs for commercial, municipal, school and not-for-profit sectors up to 2MW, with system size being limited by the previous year's peak capacity.
- Raising the rebate cap from 10 kW to 100 kW system for commercial, municipal, school and not-for-profit sectors

## Year-End Performance

The following table and two graphs show actual results and goals for the year ending December 31, 2008 for energy savings in megawatt hours (MWh) and demand savings in megawatts (MW).

**Table 12**

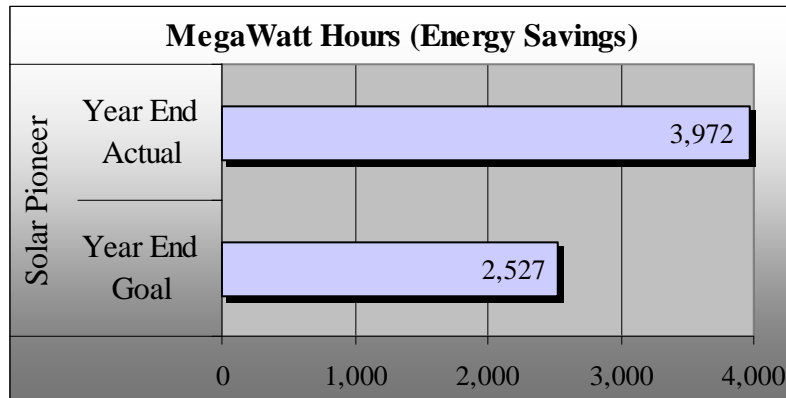
*Actual results for the year ending December 31, 2008 for the Solar Pioneer Program*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	3,972	2,527	157%
MW (demand savings)	1.853	1.09	170%

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

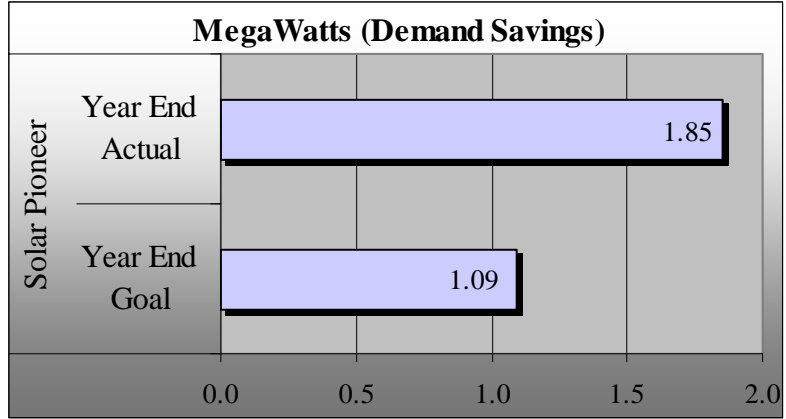
**Graph 9**

*Actual Results and Goals for the year ending December 31, 2008 for Solar Pioneer Program Energy Savings in MWh*



**Graph 10**

*Actual Results and Goals for the year ending December 31, 2008 for Solar Pioneer Program Demand Savings in MW*



## ***E. Information and Education Program***

The Information and Education Program is an educational and market transformation oriented program that is offered to residential customers. LIPA participates in various events throughout Long Island designed to speak directly with customers about its efficiency programs [which include the home energy analysis tools and in-classroom energy education presentations to students in Grades 5-8 known as LIPA's "In Concert with the Environment" program (ICWE)].

### **2008 Highlights**

#### **Home Energy Analyzer**

The Information and Education Program reaches customers through LIPA's Web site, where children and adults have access to on-line games, tools, and educational resources. One of the more important on-line resources available to customers is the "Home Energy Analyzer", which is a web-based audit that is available for LIPA customers to utilize at no cost. This web audit allows customers to model their home's energy consumption and identify areas for efficiency upgrades. There are three pages (or tiers) to it with each page requesting progressively more detailed information, and also provide more detailed recommendations on how to improve the energy efficiency of each customer's home.

LIPA's Web-based Home Energy Analyzer continued to provide energy saving ideas tailored to each customer's home. Almost 14,000 customers visited the Web site in 2008, compared to 11,000 in 2007 representing an increase of 30% in participation in 2008.

#### **In Concert with the Environment**

The Information and Education Program sponsors a two-day energy efficiency education class for students in Grades 4-8, known as the In-Concert with the Environment (ICWE) Program. The ICWE Program is offered through two, 40-minute classes and includes an energy audit that students can take home and complete with their parents.

LIPA's In Concert with the Environment Program (ICWE) reached 3,267 students in 2008. LIPA's ICWE Program and McDonald's, a program sponsor, continued to work together by offering a McDonald's free Value Meal for each student's participation.

Listed below are the names of the schools that participated in ICWE during 2008.

	<b>School</b>	<b>Town</b>
1	Charles Campagne Elementary School	Bethpage
2	John H. West Elementary School	Bethpage
3	Kramer Lane Middle School	Bethpage
4	Floyd Middle School	Center Moriches
5	St Mary School	East Islip
6	Covert Ave Elementary School	Elmont
7	Tecumseh Elementary School	Farmingville
8	St. Catherine of Sienna	Franklin Square
9	Cayuga Elementary School	Lake Grove
10	Cherokee Elementary School	Lake Ronkonkoma
11	Jonas Salk Middle School	Levittown
12	Long Beach Catholic	Long Beach
13	Lynbrook South Middle School	Lynbrook
14	Lynbrook North	Lynbrook
15	Munsey Park Elementary School	Manhasset
16	Shelter Rock Elementary School	Manhasset
17	William Paca Middle School	Mastic Beach
18	Mt Sinai Elementary School	Mount Sinai
19	Eastplain Elementary School	North Massapequa
20	Schwarting Elementary School	North Massapequa
21	Idle Hour Elementary School	Oakdale
22	Port Jefferson Middle School	Port Jefferson
23	Daly School	Port Washington
24	South Salem Elementary School	Port Washington
25	Gatelot Elementary School	Ronkonkoma
26	Sayville Middle School	Sayville
27	Stimson Elementary School	South Huntington
28	Stimson Middle School	South Huntington
29	Valley Stream Elementary School	Valley Stream
30	Valley Stream Middle School	Valley Stream
31	Oquenock Elementary School	West Islip
32	Westbury Middle School	Westbury
33	Woodmere Middle School	Woodmere

In an effort to expand the ICWE program message, LIPA began a pilot workshop with New York State Energy Research and Development Authority (NYSERDA) to offer the “Energy Smart Students (“ESS”) Program” targeting middle school grades. The ESS Program is based on the “Train the Trainer” model. This workshop entitled “The 4 E’s of Energy” is aligned with New York State learning standards in math, science, technology, language arts, social studies and family/consumer sciences.

The Pilot program is designed to deliver ten (10) workshops within the LIPA service territory with each serving a class size of approximately 20 teachers. The workshops cover energy basics, renewable/non-renewable sources of energy, and energy efficiency measures that can be implemented in the home. All workshops are free to attendees. As of December 31, 2008, the pilot delivered 3 successful workshops to over 50 teachers.

Participating educators will be asked to then submit lesson plans detailing information on how the curriculum was used in their classroom. Students will be asked to bring home a questionnaire which will be used to determine actions students and their parents took based on the energy education materials.

### **LIPA Shows and Events**

In 2008 LIPA participated in various trade, community and business events throughout Long Island.

Listed below are the numerous shows and events that LIPA participated in during 2008.

	<b>Event</b>	<b>Date</b>	<b>Event Type</b>
1	Long Island Home Show	January	Home Show
2	National Association of the Remodeling Industry (NARI)	January	Trade Show
3	Spring Home Show	February	Home Show
4	Leap Into Green Event	March	Community Event
5	Computer Associates	March	Business
6	Long Island Builders Institute	April	Business
7	Long Island Home Show	April	Home Show
8	Great Light Bulb Exchange Event	April	Community Event
9	Farmingdale University Earth Day	April	College Community
10	Brookhaven National Lab Environmental Fair	April	Business
11	Green Living Expo	April	Home Show
12	Macy's Manhasset Earth Day	April	Community Event
13	Hamptons Home and Garden Show	May	Home Show
14	Town of Islip and Sayville Chamber of Commerce Earth Day	May	Community Event
15	Long Island Sustainability Conference	May	Business
16	Building Owner's and Managers Expo	May	Business
17	Long Island Ducks Earth Day Event	May	Community Event
18	Major Accounts Breakfast	May	Business
19	Building and Facility Maintenance Show	May	Business
20	Liver Walk at Eisenhower Park	May	Community Event
21	Hauppauge Industrial Association	May	Business
22	2008 Life Sciences Summit	June	Business
23	Federation of Organizations Conference	June	REAP Event
24	American Institute of Architects	June	Business
25	Sag Harbor Whaling and Historical Museum Energy Fair	July	Community Event
26	Senator Owen Johnson Small Business Networking Expo	July	Business
27	Gordon Heights Day	August	REAP Event

28	Senator Fuscillo Small Business Networking Expo	September	Business
29	New York State Builders Association	September	Business
30	Senator Steve Israel Energy Summit	September	Business
31	League of Women Voters	September	Community Event
32	Huntington Chamber of Commerce	September	Business
33	Baby Boomer Expo	September	Community Event
34	Long Island Fall Home Show	September	Home Show
35	Building Commissioning Association	October	Business
36	Long Island Fall Festival	October	Community Event
37	Trade Ally Expo	October	Business
38	Oyster Bay Festival	October	Community Event
39	Senator Fuscillo Golden Gathering	October	REAP Event
40	Brookhaven Lab Healthfest	October	Business
41	Low Income Forum on Energy Event	October	REAP Event
42	Senator LaValle Golden Gathering	October	REAP Event
43	Sands Point Civic Association	October	Community Event
44	Health and Awareness Day	October	REAP Event
45	Greater Long Island Clean Cities	October	Business
46	Fall Home Show	October	Home Show
47	Bellmore Street Fair	October	Community Event
48	East Islip Career Night	October	Community Event
49	Cold Spring Harbor Wellness Fair	November	Business
50	Port Jefferson Green Event	November	Community Event
51	Advanced Energy Technology Fair	November	Business
52	Long Island Tax Practitioner Symposium	November	Business
53	Long Island Association Breakfast	December	Business

### **Year-End Performance**

The following chart shows the actual results for the year ending December 31, 2008. Information and Education is made up of two components that include participants in the In Concert with the Environment Program and visitors to LIPA's Home Analyzer Web site.

***Table 13***

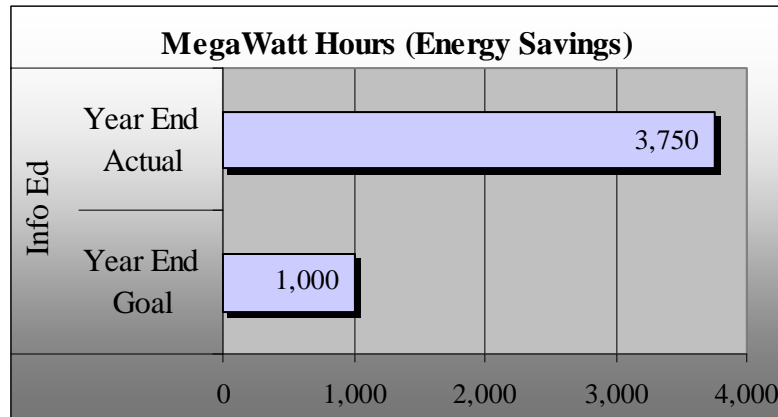
*Actual results for the year ending December 31, 2008 for the Information and Education Program*

<b>Category</b>	<b>2008 Actual</b>	<b>2008 Goal</b>	<b>Actual vs. Goal</b>
<b>MWh (energy savings)</b>	<b>3,750</b>	<b>1000</b>	<b>375%</b>
<b>MW (demand savings)</b>	<b>1.333</b>	<b>.355</b>	<b>376%</b>

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

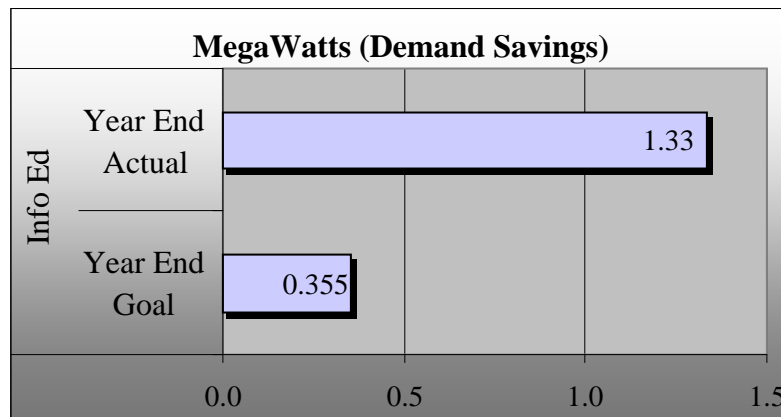
**Graph 11**

*Actual Results and Goals for the year ending December 31, 2008 for Information and Education Demand Savings in MWh*



**Graph 12**

*Actual Results and Goals for the year ending December 31, 2008 for Information and Education Program Demand Savings in MW*



## ***E. Residential New Construction Program***

### ***New York ENERGY STAR® Labeled Homes***

LIPA's Residential New Construction Program, New York ENERGY STAR® Labeled Homes, seeks to improve the health, safety, comfort, and energy efficiency of new homes.

### **PROGRAM IMPLEMENTATION**

For more than three years LIPA's ENERGY STAR® Labeled Homes (ESLH) Program has achieved success in the Long Island New Homes market. The program has made a significant impact on the building industry and how design and trade professionals interact. Since the first ENERGY STAR® home was built in September 2005 at the Emmy Builders site in Shoreham, the program has seen a transformation take place. Architects, engineers, insulators, and HVAC mechanics have taken up the challenge of building higher energy efficient homes that will provide customers a lifetime of savings above what normal building code provides. With the assistance of a HERS (Home Energy Rating System) rater there has been a great increase in the efficiency level in which Builders are willing to strive to achieve. New Town mandates have accelerated this process throughout 2008 with 10 of the 13 Townships adopting the minimum program thresholds as local building code.

The program goal for 2008 was for the ENERGY STAR® labeling of 443 new homes. This objective proved to be very challenging due to several factors. One factor was the downturn in the new construction housing market due to the economy and compounded by the impact of mortgage delinquencies. Despite these industry challenges, 253 ENERGY STAR® labeled new homes were built on Long Island in 2008.

Builder recruitment efforts went well, prompted in part by the majority of Long Island towns adopting ENERGY STAR® for new residential construction as building code minimum. Eighty-two new builders joined the program during 2008 to now involve 212 builders. The number of active builder partners who have produced homes in 2008 has slightly increased compared to 2007, with 40 builders built at least one completed home through 2008. Of these 40 builder partners, almost half (19) were new to the program for 2008. One notable builder, Pulte homes, is currently producing homes for two separate developments.

Account Managers and Field Technicians have been working with large multi-family residential developers and the associated trades. The intent is to bring their town home or condominium projects into the LIPA NYESLH program. Projects anticipated to be completed include: Pulte Homes' Massapequa project (100+ units) Posillico, Harbor Island, Island Park Project 170 units, South Shore Villas, West Babylon 38 units, and Hidden Harbor, Copiague 38 units.

Several large single family residential developments are also in progress and have resulted in ENERGY STAR® home production throughout 2008. These homes will continue to result in production into 2009. Calvosa Construction has a 28 unit attached housing project underway. Ornstein Leyton has committed to constructing their entire 92 duplex housing development. These projects are high priority objectives for our account managers. New projects of interest for 2009 include: Brookhaven's Tallgrass Village, Islip Heartland Town Center, City Of Glen Cove, Glen Isle, The Ritz @ North Hills, Hempstead Lighthouse Project, Riverhead Apollo Project, Mineola Winston, as well as Islandia and Patchogue projects.

Beechwood Communities continues to construct their (phased construction project, The Breakers 133 units in 2008, The Dunes 170 units in 2009, Tides 800 units in 2010 Arverne By the Sea project). Account Managers and Field Technicians are working directly with project supervisors, tradesman, and HERS raters to bring this project into the program.

The aforementioned housing market downturn has resulted in most builder partners stretching out their construction timelines. It has been observed that builders are extending the number of days or months to complete the construction process. These builder partners include, Silver Ridge, Wilson Run at Nesconset, and Glenwood Village planned order of 20 manufactured detached homes is on hold. Jefferson Woods' 9 detached units will only complete 2 units. Burr Manor Estates is holding back on breaking ground on 22 detached homes. Newtown and Country is holding off on filing for permits for 25 detached homes. This lengthening of the builder's production cycle has resulted in the 2008 production shortfall.

We have secured 5+ builder partners committed to building 100% ENERGY STAR®. Their commitment extends to include either exclusively all homes constructed by the builder or by their particular development site covered under an LLC.

#### Program Infrastructure Development:

In cooperation with LIPA, the Long Island Builders Institute (LIBI) instituted an aggressive HERS rater training schedule which has experienced great success turning out HERS raters and prospective raters. Working with Conservation Services Group, (CSG), the HERS rater training format was modified to streamline the coursework to produce as many qualified raters as possible. The new format consists of standardized modules dealing with building science topics and REM/Rate software training. Since the adoption of the new modular structure HERS exam passing rates have steadily increased and surpassed the national average. An online, self-study, training course was also instituted in 2008. In 2008 we have grown the LIPA Rater base to 37 certified Raters, 15 New Raters in this year. We still have Raters in the training track to sustain the future increased building production. CSG and LIPA have reassessed the Rater Training requirements. LIPA decided to support the program's current Rater base with Advanced Rater Training for the high performance production and Builder Sub-Contractors with Trade Training (HVAC/Duct Sealing and Insulation/Air Sealing). This effort will also encompass alternative energy education as they integrate into Labeled Homes.

As a Residential Energy Services Network (RESNET) Provider, LIPA's contractor offered guidance and support to prospective HERS raters. LIPA' will critique initial ratings, provide post training support such as Advanced REM/Rate training as well as one-to-one field trainings. Technical Field Representatives have assisted current and prospective HERS raters with field procedures including performance testing (blower door, duct blaster, etc.), thermal by-pass checklist, and combustion safety tests. The number of requests for in-field assistance has increased significantly due to the 55+ HERS raters (37 certified HERS Raters with ~18 Raters in training) that require support.

The supply of raters has increased at a faster rate than that of homes being labeled. The style of the current crop of prospective raters mitigates the appearance that the gross rater population exceeds demand. Students in recent HERS classes have included architects, builders, tradesmen, and municipal code officials. These individuals may have no intention of conducting commercial rating services but are using the program to gain program or technical information. Given the market conditions and the situation of individuals using HERS training as a source of general training, LIBI, CSG, and NYSBA are adjusting training offerings for 2009. HERS training will be scheduled on demand and typically quarterly - instead of monthly, to cut back on the growing population. Related courses will be developed and offered to those seeking more general training.

Some contractors are mating their trade and HERS rating services. For example, there are several key-industry insulation contractors that are RESNET accredited and are actively providing HERS rater services to partner builders as well as insulation design and installation. A benefit to the program is that the insulation contractors have existing builder relationships as well as the capacity to deploy staff to recruit new builders into the NYESLH program.

The rater population is supported by a healthy RESNET Provider organization. Many Long Island commercial HERS raters are associated with the Building Performance Contractors Association, (BPCA). Masco Contractor Services, a nationally accredited HERS provider, is offering HERS rater services in the LIPA territory with their own stable of employees or associates. MaGrann Associates, another accredited provider from New Jersey, is now also operating in the LIPA territory and actively soliciting builders. To round out the RESNET Provider community and offer more choices, CSG will be working with RESNET to recruit additional providers that will accept independent HERS raters.

LIPA and its contractors have been actively involved in a number of committees and forums to promote the NYESLH program. Marketing and consumer based education are high on the agenda for the program in 2009. Some of these include:

- The Long Island Builders Institutes' Energy Committee educates member builders and trades about how to comply with the approaching ENERGY STAR® code mandates along with LIBI's Green Homes Council
- The Clean Energy Leadership Taskforce, hosted by the Neighborhood Network
- Habitat for Humanity of Suffolk County's Green Energy Committee formulates strategy and implementation procedures on all future homes constructed by Habitat for Humanity of Suffolk County to be certified by the USGBC LEED for New Homes program.
- The USGBC Long Island Chapter on the LEED for Homes committee
- The United Way, which is now building all of their new homes to ENERGY STAR® standards.

In 2008, the ENERGY STAR® Labeled Homes program has seen large increase in Affordable Homes with greater production from old and new participants such as United Way, Habitat for Humanity (Suffolk & Nassau), Central Islip Civic Association and L.I. Housing Partnership. Not to mention the Southold Homes Lottery Project with Island Estates and the CDC "Cottages at Mattituck". There were 49 Affordable Homes NYESLH applications in 2008.

It is expected for 2009 that one of the first sectors of the real estate market to recover will be affordable homes – i.e. Habitat for Humanity and others.

Program Integrations has included LIPA's Cool Homes and Solar Pioneer Programs in 2007 – 08. The potential addition of National Grid residential gas services integrating into Labeled Homes in 2009 could bring an added level of success to the upcoming year.

LIPA's proactive marketing efforts to bring more Real Estate Professionals into the program will be a new addition to the program partnership here on Long Island and will add to the consumer education while offering much needed Realtors continuing education credits.

Marketing Efforts:

- A significant program benefit during 2008 was the adoption of ENERGY STAR® as building code minimums by the majority of Long Island Townships. To date, Brookhaven, Oyster Bay, Babylon, Riverhead, Huntington, Hempstead, Southampton, and Smithtown, have mandated ENERGY STAR® as code. North Hempstead’s mandate begins on January 1, 2009 and Islip February 1, 2009. Some towns initiated the program with a phased approach but all will be in full compliance by February 1, 2009. The last three Towns, East Hampton, Southold, the City of Glen Cove and Shelter Island are now considering following suit. LIPA staff is actively involved in assisting building department officials within the LIPA territory that have mandated or are considering mandating ENERGY STAR® as part of their town building codes.
  - Islip has started training, supplied by CSG, and will finish in January 2009. Hempstead and North Hempstead have requested training for early 2009.
  - Since town building departments do not regulate the building code of the (94) Incorporated Villages within the towns that have adopted ENERGY STAR® codes, the opportunity to bring them into the program will be a priority in 2009.
  - The Southampton town code was the most progressive code adopted to date and has spurred a greater interest in high performance home building.

In anticipation of a recovering real estate market LIPA and its contractors, along with NYSBA, will participate in outreach to Long Island realtors throughout 2009 to promote ENERGY STAR® labeled homes.

Special Initiatives:

The Compact Fluorescent Bulb (CFL) Direct Install Program was implemented in late Fall 2007. CFLs are offered complementary to participating builders for all sockets where a CFL is an applicable replacement to an incandescent in residential homes. There were over 6,000 CFL bulbs distributed in 2008.

**Table 14**

*Savings Contributed by “Special” Initiatives and interim compliance homes in the “code” townships:*

<b>CFL Direct Install Initiative</b>	<b>2008</b>
Total Number of Bulbs Installed	6,399
Annual kWh Per Bulb	50
Total Annual kWh Supplemental Savings	319,950

## **Year-End Performance**

In 2008, downward pressure has been steady due to the continuing effects of current economic conditions. However, a key success of the program in 2008 has been the adoption by multiple towns in both counties of ENERGY STAR® Homes requirements as the code minimum. LIPA, along with the Long Island Builders Institute and other stakeholders will continue efforts to recruit the remaining townships in 2009.

One positive factor of the shrinking market, from 2007 – 08, is that as builder inventories grew and the market shifted in favor of the buyer, builders began to seek out ways to differentiate themselves from their competition and have begun looking to the LIPA ENERGY STAR® Labeled New Homes Program as a means to achieved that difference.

It is anticipated that the housing market will continue to be weak in 2009, and housing prices are projected to fall between 5 and 10 percent. Projected permit data provided by NYSBA from the U.S. Census Bureau shows that 2008 permits will be down in the Northeast region by 33% and housing starts will be down approximately 38% in the Northeast region. Faced with daunting imbalances between housing demand and supply, builders continue to cut housing starts and issuance of building permits, particularly in the single-family sector.

### ***Table 15***

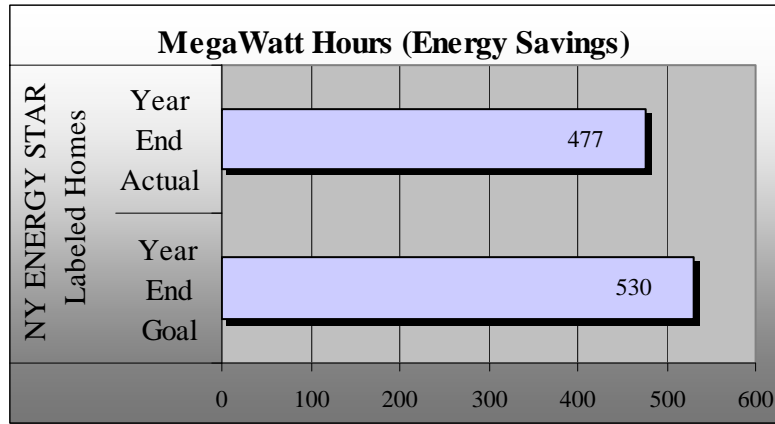
*Actual results for New York ENERGY STAR® Labeled Homes Program for the year ending December 31, 2008. Note that the actual savings realized by the ENERGY STAR® Homes program for 2008 has been under-stated due to delays associated with receipt of final building files. It is estimated that actual savings will be 570 MWh and 0.190 MW.*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	477	530	70%
MW (demand savings)	.112	.260	43%

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

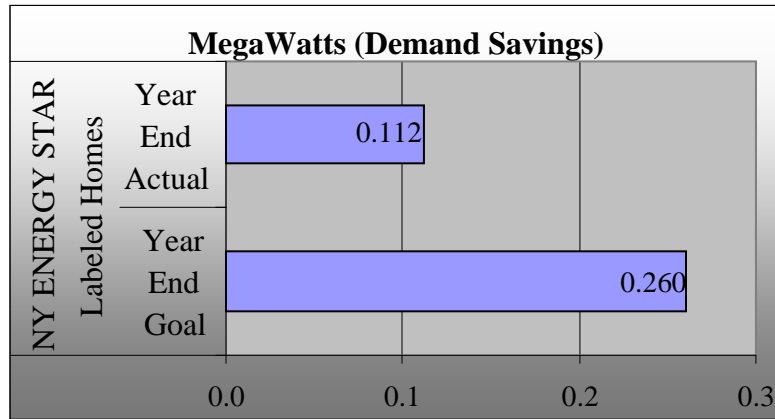
**Graph 13**

*Actual Results and Goals for the year ending December 31, 2008 for New York ENERGY STAR® Labeled Homes Energy Savings in MWh*



**Graph 14**

*Actual Results and Goals for the year ending December 31, 2008 for New York ENERGY STAR® Labeled Homes Demand Savings in MW*



## **G. Home Performance with ENERGY STAR® Program**



LIPA's Home Performance with ENERGY STAR® (HPwES) is a residential retrofit program which seeks to transform the way energy efficiency services are delivered to 1 - 4 family size existing homes on Long Island. At the program's core is its "house as a system" approach to home improvement contracting. This approach incorporates an extensive building science component requiring that participating contractors are accredited by, and have employees who hold relevant certifications from, the Building Performance Institute (BPI).

The program, based on the NYSERDA market transformation model and approved by the Environmental Protection Agency was launched by LIPA in 2005. In this model, private installation contractors are trained and receive accreditation to provide comprehensive home assessments to customers to whom it is anticipated they would successfully sell their efficiency products and services. Under an ideal scenario, the contractor would identify a comprehensive set of improvements that address immediate customer concerns and the root causes of customer comfort and efficiency issues, including health and safety issues. Under LIPA sponsorship, both HPwES contractors and customers are provided incentives to encourage pursuit of this "comprehensive" approach to efficiencies in existing homes. These incentives take the form of either rebates or low-cost financing for the completion of qualifying work.

The program did not meet efficiency or participation goals in 2008 due to lack of consumer uptake. Therefore, significant modifications are planned in 2009 with emphasis on a program re-design that will maximize electrical energy savings while continuing to offer the Home Performance with ENERGY STAR® model.

### Changes in Design 2009-2010

Based on the results of Home Performance with ENERGY STAR® program since its launch in LIPA territory in 2006, it was determined that program modifications were needed to maximize electrical savings. Accordingly, steps to significantly overhaul this program to incorporate a "Direct Installation" component on a pilot basis are being undertaken with the intent to launch a new program. This new design, entitled Home Performance DIRECT (HPD), would also continue to provide moderate level support of a market-based Home Performance with ENERGY STAR® offering on Long Island. The goal of this new program offering, and its pilot phase variations, is the acquisition of highly cost-effective electrical energy savings, across a large number of homes. HPD is intended to be a resource acquisition component which will enable LIPA to install electric energy efficiency measures during a customer home visit. It then can be followed with referrals for other services through an "Added Services" component, and a "Remodeling" component to capture that market segment engaged in major remodeling efforts.

Home Performance DIRECT will provide LIPA with more control over retrofit work in the marketplace, resulting in immediate electric energy and demand savings, while allowing the

market to pursue and achieve savings for gas or oil customers through the “Added Services” and “Remodeling” components.

Recognizing the need to significantly adjust LIPA’s approach and to achieve appreciable electric energy savings and cost-effectively meet program goals, a pilot program was planned with the following elements outlined:

- Targeting of high-use electric customers to maximize electrical energy savings
- Using Comprehensive Home Assessment (CHA) to accurately establish baseline use; identifying additional measures; and measuring and reporting the savings value
- Identifying and delivering reasonable “direct installation” measures and actions to achieve immediate savings at the time of the Comprehensive Home Assessment, when the opportunities are most likely to be gained
- Expecting that the Comprehensive Home Assessment and direct installation process will end with a clear understanding of what additional measures could be identified for delivery /installation by HPwES contractors.
- Expecting that the Contractor doing the Comprehensive Home Assessment will have a strong ability to make the customer follow through on additional measures (along with cross-program referrals - Cool Homes; Solar Pioneers)
- Revising LIPA’s “Eligible Measure and Accessories” to focus on electrical energy saving items, and adjusting the incentive amounts to effectively encourage customer participation.
- Anticipating that other efforts to support energy efficiency will occur in addition to LIPA’s program (i.e. Babylon’s Green initiative, National Grid-Gas weatherization program; RGGI funding potential, and federal efficiency and renewable investments), and to actively seek coordinating and leveraging these efforts.

## **Phase I - Program Redesign Activities**

### **Overview**

Phase I of the pilot began field implementation in December, 2008, under the market name of Home Performance *Direct!* (HPD). The pilot design sought to maximize what could be done in a single visit using market-based HPwES contractors to deliver a comprehensive home assessment, direct installation and up-selling of additional measures. Field mentoring and support was provided by LIPA and its contractors.

1. Site visit objectives and protocols identified:
  - Measures and Standards for Home Performance *DIRECT!* were identified as CFLs, air-sealing/duct-sealing in attics, electric water heaters
  - Home Performance *DIRECT!* continues LIPA's commitment to maximizing additional electrical savings through an up selling of appropriate measures by the contractor, which will be incentivized through the program.
2. Target market identified:
  - High-use customers with electric heat and/or central air conditioning, with an expectation that oil-heated homes w/ no central air conditioning to participate via co-pay option.
3. HPD Contractors Identified:
  - In order to secure the services of these HPwES contractors, an open solicitation was provided to the network of approved HPwES contractors, resulting in the identification of four crews to be trained representing four separate contractor firms (Allure, Econotherm, Home Energy Reduction Services, and Residential Energy Conservation). Contractor Participation Agreement forms were executed with each, and training schedules were established. Implementation of the program has begun in January 2009.

## **2008 Program Highlights:**

### **IMPLEMENTATION**

- Home Performance with ENERGY STAR<sup>®</sup> had 22 contractors in 2008. A total of 138 jobs were completed in 2008 resulting in savings of 1,931 kWh per job.
- Attended numerous National Association of the Remodeling Industry (NARI) and Long Island Builders Institute (LIBI) events promoting and recruiting for the Home Performance program.
- Developed the Home Performance DIRECT pilot program in response to the need to achieve cost effective savings that have not been realized through the Home Performance with ENERGY STAR<sup>®</sup> program.

## TRAINING

- Year-to-date there have been 5 Building Analyst classes, 4 Envelope Specialist classes and 2 Heating Specialist classes with a total of 81 students representing 38 companies.
- Recruitment led to the accreditation of 6 additional contractors to the program.
- BPI training continued to be provided throughout 2008 by Hudson Valley Community College. Course offerings in 2009 will include day and evening classes to accommodate additional contractors. Only those contractors who sign up as Home Performance with ENERGY STAR® contractors will be eligible for training incentives, as is consistent with the program in the balance of New York State administered by NYSERDA.

## MARKETING AND PRESENTATIONS

- Continued partnership with Renewable Energy Long Island (RELI) and used the HPwES contractor population to deliver presentations to local townships as a way to increase program awareness and obtain contractor interest.
- Met with Town of Babylon officials to discuss their LI Green initiative and present the HPwES program. This led to a collaborative effort with Town of Babylon to deliver Home Performance DIRECT to eligible customers.

## 2008 Average Project Customer Costs

*The following table shows the Total Value of the Work by accredited contractors as well as Sales Pilot projects for the Year-to-Date period ending December, 2008:*

**Table 16**

	<b>Total \$ Project Amount</b>	<b>Minimum \$ Project Amount</b>	<b>Maximum \$ Project Amount</b>	<b>Average \$ Project Amount</b>
Home Performance	\$1,058,997.91	\$900	\$45,550	\$9,540.52
Sales Pilot	\$318,005.98	\$1,014	\$55,043	\$11,778
<b>Totals/Averages</b>	<b>\$1,377,003.89</b>	<b>\$900</b>	<b>\$55,043</b>	<b>\$9,978.29</b>

**Year-End Measure Summary:**

*Table 17*

**Building Demographics represents the total square footage and volume of the conditioned space for the homes treated by HPwES in 2008.**

<b>Size</b>	<b>Total</b>	<b>Average</b>	<b>Max</b>	<b>Min</b>
Area (ft <sup>2</sup> )	299,316	2,168.96	8,000	600
Volume (ft <sup>3</sup> )	2,467,492	17,880.38	64,000	4,800

*Table 18*

**Summary of Installed Measures in homes treated by HPwES in 2008**

<b>Measure Type</b>	<b>Description</b>	<b>Qty</b>
Domestic Hot Water Heater Replacement	Gas	23
	Oil	1
	Electric (heat pump)	12
Central Air Conditioning	14 SEER	3
Heating Systems	Gas	23
	Oil	4
Thermostats	ESTAR Programmable	10

<b>Measure Type</b>	<b>Description</b>	<b>Qty</b>
Insulation (ft <sup>2</sup> )	Cellulose	37,735
	Dense Pack Cellulose	24,131
	Netted Cellulose	3,538
	Blown Fiberglass	24,392
	Fiberglass Batts	18,256
	Fiberglass w/ 1" Poliso	2,440
	Low Density Foam	12,713
	High Density Foam	22,266
	2" Polyisocyanurate	2,363
	Other	864
	High Hat Insulators	-
Lighting	Compact Fluorescent Lights	1,213
	Lighting Fixture	9
Refrigerator	22 ft <sup>3</sup> no ice	1
Appliances	ESTAR Clothes Washer	1
Appliances	ESTAR Dishwasher	0
Door	Exteriors	14
Windows	U-Value between .30 and .35	23

**Year-End Performance**

The chart on the following page shows the actual results for the year ending December 31, 2008

**Table 19**

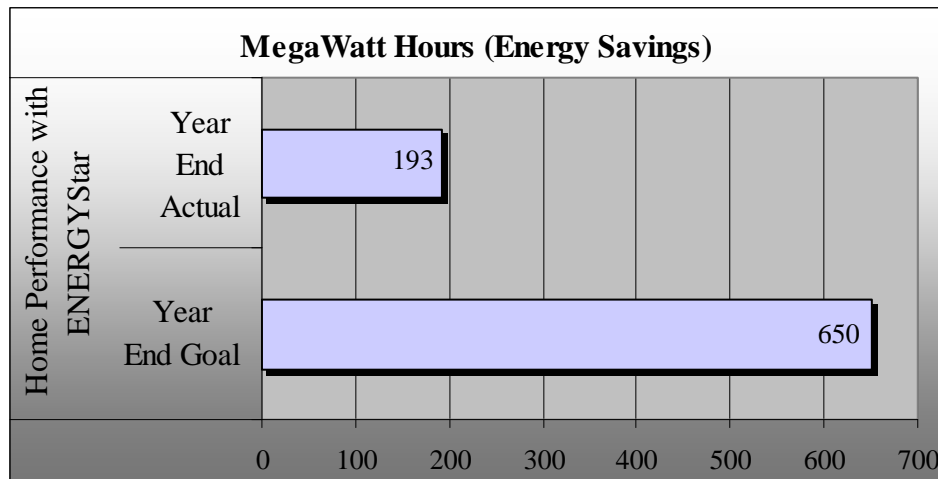
*Actual results for the year ending December 31, 2008 for Home Performance with ENERGY STAR®*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	193	650	30%
MW (demand savings)	.158	.350	45%

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

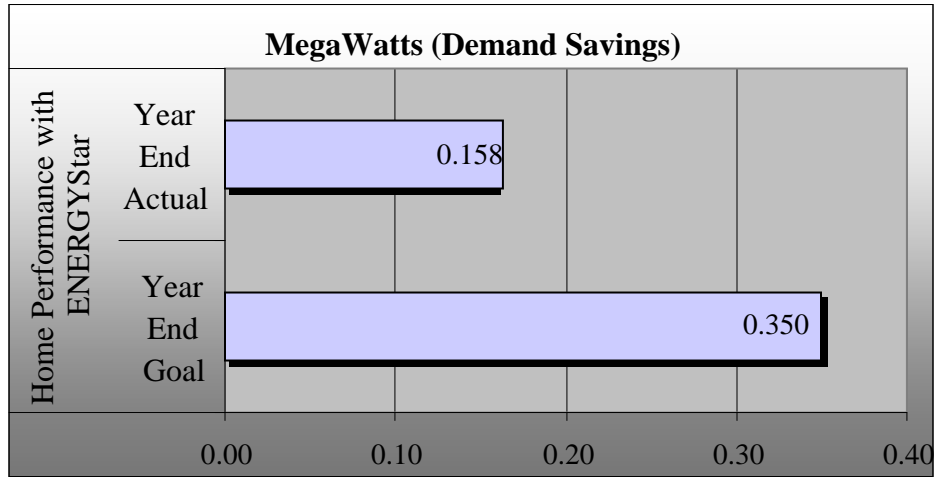
**Graph 15**

*Actual Results and Goals for the year ending December 31, 2008 for Home Performance with ENERGY STAR® Energy Savings in MWh*



**Graph 16**

*Actual Results and Goals for the year ending December 31, 2008 for Home Performance with ENERGY STAR® Demand Savings in MW*



## **V. 2008 Commercial and Industrial Market Programs**

### **A. Commercial Construction Program**

LIPA's Commercial Construction Program (CCP) is LIPA's largest, most aggressive and most complex energy efficiency program. CCP promotes the application of a broad range of energy-efficient electric technologies and design opportunities and in 2008 was comprised of three main components; Prescriptive, Custom and Whole Building and a subset of six areas of enhancement; Retro-fit, Audits, Commissioning, Technical Assistance, LEED Incentives, and Building Operator Certification (BOC). These areas of enhancement are designed to compliment these components and extend LIPA's reach into emerging markets.

The Prescriptive component provides financial incentives to customers who purchase and install qualifying energy-efficient electric equipment from a list of technologies that exceed both current code requirements and standard practices in the marketplace. The list of qualifying equipment is representative of the most commonly installed and best understood equipment available in the marketplace: HVAC, lighting and motors. In 2008, the Prescriptive component rebated 334 projects in the amount of \$1,998,031.

The Custom component provides financial incentives to customers who install cost-effective, energy-efficient equipment or make design improvements that may exceed those found in Prescriptive. Specifically, the Custom component targets customers installing equipment, designing lighting, or incorporating control systems not found on the Prescriptive applications or not eligible for Whole Building Treatment. LIPA will individually screen customer projects that seek to replace equipment before the end of its useful life. In 2008, the Custom component of the program rebated 75 projects in the amount of \$1,173,847.

The Whole Building component seeks to achieve the greatest degree of energy efficiency by encouraging building owners, developers, and architects to design and construct the most energy efficient buildings from the onset of a construction project. The Whole Building component provides incentives for all commercial/industrial, new construction, major renovations, and large expansion projects in LIPA's service territory. In 2008, the Whole Building component rebated three projects in the amount of \$583,712.

The Retro-Fit component was first initiated as a pilot program in 2008 to bring additional resources and opportunities to the aging building stock which comprises many of LIPA's commercial customers. Through this effort LIPA began individually screening select customer projects that seek to replace equipment before the end of its useful life to determine an appropriate incentive level. Given the preliminary results, LIPA plans on extending these services and expanding its efforts within this market.

The Audit component provides free energy audits for customer facilities, and benchmarks the building's energy use for its ENERGY STAR® rating where applicable. The customer can then use this audit as a basis to make decisions regarding their investment in energy efficiency.

The Commissioning component transitioned out of its pilot phase in 2008. For selected projects and technologies, LIPA offsets the cost of having third-party commissioning performed. LIPA's technical assistants or an owners' commissioning agent performs functional tests to ensure that the equipment is designed, installed, and operated in an energy-efficient manner consistent with the design intent.

The Technical Assistance component provides varying levels of engineering services to help LIPA customers choose and implement energy-efficient measures and equipment.

The LEED component was created to compliment LIPA's efforts to move the building community towards more sustainable and environmentally friendly projects, it includes an extensive set of incentives for meeting the components of the Leadership in Energy and Environmental Design (LEED) Rating system designed by the United States Green Building Council (USGBC).

The Building Operator Certification component offers facilities and building managers the opportunity to review 'Best Practices' in building Operation & Maintenance, Preventive Maintenance, and Troubleshooting Principles, Advanced Electrical Diagnostics, Heating Ventilation Air Conditioning (HVAC) Optimization and Controls and Building Commissioning.

### **Prescriptive Projects**

In 2008, LIPA paid 334 Prescriptive projects that accounted for 16,098 MWh of energy savings.

#### Prescriptive Electric Technologies

- Lighting technologies - consisting of fluorescent fixtures and fluorescent lighting controls and High Intensity Discharge (HID) lighting fixtures and HID lighting controls, accounted for 12,514 MWh of energy savings.
- Cooling technologies - consisting of unitary and split air conditioning systems, air and water source heat pumps and chillers, accounted for approximately 1,802 MWh of energy savings.
- All other technologies including controls, compressors, motors, Variable Frequency Drives (VFD's) and commercial kitchen equipment accounted for the remaining 1,782 MWh.

## **Custom and Whole Building Projects**

- In 2008, LIPA paid incentives on 75 Custom projects that resulted in 10,564 MWh of energy savings.
- LIPA paid three (3) Whole Building projects that resulted in 3,178 MWh of energy savings. There are also many more projects pending than in previous years, illustrating the growth and success of the program.

## **Audits**

- In 2008 the audit program completed 267 consultations, 504 audits and as a result of these efforts, received applications totaling over 590 MWh in energy savings.
- ENERGY STAR® Benchmarking was implemented in 2007 and is now standard practice in every commercial LIPA audit report where applicable. This practice provides LIPA customers with a guideline for moving forward with energy efficient improvements which they may not have otherwise considered.
- The demand for LIPA's energy audit has steadily increased over the course of the program. It is expected that this program will be increasingly sought after in 2009, as customers are becoming more aware of the services and rebates available.

## **Building Operator Certification**

- In 2008, the LIPA sponsored the Building Operator Certification (BOC) Level II class.
- Through this training customers have been able to realize approximately 88 MWh in energy savings.

## **Marketing**

The Commercial Construction Program remains a program that is most effectively marketed or promoted face to face. In adhering to this approach, the Program focused on developing and continuing relationships with architects and engineers, trade allies, and developers. To support this outreach LIPA continued memberships in and presentations to professional and trade ally organizations like the American Institute of Architects (AIA), Association of Energy Engineers (AEE), US Green Building Council (USGBC) and American Society of Heating, Refrigeration and Air Conditioning (ASHRAE).

LIPA attended more than 100 meetings with the architecture and engineering firms and other professionals involved with energy efficiency projects during the course of 2008. The purpose of these visits ranged from introducing the Program to those unfamiliar with LIPA's energy

efficiency and renewable goals, discussing current Program offerings, presenting information and resources about energy efficiency such as LIPA's High Performance Design Guide and reviewing current and planned projects.

## **Presentations**

- On April 2008, LIPA made a presentation to the Building Owners & Managers Association (BOMA). The presentation focused on program eligibility, incentives and benefits to the customer. An additional presentation was made to the BOMA Board members in September highlighting LIPA's Green Building Incentives.
- LIPA met with town building officials from the 13 towns across Long Island to present information on LIPA's Commercial Construction Program and discuss the opportunities for strategic partnerships.
- A presentation of LIPA's Green Building Incentives was given to LIPA's Trade Allies at the Trade Ally breakfast.
- LIPA was the host sponsor at the 2008 Building Commissioning Expo and participated in a panel discussion about the benefits of commissioning, specifically as it pertains to multiple building systems.
- At the annual Association of Energy Service Professionals (AESP) conference, LIPA presented a paper highlighting its Green Building Incentive Program.
- LIPA hosted a seminar promoting energy efficiency opportunities in data centers to a wide range of customers, from hospitals to schools, banks and other institutions.
- LIPA also hosted two Back to School Energy Efficiency Summits focusing on promoting the implementation of new projects at local schools in both Suffolk and Nassau County. Each summit highlighted the energy efficiency and renewable programs that LIPA offers and gave examples of school districts that have participated in the past.

## **Project Highlights**

- A Refrigerated Warehouse and Distribution center for a regional convenience store chain opened in 2008 and received a \$300,000 rebate from LIPA. The rebate was paid for the installation of a centralized refrigeration and control system. This enables the customer to receive return on investment of nearly 30%.
- A \$300,000 rebate was paid to a local University for the completion of a new dormitory building which houses more than 250 graduate students. With recommendations from LIPA, high efficiency lighting, heat pumps, and controls were incorporated in the design.

- A rebate of \$70,000 was paid to a public library after completing a major renovation and expansion nearly doubling the building size. Implementing an energy efficient design, which included an improved building envelope, geothermal heating and cooling, high efficiency lighting and a central building management system, the library was able to significantly reduce their energy end use intensity.
- LEED green building projects increased dramatically in 2008. While many of the projects are still in the design or construction phase, LIPA is involved with more than 15 newly registered projects with the USGBC in 2008.
- In 2008, 56 additional Energy Management Systems (EMS) controllers were added to an existing apartment complex in Far Rockaway, bringing the total number of EMS controllers installed to 272. This project consists of 566 units that are heated electrically and prior to having the energy efficiency measures installed were 100% manually operated. The installation of these energy efficient controls has resulted in a reduction in consumption of 128,215 kWh and over \$ 18,000 in operating costs, which would not have been realized without the assistance of LIPA's support for this project.

**Year-End Performance**

The following chart shows the actual results for the year ending December 31, 2008.

**Table 20**

*Actual results for the year ending December 31, 2008 for the Commercial Construction Program*

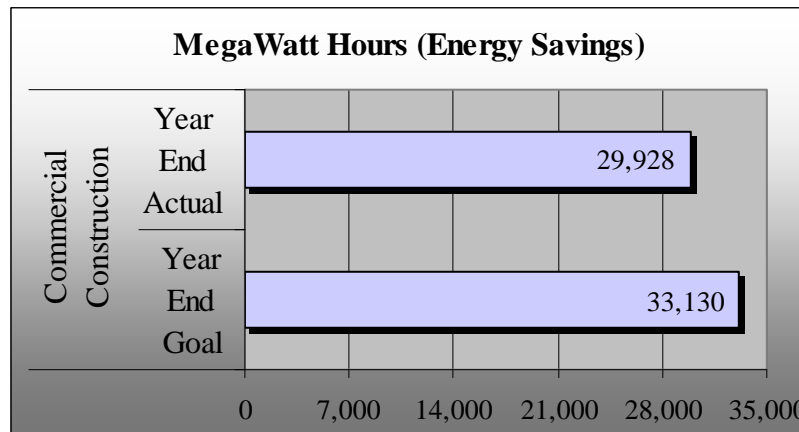
Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	29,928	33,130	90%
MW (demand savings)	5.622	8.660	65%

In 2008, the Commercial Construction Program (CCP) achieved 90% of the MWh (energy savings) goal. The 65% of MW (demand savings) is due in large part to the overwhelming majority of lighting projects, which tend to provide more energy savings than demand savings. In 2009, the CCP Program will attempt to address this by increasing the delivery of more comprehensive projects in an effort to increase the MW (demand savings) and MWh (energy savings) in 2009.

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

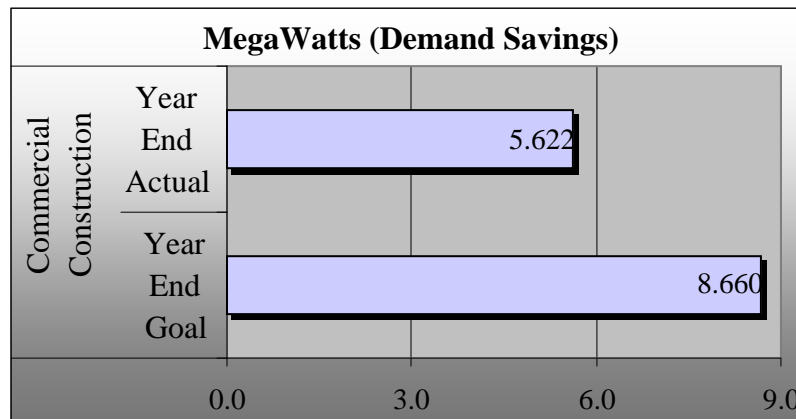
**Graph 17**

*Actual Results and Goals for the year ending December 31, 2008 for Commercial Construction Program Energy Savings in MWh*



**Graph 18**

*Actual Results and Goals for the year ending December 31, 2008 for Commercial Construction Program Demand Savings in MW*



## **B. Retrofit Energy and Capacity Program (RECAP)**

The LIPA RECAP program has been unique with its partnership between Energy Service Companies (ESCOs) and commercial customers. This program was designed to assist LIPA's commercial customers, reduce their overall energy consumption and operating costs.

The focus of this program has been on replacement of older equipment and retrofit of existing equipment with newer more efficient technology, and has been successful in meeting the program goals.

After a modest ramp up in 2006, LIPA'S Retrofit Capacity and Energy program through 2008 has been successful in assisting over 1,100 commercial customers reduce their energy costs.

The program's success in 2008 has accounted for a reduction in energy demand of over 3.2 Megawatts and 14,800 Megawatt hours. The three year program total is approximately 11.9 Megawatts and 58,200 Megawatt hours.

The success of RECAP in the commercial market segment has generated a continued level of energy efficiency consciousness which will continue to be supported by LIPA as our programs grow and expand.

The RECAP effort under which five competitively selected ESCOs were envisioned to provide approximately seventy five megawatts of savings will be concluding in 2009 as the final contracts come to term. The customer segment served by this effort will now be handled through the expanded Existing Commercial Buildings Program under ELI.

### **Year-End Performance**

The following chart shows the actual results for the year ending December 31, 2008.

**Table 21**

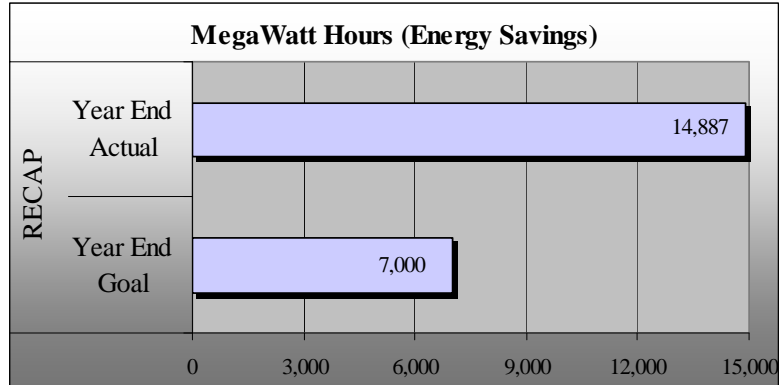
*Actual results for the year ending December 31, 2008 for the RECAP Program*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MWh (energy savings)	14,887	7,000	213%
MW (demand savings)	3.280	3.220	102%

The following two graphs show Actual Results and Goals for the year ending December 31, 2008 for Energy Savings in MWh and Demand Savings in MW.

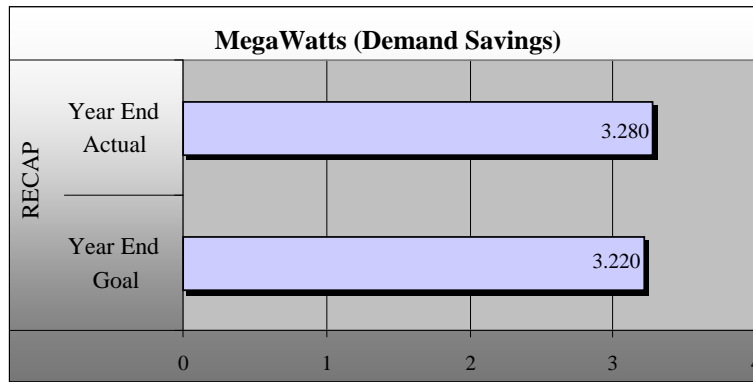
**Graph 19**

*Actual Results and Goals for the year ending December 31, 2008 for the RECAP Program Energy Savings in MWh*



**Graph 20**

*Actual Results and Goals for the year ending December 31, 2008 for the RECAP Program Demand Savings in MW*



## **VI. 2008 MULTI-SECTOR MARKET PROGRAMS**

### **A. LIPAedge Program**

LIPAedge is a demand response program offered by LIPA for its residential and small commercial customers. Customers are offered a two-way communicating Carrier ComfortChoice™ thermostat system for their central air conditioning (and, in some cases, their heating) systems which provides them with the ability to better monitor and manage their energy use. Small commercial customers are offered a one-time incentive of \$50 per site. The thermostat technology enables customers to remotely monitor and control the thermostat settings and HVAC unit condition via the internet with a password-encoded login on a LIPA-hosted Web site. Some commercial customers with multiple electric accounts have utilized the system as an EMS (Energy Management System). LIPA retains the option to control the thermostats during utility system-critical times when power requirements are high, generally from 2-6 pm (4 hours) and up to 7 times between June 1<sup>st</sup> – September 30<sup>th</sup>. The control takes the form of cycling the central air conditioning compressors 50% per hour and/or potentially, turning the thermostats up a few degrees. If customers become uncomfortable, they can override the curtailment events (but only at the thermostat, not over the Internet). LIPA has the ability to refresh the curtailment signal if so desired. LIPA provides 24/7 customer service through a call center and an overnight emergency line to support the program. Each of the thermostats store hourly runtime and indoor temperature data, which can be remotely downloaded via the Internet. This data, coupled with unit load information collected on site, enables accurate impact evaluation for each curtailment event.

The first LIPAedge installation occurred in early 2001. There are approximately 7,900 commercial customers, 23,500 residential customers and 2,300 pool pumps in the program. The target market for the pool pump portion of the program are residential customers that have a 3/4 hp or larger pool pump. Traditionally this type of pool pump is installed on in-ground pools. The pool pumps are controlled during the same period as the thermostats, with power being turned off during the control period.

#### **Program Performance**

The program entered maintenance mode for the first time in 2008. New participants were not actively solicited. Customers were only added to make up for those lost to attrition. A waiting list of approximately 500 residential and commercial customers was maintained.

However, the program was not activated in 2008 nor was a Test Day called. The first heat wave of the season occurred early in June (Saturday, June 7th through Monday, June 9th). The system load was well below forecasted loads. Because it was early in the season, many central air conditioning systems were not expected to be operating or serviced yet which would have resulted in lower reductions. In addition, history has shown that the NYCA peak typically occurs in August and not normally on a Monday. The decision was made to wait for another heat wave later in the season or for a possible EDRP day in order to initiate LIPAedge. A second heat wave occurred in July (Thursday, July 17th through Friday, July 18th). Loads were

much lower than those during the June heat wave. The weather conditions were also not as severe – hot during the day, followed by thunderstorms at night to cool conditions down. June 9th was the benchmark for comparing all other High Load Days during the summer. Any day with a forecasted load equal to or exceeding June 9th's load would be considered for a Test. However, the remainder of the summer did not produce the hot weather conditions necessary to generate high system loads. As a result, June 9th was the 2008 NYCA Peak and June 10th was the LICA Peak.

## **Marketing and Presentations**

- In July 2008, a mailing was sent to the existing participants to thank them for participating, explain how to prepare for the summer, remind them how curtailments work and to attempt to have any new homeowners/building owners remain in the program rather than removing the *LIPAEdge* thermostat. An education sheet on operating the thermostat was attached.
- The 2008 program goal was to maintain existing customer levels. Door to door marketing to small commercial customers was put on hold. A mailing was sent to customers who had been placed on the waiting list since the program was in maintenance mode and not actively seeking new participants.
- The Infoline refresher class was coordinated. The session focused on troubleshooting various heating issues as well as general thermostat questions that customers call about. The training ended with an open forum for the Infoline Staff to share information with Program Management and each other regarding customer issues related to the *LIPAEdge* Program.
- The *LIPAEdge* Web site was updated to include a winter/summer message at the appropriate times.
- In October 2008, a Cool Homes HVAC Contractor meeting was held with a presentation provided by the *LIPAEdge* Program Manager. The purpose of the presentation was to discuss service issues related to the *LIPAEdge* thermostat as well as to display the thermostat and the communications board. There was a significant amount of feedback from the contractor community concerning service overlap and suggestions as to handling such situations.
- As the *LIPAEdge* Program continues, LIPA will continue to identify and correct problems with units that have Non-Responding Thermostats (NRTs).

**Year-End Performance**

The following chart shows the actual installation results for the year ending December 31, 2008.

**Table 22**

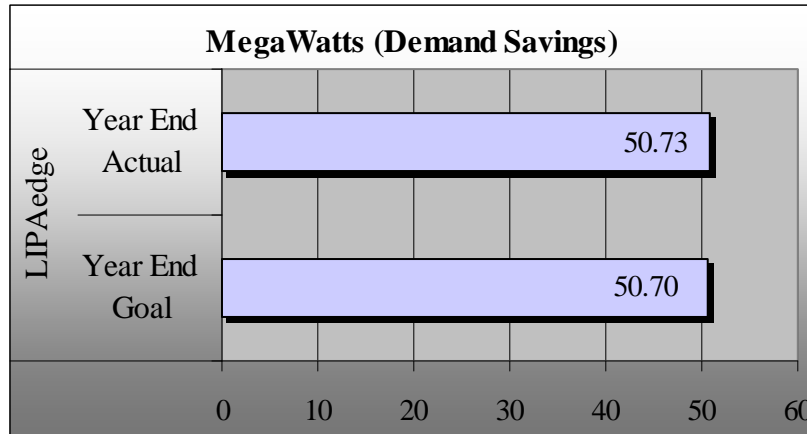
*Actual results for the year ending December 31, 2008 for LIPAedge*

Category	2008 Actual	2008 Goal	Actual vs. Goal
MW (demand savings)	50.73	50.70	100%

The following graph shows Actual Installation Results and Goals for the year ending December 31, 2008 for Demand Savings in MW.

**Graph 21**

*Actual Results and Goals for the year ending December 31, 2008 for LIPAedge Energy Savings in MWh*



## VII. RESEARCH, DEVELOPMENT & DEMONSTRATION (RD&D) PROGRAM

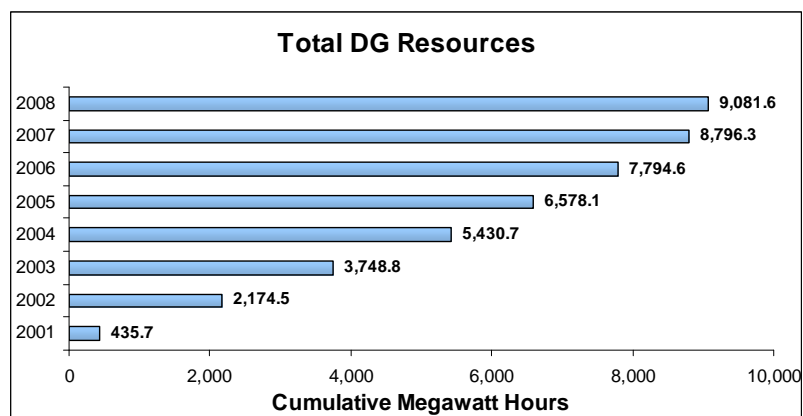
LIPA's Research Development & Demonstration (RD&D) Program supports a wide range of environmentally-friendly electric generation technologies, including wind turbines, fuel cells, solar photovoltaics, electric vehicles, tidal power devices, wave power studies, advanced geothermal designs, hybrid vehicle technology, and advanced battery systems. The goals of the program are to: analyze the technology through controlled demonstrations and deployments; involve regulatory groups, permitting agencies, and interested professional organizations; and facilitate the deployment and acceptance of the technology. In addition, the program provides information and education to the Long Island community, and encourages public collaboration with LIPA research and development projects.

Since its inception, the R&D program has generated over 9,081 MWh (9.1 GWh) of clean electricity, resulting in the displacement of 20.66 tons of Sulfur Dioxide (SO<sub>2</sub>), 6.59 tons of Nitrogen Dioxide (NO<sub>2</sub>), and 3,313 tons of Carbon Dioxide (CO<sub>2</sub>). This translates into the equivalent emissions of nearly 13.4 million passenger car miles (the annual emissions from 802 cars), and represents a fuel savings of approximately 14,610 barrels of oil or 90,816 decatherms of gas.

Spending on the RD&D program totaled \$2.03 million in 2008, and cumulatively over \$45 million since the program's inception in 1998. This spending has been primarily driven by LIPA's aggressive funding in fuel cells and other renewable energy projects. Full details on 2008 RD&D activities are contained in a separate report provided to the Board of Trustees.

### **Graph 22**

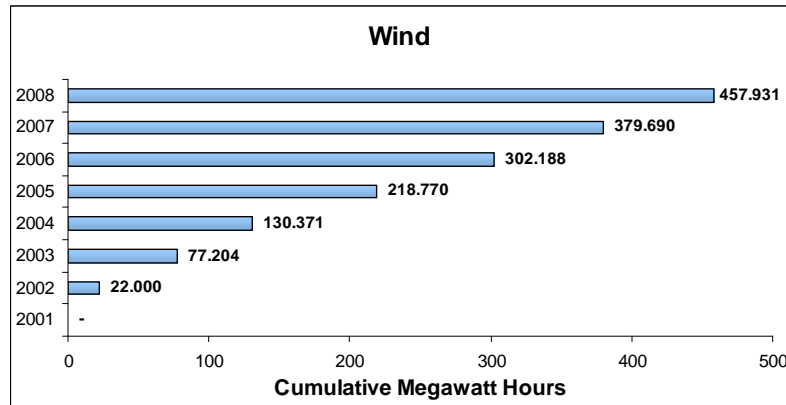
*The following graph shows the cumulative total of wind, fuel cells and solar distributed generation (DG) resources provided by the RD&D Program since 2001.*



## Generation by Segment

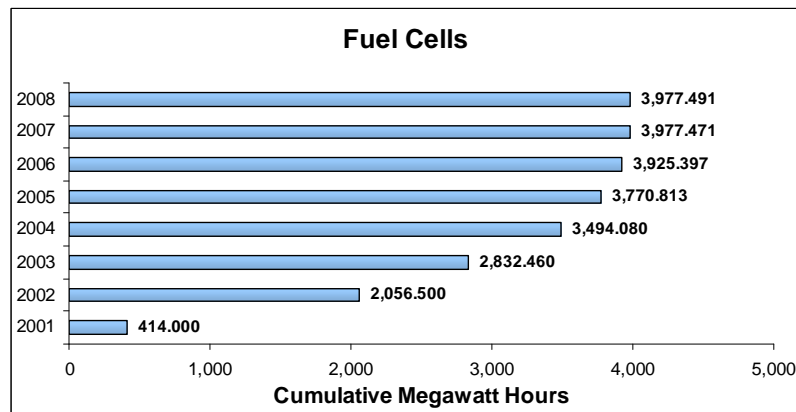
### Graph 23

The following graph shows the amount of installed wind resources totaling 0.17 MW in the townships of Brookhaven, Riverhead, and Southampton. Since 2002, LIPA installed wind resources accounted for 457.931 MWh of generation. In 2008, LIPA installed wind resources produced 78 MWh of electric generation.



### Graph 24

The following graph shows the amount of installed fuel cell resources (166 units x 5 kw) totaling .830 MW in the LIPA territory. Since 2001, LIPA installed fuel cell resources accounted for 3,977 MWh of generation. In 2008, R&D installed fuel cell resources accounted for 0.02 MWh of electric generation.



**Graph 25**

The following graph shows the amount of installed solar photovoltaic resources. Since 2001, LIPA installed solar photovoltaic resources accounted for 4,646 MWh of generation. In 2008, RD&D installed solar photovoltaic resources accounted for 207 MWh of electric generation.

