

Long Island Power Authority Summary: Recent Trends in Residential Electric Use

When William Levitt was completing the first large-scale, post World War II suburban development on Long Island, the average household used about 2,600 kilowatt hours (kWh) of electricity annually. Looking back, it's easy to understand why. By today's standards, the typical home of nearly 60 years ago was Spartan-like in its use of "modern" technology.

Today, the average residential home on Long Island uses 9,577 kWh per year, which is a 268% increase over the average annual use rate of the mid 1950s. In fact, over the last eleven years alone (1997 through 2007), residential electric use per household on Long Island increased by 1,840 kWh, or 24%. In other words, by mid-October 2007, Long Island residences had already consumed the same amount of electricity as they had in all of 1997.

The significant causes of increased household electricity use on Long Island are greater use of room and central air conditioning units, home entertainment components – including large screen and plasma TV's, desktop and laptop personal computers and printers, homes with two refrigerators, battery chargers for cordless & mobile telephones, ceiling fans, fax & photocopy machines, and hot tubs.

And another important recent trend causing an up-tick in electric use is increasing housing unit size, which leads to additional lighting and air conditioning use as well as more floor space for additional appliances and home office equipment.

Unlike the basic Levitt house of more than half a century ago, our homes today are bigger and they are jam packed with all

sorts of great technology that nearly all use electricity. And some use electricity whether we have them on or not!

So, to manage our individual and collective use of electricity we need to think more carefully about the products we purchase and how we use them in our homes and offices.

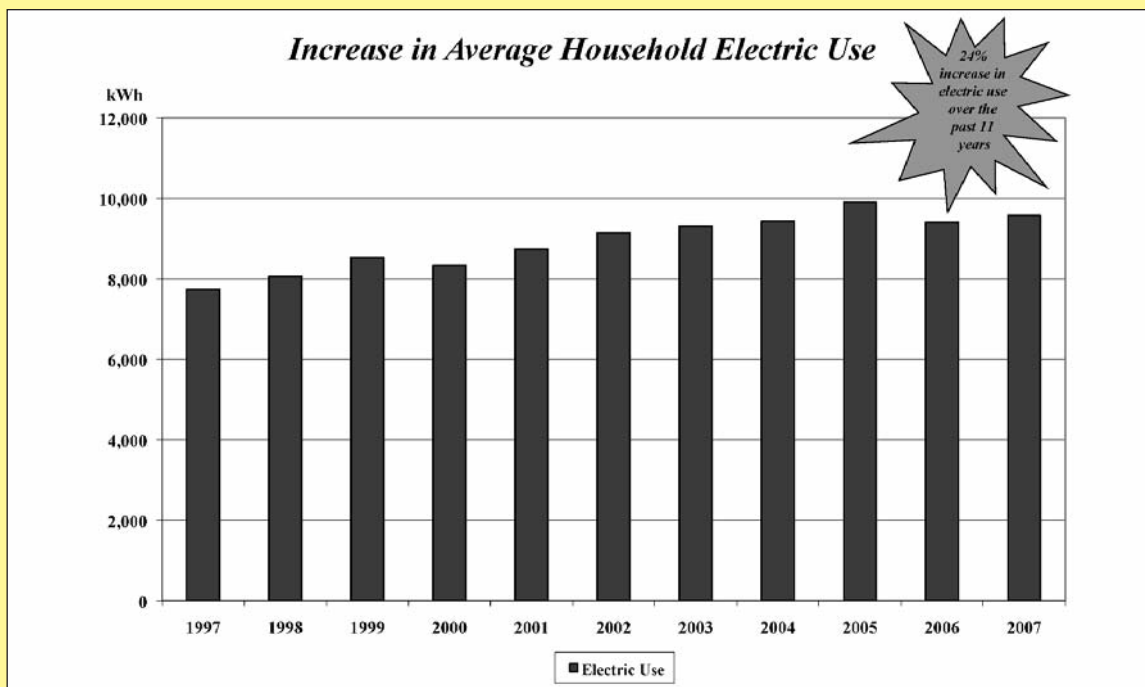
Growth in Residential Electric Consumption Per Household in LIPA Service Territory

Dwelling Size

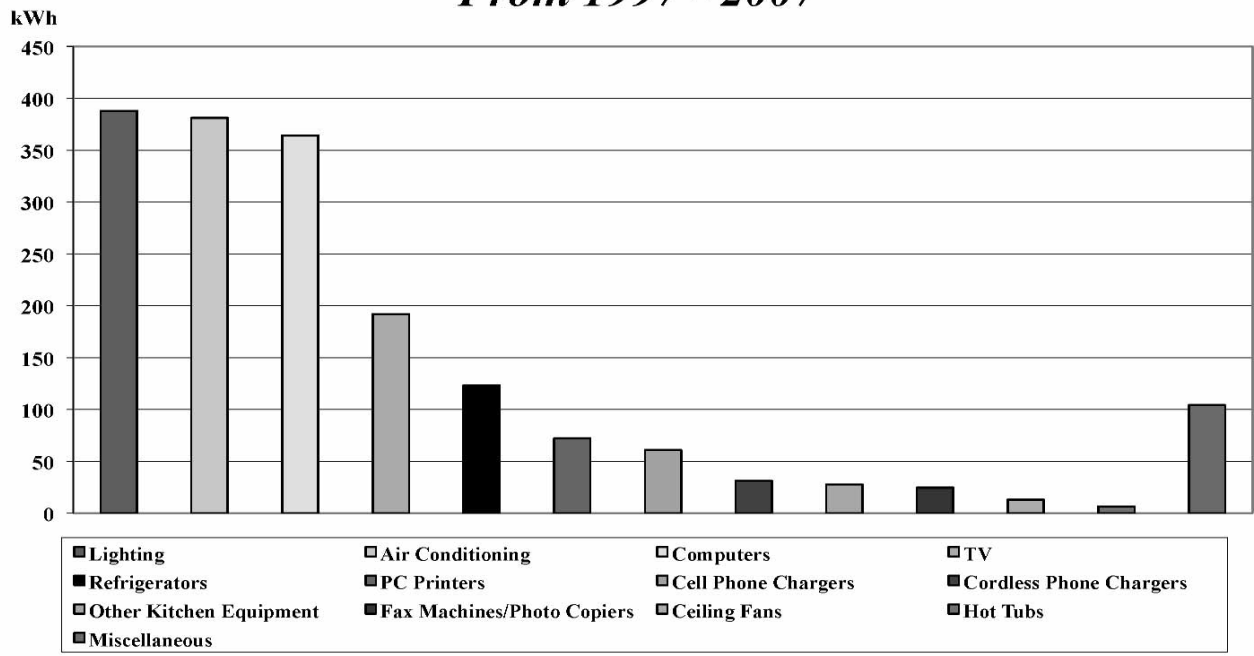
Average home size is increasing by about 25 square feet per year. The increase in floor space coincides with the average increase of 2.25% per year in the number of homes using office equipment. The 275 square foot increase over the eleven years ending in 2007 resulted in an average increase in household lighting use of approximately 388 kWh per year (lower due to compact fluorescent lighting), over 21% of the total household increase.

Air Conditioning

The percentage of LI households with Central Air Conditioning (CAC) has been increasing 1.2% a year, representing a growth of about 7,500 new homes and 4,300 retrofits of existing homes per year. The CAC saturation rate has grown from 23.7% in 1997 to 35.8% in 2007. During this same decade, the percentage saturation of LI households with one or more window, wall or stand alone air conditioning units has remained relatively stable around 61%. These customers have



Increased Consumption By Category From 1997 - 2007



*This graph represents the average increase in kWh for each appliance type in an average sized home on Long Island.

an average of three electric air conditioning units per household. Customers with no air conditioning have decreased from around 17% in 1997 to just a little over 10% in 2007. Ceiling fans have replaced window, box and oscillating fans and are now in two out of three Long Island homes, which average three ceiling fans per household (for those homes with ceiling fans). Attic and whole house fans are in one out of three households. Increased air conditioning use resulted in an average increase in LI household electric use of 381 kWh per year, over 21% of the total increase in electric use per household.

Entertainment

In 1997 there were 2.5 television sets per LIPA household. In 2007 the average was 4.3 televisions per LIPA household. Seventy-two percent of households have a television that is larger than 27 inches, and almost half of these large screen televisions are High Definition. For estimating electric use, the value used for the number of on time hours per day for color TV sets was seven for ordinary sized sets and five for the large screen types. The increased penetration of large screen color televisions, plasma TV's, and an increase in the number of TV sets per household resulted in an average increase in LI household electric use of 192 kWh per year, more than 10% of the total increase in electric use per household..

Personal Computers

Personal computers were in over 80% of LIPA households in 2007, compared to just under 50% in 1997. On average there are 1.7 PCs in the four out of five LI households that have a PC. For estimating electric use, daily PC use was estimated at five hours per day. The increased proliferation of desktop and laptop PCs resulted in an average increase in LI household electric use

of 364 kWh per year, more than 20% of the total increase in electric use per household.

Refrigerators

In the past 10 years the percentage of LI households with refrigerators has remained unchanged at 100%. The average LI household owns 1.3 refrigerators and one in four households owns a stand alone freezer. The increase in use per household due to the higher percentage of housing units with two or more refrigerators is 123 kWh, almost 7% of the total increase in electric use per household.

Miscellaneous Other Factors

- PC printers, including those used for photo printing, increased household use by 72 kWh, 4% of the total increase in electric use per household.
- Cell phone chargers increased household use by 61 kWh, over 3% of the total increase in electric use per household.
- Cordless phone chargers increased household use by 31 kWh, almost 2% of the total increase in electric use per household.
- Fax machines and photo copiers increased household use by 25 kWh, over 1% of the total increase in electric use per household.
- Other kitchen equipment (dishwashers, electric coffee makers, electric toaster ovens, and microwave ovens) increased household use by 28 kWh, over 1% of the total increase in electric use per household.

- Ceiling fans increased household use by 13 kWh, less than 1% of the total increase in electric use per household.
- Four out of five homes have either a cable box or satellite dish; and 93% have a DVD or VCR.
- Today nearly one in four homes has a swimming pool, and over one in ten homes have a hot tub or jacuzzi. Hot tubs and home spas increased household use by 6 kWh, less than 1% of the total increase in electric use per household.

Conclusion

In 2007 the average residential home on Long Island used 9,577 kWh per year, an increase of 24% over the previous eleven years. This trend is continuing in 2008, though at a lower level due to current economic factors. Once the economy rebounds, the expectation is that electric use per customer will continue to grow over the long term.

In today's economy, both residential and commercial activity is fueled by electricity.

Understanding how this rapid growth occurred is important to the development of LIPA's comprehensive energy policy, helping LIPA to better plan to meet the continuing needs of Long Island and Long Islanders.

Knowing these facts also helps customers to better understand how they use electricity. This understanding, in turn, enables customers to conserve where possible, use electric energy more efficiently and reduce annual electric energy costs in the process.

Where Do We Go From Here?

There is little doubt that customers have incorporated new electronic devices into their lifestyles. Why? It's very simple. Consumers desire the ease of living, the comfort and simplicity that are promised by these new technology developments. What we really need to ask ourselves is, "Are we really ready to understand and pay the costs for these technology enhancements?"

LIPA continues to provide tools for customers, both residential and commercial, to evaluate the impact of incorporating technology into their lifestyles. One of the primary tools for the residential customer is the online energy audit tool, The LIPA Home Energy Audit. Easily accessed through LIPA's Web site, www.lipower.org/residential/efficiency you can click on Home Energy Audit, enter your zip code and then proceed through the audit. This tool provides not only an analysis of your current energy usage and cost, but also recommends ways to improve energy efficiency and reduce electric costs.

LIPA also provides incentives for buying a variety of equipment representing the best energy choices. The ENERGY STAR® label is the symbol to look for when shopping for energy-

efficient lighting products and appliances. Whether you're looking for an air conditioner, a dishwasher, a refrigerator or lighting products; checking the ENERGY STAR label is your recommended first step to greater energy efficiency.

Why ENERGY STAR? It's simple. Customers need a dependable, unbiased way of comparing the performance of equipment. One simple and primary criterion is to evaluate cost of operation. A piece of electrical equipment, whether it's a dishwasher or air conditioning unit, is evaluated against the amount of energy required to perform the intended task. ENERGY STAR equipment simply performs better at a lower cost.

Of course, customers still need to evaluate the various options, features and benefits provided by the manufacturer. Once a decision is made regarding the desired features, searching for an ENERGY STAR qualified alternative is the easiest way to identify the most energy-efficient appliances.

Other Recommended Ways to Counter the Growing Use of Electricity

In analyzing the growing use of electricity per customer on Long Island, a number of factors were identified as representative of those growth patterns. If we know what's causing electrical usage (and in turn cost) to grow, customers have a significant advantage in controlling those costs.

Let's take computers as an example:

Do you use the energy management setting on your computer system? Every system is equipped with an energy saving option, but fewer than 10% of buyers use this feature. A traditional desktop computer that is left on uses a minimum of 100 watts of electric power, representing a cost of approximately 19¢ for every 10 hours (the average overnight non-usage period) of operation. On a monthly basis, you could be paying approximately \$5.00 more than you need to if you simply turned off the system when you went to bed. Does it require additional attention? Most certainly. Is it worth the effort? Only you can answer that question.

What if you're a commercial customer? Depending upon the size of your business, demand and demand charges could play a significant role in your energy management objectives and plans. Energy efficient alternatives provide an excellent starting point for evaluating equipment. Through LIPA's Commercial Construction Program, www.lipower.org/commercial/efficiency.html commercial customers can receive incentives based upon selection of qualified energy-efficient equipment. LIPA is ready, willing and able to provide consultative services to commercial customers. Simply call our Energy Infoline at 1-800-692-2626 and you will be connected to an energy specialist who is uniquely qualified to assess your needs and provide energy-efficient solutions.

What Programs Are Available Through LIPA?

LIPA's programs:

- These programs are designed to reward customers for making energy wise decisions, and to encourage greater utilization of energy-efficient technologies.
- Whether it is selecting a single piece of energy-efficient equipment or evaluating and designing an entire facility, LIPA can help. Review the various program offerings at www.lipower.org/efficiency and see which programs fit your situation, then call us. We'd love to help you.
- For small- to mid-sized business owners, LIPA is offering the Business Analyzer audit tool on the LIPA Web site. This tool will allow small- to mid-sized commercial customers to evaluate their energy usage and find options and alternatives leading to reduced energy costs. LIPA also has a dedicated business Call Center which is available to assist business owners with all aspects of their business at 1-800-966-4818.

LIPA's Web-based services

LIPA continues to move toward interactive and productive Web

tools that provide customers a real-time evaluation tool to compare energy equipment selections as well as energy usage scenarios to maximize efficient use of electric energy.

LIPA as a Solution Provider

LIPA is committed to being a Solution Provider. What does this mean? It means LIPA exists to help its customers get the most out of the electricity they consume, and that they do it in the most cost efficient way possible. LIPA succeeds as a non-profit, municipal utility only if its customers succeed.

It is true that energy usage on a customer basis is rising, which is not all bad. The benefits provided by these electro-technology advancements offer real and noticeable value to customers. That value comes with a cost, however. LIPA's mission is to provide tools and services that allow customers to minimize those costs, while maximizing the value.

LIPA is positioned to provide information and consultative services. If you have a question, are contemplating purchasing a new home, opening a new business or expanding your current business, call us at 1-800-692-2626. We believe we can help. ■

It's time we all saw the light.

Save Money. Help Save the Planet.

A young mind sees simple things as wonderful and amazing. We think the money you'll save by replacing your regular bulbs with compact fluorescents is wonderful. If you replace just six bulbs, you can save up to \$125 a year.* And LIPA rebates will save you even more.

If everyone on Long Island did this, it would be as if we eliminated the emissions from over 300,000 cars for an entire year. We think that would be wonderful and amazing for all of us.

* Based on five hours per day use, three 14W and three 23W CFLs.



LIPA...working with you for a more energy-efficient Long Island.

For information on LIPA rebates for compact fluorescent bulbs and other energy-efficient products, visit www.lipower.org/efficiency.

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