

Energy Efficiency Programs in Action

Case Study: **CYNTHIA HAUN - HYANNIS RESIDENT**

PROJECT DESCRIPTION

Hyannis resident Cynthia Haun successfully reduced her annual electricity use by an astounding 52% over a seven year period by the slow and steady implementation of deeper energy efficiency measures recommended by Cape Light Compact.

Since calling for her first free home energy assessment in 2002, Haun has participated in many available programs offered by Cape Light Compact, including rebates, pilots, additional home energy assessments and a MassSAVE Heat Loan. Haun also installed several recommended energy efficiency measures like insulation, air sealing, CFLs and a solar hot water heater that dramatically increased her energy savings and transformed her home into a more comfortable residence that is friendlier to the environment.



PROJECT FACTS

- ✓ Area: 800 SF
- ✓ Fuel: Oil
- ✓ Annual kilowatt hours saved: 4,322 kWh
- ✓ CO2 emission reduction through installed weatherization measures: 1,964 lbs. *The equivalent emissions savings from 37 small propane cylinders*
- ✓ Approximate annual savings (based on \$0.20 kWh): \$864.40

CAPE LIGHT COMPACT PROGRAMS

- ✓ Home Energy Assessment: 2002 & 2009
- ✓ Free CFLs: 2002 & 2009
- ✓ Energy Efficient Washer Rebate: 2006
- ✓ Energy Efficient Window Rebate: 2007
- ✓ Solar Domestic Hot Water Pilot: 2009
- ✓ Energy Pay & Save Pilot: 2009
- ✓ MassSAVE HEAT Loan: 2009

"My energy efficiency journey began when my partner Harry and I bought a very old and extremely drafty house. As practical people, it made sense for us to contact Cape Light Compact to schedule an energy assessment and take advantage of their expertise and recommendations. More importantly, their great rebates and wonderful MassSAVE Heat Loan program made it possible to follow their advice. Just last month I saw my electric bill drop significantly after putting in the solar hot water heating system. I am so grateful for Cape Light Compact's programs – they actually made a dream come true."

Cynthia Haun



PROJECT TEAM

Cynthia Haun:	Residential Homeowner
RISE Engineering:	Home Energy Assessment, report and installation
E.F. Winslow:	Solar Domestic Hot Water Heater, installation
Kevin Galligan:	Energy Efficiency Program Manager, Cape Light Compact
Briana Kane:	Residential Programs Coordinator, Cape Light Compact

CAPE LIGHT COMPACT PROGRAMS & ENERGY EFFICIENCY MEASURES

Home Energy Assessment

Haun called Cape Light Compact at 1-800-797-6699 and participated in two FREE home energy assessments on December 31, 2002 and September 29, 2009. The energy assessment is designed to help identify energy efficient upgrades that will reduce energy bills, increase year-round comfort, and create a healthier environment.

The home energy assessment includes FREE installation of instant savings measures, including compact fluorescent light bulbs, low flow shower head and faucet aerators (when applicable), air sealing and weather stripping, plus offers a 75% incentive up to \$2,000 for recommended insulation and other weatherization measures.

Haun implemented the recommended energy efficient measures from her personalized energy assessment report over time, using our licensed installers and taking advantage of generous incentives and rebates offered by Cape Light Compact for energy efficient upgrades.

FREE Compact Fluorescent Light Bulbs (CFLs)

In 2009, Haun received 4 FREE compact fluorescent light bulbs (CFLs) for her home through Cape Light Compact's Home Energy Assessment Program.

An Energy Star® qualified CFL will save about \$30 over its lifetime and pay for itself in about 6 months. It uses 75% less energy and lasts about 10 times longer than an incandescent bulb. If every American home replaced just one light with an Energy Star® light, we would save enough energy to light more than 3 million homes for a year, about \$700 million in annual energy costs, and prevent 9 billion pounds of greenhouse gas emissions per year, equivalent to the emissions of about 800,000 cars.

Air Sealing

Haun implemented the recommended air sealing measures from her personalized home energy assessment report in 2009. Sealing a home's envelope—its exterior walls, ceiling, and floors—is an important step in controlling the indoor environment and lowering energy bills. In typical homes, air leaks are often found at cracks, small holes, and penetrations for plumbing, wiring, lighting, and duct work.



Air sealing benefits include:

- **Improved Comfort.** A properly sealed house has fewer drafts and less noise.
- **Lower Utility Bills.** Air leakage and improperly installed insulation can waste 20% or more of the energy used to heat or cool a home.
- **Improved Indoor Air Quality.** A properly sealed home reduces the amount of humidity, dust, pollen, and pests that can enter the home.
- **Increased Durability.** Reducing air leakage helps minimize moisture problems and increase the home's durability.

Duct Sealing

Haun had her ducts properly sealed by our licensed engineers in 2009. Leaky ducts can reduce heating and cooling system efficiency by as much as 20%. Sealing and insulating ducts increases efficiency, lowers your energy bills, and can often pay for itself in energy savings. Sealing ducts can also help improve indoor air quality by reducing the risk of pollutants entering ducts and circulating through your home.



CAPE LIGHT COMPACT PROGRAMS & ENERGY EFFICIENCY MEASURES

Attic & Basement Ceiling Sill Insulation

Haun's home energy assessment recommended additional insulation for her attic (R-30 & R-38) and basement ceiling sills (R-19), which she installed in 2009. The EPA estimates that homeowners can typically save up to 20% of heating and cooling costs (or up to 10% of total energy costs) by air sealing their homes and adding insulation in attics, floors over crawl spaces, and accessible basement rim joists.



Insulation keeps your home warm in the winter and cool in the summer. There are several common types of insulation — fiberglass (in both batt and blown forms), cellulose, rigid foam board, and spray foam. When correctly installed with air sealing, each type of insulation can deliver comfort and lower energy bills during the hottest and coldest times of the year.

Insulation performance is measured by R-value — its ability to resist heat flow. Higher R-values mean more insulating power. Different R-values are recommended for walls, attics, basements and crawlspaces. Insulation works best when air is not moving through or around it. So it is very important to seal air leaks before installing insulation to ensure that you get the best performance from the insulation.



Solar Domestic Hot Water Pilot Participant



Haun participated in Cape Light Compact's Solar Domestic Hot Water Pilot that replaced her inefficient electric hot water heater with a highly efficient solar hot water thermal system. Replacement costs were offset by a \$500 rebate from Cape Light Compact (rebates range from \$500 for a 2-person household to \$1,600 for a 6-person household).

Water heating can account for 14%–25% of the energy consumed in your home, second only to heating and cooling in residential energy consumption. A typical residential solar water-heating system reduces the need for conventional water heating by about two-thirds, while water heating bills drop an average of 50% to 80%. A solar water heater minimizes the expense of electricity or fossil fuel to heat the water and thus reduces the associated environmental impacts. Also, because the sun is free, you're protected from future fuel shortages and price hikes.

Solar water heaters use the sun to heat either water or a heat-transfer fluid in the collector. Heated water is then held in the storage tank ready for use, with a conventional system providing additional heating as necessary. The tank can be a modified standard water heater, but it is usually larger and very well insulated.

Along with the Cape Light Compact rebate offered through our pilot program, installation of a solar domestic hot water system is eligible for a Federal Tax Credit until December 31, 2016 (30% of the cost with no upper limit. Includes installation costs). The payback period ranges from 3-7 years using the Federal Tax Credit.



CAPE LIGHT COMPACT PROGRAMS & ENERGY EFFICIENCY MEASURES

Energy Efficient Washer Rebate

Haun purchased a highly efficient Energy Star® washing machine in 2006 and received a generous mail-in-rebate being offered at that time through Cape Light Compact. Energy efficient clothes washers use today's technology to adjust for load size and water temperature, and are designed to extract more water than conventional clothes washers. This allows for shorter drying times, adding up to additional energy and time savings for every load of laundry.



Compared to a 10-year-old clothes washer, an Energy Star® qualified clothes washer can save about \$100 on average per year on your utility bills because Energy Star® qualified clothes washers use up to 50% less energy and save about 25 gallons of water per load.

Energy Efficient Window Rebates

Haun replaced two (2) inefficient windows in 2007 with highly efficient Energy Star® qualified models and received a \$10 per window mail-in-rebate (rebate ended 12/31/09). Haun was also able to finance her Energy Star® windows through the MassSAVE Heat Loan Program. Qualified Energy Star® windows are eligible for a Federal Tax Credit (30% of cost up to \$1,500. Does not include installation costs) until December 31, 2010.



Energy Star® qualified windows, doors, and skylights can reduce your energy bills up to 15% while helping protect the environment.

Energy Pay and Save Pilot Program Participant

Haun participated in Cape Light Compact's Energy Pay and Save Pilot Program which was offered to residential and commercial customers in 2009. The EPS Pilot Program allowed customers to purchase energy efficient or renewable energy products with no up-front payment, then pay over time as a charge on their monthly electric bill. The maximum project size for a residential customer was \$500.

MassSAVE HEAT Loan

Haun secured a MassSAVE HEAT Loan, a state-wide program that provides customers the opportunity to apply for a 0% loan from participating lenders, to assist with the installation of qualified energy efficient improvements in their homes. The loans are available up-to \$15,000 with terms up-to 7 years. To apply for the loan, the customer must own and reside in a 1 to 4 family residence and obtain a Home Energy Assessment through Cape Light Compact. For more information and a list of participating vendors, go to www.MassSave.com.

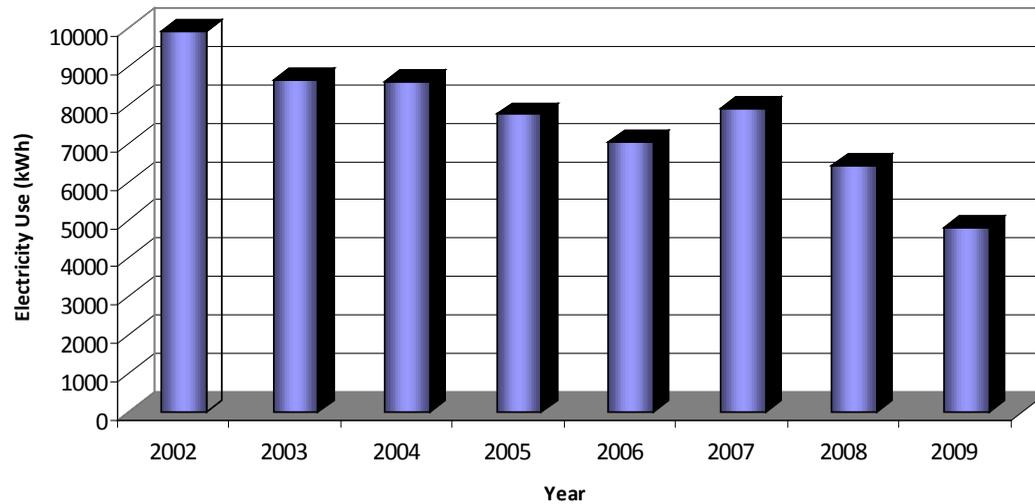
For more information on current Cape Light Compact Residential Program offerings, please visit us at www.capelightcompact.org or call **(800) 797-6699** to schedule your **FREE Energy Assessment** today!

Source for Federal Tax Credits and energy efficient measure savings: www.energystar.gov and www.epa.gov

ENERGY PERFORMANCE

By gradually implementing energy efficiency measures through Cape Light Compact's programs, Haun's annual electricity use went from 9,913 kWh in 2002 to 4,802 kWh in 2009 - **a 52% reduction** achieved over the past seven years.

Cynthia Haun's Electricity Use 2002-2009



Haun saw a **36% drop in her electricity use** between March 2008 and March 2010 after insulation, a Solar Hot Water Heating System, and other air sealing measures available through Cape Light Compact's Energy Efficiency Programs were installed.

Cynthia Haun's Electricity Use 2008-2009

