Energy Efficiency Programs in Action

Case Study: **First things first…**

The Home Energy Assessment – Sandwich, MA

In this case, owners of a 4-bedroom, Colonial-style home built in 1993 participated in Cape Light Compact's FREE Home Energy Assessment conducted by Rise Engineering, a Division of Thielsch Engineering on November 5, 2009. Every ratepayer on Cape Cod and Martha's Vineyard contributes to the Energy Conservation Fund as shown on their monthly Electric Bill and is entitled to a Home Energy Assessment at no charge and are eligible for 100% lighting retrofits , 75% of the cost to improve insulation (up to $2,000) and 100% Air Sealing through Cape Light Compact's (CLC) Residential Energy Efficiency Programs.

The Home Energy Action Plan revealed opportunities to reduce energy usage, reduce CO^2 emissions and save on the cost of energy in the following areas:

- Retrofit lighting with Energy Efficient Compact Fluorescent Light Bulbs.
- Air Leakage Sealing (with expandable spray foam) at top of foundation and plumbing chases and weather-stripping exterior doors. Sealing air leaks will reduce cold air infiltration during winter months and warm & humid air infiltration during summer months.
- Installing 124 sq. ft. rigid foam board insulation to the rafter side in the storage area behind the knee wall (attic area space).
- Contracting with CLC for generation of electricity @ a rate of $0.098 per/kWh.
- Wrap (insulate) 120 lineal feet of un-insulated space & water heat piping.

The Assessment also included recommendations and their costs, payback time and estimated CO^2 reductions.

Home Characteristics

- Area 2500 SF
- Fuel Oil Heat/Hot Water – 3 heat zones
- Built in 1993
- Andersen double-pane, Low-e windows
- 2x6 wood frame construction
- R-19 Fiberglass Batt Wall Insulation
- R-30 Fiberglass Batt roof insulation

Timeline of Energy Efficiency Activities

10/31/09	Contracted with Cape Light Compact @ $0.098/kWh for electricity generation.
11/05/09	Audit & Blower Door Test performed.
11/19/09	24 Compact Fluorescent Light Bulbs (CFL) installed as part of CLC Audit by Rise Engineering Specialist @ no cost to owner.
11/24/09	Rise Engineering performed Air Sealing and FSK foil-faced rigid insulation in attic/storage area consisting of 124 f^2 to keep knee-wall area within the thermal boundary.
06/08/10	Installed New Energy Star Dishwasher (Rated 299 kWh/yr.)

Appliances

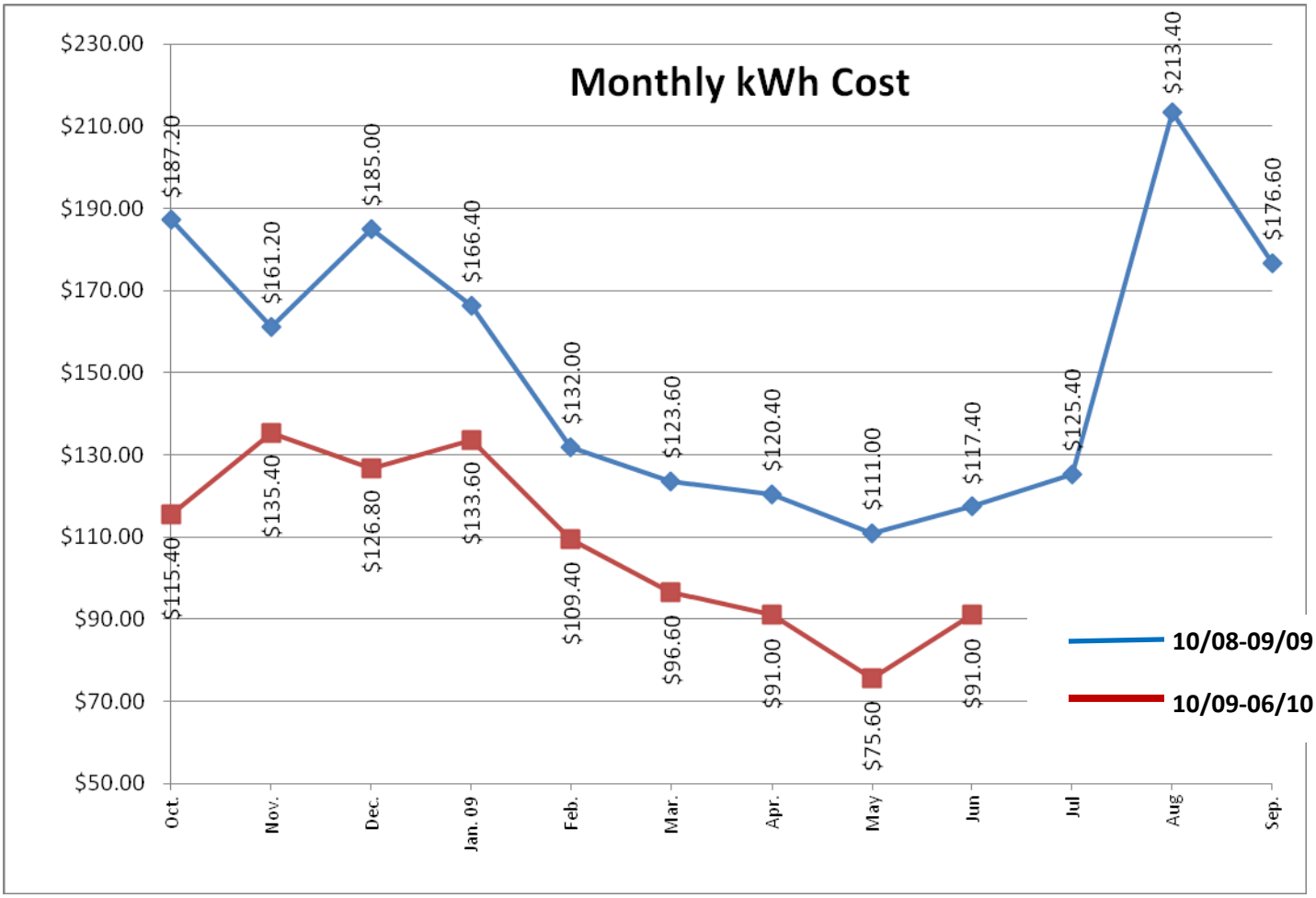
Using a Watt Meter, the Specialist measured the amount of power the home's refrigerator was using to determine eligibility for the CLC refrigerator replacement incentive. The test revealed the refrigerator operating better than originally rated and therefore, not eligible for the incentive. Other major appliances such as Clothes Washer and Dryer being new (within 3 years) were found to be operating efficiently.

The Specialist recommended replacing an older Dehumidifier with a new ENERGY STAR® dehumidifier. Owners reported heavy usage during summer months. (Note: air-leak sealing should help reduce humid air infiltration thereby reducing the need to dehumidify the living space.)

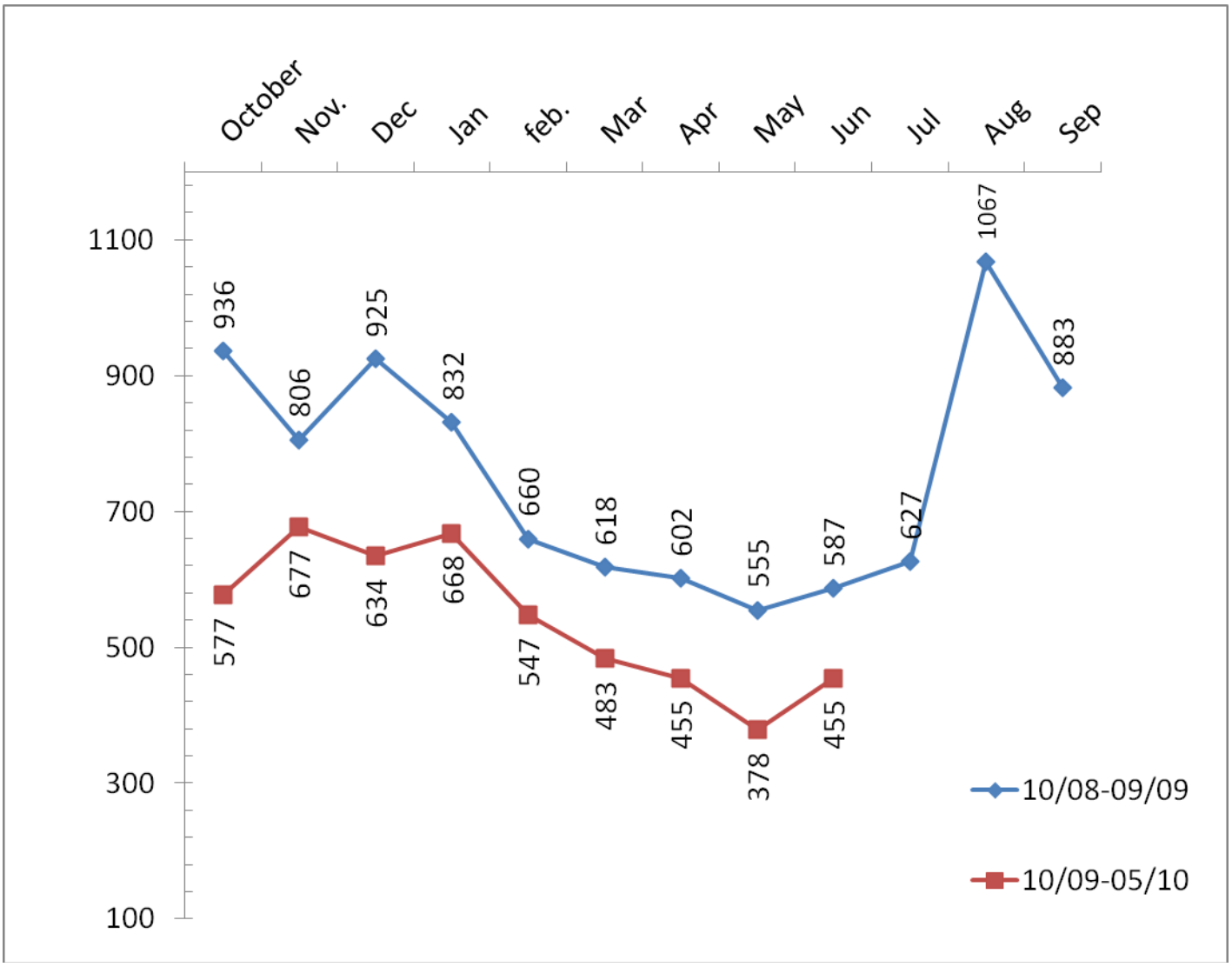
COST OF ELECTRICITY

The following chart compares cost before and after Energy Efficiency Activities

(based on Average $0.20/kWh.) 9-Month Savings total - $330.00



Comparison of kWh usage



Until having a Home Energy Assessment, I never really thought it (electricity bill and kWh usage) was anything I could significantly control. We are now on a trajectory to save approximately $600/year on electricity.

Karen L. Sandwich Homeowner

Other Energy Efficiency Activities

- In addition to sealing air leaks and to further reduce the need for dehumidifing the living space during the humid Cape Cod summers, the owners also improved the gutter system on the home to adequately direct water away from the foundation. It was revealed that an improper drip-edge was installed during construction which allowed roof runoff to track and drip behind the gutter straight down to the earth close to the foundation. Moisture will infiltrate from the damp soil through the porus concrete of the foundation. Proper diversion of water away from a home's foundation improve basement dampness.

- Homeowners also participated in the Mass. Save Great Appliance Exchange and updated their Dishwasher. This program provided a $250 Rebate to replace existing Dishwashers with an EnergyStar Dishwasher. The new dishwasher was selected from an approved list of eligible appliances and is rated to use only 299 kWh of electricity annually. At .20/kWh, it will cost the owners approximately $59.80 per year to operate. Along with a $50.00 Manufacturer Rebate, the owner's were able to save $300. The new Dishwasher was delivered and the old unit was removed and disposed.

- Eliminating Electricity *Vampires* by unplugging battery chargers (i.e. cell phone, GPS, Camera, etc) and electronic equipment when not in use, setting Computer to "stand-by" mode when idle will also reduce waste of energy.

- Running Full Dishwasher & Clothswasher loads reduces the number of loads per week. Pre-rinsing dishes prior to machine washing is not necessary with most of today's dishwashers. If pre-rinsing dishes prior to machine washing, the owners use cold water and also use cold water for most clothswashing loads. It was determined that this home uses an average of 23 gallons/mo. fuel oil for water heating. Using less hot water will futher reduce CO^2 emissions and save money on home heating fuel oil.

- Lastly, owners are continually aware and seek opportunities to minimize and reduce energy usage and are motivated by carefully monitoring their electric bill.

A follow-up study will look at how air-leak sealing & insulation and other improvements and habits have impacted the Home Heating Fuel usage once data is collected from the next heating season (Fall/Winter 2010-2011).