

**MEMORANDUM**

TO: Libby Gibson, Town Manager  
 FROM: Lauren Sinatra, Energy Coordinator  
 RE: Update of Nantucket Energy Office Activities: Second Quarter of FY2016  
 DATE: December 24, 2015

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This memorandum provides a brief summary update of the activities of the Energy Office through the second quarter of FY2016 to date. The Energy Office will be prepared to discuss these items with the Board of Selectmen on January 6, 2016.

**Announcements**

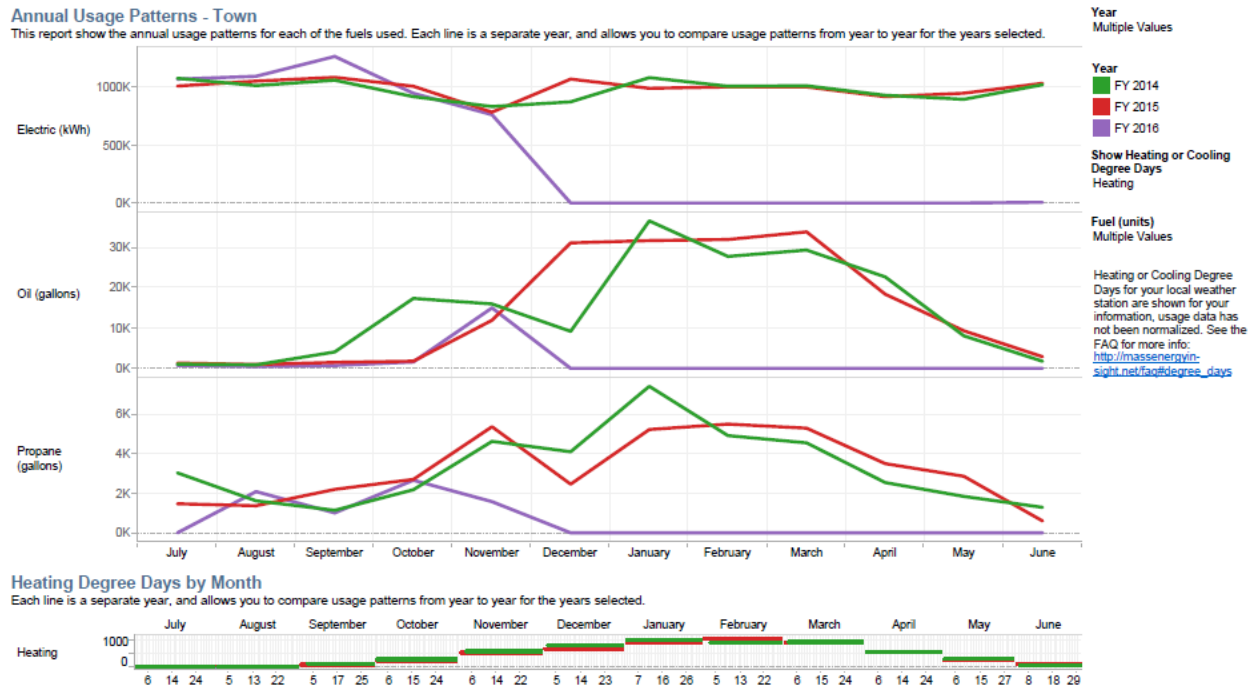
- Due to the unseasonably warm late fall/winter weather, a natural gas surplus has impacted electric rates to the point that current prices are 35% below originally forecasted. Now is the time to lock in longer term electric supply contract prices.
- Most competitive electricity supply options available at present to Nantucket residents:
  - Ambit Energy (9.25¢/kWh for 12 months. No cancellation fee.)
  - Conedison (9.95¢/kWh for 12 months)
  - Think Energy—Suez (8.4¢/kWh for 12 months)

**Municipal Facilities: Energy Efficiency and Conservation Efforts**

1. Monitoring of Town energy consumption. Oil, propane, and electricity consumption data for the month of December has not yet been received. Therefore, the following table compares energy consumption by municipal facilities and equipment during as of **November 30** of fiscal years 2015 and 2016:

	<b>FY2015</b>	<b>FY2016</b>	<b>(=/-)%</b>
Electricity, kWh	4,954,893	5,154,350	<b>+3.86%</b>
Heating oil, gallons	17,592	18,596	<b>+5.4%</b>
Propane, gallons	13,189	7,380	<b>-44%</b>

Source: MassEnergy Insight data totals as of **November 30, 2015**, based upon National Grid data (automatically updated in software on a monthly basis), and quarterly delivery records supplied by Yates Gas and Harbor Fuel (input manually by Energy Coordinator).



2. Energy assessments and energy efficiency upgrades at Municipal facilities and Town-owned residences

***Municipal Facilities***

The Energy Office continues to encourage and offer support for the implementation of several energy saving (incentivized) measures and upgrades at:

- Planning and Land Use Services (2 Fairgrounds Road)
  - Installation of wifi thermostats was completed on 12/22/15. Estimated to save approximately \$9,400/year with less than a 2 year payback (ROI). The project proposal is attached.
- Surfside Wastewater Treatment Plant: Sludge Blower, Draft pumps, Aeration Blower, LEAP MBR
  - Pricing proposals due in a few weeks.

Additionally, the Energy Office staff is presently working with the Wastewater Treatment Plant’s Chief Operator to apply for a ***solar hot water feasibility study grant***, offered through the Massachusetts Clean Energy Center. The grant will fund a \$5,000 technical study, in exchange for a 2% cost share (\$250) from the Town. If the study identifies that a solar hot water project is financially viable, the Town will be eligible for a second round of construction funding (up to 65% of total cost).

***Municipal Staff Housing***

The Energy Office staff has worked with the DPW to coordinate the weatherization of municipal staff housing on Hillside Avenue and 39 Washington, which will decrease the energy bills and improve the general comfort of the staff tenants.

**3. Electric Vehicle Grant**

On November 24, 2015 the Energy Office was awarded a \$5,000 grant from the Massachusetts Department of Environmental Protection (MassDEP) to apply towards a purchase of a new, Plug-in Hybrid Electric Vehicle (PHEV) through the Massachusetts Electric Vehicle Incentive Program (MassEVIP). This electric vehicle will be the first among the Town's municipal fleet and will be used primarily by the Director of Public Health for inspections and administrative tasks. The electric vehicle will be parked in a designated parking spot behind the Finance Building on 37 Washington Street, adjacent to the electric vehicle charging stations.

The balance (~\$25,000) will be funded by the Cape & Islands Green Program (of the Cape & Island License Plate Fund), which supports "environmentally compatible economic development programs" and "focuses on the environmental protection of Cape Cod & Islands by engaging the community in best green practices." The Energy Office contends that by adding an emissions-free, electric vehicle to the municipal fleet, the Town would be *leading by example* to promote environmentally responsible, best green practices. The Town would be participating in the State's MassEVIP Program, which the Commonwealth launched to demonstrate its commitment to increasing the deployment of EVs with the aim of giving these advanced technology vehicles higher visibility across the state.

The Town is seeking to add an electric vehicle to the municipal fleet:

- To increase local air-quality: EVs not only decrease greenhouse gas (GHG) emissions but also significantly reduce smog forming emissions. Even when EVs are charged with electricity generated from fossil fuels, less greenhouse gases (GHGs) are emitted than conventional gasoline-fueled vehicles. The Northeast power grid is more reliant on natural gas and renewable energy, so electricity generated in our region is among the cleanest in the country.
- Since electricity is generated almost entirely by domestic sources, driving EVs reduces our dependence on foreign oil imports. Electricity costs less than petroleum and is subject to less price volatility, so EV owners can benefit from reliable and less expensive sources of energy to power their vehicles.
- Over the lifetime of an EV, the Town can save thousands of dollars in fuel costs (this is money that can instead be diverted to local projects and development programs).

#### 4. LED Streetlamps

The Town's nearly 200 decorative streetlamps continue to be costly to maintain. In 2014, nine LED streetlamp retrofit kits were installed, which have so far to date proven reliable and maintenance free. Based on the positive feedback received from the mid-island Stop and Shop's decorative, LED parking lot lighting, the Energy Office staff is investigating the costs of a complete conversion project. The LED streetlamp manufacturer, Spring City, has offered to provide two sample luminaires (in both traditional lantern and "main street" cylindrical styles) for a pilot installation at no cost.

Utility incentives and possible grant funds may be applicable for this project, depending on the color temperature and lumen output of the LED lighting selected.

### **Competitive Electric Supply Procurement**

#### 1. Rebidding Municipal Electric Supply

Since the Town of Nantucket engaged Titan Energy as an electricity supply broker in 2012, over **\$717,000** in actual savings against National Grid's standard generation rates have been achieved. When the Town's current electric supply contract was executed last November, national and regional energy markets were in the midst of unprecedented volatility, dating back to the end of 2013 and the now "forgotten" Polar Vortex of 2014. The most recent electricity supply contract, despite price escalation and abnormal weather patterns, has performed well since its inception.

The unseasonably warm weather of this fall and winter have created a different kind of volatility; where long term energy supply contracts are very much in the buyer's favor:

- Wholesale energy prices are down roughly 35% within the last 3 months
- Natural gas prices (the major driver of electricity rates in New England) are down over 50% from this time last year
- The winter "fear premium" associated with 2014-2015 has essentially dissipated due to the warmer-than-average start to the heating season.

Per the advice of Titan Energy, it is our recommendation that the Town authorize Titan to issue an RFP for electricity supply services to evaluate our pricing options and execute a contract renewal (locking into current low prices), if appropriate.

#### 2. Shopping for Competitive Supply Tool (Residential)

The Department of Public Utilities is in the process of creating an online tool for ratepayers to shop for competitive electric supply plans. However, there is currently no information about the competitive supply products specifically available to the ratepayers of National Grid's Nantucket Electric Company service territory, only those offered to National Grid's Massachusetts Electric Company service territory.

The Energy Office submitted the attached letter to the DPU, which describes the issues currently facing Nantucket ratepayers, i.e. limited supplier options and no clear information indicating which National Grid suppliers are also registered to sell products on Nantucket. These are two very compelling reasons for the Town to continue to pursue Municipal Aggregation. But, until then, getting “Competitive Supply Products in Nantucket Electric Territory” to be included in the DPU’s online search tool is something the Energy Office will continue to pursue and monitor.

### **Airport Solar PV Investigation**

The Energy Office, with support from Town Administration and the Nantucket Memorial Airport, continues to investigate the feasibility of developing 2-Megawatts of solar PV on Airport land previously identified by the “Carbon Neutral Airport Program (the CNA Program).” A representative from SunEdison will be present to discuss project updates and answer questions from the Selectmen.

Since the last quarterly energy update, the Energy Office is pleased to report that on December 18, 2015, Congress voted to extend the 30% Investment Tax Credit, ensuring the project’s optimal financial projections without the pressure of energizing the system by December 31, 2016 to qualify for the deadline.

The Energy Office has also recently identified a problem that exists in the state’s net-metering cap allocation database. Specifically, that off-island projects are being counted against (deducted from) Nantucket’s separate net-metering cap allocation. The Energy Office also identified that excess capacity can be claimed from the defunct Bartlett Farm wind turbine, which is still listed as active in the ACA database. Energy Office staff will continue to monitor the situation for resolution.

### **Municipal Energy Policies**

#### **1. Requiring Home Energy Assessments as part of a Municipal Regulation to Control Air Pollution**

The Energy Office staff is working with the Town’s Public Health Director to investigate the feasibility of requiring homes on septic systems to receive a no-cost, Mass Save home energy assessment upon a property transfer or renovation. According to MGL Chapter 111, Section 31C, a Board of Health may enact regulations to control air pollution if the regulation serves to prevent:

- 1) Nuisance to members of the town
- 2) Danger to the public health of the town; or
- 3) Detriment to public comfort and convenience in the Town

There are several reasons why the Energy Office and Health Department believe that a municipal policy to help reduce island-wide energy consumption may comply with the aforementioned regulations. Nantucket’s demand for electricity is growing more than five times the statewide average, with 78% of Nantucket’s “peak load” being attributable to the residential sector. Through the Mass Save program, a

residence would immediately be outfitted with instant saving measures (such as LED bulbs) and receive a customized report with recommendations on increasing energy efficiency for no-cost. Not only would this energy audit be informational and helpful for new home buyers, but it would help increase the overall energy efficiency of the island. More efficient homes would:

- Use less electricity, propane and oil, resulting in less emissions and better air quality. Reduced consumption of liquid fuels will also result in less fuel deliveries barged to the island, which is a significant source of local air pollution.
- Help to reduce the need for back-up diesel generation during peak load events, which would cause a public nuisance and increase air pollution in the historic downtown district (National Grid's roll-on diesel generators would be connected to the Candle Street substation)
- Defer the need for a 3<sup>rd</sup> undersea cable, which could impose an extra surcharge on all rate payers
- Lessen unnecessarily high energy costs, especially for tenants who are often times at the mercy of landlords to initiate or install energy efficient services and equipment.

Perhaps even more important to preventing danger to public health is the fact that an energy assessment includes a **combustion safety test**, which ensures that appliances such as heating systems, hot water heaters and stoves are operating safely and efficiently, without an excessive buildup of carbon monoxide. Discussions about the feasibility of this policy are ongoing and subject to input by the Board of Selectmen, Town Administration, National Grid, Town Counsel, and the general public.

## 2. Energy Efficient IT Settings

The Energy Office is presently working with the Town IT Department to identify and implement a "Group Policy" that will centralize control of municipal employee computer monitors according to the certain energy saving settings.

## **Community-Wide Energy Initiatives**

### 1. Community Choice Aggregation (CCA)/Municipal Aggregation

The Town of Nantucket issued an RFP for municipal electric aggregation consulting services in October and received three proposals by the due date on December-18<sup>th</sup>. A selection committee has been formed, comprised of Town staff and two resident taxpayers, including: Heidi Bauer (Procurement Officer), Lauren Sinatra (Energy Coordinator), Noah Karberg (Airport Environmental Coordinator), Peter McEachern, and Peter Kaiser.

The committee will begin to evaluate the proposals during the week of January 4, 2016 and expects to make a determination by the end of January.

## 2. Mass Save Energy Efficiency Program: Residential & Business Energy Assessments

In the calendar year to date, the Energy Office has worked with National Grid and Mass Save to publicize, schedule and arrange no-cost home energy assessments for **544** Nantucket households during five separately coordinated "Mass Save Home Energy Assessment Week(s)," which puts us well above our goal of 400 assessments for the calendar year. A goal of 450 has been set for 2016. Mass Save will not return again until the week of March 14, 2016, at which point energy audit weeks will take place every other month (6 weekly visits per year).

- In 2015:
  - **544 Home Energy Assessments were performed**
  - 24,569 LEDs installed
  - 201 wifi thermostats (+\$200 value)
  - 97 dehumidifiers (+\$200 value)
  - 60 Hybrid electric Heat-pump Water Heaters (\$3,000 value)
  - 986 Powerstrips installed
  - 986 Programmable thermostats installed
  - 691 Low-flow showerheads installed
  - 151 Insulation contracts and 155 Air Sealing contracts issued
- The next scheduled residential and small business energy audits will take place:
  - March 14-18, 2016
  - May 9-13, 2016

## 3. National Grid's "Nantucket Non Wires Alternative Pilot" Filing to Dept. of Public Utilities

National Grid is planning to file a proposal for a Non-Wires Alternative (NWA) demonstration project on Nantucket with the Massachusetts Department of Public Utilities. The NWA Pilot encompasses the deployment and testing of distributed energy resources such as energy efficiency, demand response, renewable energy, energy storage, and volt VAR optimization, as well as targeted outreach to help educate and encourage energy efficient habits with customers. The NWA Pilot is intended to test and evaluate customer actions and behavior with the goal of achieving a reduction in peak loads of the Company's distribution equipment in specific geographic areas as approved by the Department.

Lindsay Foley, NWA Project Manager from National Grid, will be in attendance at the January 6, 2016 Board of Selectmen meeting to deliver a brief presentation and to answer questions.

#### 4. Local Contractor Energy Education Series

The Energy Office is collaborating with National Grid and the Nantucket Builders Association to coordinate and host three workshops on various energy topics, all of which will be accredited for Construction Supervisor License continuing education credits:

- January 13, 2016: **“National Grid Presents: Electric Service Customer Fulfillment”**
- February 10, 2016: **“The Changing Energy Code (IECC2015) and the new Stretch Code”**
- March 9, 2016: **“Mass Save New Construction Program”**

The workshops are being sponsored by National Grid as part of the “Non Wires Alternative” project as a means to increase contractor compliance with the changing energy codes.

#### 5. WPI Project – “Analyzing Energy Awareness, Attitudes, and Alliances on Nantucket”

From October 26 until mid-December, the Energy Office sponsored and served as project advisor to three undergraduate engineering students from Worcester Polytechnic Institute. This project was the fifth research project that the Energy Office has sponsored in recent years, focused on local energy issues.

The purpose of this year’s project was for the team to provide key research, recommendations, and deliverables—based on local interviews, surveys, and lessons learned from the City of Worcester’s smart grid pilot project and local Sustainability Hub—to support the Town of Nantucket Energy Office and National Grid in their efforts to increase the public’s energy awareness and participation in local energy programs designed to save Nantucket residents and businesses energy and energy-related costs, such as Municipal Aggregation and the “Non-Wires Alternative” (NWA) pilot project to reduce summer peak load and defer the need for a third undersea transmission cable.

**General findings:** From the results of a survey of 194 year-round residents and 88 seasonal residents, the team concluded:

- That the majority of the population on Nantucket is aware of how the island receives its electricity, but is generally not aware of the surcharges that pay for the cables or what the major factors are that increase electricity demand in the summer.
- Seasonal residents are generally less aware of these topics than year-round residents.
- The majority of the population on Nantucket is interested in participating in different energy saving programs.
- Those who are opposed to participating in such programs may be more interested if they were better informed (less misinformed).

**Key findings and recommendations:**

- Continue to pursue municipal aggregation. **95% were in favor** if they could achieve cost savings and/or green power supply.



- Continue to pursue a community shared solar project at the airport. **85% of those surveyed expressed interest** in purchasing a portion of their power generated from this project.
- Explore setting up an energy efficiency fund with a local non-profit (Community Foundation) to help fund energy efficiency or renewable energy projects for residents or businesses in the community.
- Public awareness of the Mass Save program has risen from **48% in 2012 to 79% in 2015!**. Continue to collaborate with National Grid to promote the program locally.