Town of Cohasset Alternative Energy Committee:

Current Initiatives to Reduce Energy Costs While Promoting Energy Efficiency and Sustainability

Presentation by:
Shaun Selha, Co-Chair

February 11th, 2015
Content

- Current Energy Costs
- Status of AEC Initiatives
- Question & Answer Session
CURRENT ENERGY COSTS

- **Electricity**
  - $628,000 (FY14)
  - Historic Rate: Approximately $0.15/kWh (FY14)
  - Projected Rate: >$0.20/kWh (2014/2015 winter)
  - Consumption: 4,200,000 kWhs Annually

- **Natural Gas**
  - $388,000 (FY14)

- **Diesel/Gasoline**
  - $165,000 (FY14)

- **Water**
  - $80,000 (FY14)
PROPOSED INITIATIVES

- **Solar Energy Procurement**
  - *Reduced Costs*

- **Energy Conservation Measure Implementation**
  - *Reduced Consumption and Costs*

- **Streetlight Procurement**
  - *Reduced Consumption and Costs*

- **Green Communities Designation**
  - *Access to Grants for Energy-Related Project Funding*

- **Energy Management System Utilization**
  - *Historic Energy Usage and Cost Information*
SOLAR ENERGY PROCUREMENT

- **ON-SITE: PV Array at “Old Landfill”**
  - Solar PV Array Net Metering (NM) Project (1,100 MWhs annually)
  - Joint Venture Financed by Palmer Capital (Local Company)
  - Guaranteed Rate: $0.088/kWh, 0% escalation, 20-year term
  - Contract Status: Waiting on TM to Execute Approved PPA/Lease Contracts

- **OFF-SITE: Not in Cohasset at a 3rd-Party Site**
  - Solar PV Array Virtual Net Metering (VNM) Project (1,200 MWhs annually)
  - 3rd Party Developer (SolarCity)
  - Guaranteed Rate: $0.0975/kWh, 0% escalation, 20-year term
  - Contract Status: Waiting on TM to Execute Approved VNM Agreement
ECM IMPLEMENTATION

❖ Energy Audit Completion

▪ National Grid Technical Assistant (TA) completed free energy audits of all major municipal facilities (i.e. Teen Center, Library, High/Middle School, Osgood School, Deer Hill School, Police/Fire Station, and Town Hall).

➢ The Energy Conservation Measures (ECM’s) identified represent an annual 13% electricity reduction (546,850 kWh reduction).

➢ The Town plans on moving forward with a subset of the ECM’s identified. That sub-set represents annual energy savings of 463,782 kWhs or a 11% reduction.

   o That does not include the therms savings from the destratification fans, Town Hall renovation energy savings, nor the potential streetlight procurement savings.

   o The school ECM’s include high efficiency motor replacements (new motors have been shipped to schools), variable frequency drive installations (VFD’s shipped to schools), and lighting retrofits (in progress currently).

   o The other town facility ECM’s include a Police/Fire Station lighting retro-fit and a lighting retrofit at the Library.

➢ Projects will be funded by National Grid with nominal electric/gas rate increase to recover capital cost.
Procurement of Streetlights In Progress

- 511 overhead lights ($26,000 in O&M plus additional savings from consumption reduction – approximately 200,000 kWh savings).

- Currently the Town has been unable to obtain a general layout or topographical map indicating where all of the streetlights are and which are active or retired in place. As such, the Town does not want to move forward with the purchase until we understand “what we are buying”.

- There is the possibility of having the Streetlights surveyed ourselves by hiring a firm like C.D.M. Smith that has web-based applications to map out and catalogue streetlights. The Town may look into obtaining a proposal for such work and possibly place a contingency in the purchase of the streetlights so that it will be based upon the results of the survey (i.e. number of active lights purchased).

- One AEC Committee Member put forth an intriguing idea in order to complete the audit essentially free of cost. The Town could possibly look to establish a contest or a “Sustainability Team” at the High School and have the High School students map out the existing streetlights and collect the appropriate information for each one based upon the nameplates on the poles.

- The survey will help the Town assess any repair or modification costs that must be factored into the financial analysis.

- The LED conversion that will garner the energy consumption savings will be part of Phase 2.
GREEN COMMUNITIES DESIGNATION

- **DOER Provides Grant Funding To Qualifying Municipalities**
  - Disbursements to date: $29,728,000; source of funding (utility rate payers)
  - Cohasset’s base allocation: approx. $140,000+ $10,000; Grants up to $1M)
  - 123+ Towns qualify to date (Scituate, Hanover, Concord, etc.)

- **Green Communities Designation Requirements**
  1. Adopt As-of-Right Siting for Renewable or Alternative Energy Generation, R&D, or Manufacturing Facilities *(Requires Town Bylaw Approval)*
  2. Adopt Expedited Permitting Process for Such Projects (12 months)
  3. Establish Energy Baseline and Develop 5-Year 20% Energy Reduction Plan
  4. Purchase Only Fuel-Efficient Fleet Vehicles
  5. Adopt the Stretch Energy Code *(Requires Town Bylaw Approval)*
GREEN COMMUNITIES DESIGNATION

Green Communities Designation Requirements

1. Adopt As-of-Right Siting for Renewable or Alternative Energy Generation, R&D, or Manufacturing Facilities
   - Warrant article for Annual Town Meeting has been drafted and reviewed with Town Counsel for Zoning By-Law Change that will designate the three parcels of land comprising the “Old Landfill” [B4-05-048, B4-06-025B, and B4-06-003] as a “As-of-Right Siting” zone. These are the three (3) parcels that are being leased to Palmer Capital for the PV Array development.

2. Adopt Expedited Permitting Process for Such Projects (12 months)
   - The Town already complies with this expedited permitting process criteria.
GREEN COMMUNITIES DESIGNATION

- Green Communities Designation Requirements

3. Establish Energy Baseline and Develop 5-Year 20% Energy Reduction Plan
   - Reduction plan will be based on 2014 energy consumption values (totalized and tracked using MassEnergyInsight) and potential reductions from implemented Energy Audit ECM’s as well as Streetlight procurement and conversion. Additional ECM’s will probably be developed to address “controls” upgrades.

4. Purchase Only Fuel-Efficient Fleet Vehicles
   - Steve Wenner (AEC) completed the Municipal Vehicle inventory. There are six (6) vehicles that are ruled as “non-exempt” under this qualification criteria. Two (2) are for the Fire Department, two (2) for the School Department, and two (2) for the DPW. Four of the six vehicles are less than 10 years old. The vehicles only need to be replaced with fuel-efficient vehicles at the end of their useful lives. No further action required.
GREEN COMMUNITIES DESIGNATION

❖ Green Communities Designation Requirements

5. Adopt the Stretch Energy Code

- Warrant article for Annual Town Meeting has been drafted and reviewed with Town Counsel for the adoption of the “Stretch Energy Code” for the purpose of regulating the design and construction of buildings for the effective use of energy, pursuant to Appendix 115.AA of the Massachusetts Building Code, 780 CMR, including future editions, amendments and modifications. A copy of the Stretch Energy Code is on file with the Town Clerk. The “Stretch Energy Code” is similar to the IECC 2012 building code, which became the base energy code in MA on July 1, 2014.
An Energy Management System (EMS) is a software-based system (possibly web-based) that at a minimum allows for the tracking of energy consumption and cost data.

- DOER has actually set up a system, “MassEnergyInsight” that provides a free Energy Management System to municipalities in Massachusetts. The State of Massachusetts already pays Peregrine to develop and maintain the system so that it can be provided for free to cities and towns as “MassEnergyInsight” (http://www.massenergyinsight.net/home).

- DOER has verified and showed the AEC that the Town Utility Data is already uploaded into the MassEnergyInsight system for 2008 to present.
  - Patricia Gooding (AEC) has logged into the system and inputted the Fleet Vehicle and Fuel Oil Consumption information for 2014. She has also reviewed the accounts in the system to make sure all of Town’s accounts are present and assigned to the correct facilities.
  - The 20% reduction plan required for the Green Communities Designation will be devised from the baseline energy consumption numbers and the planned ECM implementations.
Organize data

This "Tree" shows your municipality, departments, complexes, buildings or facilities, and units.
Click the plus sign (+) to expand the tree and the minus sign (-) to collapse it.

Click Show accounts within tree to integrate your accounts into the tree, then drag-and-drop them to new locations in the tree.

- Cohasset (City, Town, or Reg. Entity)
  - Border Street Dock (Facility)
  - Border Street Lights (Facility)
  - CJC Hway Lights (Facility)
  - Cohasset MS/HS (Facility)
  - Cohasset Wastewater Treatment Plant (Facility)
  - Cohasset Water Department (Department)
    - Cushing Pond (Facility)
    - Deer Hill IS (Facility)
    - DPW Fuel Station (Facility)
    - DPW Garage (Facility)
    - Duck Pond (Facility)
    - Fire & Police Station (Facility)
    - Flashing School Lite (Facility)
    - Forest Ave Lights (Facility)
    - Harbormaster (Facility)
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<th>Nickname</th>
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Overall Use, Emissions and Cost by Fuel as a Percent of Total

Use, Emissions and Cost by Item Level
Hover over bars to see their contribution to the total above. Use the menus on the right to choose which values to display here. To expand or collapse the chart, hover your pointer over the words City, Department, Facility, etc., then click the plus (+) or minus (-) symbols.
Use and Cost Table

This table shows use and cost by fiscal year for a chosen fuel. To collapse or expand the charts, hover over the words City, Department, Building, etc., then click the plus (+) or minus (-) symbols. You can do the same for years, quarters and months.

|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|             |
| Cohasset| 4,976,144   | $667,708    | 5,124,824   | $611,225    | 5,088,863   | $589,063    | 4,573,878   | $563,974    | 4,743,629   | $375,959    | 4,853,924   | $396,558    |             |
Annual Usage Patterns - Town
This report shows the annual usage patterns for each of the fuels used. Each line is a separate year, and allows you to compare usage patterns from year to year for the years selected.
Questions?