

**Cape Elizabeth Alternative Energy Committee
Minutes: November 30, 2010**

Present: Wyman Briggs, Alan Lishness, Bill Slack, David Whitten, Ernie McVane, Brian Denison

Guest: Amy Anderson (reporter from the Forecaster)

Absent: Sarah Lennon, Kate Williams Hewitt

1. Introductions and welcome to Brian Denison, newest Alt Energy Committee member

AEC members welcomed Brian Denison to his first meeting and introduced themselves. Brian has over twenty years of experience in commercial property and facility management and looks forward to serving on the AEC.

2. Approval of October 14, 2010 meeting minutes

Last month's minutes were approved unanimously with no additions or changes.

3. Quick synopsis of Alt Energy Committee accomplishments to date

- a. Members of the AEC shared highlights of recent accomplishments. These include a reduction of 70,000 watts per hour in energy usage every day due to efficiencies provided by new lighting installed over the past year for an estimated savings of \$30K - \$50K per year. The major portion of this installation of @10,000 lights in town buildings was completed before the school year commenced and was virtually fully funded through \$119K in Efficiency Maine grants secured by the town.
- b. Outdoor lights around the fire station have recently been upgraded with LED lights reducing energy usage from 125 watts to 20 - 40 watts per fixture.
- c. Several school classrooms have been insulated and virtually all High School, Middle School and Pond Cove School classrooms have had occupancy sensors installed which shut off lights and turn down heating when rooms are unoccupied. Variable speed drives have been installed in the HS gym and library to improve heating efficiencies. New controls have been installed, most recently in the fire department, to enable facility managers to better control lighting and HVAC systems and maximize efficiencies.

4. Conservation Measures Under Consideration

- a. Sidewalk Lights: The town is considering replacing the existing 220 watt conventional sidewalk lights around the schools and downtown municipal buildings with 110 watt induction lighting. These new technology lights cost @ 400 per fixture and have an expected life of 50,000-70,000 hours compared to 2,000 hours for the existing lights.
- b. Parking Lot Lights: AEC members encouraged the town to explore the costs and benefits of also replacing parking lots lights around the schools and municipal buildings with similar induction lighting.
- c. Street Lights: The AEC also discussed working with the town to explore options to upgrade the 200-300 street lights around town with more efficient lighting. These lights are currently unmetered and the town is billed by CMP based on estimated usage. This represents a significant annual expenditure of @ \$40,000 per year. Based on a recent study conducted in Pittsburgh, PA – replacing conventional 150 watt streetlights with LED or other high efficiency lighting could provide substantial savings – particular if matching funds are available through Efficiency Maine. LED lights also last @ 5 times

longer than conventional lights. The power usage agreement with CMP will need to be reviewed to identify the best means, if any, to achieve long-term cost savings.

5. Boiler Update – Ernie McVane

The Director of Facilities for the School System has hired Herman Associates to design replacement boilers for the current oversized/inefficient boilers at the high school. 2 boiler and 3 boiler options are being considered. Providing options for future consideration of a biomass burner should be considered.

6. Discussion and prioritization of Alternative Energy measures to pursue

- a. Solar thermal:** An analysis of solar thermal panels has been completed for pre-heating domestic hot water at Cape High School. System installation is anticipated during the summer of 2011. The AEC would like to have Doug provide an overview of the solar thermal system being considered for installation. Oakhurst Dairy uses solar thermal on a large scale and may provide a useful case study.
- b. Solar electric:** Solar electric panels are generally considered an expensive option though increasing more cost effective options continue to be developed. The AEC plans to continue to track technology trends. The AEC might evaluate potential locations for a test panel at the schools, public works department, and transfer facility landfill cap.
- c. Biomass:** Biomass remains a potential option and installation of new boilers at the high school should consider providing the flexibility to support the possible installation of a biomass burner in the future. The costs of transporting biomass fuel and biomass emissions are downsides of this option.
- d. Geothermal:** Geothermal also is worth continuing to track as a potential alternative energy source. Installation costs are substantial – particularly for a retrofit. Recent installations at USM and other local facilities should be followed for potential lessons.
- e. Wastewater ground source heat pump:** The AEC remains interested in investigating ways in which the potential energy source provided by the @65 deg F waste-water discharge could be tapped through a heat exchanger to provide heat for DHW or the pool.
- f. Cogeneration:** Cogeneration of electricity remains a potentially viable option particularly if natural gas can be provided to CE town center.
- g. Wind turbine:** Wind speed measurements taken from a tower on the Strout property in a study sponsored by the AEC do not support pursuit of a major wind turbine project at this time. Monthly average wind speeds from Apr to Oct 2010 ranged from 7.0 to 9.8 mph with a 7-month average of 8.4 mph. Average winds need to exceed 10 mph and preferably be in the 15 mph range to support construction of a viable wind turbine. The AEC supports continuing the measurement project through the remainder of the 12-month period as planned.
- h. Natural gas:** The initial estimated cost from Unitel for piping natural gas from the nearest pipeline in South Portland to Cape Elizabeth town center is in the \$1.4 million

range. There are also concerns regarding whether there is sufficient pressure in the Unitel lines to enable expansion to additional customers in CE including the school and municipal buildings. Due to the potentially substantial long term cost savings from switching over to natural gas as the primary heating fuel, the AEC still strongly supports further investigating this option. The AEC would like to explore the option of hiring a consultant to further assess the costs, benefits and viability of switching over to natural gas as a primary energy source.

- i. **Street Lights:** As noted earlier, the AEC would be interested in evaluating the costs, benefits, and viability of replacing some or all of the town's street lights with LED, induction, or other high efficiency lighting.
- j. **Boilers:** As noted earlier, the AEC is interested in discussing options for replacing existing boilers in the HS with the new Director of Facilities for the School System.
- k. **Vehicle efficiencies:** AEC members have discussed options for improving the efficiencies of the town's vehicle fleet including converting or purchasing vehicles that run on natural gas.
- l. **Long term energy vision for Cape Elizabeth (5 and 10 year time horizon):** As requested by at least one member of the Town Council, the AEC hopes to devote at least one meeting to drafting a long term alternative energy vision for the town.

7. Other business

- a. Filling one of the three AEC vacancies is a big step forward. The AEC would like the Town Manager and Town Council to pursue filling the remaining 2 vacancies as soon as possible.
- b. A new meeting format was decided upon in which each monthly meeting would have 1-2 primary themes based upon selected Alternative energy measures. For example, one monthly meeting might focus on installation of natural gas or solar thermal energy. Members could then complete background reading and invite guests or speakers connected to meeting theme. Each meeting should have 1-2 discussion leaders selected from within the AEC. Each member should sign up to the primary discussion leader for one meeting and the secondary discussion leader for a 2nd meeting. We'll need to be flexible and adjust as needed/appropriate.
- c. For ease in scheduling, it was suggested that the AEC explore adopting a specific day to hold meetings each month.

8. Next Meeting date: TBD

**Cape Elizabeth Alternative Energy Committee
Draft Monthly Meeting Themes**

January 6, 2011: 6:30pm-8:30pm

- a. **Theme: Proposed new boilers and Solar Thermal Panels**
- b. **Guest: Director of Facilities for Cape Elizabeth School System**
- c. **Background research: Solar thermal technologies**
- d. **Discussion Leaders:**

February 3, 2011: 6:30pm-8:30pm

- a. **Theme: High efficiency street lights**
- b. **Guest: ?**
- c. **Background research: High efficiency street lights, Pittsburgh Case Study**
- d. **Discussion Leaders:**

March 3, 2011: 6:30pm-8:30pm

- a. **Theme: Wastewater ground source heat pump**
- b. **Guest: ?**
- c. **Background research: Solar thermal technologies**
- d. **Discussion Leaders: Rick Fontana**

April 7, 2011: 6:30pm-8:30pm

- a. **Theme: Piping natural gas into Cape Elizabeth/cogeneration**
- b. **Guest: Consultant?**
- c. **Background research: Natural gas costs and benefits**
- d. **Discussion Leaders:**

May 5, 2011: 6:30pm-8:30pm

- a. **Theme: Geothermal energy**
- b. **Guest: Facility manager for local Geothermal building**
- c. **Background research: Local case studies**
- d. **Discussion Leaders:**

June 2, 2011: 6:30pm-8:30pm

- a. **Theme: Solar electric panels**
- b. **Guest:**
- c. **Background research: Solar electric technologies**
- d. **Discussion Leaders:**

September 1, 2011: 6:30pm-8:30pm

- a. **Theme: Alternative vehicle technologies**
- b. **Guest:**
- c. **Background research: Energy saving vehicles**
- d. **Discussion Leaders:**

October 6, 2011: 6:30pm-8:30pm

- a. Theme: Biomass**
- b. Guest: Operator of local biomass facility**
- c. Background research: biomass technologies**
- d. Discussion Leader:**

November 3, 2011: 6:30pm-8:30pm

- a. Theme: Wind energy**
- b. Presenter: Operator of local wind turbine**
- c. Background research: wind energy**
- d. Discussion Leaders:**

December 1, 2011: 6:30pm-8:30pm

- a. Theme: Long term energy vision for Cape**
- b. Guest: Strategic Planner**
- c. Background research: future technologies**
- d. Discussion Leaders:**