

**SUSTAINABLE ENERGY COMMITTEE**

TOWN HALL • 525 WASHINGTON STREET • WELLESLEY, MA 02482-5992

SEC@WELLESLEYMA.GOV

Ellen Korpi, Chair  
Scott Bender  
Richard Joyce  
Suzy Littlefield  
Laura Olton  
Barbara Searle  
Steve Tolley

**Sustainable Energy Committee Minutes – April 4, 2013**  
**Juliani Room – Town Hall, 7:45 am****Committee Members Present:**

Ellen Korpi, Chair  
Scott Bender  
Richard Joyce  
Suzy Littlefield  
Laura Olton  
Barbara Searle  
Steve Tolley

**Guest:** Alan Hebert, Energy Manager, Wellesley Facilities Maintenance Department

**Old Business****Minutes Approved: March 1, 2012****Energy Manager Report**

The Town Energy Manager is working on the following conservation projects:

- Preparing HVAC maintenance upgrade and parking lot lighting bid documents.
- Working with MLP to pursue Section 44 of the Green Communities Act of 2008 (Section 44 provides a municipality with a limited exemption from the public construction bid laws so that they can contract directly with their utility company to expedite the installation of energy conservation measures having a total project cost of less than \$100k).
- Summarizing and evaluating year-to-date (YTD) energy costs for school and town buildings. So far, it appears that the High School's FY13 energy use will be at or lower than predicted by SMMA's energy model.
- Reviewing NGrid/RISE's energy-use assessments for the Police Station, Main Fire Station, Hardy, Hunnewell, and Fells.

- Working with controls contractors to strategize about both near-term projects and longer-term capital plans to ultimately implement the *Metasys* integrated building control system network for the School and Town buildings.
- Working with lighting contractors to reprogram MS lighting control panels and auditorium/stage control system. Also, working on replacing parking lot lighting with LEDs at Bates and Sprague.
- Measured kW, power factor, and power quality at MS and found kW balanced, PF = 0.97, and power quality to be very good. Will now measure other buildings.
- Working with HS Energy Modeler to run “what if” scenarios (e.g., using single-pane rather than double-pane windows) to establish optimal performance metrics.

## **Building Champions Report**

Seeking a 20% reduction in municipal buildings (have achieved an estimated 15% as of 6-30-12), which will require both behavioral and technical changes by users – occupant behavior piece is complicated and needs to be discussed. Working with the Principals of the schools and each Town department. Still waiting on some departments to declare champions (waiting on Town Meeting). Planning to have a Building Champion meeting in May.

## **POWER TO \$AVE campaign**

The Power to Save Campaign has started its launch – goal is to for 400 Wellesley homes to have energy audits and then implement measures to reduce their energy usage, costs, and carbon footprint. MLP is coordinating efforts with CSG (National Grid gas customers) and ENE (oil/electric heat customers). There has already been extensive outreach: flyers are being distributed at Town Meeting, the schools (K-6 distribution going out today), groups have been contacted and are supportive: Wellesley Green Collaborative (including Friends of Morses Pond, Friends of Brookside; Sustainable Wellesley, Natural Resources Commission); Garden Clubs; Service Organizations (including Wellesley Service League, Mother’s Forum); Houses of Worship; Boy Scouts; working on contacting the town’s multifamily units -- Wellesley Green (40 units), Condo groups; Dana Hall (10 units). Page 3 article in the Wellesley Townsman generated interested; sandwich boards are up; Wellesley media has been contacted and is working on a story. We need to confirm the numbers of homes that have signed up to have energy audits since January 2013, and update sign at main Library. Trying to spread the word.

## **Report to Town Meeting and What To Do About Goals**

The original Town-wide goal was to reduce our carbon footprint by 10% from 2007 to 2013. The Town’s actual progress is a reduction in our carbon footprint of 11.6% from 2007 to 2012. The Committee questioned the extent to which the reduction has resulted from our actions and discussed that the successes of the Stretch Building Code and Power to Choose, generating awareness, changing behavior, being a Green Energy Community, Green Schools, and Sustainable Wellesley. The Committee agreed to work on setting another goal for the Town by next Town Meeting. The Committee established a working group and will begin looking at models, Scott Bender and Steve Tolley.

### **Transportation Initiative**

Transportation consists of 43% of our Town's carbon footprint. Selectman Ellen Gibbs would like to do a joint initiative with SEC and Committee on Transportation. One initiative would be to target one school, and talk with key stakeholders to identify barriers to taking the school bus. We also discussed the current Superintendent study and the fact that transportation has to be part of the conversation, especially with emissions being critical to Town's carbon footprint. Ellen Korpi and Suzy Littlefield will follow up with Ellen Gibbs.

### **Solarize Wellesley**

The working group is looking at different solar project considerations and discussed different technologies, including a solar garden concept by resident Paul Hayre of Savcor Renewable Energy. Scott Bender presented the attached sheets to help provide a framework for future discussion.

### **New Business:**

**Renewing renewable purchase customers** – re-signing up customers; potential awards/ceremony for large customers signing back up (e.g., SunLife; Babson)

**MLP – Customer Survey** – We'll have results of the customer survey for the June meeting.

**Meeting Adjourned at 9:05 am.**

## Next meeting: Solar project considerations - 130403

There are a number of factors to consider for potential solarize programs. Paul Hayre, of Savcor Renewable Energy (using panels developed with Cencor), has proposed a beta test of his new product which falls into the green highlighted categories below.

### Technology:

- Performance:
  - Low end: Thin film – ~10% efficient. Used to be cost leader but multi-crystalline has been closing the cost gap
  - Mid range: ~15% efficient. Multi-crystalline is ~90% of market share
  - High end: ~19% efficient. Either high end multi-crystalline or mono-crystalline, back connected



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- Risk: based on company product data and product maturity.
- Aesthetics: Factor in residential. Varying degrees of Black and visible metal (front side bus bar, multi-crystalline, etc.)

### Siting: each has challenges and opportunities:

- Residential – average installation 4-6 kW per home
  - Harvard (2012) – 75 homes, 402kW
  - Dedham Solar Challenge (Nov 14<sup>th</sup> - March 6<sup>th</sup>): 84 solar visits and 25 contracts
  - Natick Solar Challenge(Since start, Jan 1<sup>st</sup>):\_171 Completed Solar Assessments, 27 Contracts
- Municipal –
  - WMLP 50 kW
  - WHS 40 kW
  - top candidate installations like Bates could potentially host ~250 kW
- Commercial - candidate installations like Sun Life could potentially host ~600 kW

### Financing:

- Power Purchase Agreement (PPA) – zero cost initial investment, plus buying electricity at lower cost from solar array owner
- Solar Lease – zero to minimal cost initial investment, savings on electricity, plus lease payments to solar array owner
- Crowd source:
  - companies exist to organize crowd funding i.e. [Mosaic](#)
  - potential legal cost and risk
- Purchase: with or without selling SREC's

### Possible next steps and questions for evaluating solar projects:

- Develop above metrics into program evaluation matrix
- Savcor Renewable Energy to define product and cost for proposed beta project
- How are solar installations accounted for in Town-Wide baseline
- Feasibility of installation on municipal building
- Survey commercial interest
- Could Mosaic offer Wellesley specific fund raising
- Ease of permitting process

# Sustainable Wellesley

## Solar Overview – January 25<sup>th</sup>, 2013

### Did You Know?

- Solar is less expensive than retail electricity *before* incentives in many cases today! Average cost of system installed in MA over last year = \$3.52/W<sup>1</sup> (utility, commercial and residential), which results in an approx. levelized cost of energy of 12.4 cents/kWh over the 25 year warranted life of the system.
- The solar industry employs over 119,000 people – more than the coal industry, and is one of the fastest growing industries in the US.<sup>2</sup>
- \$22 of incentives go to the fossil fuel industries for every \$1 of subsidies that go to renewable energy.<sup>3</sup>
- Over 70% of the net additions to the world's electric grids were renewables last year.<sup>4</sup>
- The costs for solar panels have fallen by over 60% in the last year and a half.<sup>5</sup>
- Residential systems in MA typically pay back in 6 years.

### Environmental Benefits<sup>6</sup>

- Typical 6kW system saves 5 tons of CO<sub>2</sub> annually – this is about 18% of the carbon footprint of a typical family in Wellesley (assumes 4 family members, nat. gas heating, 2 cars with 240 miles/mo. and 20.4 mpg, recycles most waste) Equivalent to:
- Removing **1** car from the road
  - Planting **1** acre of pine or fir forest
  - Recycling **1.8** tons of waste instead of sending it to a landfill



REC's Minted and MW's reported to the P.T.S., "Updated January 15, 2013, filtered for systems with Commercial Operation Date in 2012 or 2013. Massachusetts Department of Energy Resources, <http://www.mass.gov/dea/energy/units/clean-tech/renewable-energy/solar/dps-rc-cane-out/current-status-of-the-rps-solar-cane-out-program.html>

1 National Solar Jobs Census 2012, "The Solar Foundation, [www.thesolarfoundation.org](http://www.thesolarfoundation.org)

2 Clinton, Keynote speech at Solar Power International, September 12, 2012, Orlando, FL

3 N21, 2012, "Renewables 2012 Global Status Report," Table R1, [www.ren21.net](http://www.ren21.net)

4 M Research, "US Solar Market Insight – Q3 2012"

5 Environmental Benefits from US Environmental Protection Agency, Greenhouse Gas Equivalency Calculator, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

### Cost of Solar

Avg. residential system size in MA: 6kW (would supply about 2/3 of the average Wellesley home's electric usage)  
 Cost for avg. residential system in MA last quarter: \$4,41/W<sup>7</sup>, or \$26,500  
 Federal 30% Investment Tax Credit: (\$7,950)  
 MA Tax Credit: (\$1,000)  
 Net System Cost: \$17,500  
 Annual Electricity Savings @ 12.6¢/kWh: \$850 (\$29,000 over 25 year life of system, assuming 3% annual electric rate growth)  
 Annual Solar Renewable Energy Certificate (SREC) Income: \$1,900 - \$3,700 (\$19,000 – \$30,000 over 10 years)  
 ➔ > 12% return on investment, about a 6 ½ year payback

### Financing Options

- **Power Purchase Agreement (PPA)** – zero cost initial investment, plus buying electricity at lower cost from solar array owner
- **Solar Lease** – zero to minimal cost initial investment, savings on electricity, plus lease payments to solar array owner

### How to Start

1. See if you have a roof face that faces mostly south
2. Check for shading (if no or limited shading at noon in mid-winter you're probably in good shape)
3. Go to [www.masscec.com](http://www.masscec.com) (Massachusetts Clean Energy Center) and search "Finding a Solar Installer" or contact me, Alex Keally – [akeally@solect.com](mailto:akeally@solect.com), 617-217-1502.



<sup>7</sup> Massachusetts Clean Energy Center, "Commonwealth Solar Summary Report," Block 12 – Rebate Awarded

