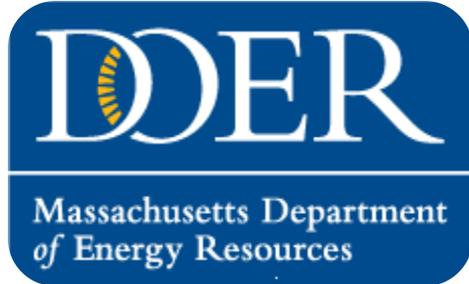


Creating A Cleaner Energy Future For the Commonwealth



Leading By Example Council Meeting

September 23, 2014

Agenda

- Welcome and Introductions
- State Policy Updates
- Vehicles – Fuel Efficiency Standard Update and EV Grant Opportunities
- LBE Updates
- Sustainability Challenge
- DCAMM – AEP Update
- Upcoming Events
- Endicott College Presentation
- Solar Canopy Tour





PEOPLES CLIMATE MARCH

FRONTLINE OF CHANGE

RESPECT THE OIL IS NOT THE ANSWER

KEEP THE OIL IN THE GROUND

DIE NO MORE PROTECT OUR EARTH

FIRE

WATER

CLIMATE JUSTICE NOW



CLIMATE New York climate march attracts nearly 400,000 people

By James Rogers · Published September 21, 2014 · FoxNews.com



The People's [Climate March](#) in New York has attracted nearly 400,000 people, say organizers, making it the largest climate march in history.

The march aims to shine a spotlight on environmental issues ahead of the U.N. Climate Summit on Sept. 23. U.N. Secretary General Ban Ki-Moon took part in the two-mile march through the streets of Manhattan, along with musician Sting and actors Leonardo di Caprio and Mark Ruffalo. Former vice president Al Gore and New York Mayor Bill de Blasio also were present.

Attendance at the New York march dwarfs the 50,000 people who took part in the Forward on Climate rally in Washington, D.C. last year, and the 80,000

Fluzone[®] High-Dose
INFLUENZA VACCINE

4x the antigen of a regular flu shot for a stronger immune response to the flu.

[Find It Now >](#)

Prescribing Information > Important Safety Information >

SANOPI PASTE

NEW YORK - They're calling it the largest mobilization against climate change in the history of the planet. Hundreds of thousands of demonstrators of all ages and from around the world turned out for a massive People's Climate March on Sunday, filling the streets of midtown Manhattan with demands that global leaders take action to avert catastrophic climate change.

'Largest-ever' climate-change march rolls through NYC
Alia E. Dastagir, USA TODAY 7:39 a.m. EDT September 22, 2014



Statewide Legislative and Policy Updates

Renewables & Net Metering

Renewable Thermal

- Based in part on two DOER studies, new legislation allows for renewable heating and cooling technologies to be included in the APS

New Metering

- Legislation raises the net metering caps another 2% for public and 1% for private
- Creates a 17 member Task Force* to analyze and report on how best to reach our 1600 MW solar goal
- Task Force report due March 31, 2015.

Small Hydro Study:

- Calls for a study of the feasibility, impacts and benefits of allowing electric distribution company customers to net meter electricity generated by small hydroelectric facilities.

*The 17-member Net Metering Task force will include the DOER commissioner, the attorney general as ratepayer advocate, M̄MA, NECEC, AIM, legislators, distribution company representatives and 6 individuals appointed by the Governor and representing a broad range of renewable technology businesses.

Environmental Bond Bill

Roughly \$2 billion for 5 years of capital investments in a wide range of environmental and energy projects

- \$15 million for agency energy projects through DOER, targeting non-building assets
- \$62 million in state bonds for AEP energy projects
- \$250 million in CEIP bonds for AEP energy efficiency projects

STATE HOUSE NEWS SERVICE

INVESTORS GOBBLE UP MASS. GREEN BONDS

By Michael Norton
STATE HOUSE NEWS SERVICE

STATE HOUSE, BOSTON, SEPT. 22, 2014....Massachusetts Treasury officials last week were inundated with \$1 billion in buy orders, helping them to obtain favorable interest rates for \$350 million in newly issued, so-called green bonds.

Under Treasurer Steven Grossman, Massachusetts last year became the first state or city in the United States municipal bond market to issue green bonds, which appeal to investors interested in financial projects with environmental benefits. The latest bonds, for example, will help the pay for the New Bedford Marine Commerce Terminal, a project officials hope will position the region for success in the wind energy sector.

State Treasury officials say they have followed the lead of the World Bank, which since 2008 has raised the U.S. equivalent of \$6.7 billion in green bonds, including \$3 billion in fiscal 2014, through 70 transactions and 17 currencies. World Bank green bonds have helped finance wastewater management in China, for example, as well as irrigation system improvements in Tunisia and the Dominican Republic, and energy efficiency investments for poor households in Mexico.

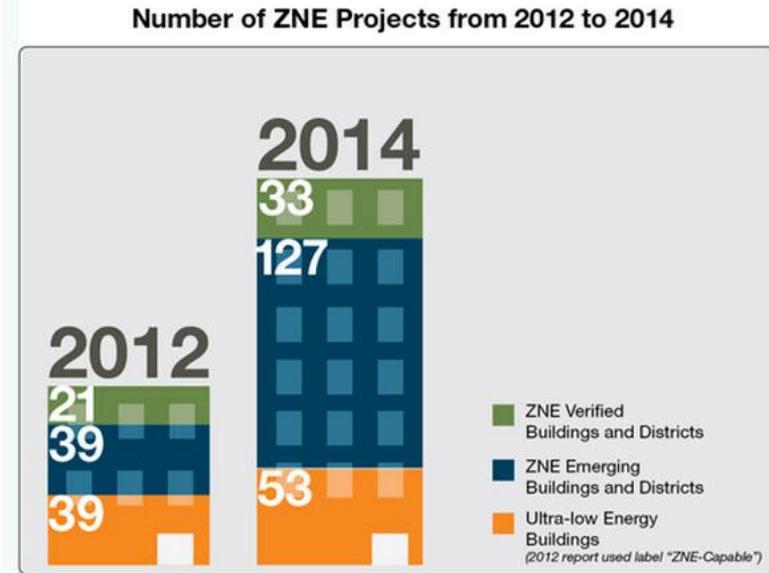
Massachusetts Treasury officials opened the recent offering of green bonds first to individual investors, who placed \$260 million in orders over three days last week. Institutional investors then scooped up the remaining bonds on Thursday. According to assistant treasurer for debt management Colin McNaught, demand for the bonds far outpaced supply as potential investors were ready to buy \$1 billion in green bonds.

McNaught said the District of Columbia and New York state have issued green bonds, and California began a green bond sale on Friday. The bonds have helped Massachusetts diversify its investor base, he said.

"We're starting to hear that a lot of states and cities are going to be issuing green bonds," said McNaught.

Pathways to Zero Grant Program

- \$2.5 million grant program for public and private buildings striving for ZNEB
 - Feasibility, design, construction
 - Commercial and residential
- Total applications received: 42
 - Construction: 32
 - Feasibility & Design: 10
 - Commercial: 20, Residential: 22
- Grant dollars requested: \$7.7 million
- Awards by end of September/ early October



Courtesy of New Buildings Institute | newbuildings.org

Fuel Efficiency Standard and Electric Vehicles

Why a Fuel Efficiency Standard for State Fleet

- **Legislative Requirement**
 - Chapter 169 – Green Communities Act
 - Requires OSD, DOER and DEP to develop fuel efficiency standard
- **E.O. 484**
 - 40% GHG Emission Reduction Target by 2020
 - Previous focus almost entirely on buildings
- **Multi-State ZEV Action Plan**
 - State commitment for 25% of all new purchases to be BEVs/PHEVs by 2025

Fuel Efficiency Standard Goals

1. A standard that is aggressive in order to meet various legislative, environmental and regulatory commitments
2. A standard that is achievable
 - Allows flexibility in compliance to account for the operational needs of different agencies
 - Can be met with existing and emerging technologies
3. A standard that is fiscally responsible

What's Included?

- Passenger vehicle definition
 - All light duty cars, passenger vans, cargo vans, pickup trucks, and SUVs < 10,000 lbs
- Applicable fleets
 - All executive branch agencies
 - Others will be encouraged to comply (public colleges/universities, quasi-agencies and authorities)
- Alternative fuel vehicle definition
 - Vehicles that can operate on a fuel other than conventional gasoline or diesel and do so at least 50% of the time
- Exempt Vehicles
 - All authorized emergency vehicles



Mass.gov



Fuel Efficiency Requirements

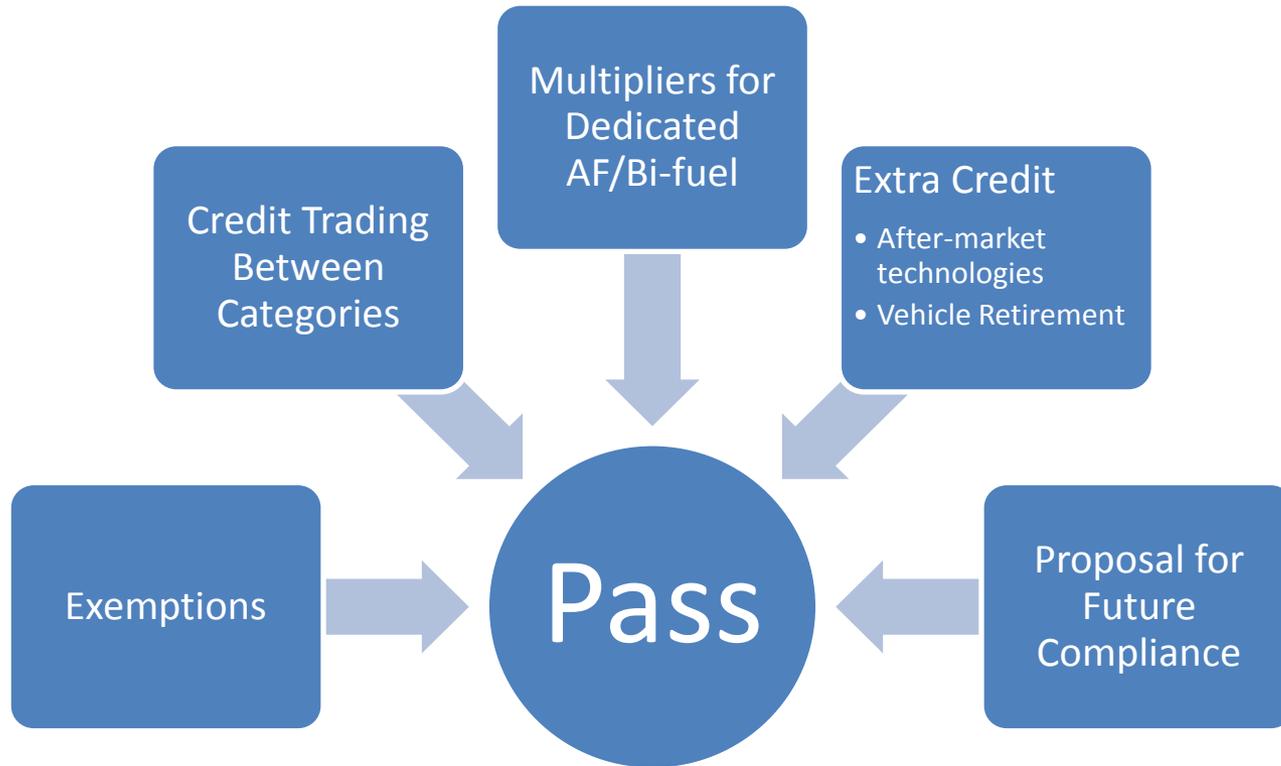


- Beginning 2015, all passenger vehicle acquisitions by each agency must achieve an average EPA combined fuel efficiency of:
 - XX MPG for passenger cars
 - XX MPG for light duty trucks, including vans, SUVs

Vehicle Purchasing Requirements

- Minimum % requirement for Electric Vehicles each year
 - Includes plug in hybrids and battery electric
 - Applies only to vehicle categories where electric options are available
- Minimum % requirement for AFVs/Hybrids each year
 - AFVs must use alt fuel for 50% of total consumption
 - Applies to all annual agency fleet purchases

Flexibility in Compliance



Electric Vehicles and Charging Stations: Grant Opportunities

Program	Eligible Entity	PHEV Incentive	BEV Incentive	Level 2 Charging Station		
				1-2 BEVs	3-4 BEVs	5+ BEVs
MassEVIP III	Municipality, Public University/ College, State Fleet, Public Driving School	\$5,000	\$7,500	\$7,500	\$10,500	\$13,500
Workplace Charging	Employers with ≥ 15 employees in non-residential place of business	n/a	n/a	50% of hardware costs for Level 1 or Level 2 Station (up to \$25K) *one per location but can submit applications for multiple locations		



Massachusetts Department
of Energy Resources

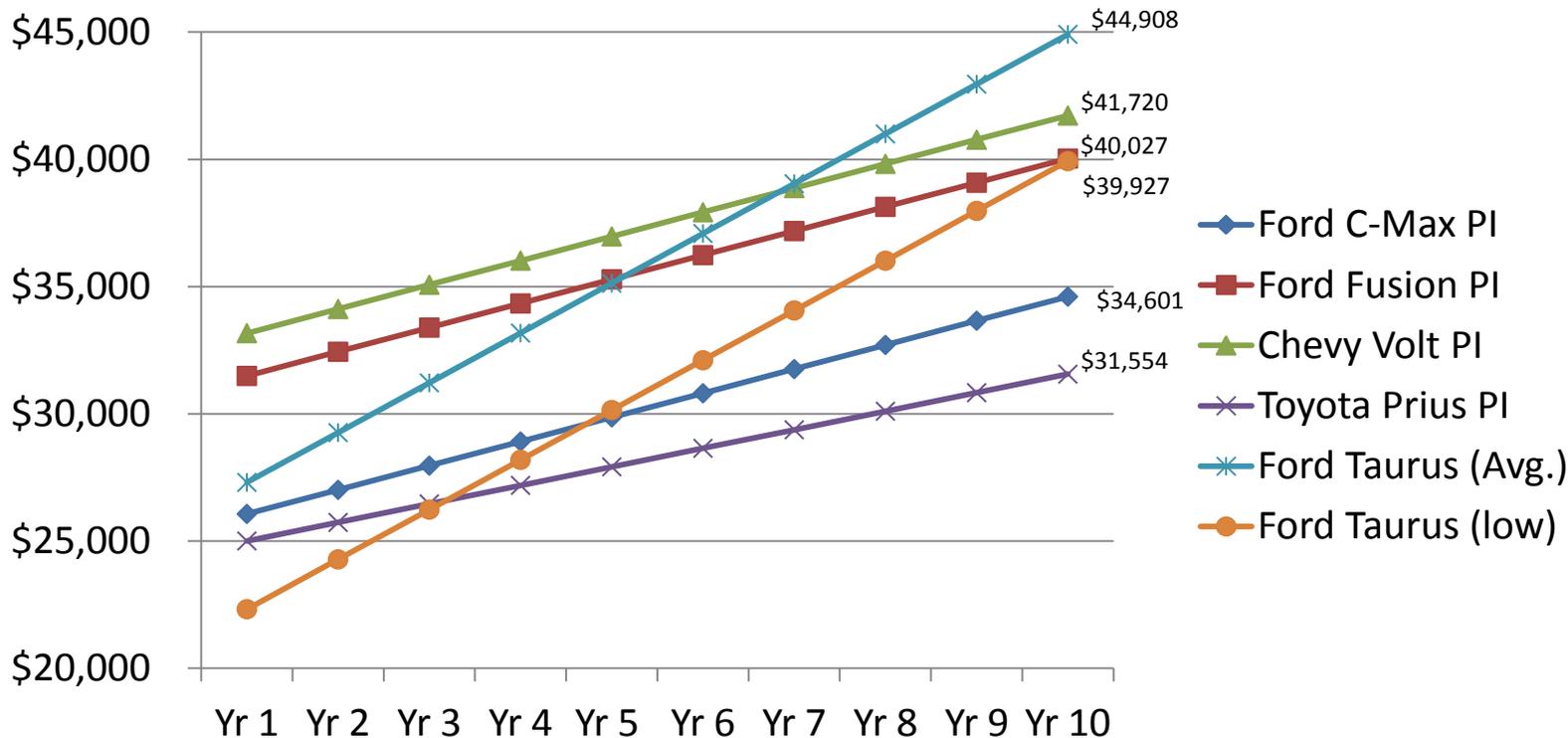
Electric Vehicle & Charging Station Costs

Scenario	Level II Station Equip Cost	Level II Station install Cost (Public)	Workplace Grant	EVIP III Grant	Cost to Agency
Scenario 1	\$1.5K	\$2K	\$750	\$2,750	None
Scenario 2	\$3K	\$10K	\$1,500	\$7,500 (max)	\$4,000

EVIP III and Workplace Charging Grant Information

- To apply:
 - Fill out application and submit to DEP
 - Funding distributed on a first come, first served basis
 - [Information On Website:](#)
 - FAQs about grant programs
 - Applications
 - Workplace Charging Vendors & EV Supply Stations on State Contract
- Sejal Shah, sejal.shah@state.ma.us or 617-556-1015
- Richard Blanchet, richard.blanchet@state.ma.us or 617-654-6585

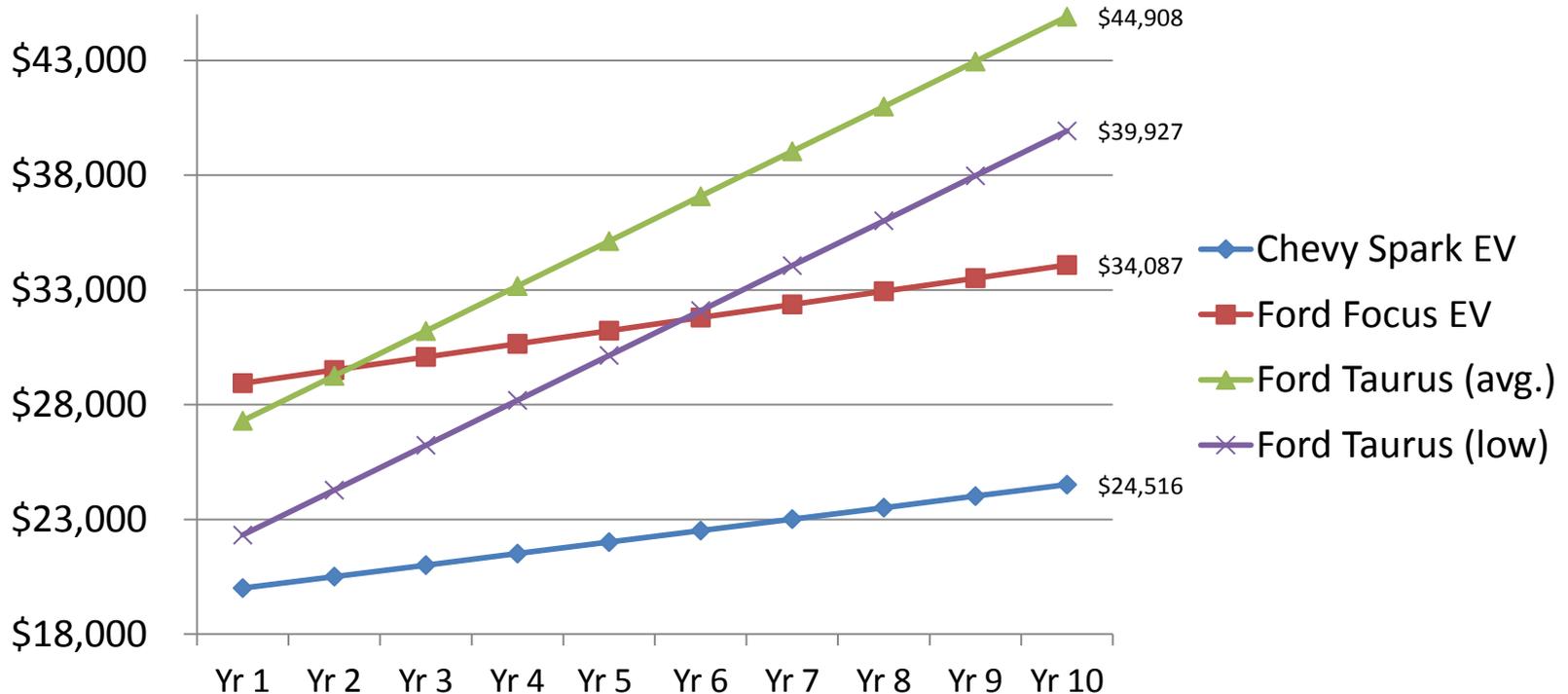
Life Cycle Analysis – Taurus vs. Plug-in Hybrid Electric Vehicles (PHEVs)



Assumptions:

- 12,000 miles per year driven
- Vehicle drives 45% on gasoline, 55% on combined gas + elec.
- Avg. cost of gasoline is 3.75/gallon
- Avg. price of electricity in MA is \$0.149/kWh
- Assumes max. PHEV incentive

Life Cycle Analysis – Taurus vs. Electric Vehicles



Assumptions:

- 12,000 miles per year driven
- Avg. cost of gasoline is 3.75/gallon
- Avg. price of electricity in MA is \$0.149/kWh
- Assumes max. EV incentive

Paying for EV Station Electricity

- Question: can owners of EV charging stations collect money for consumption of electricity
- Issue: selling electricity in Massachusetts is under the purview of “utilities”
- DPU opened a case to consider issue December 2013
- August 4, 2014 Ruling:
Because we find that an owner or operator of EVSE is providing EV charging services and not “selling electricity,” EVSE owners and operators are not electric companies within the meaning of Chapter 164
- Conclusion: Facilities can now collect payment for kwh consumption

LBE Updates

High Efficiency Lighting Results

		# of Participating Entities	Quantity of Bulbs per Entity	Estimated Annual kWh Saved	Estimated Annual Savings	State / ARRA Contribution
2012	State Agencies	12	7,464	1,389,720	\$199,372	\$111,960
	Municipalities	-	-	-	-	-
2013	State Agencies	19	33,057	3,387,843	\$477,796	\$ -
	Municipalities	75	120,268	3,311,592	\$513,031	\$ -
2014	State Agencies	29	102,648	7,140,100	\$956,186	\$ -
	Municipalities	118	419,023	15,926,461	\$2,248,740	\$ -

EEMS Contract Update

- EEMS contract with EnerNOC expired end of August
- DOER and DCAMM identified funding to extend the contract through February 28, 2015
- To reduce costs, reduced number of meters in system from 1,300 to fewer than 1,000
- DOER hiring consultant to assist with evaluation of program and recommendations for next procurement
- Next procurement for EEMS will be managed by DCAMM

LBE Update: Renewable Thermal Grants

- Two new renewable thermal grants approved:
 - \$100,000 for 60KW CHP at Worcester State University new dormitory/dining hall
 - \$50,000 for pre-feasibility studies at four DFG sites to evaluate pellet boilers and air source heat pumps
- Deadlines
 - Feasibility study grant applications due: 10/15/14
 - Project grant applications due: 12/31/ 14
- \$2 million still available
- Pending applications with Trial Court and DCR



LBE Update: Solar Canopy Grant Program



\$1.5 Million grant opportunity for solar canopies on state land

- \$0.50/ watt up to \$500,000
- Projects over 200 kW capacity
- All procurement options eligible
- On-site state consumption required
- Require EV charging stations
- 2 grants submitted and review underway



<http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/doer-procurements.html>

FY14 LBE Tracking Forms -

- Updated LBE Tracking Forms due in the Fall 2014
- Collects data for building and vehicle fuels
- Slight modifications to form regarding drop-downs and fuels

A	B	C	D	E
CATEGORY	FY14 CONSUMPTION	UNIT*	TOTAL COST	Appro (calculated)
Building Energy Use (Fuels other than Electricity)				
* Please remember to indicate units of measurement used in "Notes" if different from units listed.				
6 Natural Gas		therms	\$ - \$	
7 Liquid Natural Gas		therms	\$ - \$	
8 Fuel Oil #2 for buildings		gallons	\$ - \$	
9 Diesel #2 Heating oil		gallons	\$ - \$	
10 Fuel Oil #4		gallons	\$ - \$	
11 Fuel Oil #6		gallons	\$ - \$	
12 Propane (cooking and/or heating)		gallons	\$ - \$	
13 Diesel/ Fuel Oil #2 for Emergency Generators		gallons	\$ - \$	
14 Purchased Steam		mBtu	\$ - \$	
15 Wood Chips		tons	\$ - \$	
16 Pellets		tons	\$ - \$	
17 Other (please list)		\$	\$ - \$	

A	B	C	D
CATEGORY	FY14 CONSUMPTION	UNIT*	TOTAL COST (include supply plus transmission and distribution)
Building Energy Use			
8 Grid Electricity		kWh	\$ -
9 Grid Electricity at Leased Space		kWh	\$ -
On-Site Generation			
On-site power generation owned and operated by Commonwealth			
14 Onsite Electricity from CHP/ Co-Generation		kWh	\$ -
15 Onsite thermal output from CHP/Co-Gen		kBtu	\$ -
16 Solar PV Total Generation		kWh	\$ -
17 Solar PV Excess Generation to Grid		kWh	\$ -
18 Wind Total Generation		kWh	\$ -
19 Wind Excess Generation to Grid		kWh	\$ -
20 Hydro Total Generation		kWh	\$ -
21 Hydro Excess Generation to Grid		kWh	\$ -
22 Anaerobic Digestion Total Generation		kWh	\$ -
23 Anaerobic Digestion Excess Generation to Grid		kWh	\$ -
24 Other Total Generation		kWh	\$ -
25 Other Excess Generation to Grid		kWh	\$ -
Power Generation through power purchase agreement			
26 Onsite Electricity from CHP/ Co-Generation		kWh	\$ -
27 Onsite thermal output from CHP/Co-Gen		kBtu	\$ -
28 Solar PV Total Generation		kWh	\$ -

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENERGY RESOURCES
 Leading by Example Program
 FY14 Energy Tracking and Reporting Form
 Fiscal Year 2014 (July 1, 2013 through June 30, 2014)

Leading by Example Program FY14 Energy Tracking and Reporting Form
Welcome to the new Leading by Example Program FY14 Tracking and Reporting Form!

We appreciate the time you and your agency/campus dedicate to energy tracking and reporting. Thank you for working with us to track your energy consumption and cost data for your state agency and facilities.

Measuring and tracking energy data for Massachusetts state agency and public higher education operations is a critical component of the state's Leading by Example Program (LBE) and a requirement of Governor Patrick's Executive Order No. 484: Leading by Example—Clean Energy and Efficient Buildings. To track progress in meeting greenhouse gas and energy reduction targets as well as the renewable energy goals established by EO484, collecting and analyzing agency and campus energy data is imperative.

The new tracking form for fiscal year 2014 has undergone some additions in an effort to make the tracking form more comprehensive and user-friendly. Below is a list of major changes that have occurred to the tracking form for this year. The changes will help LBE track energy consumption at state facilities with a higher level of detail.

- The first major change to the tracking form is the new column that calculates the approximate average rate per fuel (\$/units). This approximate rate will help both you and LBE calculate if the total costs and consumption data reported is in a valid range.
- To clear up confusion with the unit dropdown options from last year's tracking form, this year we have given a provided a native unit option for the various fuels. If you have your data in another unit, feel free to make a note of it under the "Additional Information Required" column.
- The ability to track renewable energy projects at state facilities is very important for LBE as it strives to meet the targets of E.O. 484. The tracking form this year asks agencies/campuses to document their installed renewable energy capacity by project on a separate tab. Once an agency/campus enters its name on the General contact info, a pre-populated list of projects in the tracking form will allow agencies to make any edits or additions to the renewable energy projects LBE currently has in its records.

Sustainability Challenge

- A way of challenging and rating agencies and campuses to promote more sustainable practices
- Challenges state facilities and campuses to implement a series of relatively simple no and low cost changes to reduce the environmental impacts associated with state operations
- Challenges facilities and campuses in different 10 categories

DER
Massachusetts Department of Energy Resources

MASSACHUSETTS LEADING BY EXAMPLE PROGRAM
PUBLIC LEADERSHIP STEWARDSHIP COMMITMENT

Leading by Example Agency Facility 2014 Sustainability Challenge

This challenge is intended to rate and challenge agencies and campuses to promote more sustainable practices among staff, faculty, and students across Massachusetts agencies and campuses as a way of measuring performance. This form challenges state facilities to implement a series of relatively simple no and low cost changes that can be made in offices, classrooms, and all types of facilities that will ultimately support efforts to reduce the environmental impacts associated with state operations.

The following pages are broken up into 10 categories, with a series of recommended strategies in each. Challenge categories range from energy efficiency, to paper reduction, to recycling, to environmentally preferable purchasing. Facilities are being asked to review every recommended strategy, check off the ones that are already in place, and initiate a process to implement as many of the remaining recommendations as possible. The strategies suggested here address facility occupant behaviors operations & maintenance, and easy to procure equipment.

Facilities and agencies will be asked to submit a completed form at the end of each fiscal year and will be scored based on the responses and point system outlined in this document. Agencies receiving a certain number of points will be acknowledged and receive additional value when applying for LBE grants, an LBE award, and other efforts administered by the LBE program. Please note any items on the Challenge checklist that are not applicable for certain facility types; agencies/facilities will not be penalized for measures that are not applicable. Many of the suggested strategies are already required by Executive Order 484 (Leading by Example) and Executive Order 515 (Environmental Purchasing), and should be prioritized by agencies if they are not yet in compliance with these provisions.

Contact Information
Eric Friedman: Director, Leading By Example, 617-626-1034 eric.friedman@state.ma.us

Challenge Instructions: Please select your answer from the dropdown provided.

Challenge #1: Implement lighting reduction strategies (maximum of 12 points)

Answer options:

- Develop and execute an outreach strategy to energy users to turn off all lights when not in use or when not necessary (i.e. when daylighting is sufficient)
- Hang posters reminding users to turn off lights when rooms are not in use
- Establish a policy to purchase more efficient lighting, eliminating incandescent bulbs (included in EO484)
- Replace all existing incandescent bulbs with more efficient EnergyStar rated Compact fluorescent Lamps (CFL) or Light Emitting Diodes (LED), using statewide contract FAC76 or some other approved procurement process
- Distribute more efficient replacement bulbs to staff, faculty, students, etc. with their own task lighting
- Work with utilities and/or DCAMM to install motion sensor lighting controls for rooms with intermittent use (e.g. conference rooms, storage areas, bathrooms, individual offices, etc.)

Fact: Energy Star rated light bulbs use about 75% less energy than a traditional incandescent bulb and last at least 6 times longer.

Resources:
[Comm-PASS contract FAC76: Maintenance, Repair and Operations \(MRO\) Products, Supplies and Equipment](#)

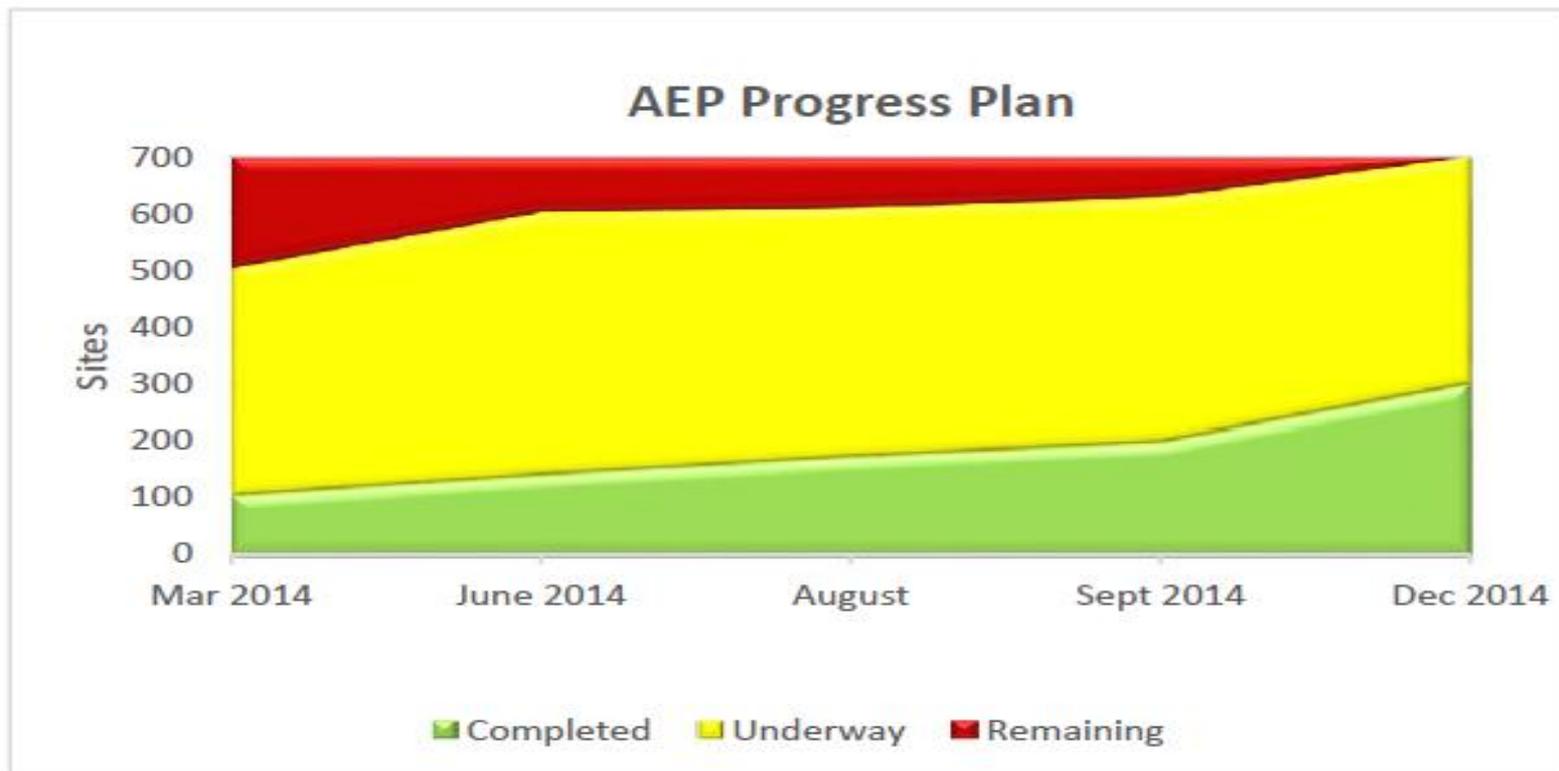
Challenge #2: Reduce plug loads (e.g. any power usage not hardwired into building) (maximum of 8 points)

Answer options:

- Install/distribute power strips for energy users to plug-in personal devices (i.e. cell phones, tablets, laptops). Encourage strips to be turned off at the end of the day
- Purchase and install smart power strips with motion sensors for all devices, including computer

Navigation: Introduction | Overall Information | Results | Challenges #1-3 | Challenges #4-6 | Challenges #7-9 | Challenge #10

AEP Path to 700



	Mar 2014	June 2014	Aug. 2014	Sept 2014	Dec 2014
Remaining	197	98	90	72	0
Underway	398	460	436	428	400
Completed	105	142	174	200	300
Total	700	700	700	700	700

Events

- September 17 – AEP event @ Gardner Trial Court
- October 1 – 2014 Presidential Summit of Climate Leadership (ACUPCC), Boston
- October 1 – Mass. as First Customer program with MassCEC, Waltham
- October 20 – LBE Awards Ceremony, Boston

Gardner courthouse, NCCI reap savings from state upgrades

Thursday, September 18, 2014
By George Barnes TELEGRAM & GAZETTE STAFF
george.barnes@telegram.com
1 comment | Add a comment

With Mount Wachusett Community College wind turbines churning for 3 ½ years and two more turbines are now helping power a state prison down the road, Gardner is doing its part to help the state lead by example.

And the turbines are not the only projects on state property aimed at energy efficiency.

Officials from several state departments gathered Wednesday at Gardner District Court to talk about recent projects to make the court building on Matthews Street and North Central Correctional Institution more energy-efficient.

The courthouse was recently renovated, improving access and modernizing the courtrooms. As part of the project, the state spent \$98,000 on window upgrades, new lighting controls and energy management systems and sealing the building to prevent heat loss. It is expected to save the court \$9,000 per year in energy savings. The court is one of 40 courts around the state getting retrofitted fo



Massachusetts Department
of Energy Resources

Endicott College Solar Canopy Overview