State Sector Meeting

Continuing the Conversation

Better Buildings Summit
Washington, DC
May 15, 2017

Alice Dasek

Policy Advisor

U.S. DEPARTMENT OF ENERGY

Meeting Agenda

1:30 Welcome and Overview

1:40 State Leading By Example Starter Talks

- 1:40 Zero Net Energy Buildings
- 1:50 Resiliency/Energy Storage/Demand Management in Buildings
- 2:00 Beyond Buildings: State Vehicle Fleets and Pollinator Habitats

2:10 Introduction to Second Part of Afternoon

2:15 Table Breakout Discussions

Table Topic #1

2:55 Break (15 minutes)

Meeting Agenda contd.

3:10	Welcome to States
3:25	Continue Table Breakout Discussions
	3:25 Table Topic #2
	4:05 Table Topic #3
4:40	Table Leads Prepare Reports
4:55	Table Reports
5:25	Closing Remarks and Adjourn
5:45	Optional Follow-On Dinner Discussions at
	James Hoban's Irish Restaurant
	One Dupont Circle NW

Leading By Example (LBE) Topics

Brief overview of efforts in a topic area and some key questions/issues to consider:

1. Zero Net Energy Buildings

2. Resiliency/Energy Storage/Demand Management in Buildings

3. Beyond Buildings –
   State Vehicle Fleets and Pollinator Habitats

Zero Net Energy Buildings

Chuck Murray
Washington State

1:40 – 1:50 pm

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Resiliency/Energy Storage/Demand Management in Buildings

Diane Duva
Connecticut

1:50 – 2:00 pm

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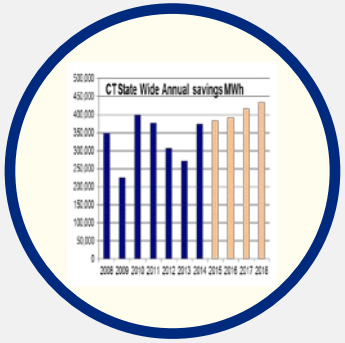
Leading By Example through Demand Response, Energy Storage, and Resiliency

Diane W. Duva, Director, Office of Energy Demand
Bureau of Energy and Technology Policy

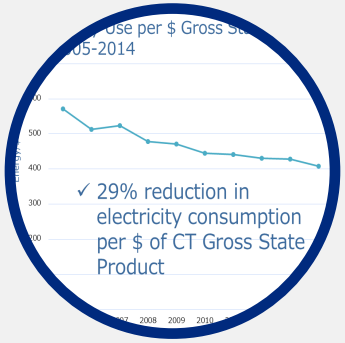
May 15, 2017

Connecticut Department of Energy and Environmental Protection

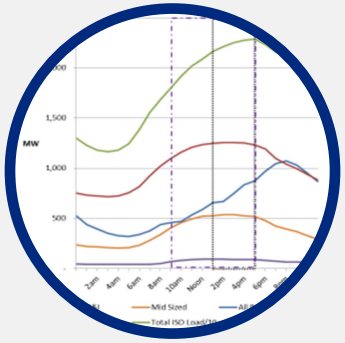
Key Strategies for Better Buildings



Prioritize energy savings as a financing resource and as an energy resource



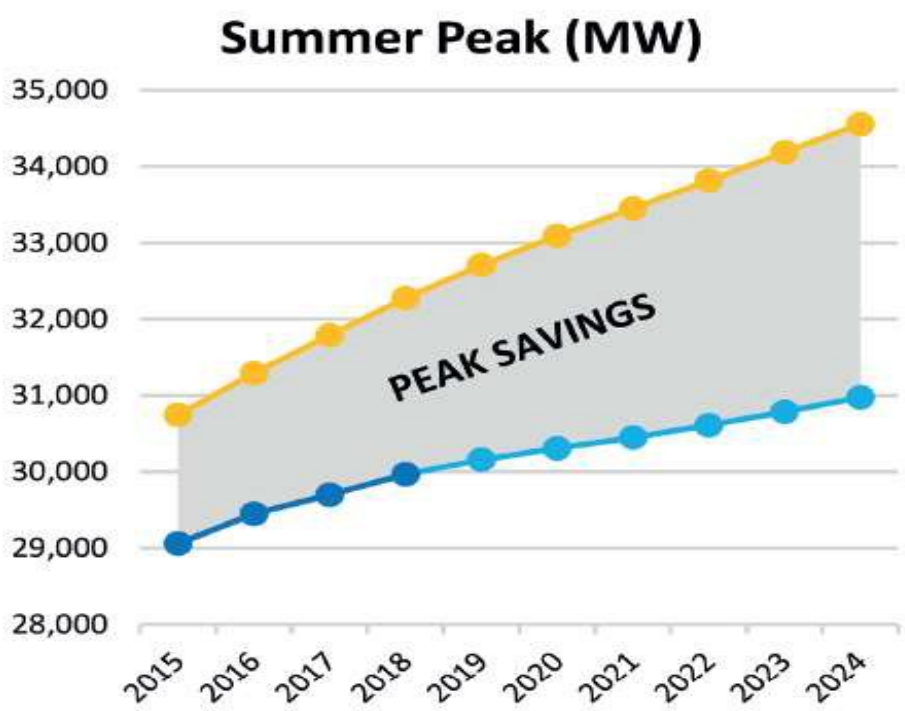
Improve energy performance of existing buildings; Increase productivity of processes

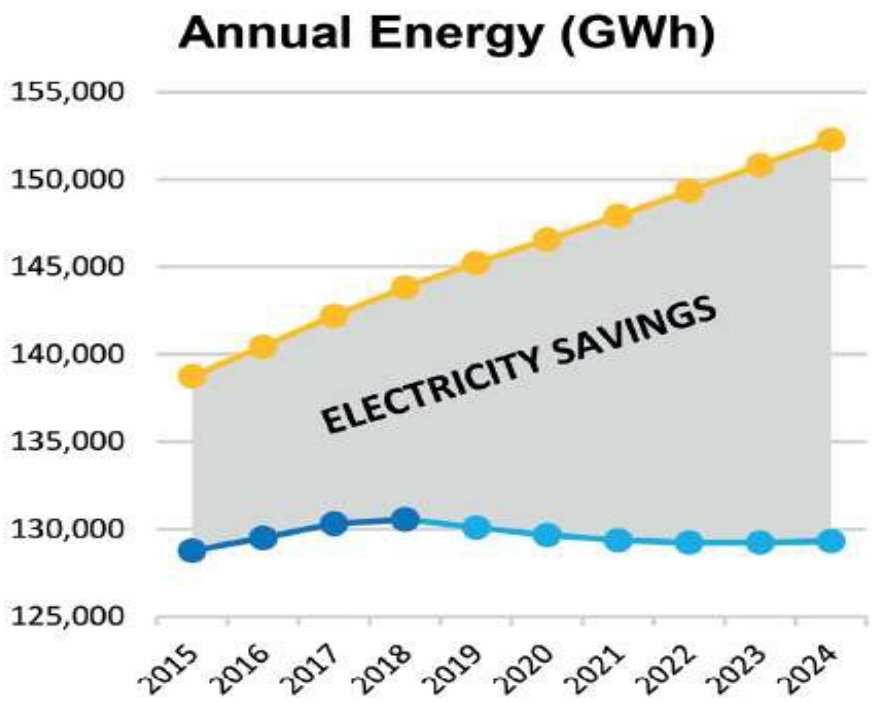


Integrate efficiency, storage, rates, and renewables to reduce peak demand

Ensure interoperability of demand response communications between grid and buildings

Check Demand Growth & Reduce Peak





The gross forecast of peak demand and energy use

The forecast minus the impact of EE participating in the Forward Capacity Market (FCM) to date

The forecast minus anticipated EE growth beyond FCM years

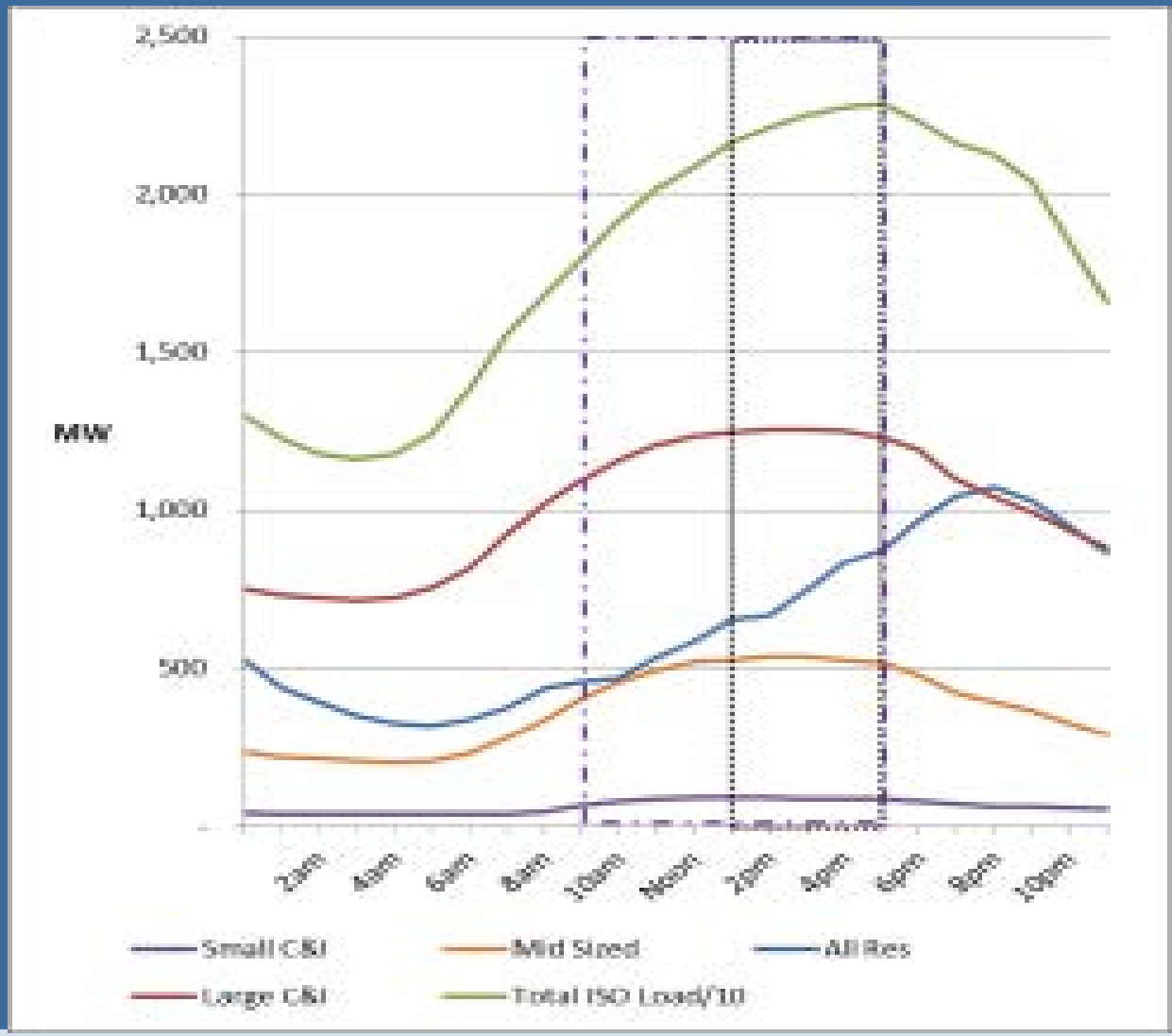
Source: ISO-NE RSP 15 Final ISO New England Energy-Efficiency Forecast 2020-2025 (May 2016)

ISO-NE: Investment in energy efficiency will decrease overall load growth, but peak demand continues to grow, spreading costs over fewer units.

Managing Peak Demand is Key

Managing peak demand means customizing solutions for different customer classes. Why?

Because solutions require understanding varied energy profiles at the ISO level, distribution level, and customer level.



Source: Eversource

Advanced Controls and Two-Way Communications

- Empowering individuals and businesses to recognize the opportunity and receive value of demand response, distributed generation, and energy storage

<u>Benefits:</u>

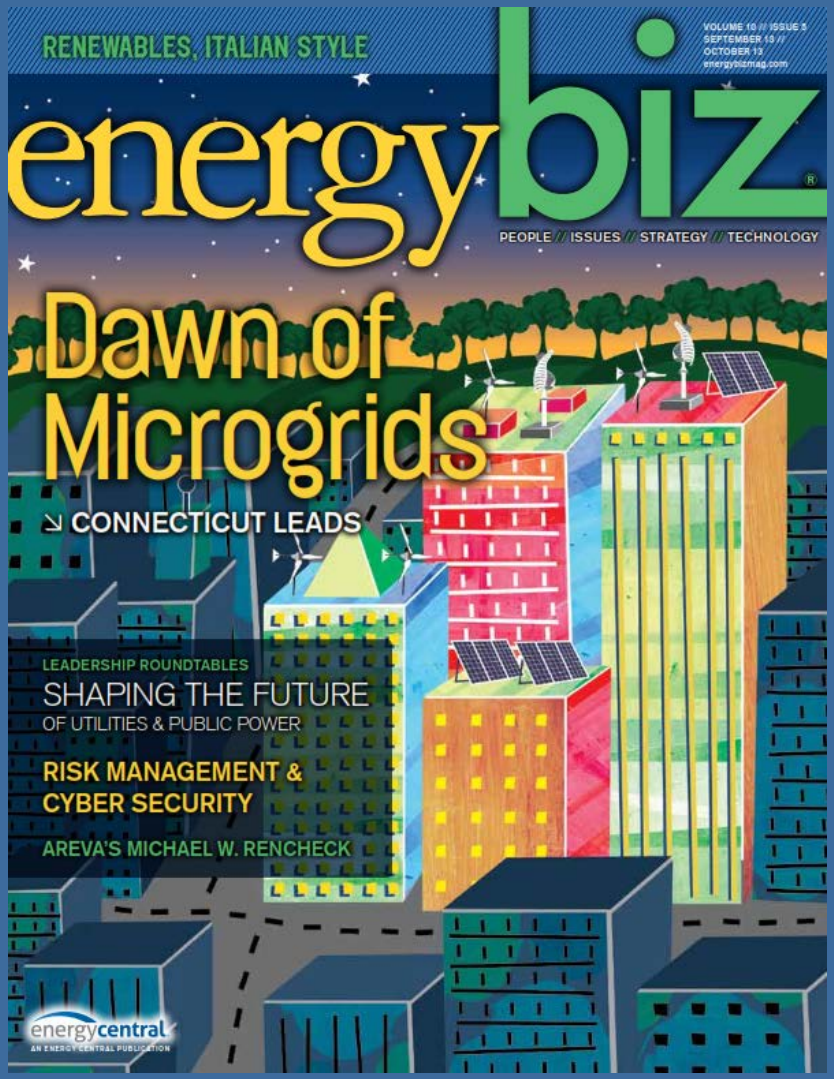
- Reduces capacity needs
- Reduces transmission & distribution investments
- Contributes to a more resilient electrical grid

Connecticut's Microgrid Program

- Program is critical piece of larger resiliency strategy in the wake of severe storms
- Program provides enhanced safety and quality of life for residents in an outage situation
- Program fits in with Governor's larger vision for cheaper, cleaner, and more reliable energy future for Connecticut
- In line with "portfolio approach" that encourages deployment of distributed generation

Focus on Increasing Public Facility Resilience

- Severe weather events becoming new normal
- Threats facing the state become more multi-dimensional (weather, terrorism, cyber-attacks, etc.)
- Microgrids are a way to allow critical facilities to function even when all else fails



Connecticut Microgrid Program

Vision for Microgrids in Connecticut

- Microgrids will provide critical services to residents
  - Generating electricity with cleaner, 24/7 operational power sources
    - Natural gas turbines with combined heat and power, fuel cells, solar panels, etc.
  - Built in a cost-effective manner
  - Contribute to public good by islanding critical facilities when the larger grid is de-energized
  - Connects more than one critical facility to reliable distributed generation resources

Connecticut Microgrid Program Milestones

Coming Soon in 2017 Grants to Include funding for generation

November 2015 Issue Round 3 grant awards for microgrid projects including funding for generation

October 2014 Issued 2 grant awards for microgrid projects totaling $5 million

July 2013 Issued 9 grant awards for microgrid projects totaling $19 million

July 2016 Town of Fairfield Microgrid Operational

August 2015 University Of Hartford Microgrid Operational

March 2014 Wesleyan University Microg Operational

Beyond Buildings – State Vehicle Fleets & Pollinator Habitats

Eric Friedman
Massachusetts

2:00 – 2:10 pm

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Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth

Massachusetts Department of Energy Resources

MASSACHUSETTS LEADING BY EXAMPLE PROGRAM

Beyond Buildings:

Massachusetts' Leading by Example Other Sustainability Efforts

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Other Sustainability Efforts

- State Fleet Fuel Efficiency Standard
- Pollinator Habitats on State Land

MA Fuel Efficiency Standard for State Fleet

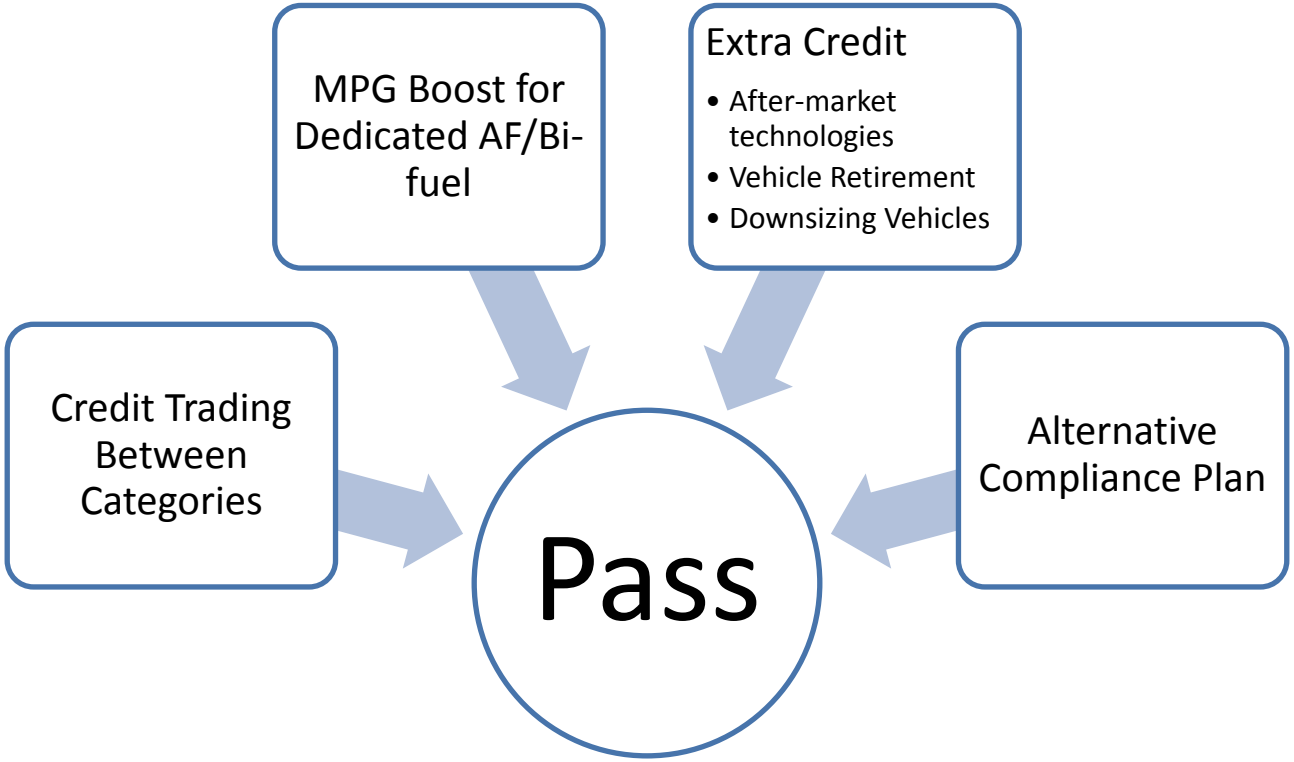
- Applies to Executive Branch Passenger Vehicle Acquisitions
  - All cars, passenger vans, cargo vans, pickup trucks, and SUVS with a GVWR < 10,000 lbs

- Two Key Requirements for New Acquisitions
  1. Average EPA-rated combined MPG of
     - **32 MPG** for passenger cars
     - **22 MP**G for light duty trucks, vans, SUVs
  2. Minimum of 5% of Acquisition must be AFVs, HEVs, PHEVs, BEVs

Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth

DOER Massachusetts Department of Energy Resources

Flexibility in Compliance



Exemption Clause

For circumstances where the FES requirements cannot be met through ***currently available, cost-effective technology***

FES Calculator

FY2017 Vehicle Request and Fuel Efficiency Calculator

Compliance with the Standard

Color Key for Result Cells:
If input vehicles meet a requirement of the standard, the cell will be highlighted in green.
If input vehicles do not meet a requirement of the standard, the cell will be highlighted in red.

Instructions

Standard Requirement 1: Minimum Average Combined MPG

Category I: Passenger Cars		Category II: Pickups/SUVs/Vans	
Number of Vehicles Acquired	0	Number of Vehicles Acquired	0
Average Combined MPG	0.0	Average Combined MPG	0.0
Avg. Combined MPG with Credits	50.0	Avg. Combined MPG with Credits	41.3
Standard MPG	32	Standard MPG	22
Category I Score	N/A	Category II Score	N/A
Overall MPG Standard Score		N/A	
		Total Differential	0.00 MPG

MPG Differential Range	Alternative Compliance Points
-11 to -8	10.0
-8 to -5	7.0
-5 to -2	5.0
-2 and higher	2.0

Alt. Compliance Pts. Required
0.0

Standard Requirement 2: Minimum Acquistion of AFVs, HEVs, PHEVs and BEVs

AFV, Hybrid, EV Acquisition Requirement	
Total Category I and Category II Vehicles Acquired	0
AFV, HEV, EV Requirement (5% of all vehicles acquired must be AFV/HEV)	0
BEVs/PHEVs Acquired	0
AFVs/Hybrids Acquired	3
Total AFV, HEV, PHEV, BEV	3
Score	N/A

Maximum Biodiesel Credits Allowed	0
Biodiesel Credits Earned	0
Biodiesel Credits Applicable	0

*Biodiesel fuel use may only be used to satisfy up to a maximum of 50% of the AFV/hybrid acquisition requirement

Top

Pollinator Habitats

- Pollinators are essential to our environment and critical for the reproduction of over 85% of the world's flowering plants, and more than 2/3 of the world's crop species.
- The United States grows more than 100 crops that either need or benefit from pollinators -- the economic value of these native pollinators is estimated at $3 billion per year
- Fruits and seeds derived from insect pollination are a major part of the diet of approximately 25% of all birds
- Pollinators are at risk from habitat loss, pesticide use, and introduced diseases
- Creation of natural habitats with native species is one way to support pollinator species

State Land Opportunities

- Thousands of acres of land
- Much of it under-utilized but still maintained
- Opportunities to convert mown grassy areas to pollinator friendly habitat
- Re-seed or change mowing pattern
- Use in-house labor

Preliminary Cost Analysis

site	plot acres	cost per lb	lbs per acre	lbs needed	Cost
Bridgewater large	3.5	29.79	20	70	$ 2,085
Bridgewater small	2.6	29.79	20	52	$ 1,549
Taunton Hospital	2.7	29.79	20	54	$ 1,609
TOTAL	8.8			176	**$ 5,243**

Site	parcel size (acres)	mowing time (person hours per mow)	# of mows per season	gas usage per mow gallons)	Annual Gas use	gas cost per mow	Annual gas cost	mows saved per year	annual gas use savings	annual gas cost savings	annual GHG emissions reductions (metric tons)	annual labor savings (person hours)	Labor Savings @ $25 / hour	Maintenance savings ($)
Taunton State Hosp	2.7	4	24	4	96.00	$9.20	$220.80	19.2	76.80	$176.64	0.86	76.8	$1,920	???
DOC Bridgewater	3.5	5.5	4	36	144	$86.40	$345.60	3	108	$259.20	0.96	16.5	$413	???
DOC Bridgewater	2.6	4	4	33	132	$79.20	$316.80	3	99	$237.60	0.88	12	$300	???
TOTALS	8.8	13.5	32	73	372	174.8	$883.20	25.2	283.8	$673.44	2.7	105.3	$2,632	
										Total Annual Savings			**$3,305**	

Land Management Procedures

Site Tillage
Prior to seeding, at least one tillage is required (Multiple is preferred to ensure *Planting should not occur until perennial species are completely killed*

Seed Mix - Mesic to Dry Native Pollinator Mix

Remove

- Wild Bergamot, Fort Indiantown GAP PA Ecotype
- Wild Senna, VA & WV Ecotype
- Blue False Indigo, Southern WV Ecotype
- Blackeyed Susan, VT Ecotype
- Purple Coneflower
- Purpletop
- Riverbank Wildrye, PA Ecotype

Replacement Options

- Virgina Wild Rye (Elymus virginicus
- Switch Grass (Panicum virgatum)
- Big Blue Stem (panicum andropogon gerardii)
- Sweet Everlasting (Pseudognaphalium obtusifolium)
- Clasping Milkweed (Asclepias amplexicaulis)
- Butterflyweed (asclepias tuberosa)

Seeding: Recommended Device – A Brillion Type (See link below). Maintenance

FIRST GROWING SEASON MAINTENANCE Whenever canopy (overall vegetation) reaches a height of 18”-24”, use a brush hog mower or string trimmer to trim the meadow to a height of 8”

SECOND & SUBSEQUENT GROWING SEASON MAINTENANCE Prior to new spring growth reaching a height of 2” trim any material standing from the previous year close to the ground (approximately 2”).

The Team

- Representative of Division of Fisheries and Wildlife
- Dept. of Correction Resource Management Group
- Health and Human Services Facilities Director

- Planting This Fall (possible one site this spring)

Introduction to Second Part of Day

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Breakout Discussions

Participants can choose to visit all three topic discussions or stay at one table for three different group discussions:

1. Zero Net Energy Buildings

2. Resiliency/Energy Storage/Demand Management in Buildings

3. Beyond Buildings – State Vehicle Fleets and Pollinator Habitats

Table Topic 1

2:15 – 2:50 pm

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Table Topic #1

Questions to address:

- *What key questions/issues of interest came up during the starter talk on this topic?*
- *What efforts in this topic area are already underway in your states?*
- *What are the remaining questions and/or challenges in this area?*
- *What collaboration (with DOE, other organizations, other states) would be most helpful to your efforts in this area?*

Break

15 minutes

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AnnaMaria Garcia

Program Director
Weatherization &
Intergovernmental Programs

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ENERGY

Thank You!

- Alabama
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Hawaii
- Illinois
- Indiana
- Iowa
- Kansas
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Missouri
- Montana
- Nevada
- New Hampshire
- New Mexico
- New York
- North Carolina
- North Dakota
- Oklahoma
- Pennsylvania
- Rhode Island
- South Carolina
- Tennessee
- Texas
- Utah
- Virginia
- Washington State
- West Virginia
- Wisconsin

Table Topic 2

3:25 – 4:00 pm

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Table Topic #2

Questions to address:

- *What key questions/issues of interest came up during the starter talk on this topic?*
- *What efforts in this topic area are already underway in your states?*
- *What are the remaining questions and/or challenges in this area?*
- *What collaboration (with DOE, other organizations, other states) would be most helpful to your efforts in this area?*

Table Topic 3

4:05 – 4:40 pm

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Table Topic #3

Questions to address:

- *What key questions/issues of interest came up during the starter talk on this topic?*
- *What efforts in this topic area are already underway in your states?*
- *What are the remaining questions and/or challenges in this area?*
- *What collaboration (with DOE, other organizations, other states) would be most helpful to your efforts in this area?*

Table Leads Prepare Reports

4:40 – 4:55 pm

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Table Reports

4:55 – 5:25 pm

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Table Reports

Questions to address:

- *What key questions/issues of interest came up during the starter talk on this topic?*
- *What efforts in this topic area are already underway in your states?*
- *What are the remaining questions and/or challenges in this area?*
- *What collaboration (with DOE, other organizations, other states) would be most helpful to your efforts in this area?*

Closing Remarks

U.S. DEPARTMENT OF ENERGY

Thank You!

5:30 pm Adjourn Meeting

5:45 Optional Follow-On Dinner Discussions

Reservations at 6 pm for the group at

James Hoban's Irish Restaurant

One Dupont Circle

If you'd like to meet in the lobby at 5:45, a group of us will walk over together. See you there!