



Northeast Energy Efficiency Partnerships

## Zero Energy Buildings: The Role Policy can Play in the Path-Forward

2016 Getting to Zero Forum  
NEEP • John Balfe  
10/14/16

### TODAY'S PRESENTATION



1. NEEP's Zero Energy Initiative
2. The Original Roadmap
3. The Progress Report
4. State & City Highlights
5. Additional Resources

Paul Crowley East Bay MET School – Newport, RI – NE-CHPS

## ABOUT NEEP



### Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

### Approach

Overcome barriers and transform markets via *Collaboration, Education and Enterprise*

### Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world




*One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs*

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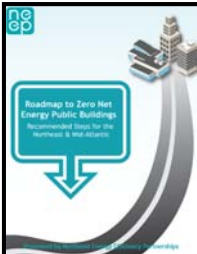


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## NEEP'S ZERO ENERGY INITIATIVE




- ZEB's = Our **ULTIMATE** goal

- Roadmap to Zero Net Energy Public Buildings (2012)
  - Public sector should **lead by example**
  - Outlines key steps for states to take

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## THE ORIGINAL ROADMAP



### BARRIERS & SOLUTIONS TO ZERO NET ENERGY BUILDINGS

|  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
|--|--|---|---|-------------------|--|-------------------------------|----------------|---------------------|---|--------------------------|------------------------------|--------------------------|---|--|--------------------|--------------------------------|----------------------------------|
| <p>Lack of information &amp; education on building energy performance</p> <p>Low rates of building energy code enforcement &amp; compliance</p> <p>Inability to finance projects</p> <p>Utility rate structure</p> | <p>Information campaign</p> <p>Asset rating</p> <p>Stretch code</p> <p>Incentives for exemplary buildings</p> <p>Revolving loan fund</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Understand technical/financial fundamentals</td></tr> <tr><td>Trained workforce</td></tr> <tr><td>Trained building occupants &amp; operators</td></tr> <tr><td>Asset and operational ratings</td></tr> <tr><td>Stricter codes</td></tr> <tr><td>Outcome-based codes</td></tr> <tr><td>Performance incentives for design teams</td></tr> <tr><td>Green leasing provisions</td></tr> <tr><td>Address plug &amp; process loads</td></tr> <tr><td>Continuous commissioning</td></tr> <tr><td>Increased financial incentives for efficiency</td></tr> <tr><td>Public/private partnerships for tax benefits</td></tr> <tr><td>Utility decoupling</td></tr> <tr><td>Ease net metering restrictions</td></tr> </table> | Understand technical/financial fundamentals | Trained workforce | Trained building occupants & operators | Asset and operational ratings | Stricter codes | Outcome-based codes | Performance incentives for design teams | Green leasing provisions | Address plug & process loads | Continuous commissioning | Increased financial incentives for efficiency | Public/private partnerships for tax benefits | Utility decoupling | Ease net metering restrictions | <p>Zero Net Energy Buildings</p> |
| Understand technical/financial fundamentals  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Trained workforce  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Trained building occupants & operators   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Asset and operational ratings  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Stricter codes   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Outcome-based codes  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Performance incentives for design teams  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Green leasing provisions   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Address plug & process loads   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Continuous commissioning   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Increased financial incentives for efficiency  |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Public/private partnerships for tax benefits   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Utility decoupling   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Ease net metering restrictions   |  |   |   |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |
| Barriers   | Near-term steps  | Intermediate-term steps (10-15 years)   | Long-term goal                              |                   |  |                               |                |                     |   |                          |                              |                          |   |  |                    |                                |                                  |

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# ZERO ENERGY PROGRESS REPORT



- Zero ~~Net~~ Energy → Zero Energy
- Analysis of the current regional ZE landscape



Step 1: Develop a "Path to Highest Performance" Information Campaign



Step 2: Promote the Continued Development of Exemplary Public Buildings



Step 3: Prioritize Measurement and Public Reporting of Building Energy Performance



Step 4: Implement Stretch Building Energy Codes




Step 5: Create a Revolving Loan Fund or Similar Mechanism to Provide Capital for Energy

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State Report Card

|    | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 |
|----|--------|--------|--------|--------|--------|
| CT |        |        |        |        |        |
| DC |        |        |        |        |        |
| DE |        |        |        |        |        |
| MA |        |        |        |        |        |
| MD |        |        |        |        |        |
| ME |        |        |        |        |        |
| NH |        |        |        |        |        |
| NJ |        |        |        |        |        |
| NY |        |        |        |        |        |
| PA |        |        |        |        |        |
| RI |        |        |        |        |        |
| VT |        |        |        |        |        |





## LET'S TAKE A CLOSER LOOK AT... THE STATE OF VERMONT




- **Goal:** All new buildings to be net-zero design by 2030
- Efficiency VT leading the way
- Stretch energy codes
- Funding mechanisms
  - Over 2 billion BTU's saved since 2004 due to SRMRF
- Montpelier


**2030** Our goal is to become the first state capital to produce or offset all of its energy needs from renewable energy sources by 2030.

Credit: netzeromontpelier.org


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## LET'S TAKE A CLOSER LOOK AT... THE CITY OF CAMBRIDGE



- Net Zero Task Force Convened in 2013
- Adopted BEUDO in 2014
  - First year report now available
- *The Getting to Net Zero Framework* – 2015
  - Contains set of strategies organized into 5 key areas



## WRAP-UP



- Much progress has been made in the Northeast and Mid-Atlantic
  - **11/12** states have enacted at least one recommendation
- Asset rating tools are being improved upon
  - Boston, Cambridge and, Montgomery County (MD) have adopted benchmarking ordinances
- Leaders:
  - DC
  - Massachusetts
  - New York
  - Rhode Island
  - Vermont

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## RESOURCES



- Roadmap to Zero Energy Buildings: Progress Report
  - Recently Released!
- NE-CHPS
- NEEP's Regional Operations and Maintenance Guide
- Building Energy Rating and Disclosure Policies; Lessons from the Field
- LED Street Lighting Assessment
- **Coming Soon:** Streamlining Data Access Report
- Exemplars



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## THANK YOU!



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