Overview

1. Opportunities & challenges
2. Why renewables make sense in MA
3. Procurement Pathways
4. Limitations in MA
5. Next steps & Conclusions
Why Renewables Make Sense in MA: Falling Costs of Solar

FALLING PRICES...

-66% SINCE 1998
-50% SINCE 2009

Pv Cost per Watt DC

Megawatts

350% GROWTH IN 3 YEARS

Source: GTM, DOE, REN21
Why Renewables Make Sense in MA: Falling Costs of Wind

Deployment and Cost for U.S. Land-Based Wind 2008-2012

Source: U.S. Dept. of Energy
As a result, leading companies are making major investments in wind and solar power.

- **IKEA**: Solar PV installed on 90% of U.S. facilities; 165MW wind farm in Texas in late 2014.
- **Kaiser Permanente**: Agreed to buy more than 150 MW of wind and solar power, and to install 70 MW of solar arrays at CA facilities.
- **Amazon.com**: Amazon announced it will invest in a 150 MW wind farm to power its data centers in Indiana.
- **GM**: GM plans to build a 34 MW wind farm to power manufacturing facilities in Mexico.
- **Apple**: Apple is investing $848 million in First Solar’s California Flats solar PV project.
- **Google**: Google signed long-term contracts for 43 MW of wind energy to help power its CA headquarters.
The Challenge

Complexity can prevent institutions from realizing the benefits of renewable energy
Why Do Renewables Make Sense in MA?

1. High Energy Prices

2. Volatile Energy Prices

3. Falling Costs of Technology

4. Favorable Regulations

5. Aggressive Incentives
Why Renewables Make Sense in MA: Market Growth

Installed Solar PV in Mass.

Source: Mass. DOER
Why Renewables Make Sense in MA: Favorable Regulations

Net Metering can allow generation to be credited at the full retail rate.

Virtual net metering can allow this credit to be applied even to an off-site electric bill.
### Massachusetts Net Metering Class Distinctions

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Size of Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Net Metering Facility</td>
<td>Less than 60 kW</td>
</tr>
<tr>
<td>Class II Net Metering Facility</td>
<td>60 kW to 1 MW</td>
</tr>
<tr>
<td>Class III Net Metering Facility</td>
<td>1 MW to 2 MW</td>
</tr>
</tbody>
</table>
Net Metering Limitations in Massachusetts: SREC Factors

- 100%
- 90%
- 80%
- 70% & waitlist
What is a Renewable Energy Purchase?

» What is the institution looking to claim?
  › Buying “green” power
  › Supporting/enabling the development of renewable energy

» REC only?
  › Yes if claiming environmental benefits.
  › Voluntary vs. compliance markets

» Power supply contract
» Hedge contract
» Onsite but with REC sale
» GHG emissions
Procurement Pathway 1: REC or SREC Purchase
Procurement Pathway 2a: Direct Investment (Off-site)
Procurement Pathway 2b: Direct Investment (On-site)
Procurement Pathway 3: Competitive Supply Contract
Procurement Pathway 4: Synthetic PPA
Conclusions & Next Steps

» Determine the goal of the procurement.
» Determine what staff resources and external expertise is needed to manage the project.
» Determine the volume of kWhs to be purchased.
» Identify appropriate stakeholders to involve, including in-house or external legal and accounting team.
» Choose a procurement pathway.
Institutional Renewable Energy Procurement Options in Massachusetts white paper:


Rocky Mountain Institute Business Renewables Center


EPA Green Power Partnership

» [http://www.epa.gov/greenpower/index.htm](http://www.epa.gov/greenpower/index.htm)
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