

# 2012 National Electricity Forum

*Getting Serious About Energy Efficiency, Demand Response, Distributed Generation, and Micro-Grids for the 21st Century Electricity System*

Washington, D.C.

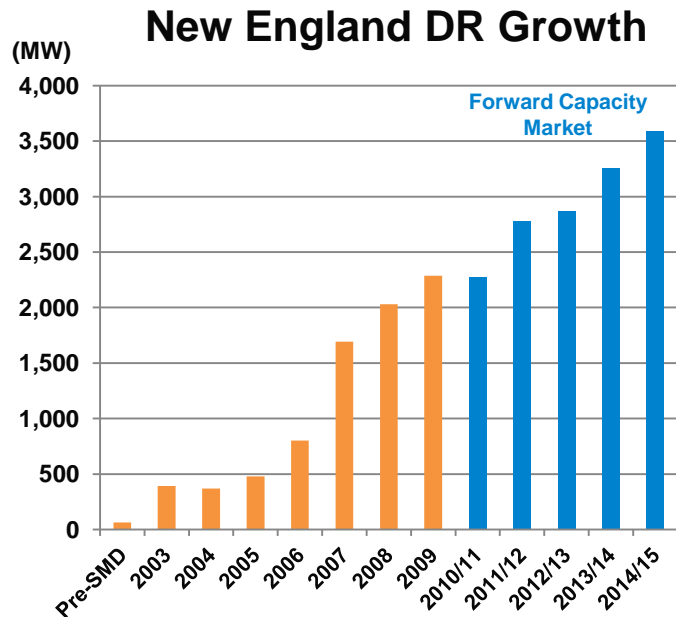
Gordon van Welie  
President & CEO  
ISO New England

# Imagining a 21<sup>st</sup> Century Electric System...



- **Transformation of capacity mix**
  - Move away from coal and oil fueled plants toward
    - DR and micro-grids (create high load variability)
    - Variable renewable generators
    - Advanced regulation (balancing/ramping)
    - Energy Efficiency
    - Baseload natural gas and nuclear
    - Storage
- **Is New England prepared? Actions today to achieve that future**
  - Resolution of gas/electric interdependency issues
  - Integration of DR in the energy market -- and EE in transmission planning
  - Alignment of planning and markets to pursue optimal resource mix
  - Advanced forecasting and modeling capability
  - Enhanced observability and controllability
- **Challenge**
  - Increased complexity will tempt centralized planning ... but markets and stakeholder collaboration should be relied on for grid evolution

# New England has “gotten serious” about DR and EE



- **Capacity market stimulates DR**

- 5,000 assets dispersed throughout region
- ~ 2,800 MW of DR today
- ~ 3,600 MW of DR by 2014

- **Significant EE investment over past few years; more coming**

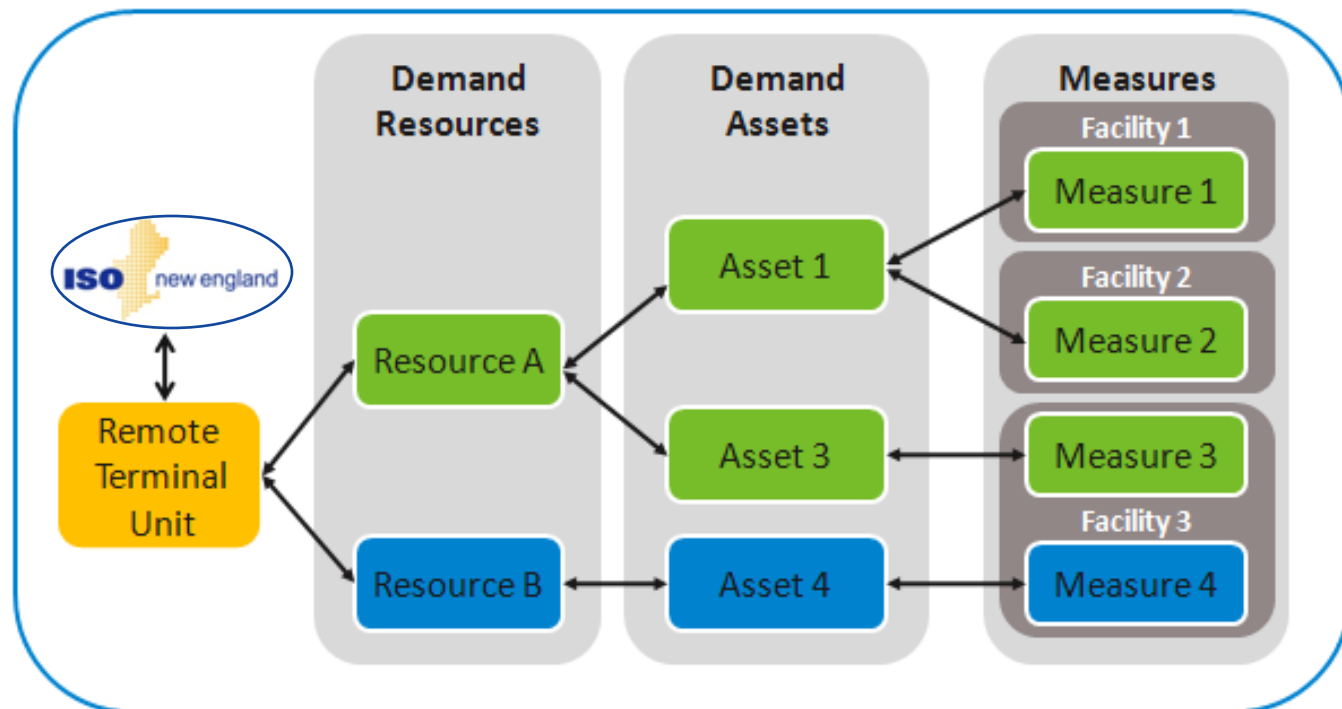
- Preliminary estimate:

**\$3 Billion from 2014-2020**

	Total	ME	NH	VT	CT	RI	MA
	<b>Total EE Dollars = SBC + FCM + 4*RGGI (Thousands)</b>						
2014	434,151	29,636	35,755	28,747	124,526	23,886	191,601
2015	440,873	30,056	36,432	29,035	126,459	24,326	194,566
2016	447,477	30,480	37,107	29,278	128,290	24,773	197,548
2017	454,272	30,920	37,801	29,555	130,142	25,210	200,645
2018	461,069	31,365	38,487	29,826	131,967	25,646	203,778
2019	467,809	31,812	39,176	30,116	133,756	26,046	206,903
2020	474,530	32,264	39,864	30,381	135,542	26,444	210,035
<b>Total</b>	<b>3,180,181</b>	<b>216,533</b>	<b>264,622</b>	<b>206,938</b>	<b>910,682</b>	<b>176,331</b>	<b>1,405,076</b>

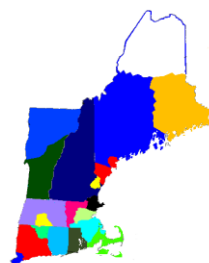
# Significant DR Infrastructure Improvements

Communication of real-time information between ISO and Demand Resource Assets



## 19 DR Capacity Zones created in 2010

- Dispatch similar to generators
- Allows dispatch only when, where and in amounts needed



Increased granularity of DR dispatch

# Capturing the Benefits of DR and EE Investment

- Resources in capacity market counted in transmission planning studies
- Beginning this year, longer-term forecast of state-sponsored EE to be considered in later years of planning cycle
  - May defer transmission
  - Investment pace, production costs and measure life for six states presents complex set of challenges
- Working on full integration of demand response into energy market (consistent with *Order 745*)

**ISO-NE Summer Peak (MW)**  
Weather Normalized 1991-2010  
RSP11 50/50 Forecast 2011-2020

