Supporting a Clean Energy Future

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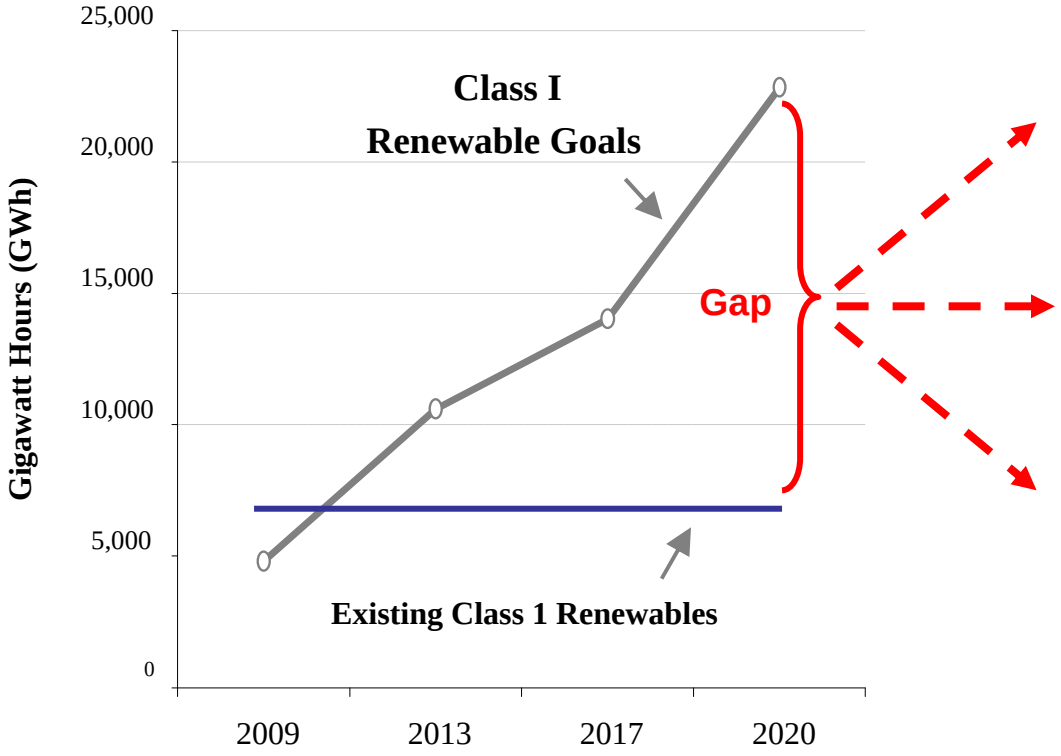
Northeast
Utilities

A comprehensive approach is needed to meet New England's RPS and carbon goals

New England's goals increase over time

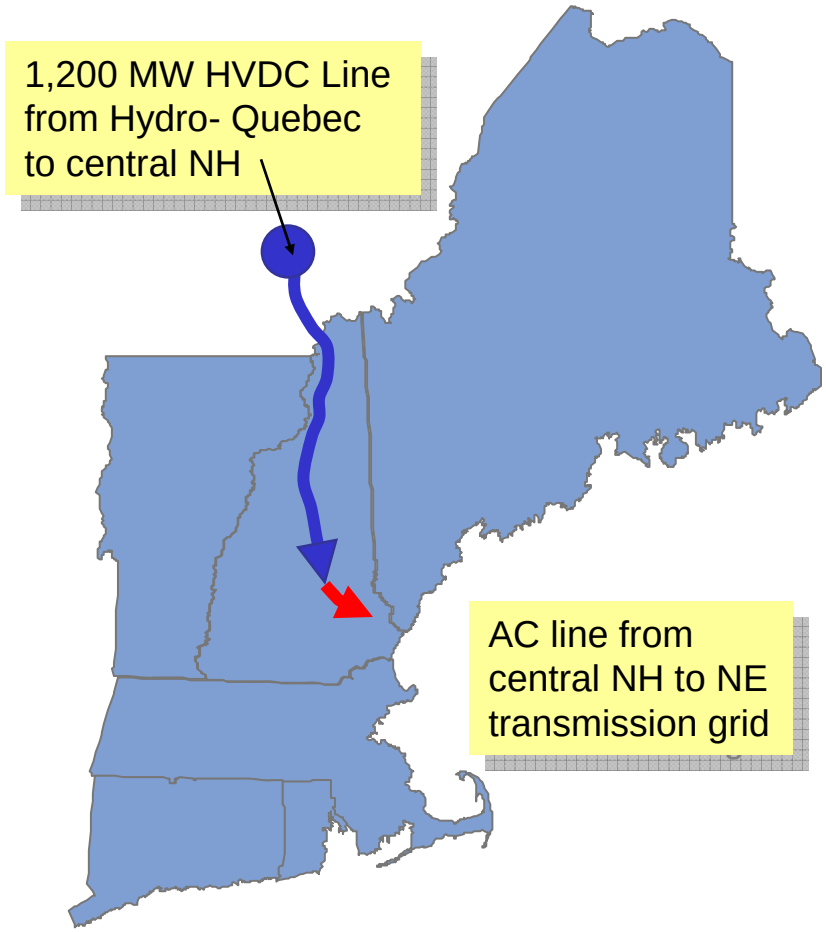


Closing the gap will require a 3-part approach

1. Managing consumption
2. Importing clean, economic power
3. Building domestic renewable resources and the enabling transmission

The Northern Pass Project - Description

- Delivers enough renewable, low-carbon energy to power 1 million homes
- US segment owned jointly by NU and NSTAR
- Quebec segment owned by HQ-TransEnergie
- Transmission cost-based rates using a “participant pays” model
  - Revenue requirements paid for by Hydro-Quebec US
  - Transmission rights assigned to Hydro-Quebec US
- Operation by ISO-New England
- Target in-service date is 2016



The Northern Pass Project - Schedule

- ✓ May 2009 FERC approval of Project structure
- ✓ Dec 2009 FERC Order on rehearing requests
- ✓ Oct 2010 Executed Transmission Service Agreement with HQ Hydro Renewable Energy
- ✓ Oct 2010 DOE Presidential Permit application
- ✓ Feb 2011 FERC approves transmission service agreement
- ✓ Mar 2011 DOE holds 7 scoping meetings in NH
- ✓ Jun 2011 U.S. Forest Service application
- 2012-2013 DOE permitting process
- 2012-2013 ACOE permitting process
- 2012-2013 New Hampshire permitting process (Site Evaluation Committee)
- 2014-2016 Proposed construction

Ongoing outreach efforts

✓ = Completed

The Northern Pass Project - Benefits

Economic Benefits

- Annual New England energy savings of $200 - $325 million
- Creates 1,200 jobs
- Provides $22 - $27 million in annual taxes

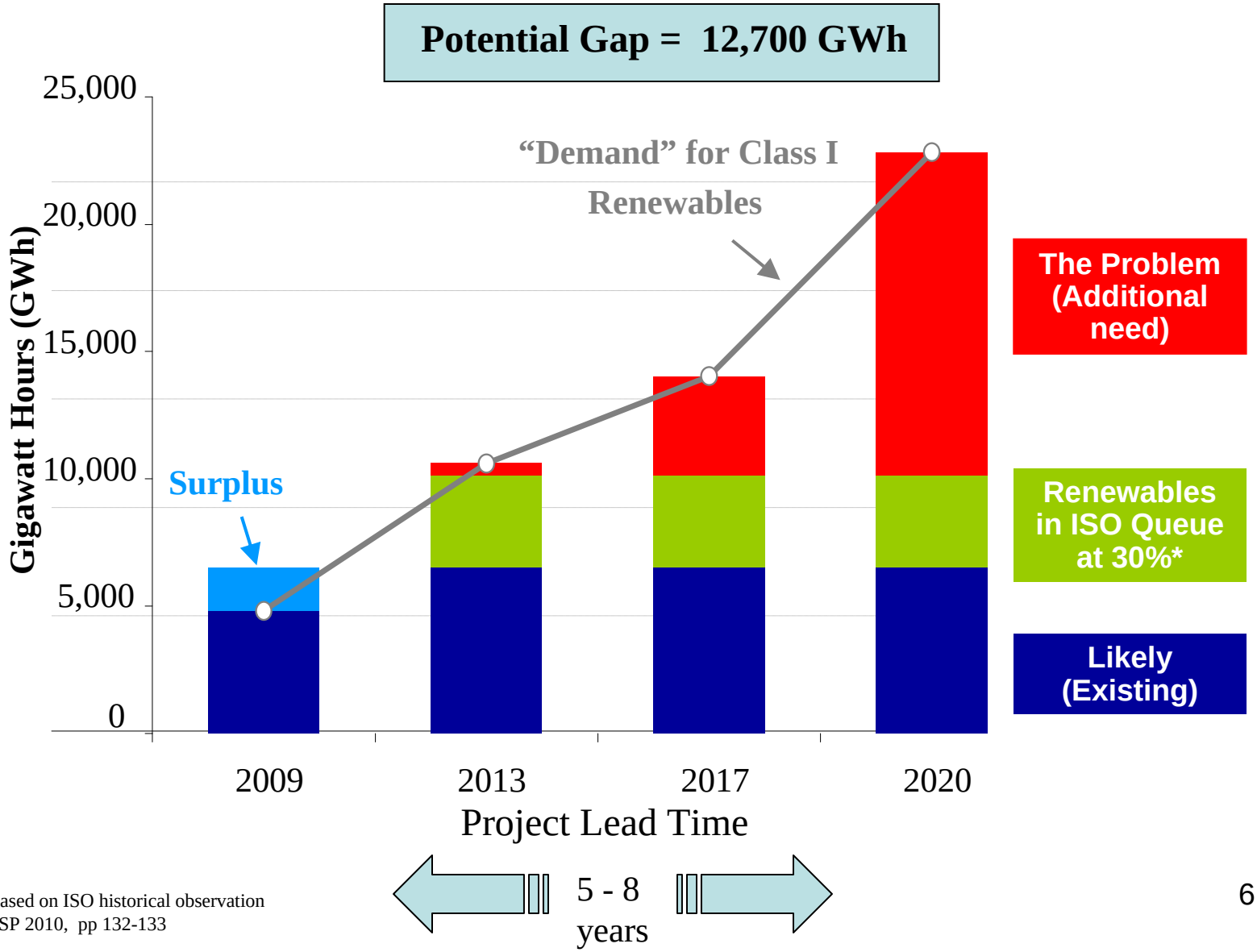
Environmental Benefits

- Reduces carbon dioxide emissions up to 5 million tons a year
- Complements the development and operation of local renewable resources

Reliability Benefits

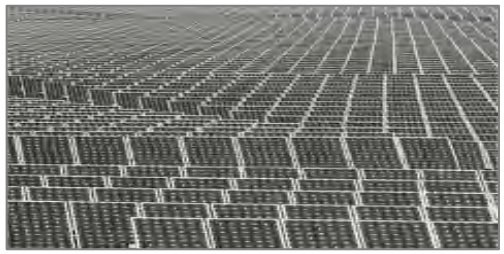
- Provides new capacity
- Increases fuel diversity (not natural gas)

New England's RPS gap is large and growing



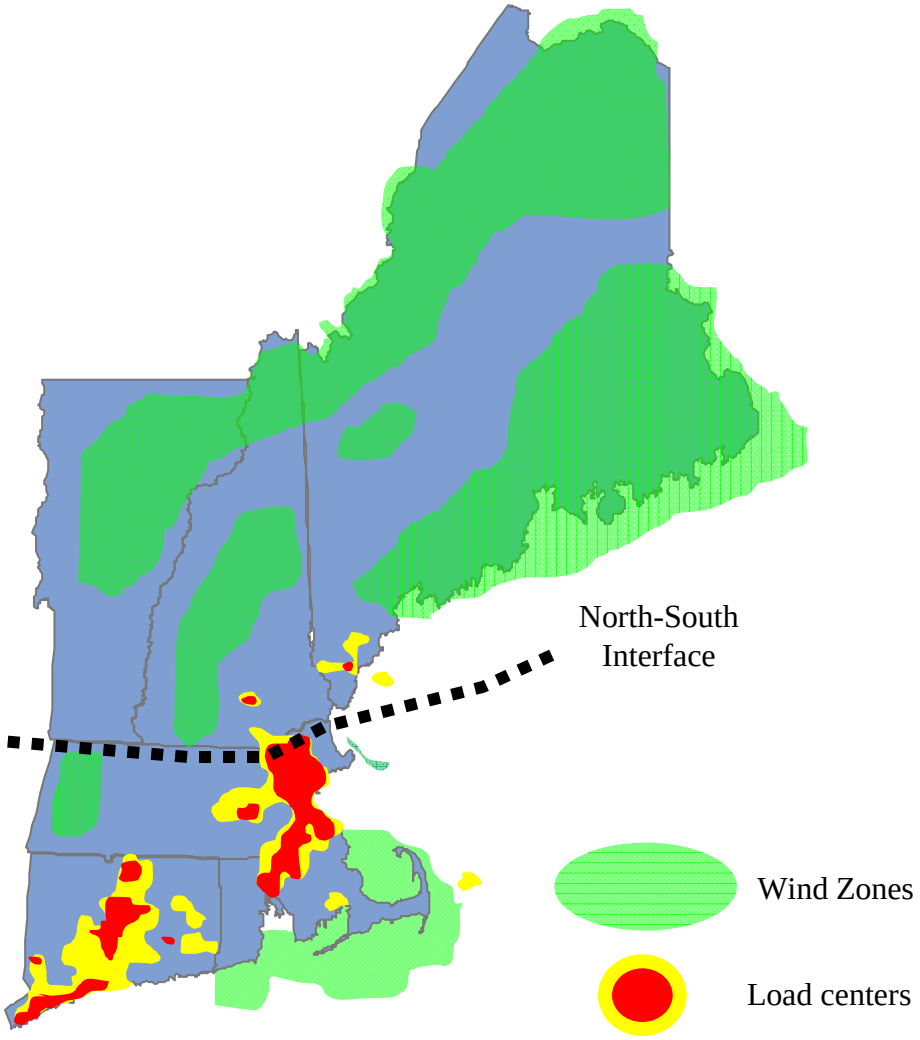
•Based on ISO historical observation
RSP 2010, pp 132-133

New England's supply options



Options for 12,700 GWh	Cost
36 biomass plants at 50 - MW each with an 80% capacity factor (Wood is not scalable)	$ 5.5 Billion plus $ T
1,074 3-MW of offshore windmills at 45% capacity	$22.6 Billion plus $ T
12,078 MW of solar panels at 12% capacity factor	$64 Billion plus $ t
1,380 3-MW of onshore windmills at 35% capacity factor	$9.4 Billion plus $ T

New England′s best onshore wind is remote from load centers



- Wind Power = Air Density x
  Rotor Area x
  (Wind Speed)^3
- ISO-NE “Governors’ Blueprint” study verifies need for more transmission
- ME-NH and North-South interface limitations must be addressed
- NESCOE focus on regional procurement of renewable energy

Transmission to support renewables has many dimensions

We have:

- Collaborated with NE Transmission Owners
- Reached out to wind developers and regulators
- Analyzed wind sites and routing options
- Studied NE system constraints
- Assessed business structures
- Reviewed financing requirements
- Identified consumer benefits and impacts

There are many challenges:

- Changes to public policy
- Project scope, size and products
- Open access compliance
- Project creditworthiness
- Start-up process/timing
- Cost recovery and allocation
- Regional planning process
- Operations/maintenance
- Operational priority
- “Service Territory” issues

Summary

- A comprehensive approach is needed to meet New England's clean energy goals
- Transmission infrastructure will be needed to…
  - Import clean, economic power from Canada
  - Develop domestic wind resources
- NU will continue to promote solutions to public policy goals that are best for our customers

This presentation was given at the 12.9.2011 New England Electricity Restructuring Roundtable, "*Renewable Energy-Related Transmission for New Englanders: by Land and by Sea*" convened and moderated by Raab Associates, Ltd.

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