

New England Clean Energy Transmission Summit

Modernizing America's Grid:
What Does It Mean for New England?

*New England States Committee on Electricity
January 23, 2012*

NESCOE

- ✓ New England's Regional State Committee
- ✓ Governed by a Board of Managers appointed by each of the New England Governors
- ✓ Focus: Resource Adequacy, System Planning & Expansion
- ✓ More information at www.nescoe.com or follow on Facebook

OVERVIEW

- ✓ New England: Current Snapshot & Look Ahead
- ✓ Exploring Potential for Coordinated Competitive Renewable Power Procurement
- ✓ Transmission Siting: Working to Increase Interstate Coordination
- ✓ Reflecting Energy Efficiency in Transmission System Planning
- ✓ Order 1000: One other potential way forward for projects that may further public policy objectives

New England: Snapshot

- ✓ New England **sited over \$4 Billion** in transmission facilities since 2002
 - More than **\$5 Billion** is on the horizon
- ✓ New England generally relies on **competitive markets** to provide transparent price signals for infrastructure investments
 - Not on centralized Integrated Resource planners to identify resources
- ✓ New England has **more renewable & low-carbon resources than we need** to meet our renewable energy objectives
 - Interest in those that can serve customers at the lowest all-in delivered cost
 - **If developed aggressively, could export** to neighboring regions

EIPC Phase I New England Results: Snapshot

Analysis Suggests New England in Very Good Shape

- ✓ New England meets its renewable goals by 2030 under **business as usual conditions** - existing policies & planned resources
- ✓ New England builds on-shore wind & retires remainder of its coal & oil
- ✓ New England **imports** from HQ, Maritimes & **exports** to New York City

EIPC Phase 1: Transmission Expansion Results for New England

Ties with New York allowed to expand

- ✓ Only ISO-NE to NYISO J-K indicated economic expansion
- ✓ **New England is net exporter**

Future Scenario	MWs Interface Expansion
Business As Usual (no expansion of any ties)	N/A
National RPS with Regional Implementation	70 MWs
Combined Federal Energy and Climate Policy	608 MWs

Quebec & Maritimes ties not expanded, due to modeling limitations

New England: Strategic Planning

ISO-NE, NEPOOL & States are assessing & resolving risks before they become problems that require rapid, piecemeal decisions

Ongoing studies to inform decisions, 2012-2014

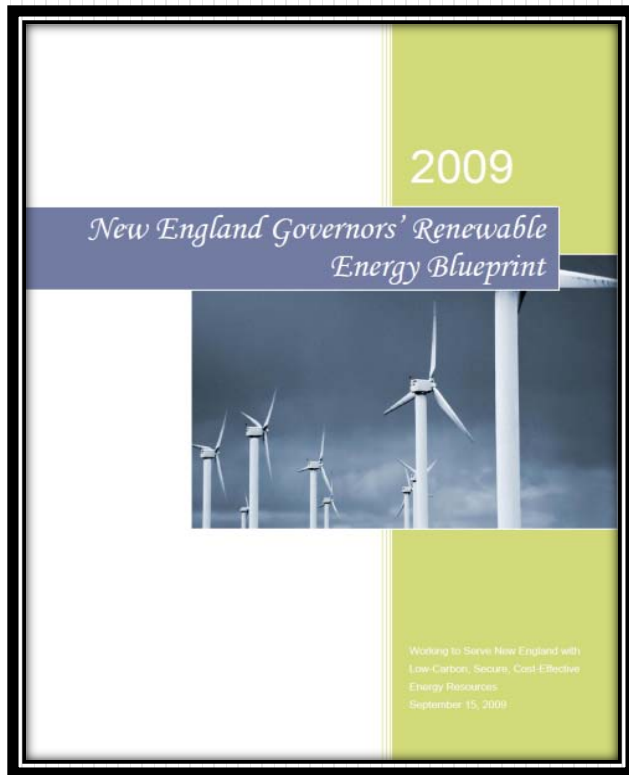
- Risk 1: Resource Performance & Flexibility
- Risk 2: Increased Reliance on Natural Gas-Fired Capacity
- Risk 3: Potential Retirement of Generators
- Risk 4: Integration of a Greater Level of Variable Resources
- Risk 5: Alignment of Markets with Planning

New England's Renewable Power

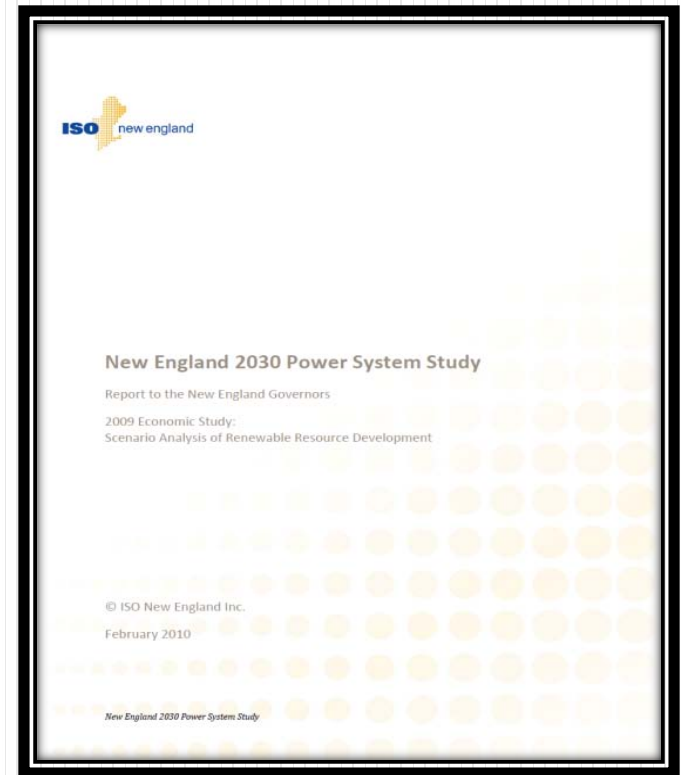
Interest in Renewable Resources Able to Provide Lowest All-In Costs

Exploring the Potential for Coordinated Competitive Renewable Power Procurement to Help Identify Them

2009: Governors' Renewable Energy Blueprint

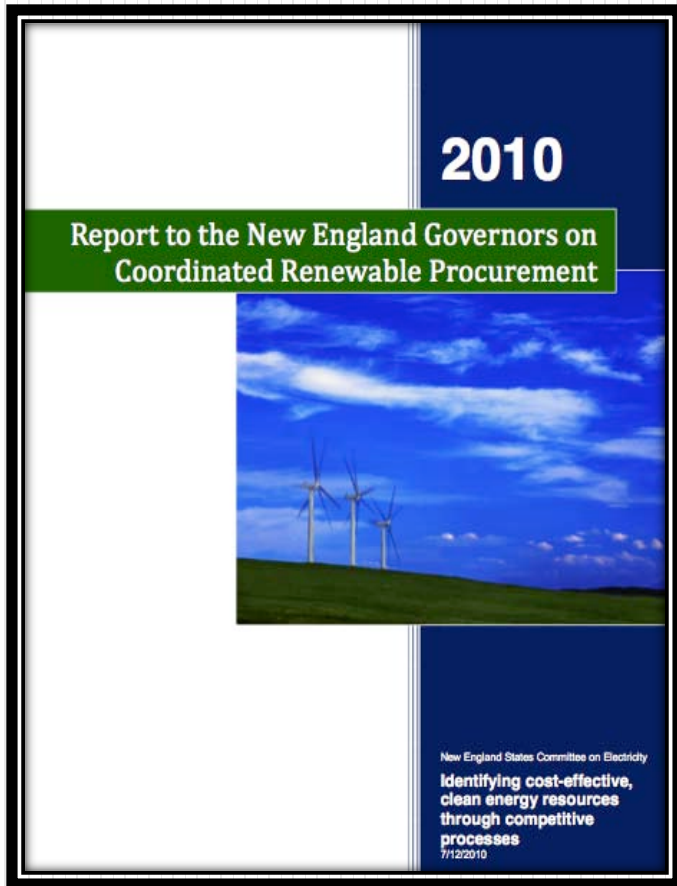


States' Policy Observations:
Interest in lowest all-in delivered cost,
potential opportunities through
coordinated contracting & siting



ISO Technical Analysis: 10,000
MW renewable power, more than
needed to meet needs, could
export if developed aggressively

2010: Report to the New England Governors Coordinated Renewable Procurement



- Assessed New England states' power procurement practices, processes, looked for coordination opportunities
- Preliminary information about potential mechanisms to coordinate competitive procurement of renewable resources
- Identifies some potential terms & conditions & possible regulatory approval process approaches concerning renewable procurement

Early 2011: Renewable *Request for Information*

Market inquiry about resources with potential to help meet renewable energy goals at ***lowest 'all-in' delivered cost*** & for which a coordinated competitive procurement process could facilitate commercial development

Criteria:

- New resources
- *Deliverable* to New England loads
- Operational by 2016 &
- *Eligible* for all 5 New England states' RPS & VT's renewable goals (wind, solar, landfill gas, small hydro & biomass)
- Other: sought information from transmission developers on transmission that could facilitate delivery
- No Cost Information Requested



RFI: Renewable Generation Responses

Highlights:

- 4,700 MW by 2016

- 90% wind on & off shore

- 50+% Maine on-shore wind

	Within New England						Outside of New England	Total
Technology	CT	MA	ME	NH	RI	VT		
Biomass	82.0	137.3	30.0					249.3
Landfill gas		1.6					1.6	3.2
Small Hydro			3.0					3.0
Solar	4.0	27.0						31.0
Wind - on-shore		4.0	2519.3	351.0			584.5	3458.8
Wind - off-shore			30.0		1000.0			1030.0
Total	86.0	169.9	2582.3	351.0	1000.0		586.1	4775.2

	Year of initial commercial operation						Total
Technology	2011	2012	2013	2014	2015	2016	
Biomass	46.4	0.9	77.0	30.0	55.0	40.0	249.3
Landfill gas	1.6		1.6				3.2
Small Hydro	3.0						3.0
Solar		17.0			14.0		31.0
Wind - on-shore	20.0	586.3	413.5	481.0	1643.0	315.0	3458.8
Wind - off-shore					1030.0		1030.0
Total	71.0	604.2	492.1	511.0	2742.0	355.0	4775.2

RFI: Transmission Responses

Highlights:

- 1 off-shore
- 1 NY-VT upgrade
- 5 Maine to load, generally consistent with generator submissions

Project Number	Description	Miles of New Transmission	Technology	Capacity (MWs)
1	Off-shore transmission system to deliver energy from off-shore wind turbines to loads in southern New England	Not specified	Not specified	Up to 4000 MW, in 1000 MW increments
2	Interconnection between upstate NY and northern VT	Not specified	230 or 345 kV interconnection points	600
3	Connection from Maine Public Service Company transmission system to CMP transmission system	~26	345 kV AC line within Maine	200+ (at least 200 MW of wind projects have been identified)
4	HVDC link between northern Maine and downtown Boston	~300	HVDC overhead line and submarine cable	800
5	Transmission upgrades in western Maine	Not specified	115 and/or 345 kV AC lines	Up to 1100
6	HVDC link between central Maine and northern Massachusetts	230	HVDC underground line	1100 (with potential for some additional increase on existing lines)
7	AC transmission upgrades between Maine and southern New England	Unknown	Unknown	1000-2000

In July 2011, Governors' Resolution Expressed Continued Interest in Exploring Coordinated Competitive Procurement

NESCOE undertook analysis to provide directionally indicative cost analysis in relation to new on- & off-shore wind resources to help inform policymakers' decisions about the potential for coordinated competitive renewable power procurement

Renewable Supply Curve Analysis

Generation

- ✓ Developed **resource potential & relative costs of renewable resources – on & off shore wind** - that could supply energy to New England based on conservative assumptions
- ✓ Independently estimated resource potential to yield “renewable supply curve” for **2016 & 2020**
- ✓ Focus on wind potential in **New England & New York** (Invited Canadian Electricity Assoc. to provide comparable analysis)

Transmission

- ✓ Developed **cost estimates for notional transmission build-outs** that could help integrate renewable energy
- ✓ Focus on transmission options in **western Maine & northern New Hampshire**

Analysis Is Not A Plan, Will Not Identify Costs That Would Emerge From Competitive Process

- ✓ **Not a resource plan** or recommendation
- ✓ **Not** an indication of **preferred resource type or location**
- ✓ **Not a projection of actual costs** for specific resources or projects
 - Cost data will be *indicative*; usefulness is sense of *relative costs*
 - Use of conservative assumptions suggests that **actual costs will likely be meaningful lower than costs in analysis**
 - Market conditions & developer decisions will determine actual costs
- ✓ **Not a recommendation** to develop any specific resources
- ✓ **Not an estimate of benefits** of any particular resource

Transmission Siting

Coordination Opportunities to Facilitate Siting of Interstate Facilities

Interstate Transmission Siting Collaborative

**NEW ENGLAND DOES NOT HAVE A SITING PROBLEM TO SOLVE:
WE'VE SITED \$4 BILLION SINCE 2002, WITH MORE THAN THAT ON HORIZON**

- ✓ *However*, the Governors' Blueprint identified that coordinating siting could help facilitate development of renewable & other resources
- ✓ Siting Collaborative looking at interstate coordination opportunities possible under **current law**
- ✓ Talking to New England's transmission owners & developers to identify what the states could do better in the short & long term
 - ✓ looking to do so in the context of an upcoming or past project so that coordination conversations are practical

Energy Efficiency

New England's Grid: Recognizing Investment in Energy Efficiency

Public dollars invested in state energy efficiency programs is significant

Important to consumers that megawatts saved by those programs be reflected in transmission planning & the regional load forecast

- ✓ NESCOE requested ISO-NE to adjust its load forecast to reflect ratepayer-funded state energy efficiency programs & their scheduled ramp-up in regional planning
- ✓ In 2011, ISO-NE identified a data based methodology to account for energy efficiency program savings in planning
- ✓ Energy Efficiency Forecast will become part of the regional annual load forecasting process in 2012
- ✓ Work remains on approach to data collection & budget forecasting.

Order 1000

States' Draft Framework for Public Policy Projects & Associated Cost Allocation - one way, ***but not the only way***, projects that further public policy objectives could move forward in New England

Framework Highlights

**New England states' consensus approach & compromise
in order to address our challenges as a region**

- ✓ For efficiency & practicality, framework makes use of some existing New England planning processes & mechanisms
- ✓ Stakeholder input is central: stakeholder input opportunity at each step in the process
- ✓ Some Public Policy Projects may also meet other needs, such as reliability
- ✓ Transmission project cost estimates, control & assurance of benefits of central importance to cost/benefit analysis

Framework is draft - requires discussion, input & refinement

Overview of States' Roles

- ✓ States seek to provide consensus views, following stakeholder input, through **NESCOE** on -
 1. public policies that drive transmission needs,
 2. parameters of Public Policy (Economic) Study, &
 3. if state interest, parameters of detailed Transmission Study

- ✓ States decide whether to be **Participating States** in proposed project
 - no involuntary allocation

- ✓ Final state analysis & decisions by **Participating States' regulatory authorities**
 - Provides open, formal process for stakeholders & interested persons
 - Results in formal state decision upon which ISO-NE will base cost allocation

Study Process & Detailed Transmission Analysis

- ✓ Region allocates to NESCOE 1 of 3 Economic Studies every 2 years to enable analysis of potential implications of Public Policy Requirements that states identify collectively
- ✓ NESCOE: 1. takes **stakeholder input** on which, if any, Public Policy Requirements drive transmission needs & are appropriate to consider in planning & 2) communicates states' consensus decision about which, if any, transmission needs are driven by Public Policy that ISO-NE will analyze
- ✓ ISO-NE conducts **Public Policy Study** to analyze public policy requirements; includes transmission project cost estimates; **stakeholders comment on draft analysis**
- ✓ After reviewing Public Policy Study results, NESCOE may request ISO-NE to perform **detailed transmission studies** per assumptions identified by or developed with NESCOE; **discuss scope & assumptions with stakeholders**

Projects May Meet Multiple Needs

- ✓ If Public Policy Requirements & market efficiency or reliability needs align, transmission studies may include analysis of potential solutions that may address all 3
- ✓ ISO-NE make preliminary determination whether & if so the extent to which proposed transmission solution is needed for reliability
- ✓ *If* Participating States agree that portion of transmission project ISO-NE determines *not* needed for reliability meets the Participating States' public policy needs, balance of project may be a public policy project for cost allocation purposes

State Regulatory Evaluation & Decision

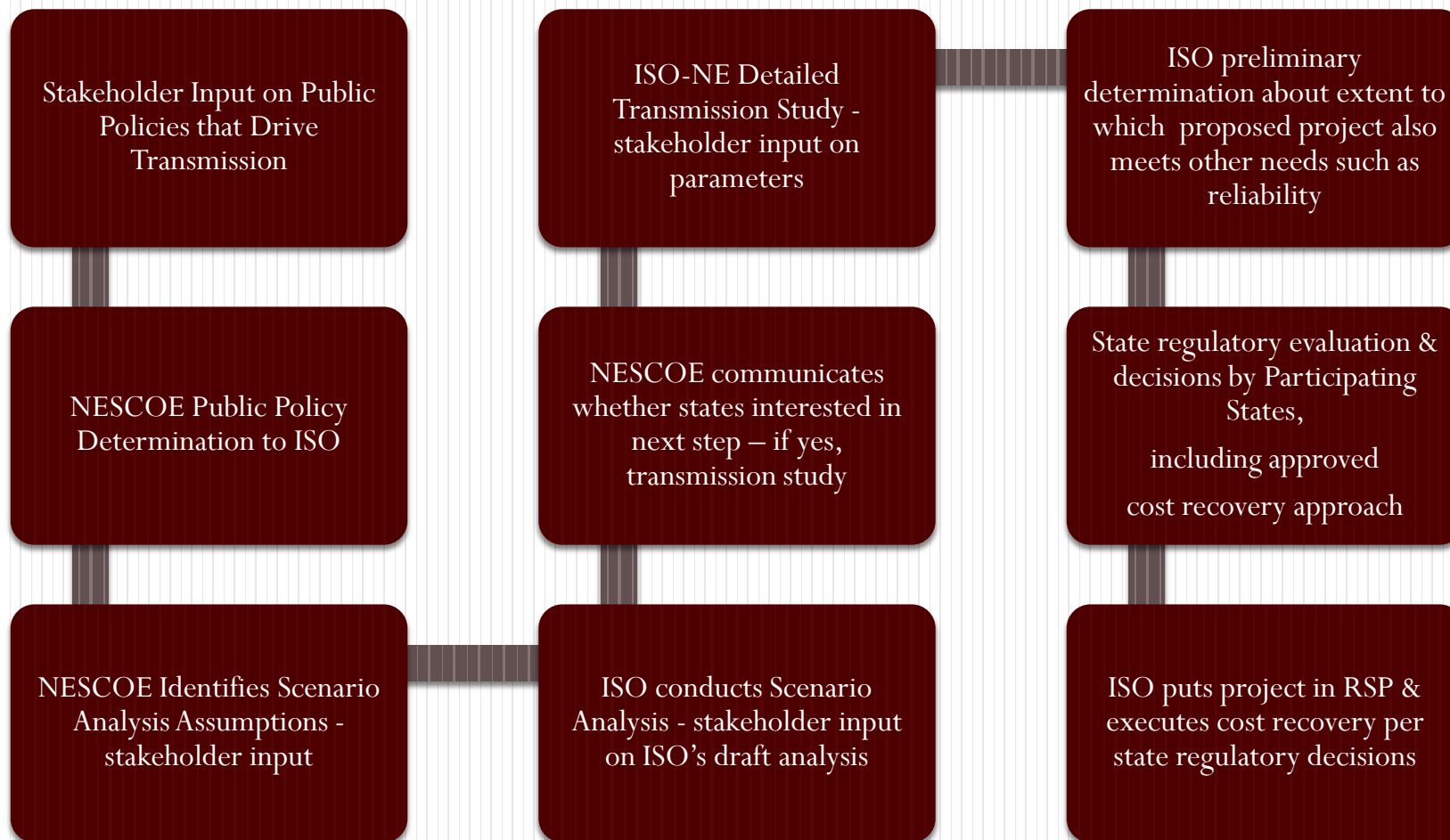
- ✓ Public Policy Project *only* moves forward if **Participating States** conclude expected **benefits outweigh expected costs** (other paths available for projects that could advance public policy – generator interconnection, elective upgrades, etc.)
- ✓ Evaluation requires mechanisms for cost control & assurance of delivery of benefits
 - Power purchase agreements or other contractual arrangements will ensure commitments in place
 - Such contractual agreement may provide, for example, for recovery of transmission costs through tariff
- ✓ To be a Public Policy Project, any contract or inclusion of transmission costs associated with public policy projects will be approved by state regulatory authority

After State Regulatory Decisions

- ✓ If Participating States' regulatory authorities approve agreement or inclusion of transmission costs associated with Public Policy Projects, ISO-NE -
 - includes project in RSP &
 - provides for transmission cost recovery consistent with Participating States' regulatory authorities' decisions
- ✓ State decisions may include approval of a cost allocation mechanism (to be determined) in the tariff

*1 or more states always free to move ahead with project
&
assign costs to their customers*

Process Overview



Thanks.

Questions?