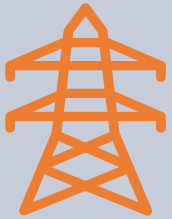
New England Governors' Vision for a Clean Energy Future

Transmission Planning

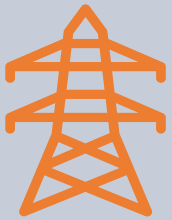
Co-Chairs Kate Bailey and Judy Chang

Presentation Agenda



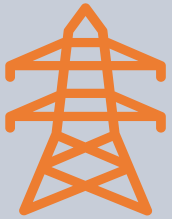
- 1:00 – 1:20 Opening remarks
- 1:20 – 1:50 ISO-NE Overview of the current transmission planning process in New England
- 1:50 – 2:30 Synthesis of states' simulated future electricity resources and system needs
- 2:30 – 2:45 Break
- 2:45 – 3:15 UK National Grid ESO on UK's experience with offshore wind grid planning
- 3:15 – 3:45 Traditional planning drivers and need for a new paradigm
- 3:45 – 4:15 Massachusetts Attorney General's office on importance of use of advanced technologies to maximize existing system
- 4:15 – 4:45 Connecticut Coalition for Environmental Justice on the importance of equity and justice in planning
- 4:45 – 5:00 Break
- 5:00 – 5:45 Australia experience in scenario-based long term transmission planning
- 5:45 – 6:00 Wrap-up and next steps

New England Transmission Overview



- Over 9,000 miles of high voltage lines
- 13 interconnections with neighboring systems
- Today: approx. 20% of load served by imports
- Over $11 billion in transmission investments from 2002 through 2020
- Over $1.5 billion more planned through 2022
- Over 24,000 MW in queue; ~14,000MW of wind, and ~3,200 MW solar PV

New Challenges in Transmission Planning



- Over the next 3 decades New England's power system is expected to have much higher levels of clean energy resources than today
- CT Integrated Resources Plan estimates that by 2040:
  - 4,400 MW of behind-the-meter photovoltaic (PV) resources
  - 7,100 MW grid scale PV
  - 10,500 MW of offshore wind
  - 700 MW of land based wind
  - 2,200 HVDC interconnection to Quebec (NECEC + 1)
  - 2,500 MW of battery energy storage
- MA's simulation show similar trends
- These are on top of energy efficiency and demand response

The Need For Transmission Planning

Current Challenges

Outdated Model

Built around a network of large, centrally located power plants to serve customers.

Affordability

Significant build out, but only focused on reliability upgrades and generator interconnection needs

Renewables Penetration

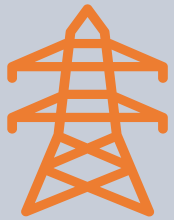
Increasing role of renewables (especially offshore wind) and distributed energy resources means this paradigm no longer holds.

The transmission system must be reconfigured and upgraded.

Future of Planning

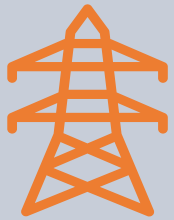
The region needs to engage in forward looking long-term transmission planning to meet the needs of the future. This work will include input and coordination from the states

Key Questions



- What will our system need to look like to interconnect the zero carbon resources?
- How do we best maximize the use of existing system?
- How we achieve the emissions reduction at the lowest cost, with transmission as an enabler?
- How would the proactive scenario-based long-term planning fit into the current process and what needs to be changed?

Feedback and Next Steps



- Please file comments by March 1, 2021 www.newenglandenergyvision.com
- Report to Governors
- States will convene and plan for next steps with ISO-NE relating to transmission planning