



Massachusetts Department  
of Energy Resources

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF ENERGY RESOURCES

*Patrick Woodcock, Commissioner*

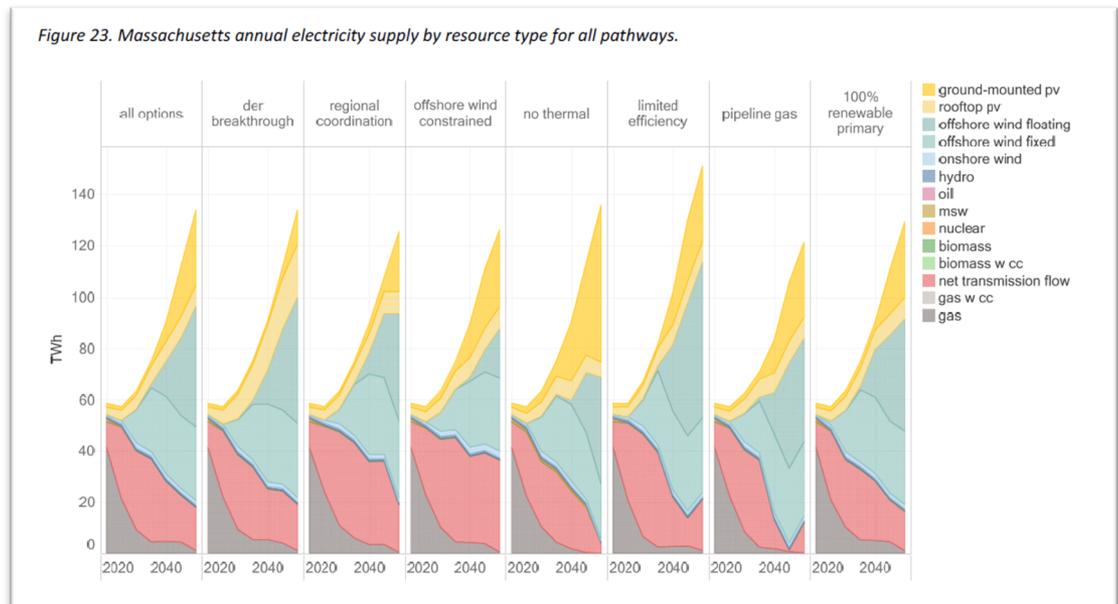
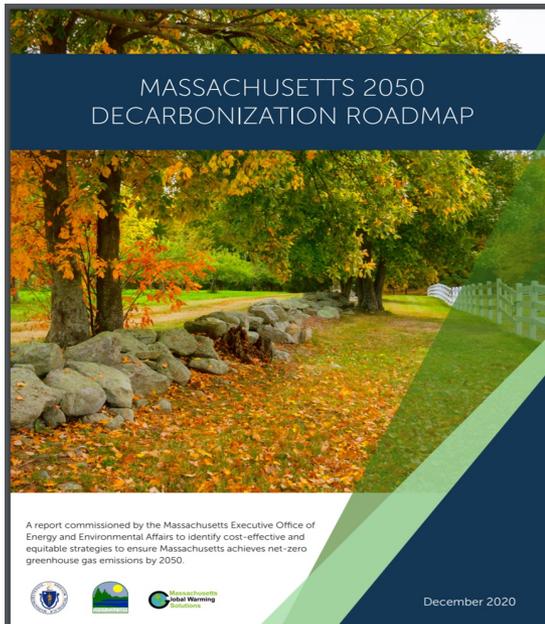
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**2021 NASEO Annual Meeting:  
*Rethinking Transmission Planning:  
Lessons Learned, New Challenges,  
and the Path Forward***

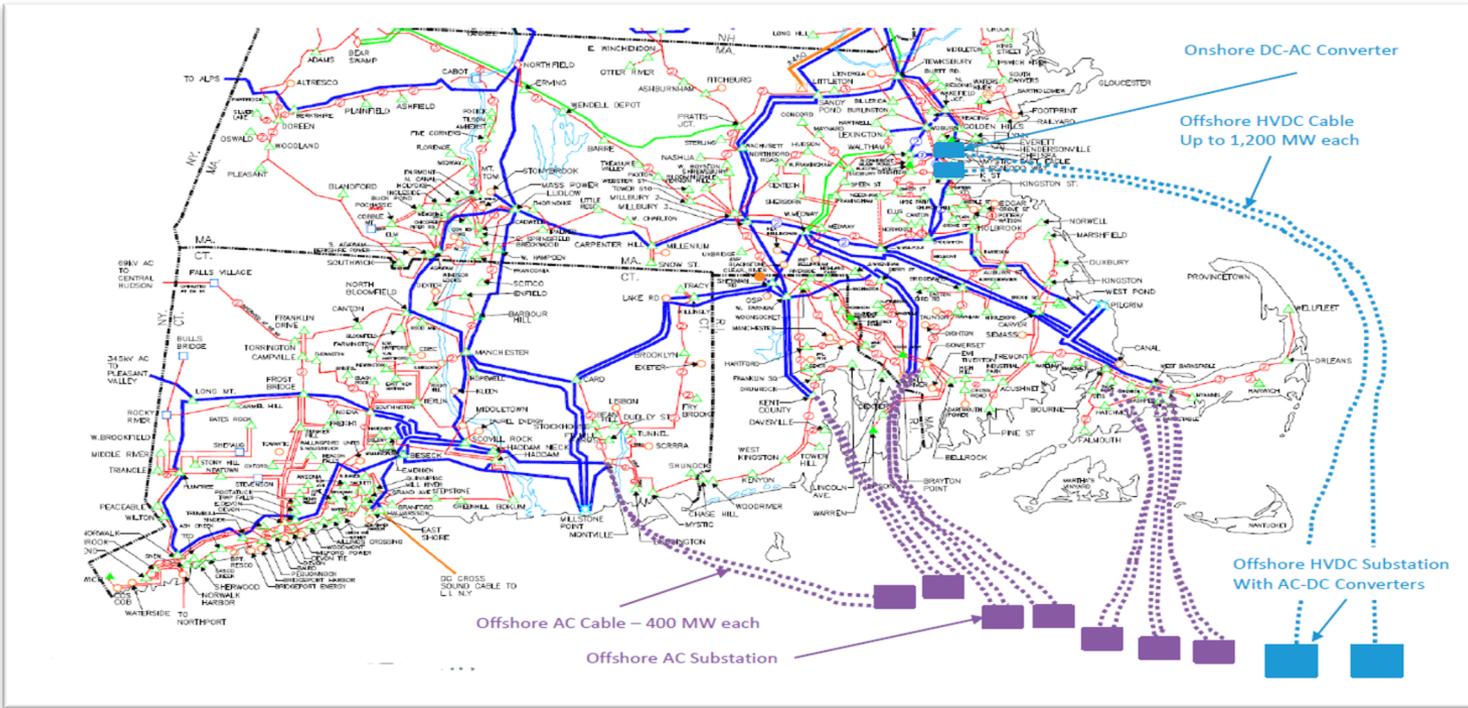
**OCTOBER 13, 2021**

# 2050 Decarbonization Roadmap

- Decarbonization requires a comprehensive plan focused on a **rapid deployment of renewables**—
  - the siting and construction of offshore wind and ground-mounted solar generation at scale,
  - reliable balancing, and
  - planning for limited land and bioenergy resources.
- Meeting Net Zero Target will require a **transformation of energy systems** with impacts to energy flows, demand and supply, and costs
- Coordination across the Northeast will be necessary to transition to a clean, affordable, and reliable low-carbon, 21st century grid, including system planning and development of new markets by the grid operation



# Offshore Wind (OSW) Transmission

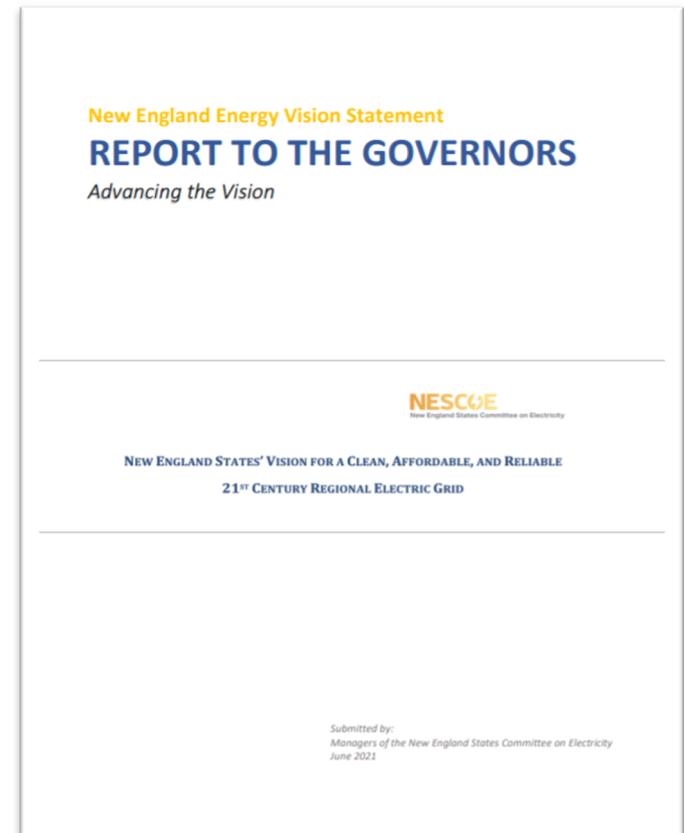


- From ISO NE's 2019 Economic Study. Conceptual application of offshore cable technology using AC and DC submarine cables.

- Transmission Constraints.** While MA has currently authorized up to 5,600 MW of OSW energy – already the 1,600 MW through Vineyard Wind 800 MW and Mayflower Wind 800 MW projects is revealing onshore transmission constraints. MA also has authority for a “transmission only” solicitation.

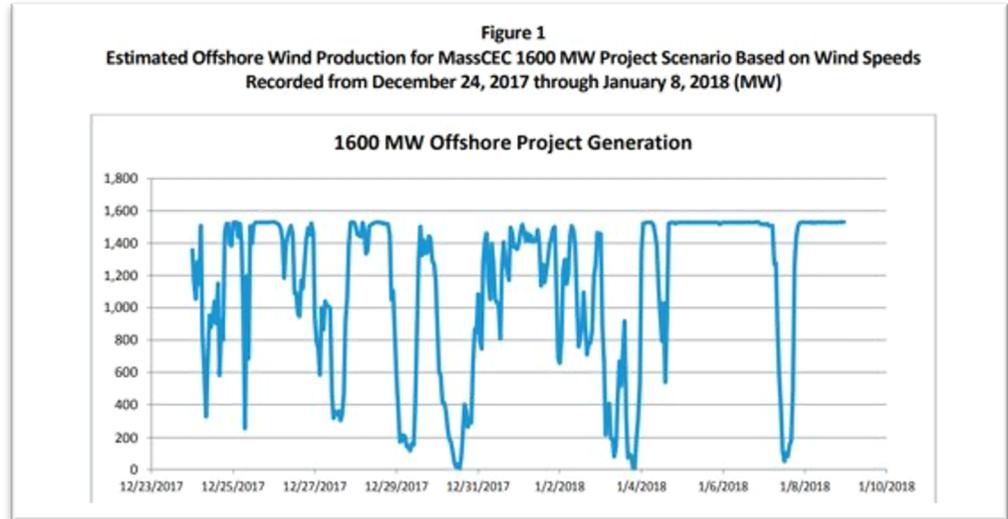
# NESCOE Vision

- Recent NESCOE Vision document signed by five New England governors provides states' recommendations to ISO-NE:
  - Conduct a comprehensive long-term regional transmission planning process to integrate the new offshore wind resources necessary to meet state policy goals
  - Modernize wholesale market structures to accommodate state clean energy goals
  - Increase transparency and state voices in ISO governance

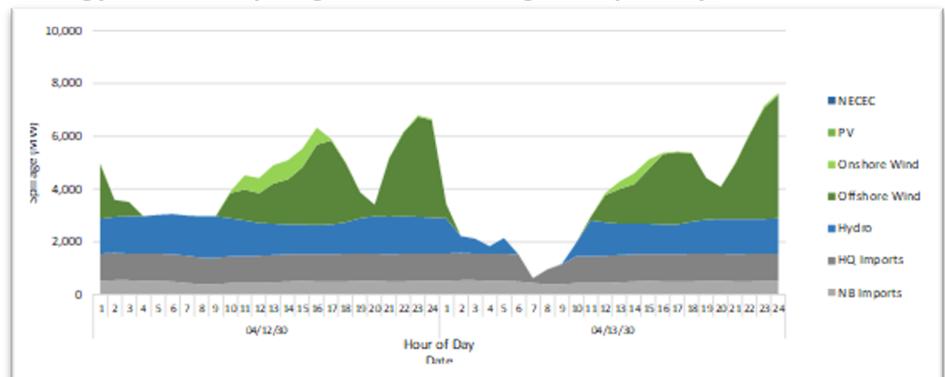


# OSW Load Variation

- Planning for Offshore Wind Integration requires consideration of multiple variables:
  - Hourly output & seasonal variation
  - Demand and minimum load (grid cannot absorb all the energy produced on high output, low demand days)
  
- Grid technologies can help maximize use of the existing transmission network:
  - Energy storage (shift resource output to align with peak demand periods)
  - Flexible load (align demand with high output periods)



**Energy resource spillage of the two highest spill days**



Source: ISO-NE 2019 NESCOE Economic Study <https://www.iso-ne.com/system-planning/system-plans-studies/economic-studies/>

**THANK YOU!**