

# Offshore Wind in Massachusetts



# MassCEC - Offshore Wind

**Advance a new industry by working to reduce project risk, increase market confidence, and support the economic development opportunities of the offshore wind sector, including training a workforce to meet specialized needs and supporting the growth of a mature supply chain**

## PLANNING, ANALYSIS & ENGAGEMENT

Advance technical projects and stakeholder engagement on marine wildlife, fisheries, habitat, met-ocean, and transmission.

## SECTOR DEVELOPMENT

In coordination with partner agencies, expand manufacturing, suppliers, services, infrastructure and grow a well-trained and highly-skilled workforce.

## RESEARCH & INNOVATION

Support for and collaboration with institutions, industry, and government to advance technology innovation, learn from early deployments, and expand offshore energy research in the Commonwealth.

# Offshore wind: Local energy resource solution



- Significant local renewable resource, close to “load”
- Essential to meeting GHG reduction/net-zero goals
- Regional retirements create room for new generation
- System benefits
  - Competitive pricing
  - Production profile coincident with winter peak demand
- Economic impact
  - OSW project development, construction, and operations: 45,000 - 83,000 jobs in U.S. by 2030
  - Investment in U.S. OSW industry will deliver \$12.5 - \$25.4 billion per year in economic output by 2030

# US offshore wind market

	State target (MW)	MW selected (offtake)
Maine	-	~10
Massachusetts	3,200	1,600
Rhode Island	430	430
Connecticut	2,000	1,100
New York	9,000	1,826*
New Jersey	7,500	1,100*
Maryland	1,200	368
Virginia	5,200	2,652
<b>Total</b>	<b>28,530</b>	<b>9,086</b>

WIND TECHNOLOGY  
TESTING CENTER







NEW BEDFORD  
MARINE COMMERCE  
TERMINAL



Block Island  
Wind Farm



- 7 LEASE AREAS
- 1,418 MILES<sup>2</sup>
- 4 DEVELOPER TEAMS
- 6 PROJECTS SELECTED
- 4,110 MW CONTRACTED

-  Ørsted
-  Vineyard Wind
-  Equinor Wind US
-  Mayflower Wind Energy



# Massachusetts OSW procurements



- 2016 statute – DOER and utilities to solicit 1,600 MW of *cost-effective* offshore wind
- 2017/2018 – 1<sup>st</sup> RFP for long-term offshore wind energy contracts
  - Vineyard Wind 800 MW project
  - 8.4 cents/kWh
- 2019/2020 – 2<sup>nd</sup> RFP for long-term for offshore wind energy contracts
  - Mayflower Wind 800 MW project
  - 7.8 cents/kWh
- Eliminate 3.36M tons CO2 annually (750,000 cars/year)
- Create more than 9,000 local jobs

# Planning, analysis & engagement



- Large whales and sea turtles
  - 6th campaign in long-term partnership between MassCEC, BOEM, and New England Aquarium
  - Funding support from OSW leaseholders
- OSW/fisheries studies
  - Regional pilots addressing priority gaps and needs
  - 5 awards announced in May 2020
- Regional wildlife science entity for OSW
  - Collaboration on regional monitoring and research
- Stakeholder engagement
  - Dec. 2019 – Gulf of Maine Task Force launched
  - March 2020 – MA OSW Transmission Technical Conference

# Sector development



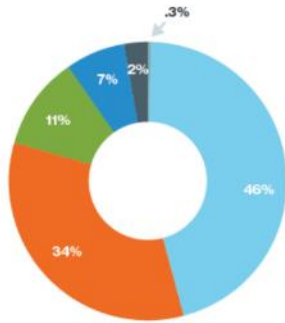
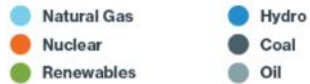
- Workforce
  - Implementing inaugural programs (2019-2020)
    - Safety and technical training
    - Education programs and certificates
  - Recent MassCEC grant awards
    - Cost-share w/ Vineyard Wind and Mayflower Wind
    - Partnerships between local training providers and OEMs/Tier 1 suppliers
    - Upskilling fishermen for access to offshore wind jobs
- Supply chain
  - New OSW Supply Chain Directory platform [directory.masscec.com](https://directory.masscec.com)
  - Forums, events, and B2B matchmaking
  - OSW supply chain assessment initiative



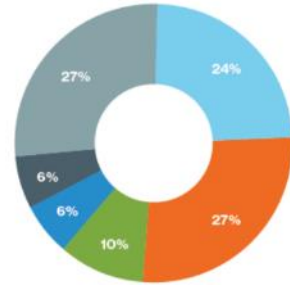
# Transmission studies

## Oil Generation is High During Extreme Winter Cold

Oil generation was 27% of the regional fuel mix during the cold spell of winter of 2017/2018 compared with 0.3% for most of the month of December.

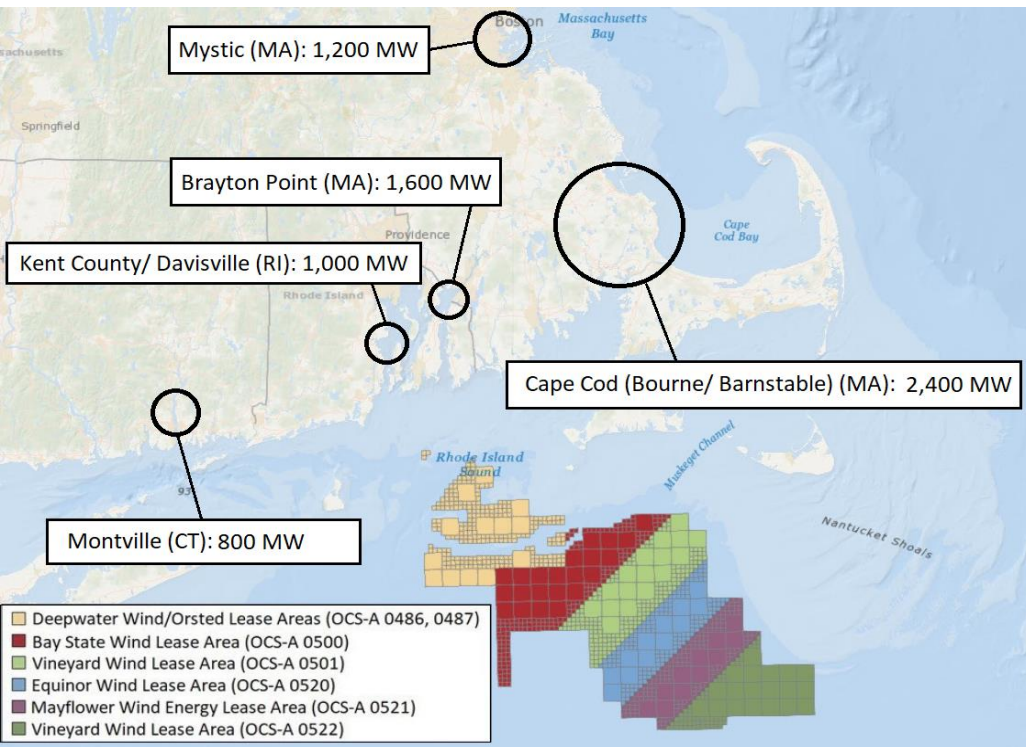


Average Fuel Mix for Most of December 2017 (Dec. 1-26, 2017)



Average Fuel Mix for Extreme Cold Spell (Dec. 26, 2017 to Jan. 9, 2018)

Source: ISO-NE



- ISO-NE assessment of OSW additions during 16-day severe cold spell in winter of 2017-18
  - Displaces significant fossil fuel generation
  - High capacity factor, cost savings, emissions avoided
- ISO-NE study: integration of 7 GW of OSW by 2030
  - 5.8 GW to specific interconnection points without significant upgrades to the onshore transmission network
  - After optimal interconnection capabilities are utilized, significant upgrades are required:
    - AC expansion of onshore grid
    - HVDC connections to farther locations
    - ~ \$1billion for each 1.2 GW

# Independent transmission investigation



- 2018 statute - Increase OSW goal to 3,200 MW and included provision that DOER may require utilities to solicit and procure independent OSW transmission
- DOER investigation:
  - 1<sup>st</sup> Request for comment - Jan. 2020
  - Massachusetts OSW Transmission Technical Conference - March 3, 2020
    - Technical session with experts
    - Moderated panel on potential separate transmission solicitation
  - 2<sup>nd</sup> Request for comment - March 2020

# Independent transmission findings



- DOER findings – July 28, 2020
  - Costs and risks of conducting an independent OSW transmission solicitation outweigh benefits
    - Statute limits procurement to 1,600 MW
    - At this size, similar benefits from coupled and separate solicitations
    - Risks: coordination between separate projects; contracting and permitting challenges; delaying future OSW generation procurements
  - Next procurement for the full 1,600 MW currently authorized
    - Provides option for HVDC solutions
    - Allows for interconnections at maximum capacity ISO-NE (1,200 MW)



# Thank you



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