Topics

- Drivers for Offshore Wind
- Siting
- Market
- Supply Chain and Jobs
Drivers for Offshore Wind
How We Look at Offshore Wind

- Huge Resource, Close to Load
- Massachusetts-Made Energy
- New Industry & Local Jobs
- Competitive Pricing
- Regional Generation Retirements
- Climate Change
4,200 MW, almost 15% of the region’s current generating capacity, will retire between 2012 and 2020.

- **Brayton Point Station** closed in 2017 and **Pilgrim Nuclear Power Station** is scheduled to close in 2019. . . . will remove 2,200 MW
Global Warming Solutions Act

- Enacted 2008
- Mandate:
  - Reference 1990 baseline emission levels
  - 25% reduction in 2020
  - At least an 80% reduction in 2050
Offshore Wind Siting
Offshore Wind Stakeholder Engagement

- MA - BOEM Task Force with Federal Agencies, Native American Tribes, State, Local (EEA/CZM/MassCEC) commenced in 2009
- Convened over 100 public & stakeholder meetings
- Lead Fisheries & Habitat Working Groups
- Reduced OSW Area by 60%
Ongoing Fisheries Engagement

- Access and Use Issues
  - Transit lanes for return to port in foul weather
  - Turbine array alignment and fishing access

- Regional Fisheries Monitoring
  - In 2018, Massachusetts and BOEM committed funding for pilot regional monitoring projects
  - Coordination with BOEM, NOAA and Mass. Division of Marine Fisheries

September 2018 transit lane proposal.
Wildlife Surveys

**Large Whales and Turtles**
*New England Aquarium*
- 7-year effort in partnership with BOEM and EEA
- Aerial Surveys and passive acoustic monitoring

**Avian**
*College of Staten Island*
- 3-year effort in partnership with BOEM and EEA
- Aerial Survey

**Benthic Survey**
*UMass Dartmouth, SMAST*

Market
States are the Pathway to Market

Massachusetts Legislation
- Aug 2016, Governor Baker signed bill to require utilities to solicit 1,600 MW of cost-effective OSW by 2027.
- Aug 2018, Governor Baker signs bill to increase procurement to 3,200 by 2035. Requires DOER analysis and recommendation.

Regional OSW Procurements
- MA selected Vineyard Wind 800 MW at a levelized cost of 6.5 cents/kWh
- RI selected Deepwater 400 MW
- CT selected Deepwater 200 MW (Increased to 300 MW in Dec. 2018)
- NY’s first procurement in process – 800 MW
- 2nd MA RFP to be issued by June 2019

2014 Offshore Wind Transmission Study

www.masscec.com/osw-transmission
Metocean Data Measurement

**Purpose**
Collect accurate hub-height wind resource data applicable to the wind energy areas

**Background**
- Partnership w/ MassCEC, Woods Hole Oceanographic Institution, AWS Truepower
- Data collection commenced Oct. 2016 at WHOI’s Air-Sea Interaction Tower just South of Martha’s Vineyard
- Data is publicly available

**Year 1 Results (October 2017)**
- Measured Avg. Speed: **9.7 m/s @ 110m**
- Long Term Avg. Speed: **9.5 m/s @ 110m**
- Developed new regional wind map: Long-term annual average speeds of approximately **9.8 to 10.2 m/s** at 110m across the MA Wind Energy Area.

Supply Chain and Jobs
Infrastructure Investment

Wind Technology Testing Center
Largest wind turbine blade testing facility in North America, located in Boston’s Charlestown neighborhood.

www.masscec.com/wttc

New Bedford
Marine Commerce Terminal
Heavy-lift facility designed to support staging & deployment of OSW projects and handle other marine cargo, located in New Bedford Harbor.

www.masscec.com/nbmcct
Marshalling Port Commitment

- December 2017: MassCEC signed identical Option Agreements with each of the three MA developers
  - Signed by Bay State Wind, Deepwater Wind, and Vineyard Wind
  - Developer can exercise the option only after MA 83C bid selected for negotiation with utilities
- Rent is flat-fee and all-inclusive
  - NO separate dockage, wharfage, or other vessel fees charged by MassCEC
  - The only additional costs include security fees and utilities
- September 2018: MassCEC & Vineyard Wind executed lease
  - $6 million/year
  - December 2020 – May 2022

Signing of Letter of Intent with developers in September 2016
While the New Bedford Terminal will host a majority of OSW activities, industry identified a need for additional locations for manufacturing and staging of foundations and other turbine components, as well as O&M.

MassCEC hired Apex-Ramboll-Institutes team to evaluate existing port and waterfront infrastructure in Massachusetts for private investment.
Supply Chain Development

- 2017 & 2018 Supply Chain Forums – connecting the industry with Massachusetts manufacturers, service providers, suppliers and organizations; next forum June 2019

- Compiled the MA OSW Supply Chain Directory, an inventory of local companies’ contact information and capabilities

- Agency-to-Business engagement to connect companies with Mass. economic development incentives

www.masscec.com/osw-supply-chain
Deployment of 1,600 megawatts of offshore wind will:

Create Jobs

- **2,270** to **3,170** job years during construction
- **6,870** to **9,850** job years when including all economic impacts
- **140** to **255** O&M jobs created, sustained annually over 25-year project life

Recommendations

- Target high priority occupations: water transportation workers, trade workers, and O&M workers
- Invest in courses and facilities to provide O&M and installation technicians with appropriate industry-recognized training
- Consider capital investments to leverage private sector investments in OSW health and safety programs

MassCEC 2018 Workforce Solicitation

- MassCEC funding for development and implementation of workforce training programs for offshore wind
  - $400,000 available in FY19
  - Potential additional funding from Vineyard Wind

- Types of applications received (November 2018)
  - Basic safety training; basic technical/skills training – trades
  - Professional training – certificates and degrees
  - Career introduction courses – HS, voke school, college level

- Coordinate with and complement company-specific technical training
Research and Innovation

- Massachusetts Research Partnership
  - Objective: Make Massachusetts a major national and international hub for offshore wind research
  - Convening sponsor for POWER-US: a national Partnership for Offshore Wind Energy Research
    [https://www.power-us.org/](https://www.power-us.org/)

- National Offshore Wind R&D Consortium
MassCEC Offshore Wind Team

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