Overview of Marine Renewable Energy Activities in Massachusetts

3rd Biennial Martha’s Vineyard Coastal Conference
Overview

• Drivers: climate goals and policies

• Summary of marine renewable energy types

• Offshore wind
  • Planning and siting
  • Leasing and energy contracts
  • Next steps
Climate change

- Global climate change presents a serious threat to Commonwealth’s environment, residents, communities, and economy
- Generation and consumption of energy continues to be a significant contributor to GHG emissions
- Great potential for reducing emissions through continued diversification of energy portfolio
- Some marine renewable technologies offer significant potential for sustainable energy
- Need for responsible development and to protect natural resources, ecosystems, and marine uses
Offshore wind: policy drivers

• **Global Warming Solutions Act** – economy wide emission reduction goals:
  - 25% below 1990 levels by 2020
  - 80% below by 2050

• **Renewable Portfolio Standard** –
  - 2017 - RPS is 12%
  - 2050 - RPS will be 45%

• **Regional Greenhouse Gas Initiative** – cap and trade agreement by 10 states

• **Energy Diversity Act** – requires utilities to solicit 1,600 MW of cost-effective offshore wind between 2017-2027
  - Solicitation issued on June 29
  - Proposals due December 20
  - Selection on May 23
Marine renewable energy

- To meet state and regional goals, marine renewable energy needs to be part of renewable energy portfolio
- Offshore wind – maturing industry provides the greatest potential for significant power
- Marine hydrokinetic (includes tidal and wave energy) – generally in research and development stages
Offshore wind energy

- Winds are stronger and more consistent off coasts
- Close to energy loads
- Wind turbines installed on fixed or floating foundations
- Maturing industry in Europe and China, and expanding
- Primary foundation types: monopile, jacket, gravity, suction
- Technological advances for larger turbines: 9-12 MW
Hydrokinetic energy

- Several areas in state waters with very high tidal current velocities
- Wave resources exist but not as high compared to other geographies
- 3 FERC preliminary permits – all expired or not renewed
- Only a few full-scale devices have been installed
- Progress but industry still at early stages, more R&D
Planning, siting and management

- Given potential for impacts to natural resources and conflicts with existing water-dependent uses, planning and siting is critical
- State waters: MA Ocean Plan; CCC and MVPC regional plans
- Federal waters (OCS) – BOEM
- Tidal energy – FERC
- Northeast Ocean Plan
Offshore wind: OCS process

• Bureau of Ocean Energy Management (BOEM) responsible for renewable energy development on Outer Continental Shelf (OCS)
  – 2009: Formation of Intergovernmental Task Force to advise BOEM in the planning, siting, and analysis of offshore wind
  – 2010-2011: Request for Interest; Call for Interest and Nominations
  – 2011-2012: Identification of Wind Energy Areas
  – 2013 and 2015: Competitive auctions / lease sales
Request for Interest area

Call for Interest and Nominations area

Wind Energy Area
Offshore wind: stakeholder groups

• To augment federal process, MA convened two groups to engage stakeholders on fisheries and marine habitat issues:
  – **Fisheries Working Group on Offshore Wind Energy**: commercial fishermen and reps from different ports and sectors, recreational fishermen, scientists, and state and federal agencies
  – **Habitat Working Group on Offshore Wind Energy**: scientists and technical experts from environmental organizations, academia, and state and federal agencies
Environmental studies

- State and federal investment in marine wildlife surveys and characterization work
- Gap survey in 2010 to identify available data and needs
- Marine mammals and turtles – 4 years aerial survey + 3 years passive acoustic
- Marine avifauna – 3 years aerial survey
- Benthic characterization – 2 years
Lease areas
Wind energy procurement

• Baker-Polito Administration announcement: Vineyard Wind selected by electric distribution companies for contract negotiations for 800MW
• Copenhagen Infrastructure Partners and Avangrid Renewables
• Vineyard Power Cooperative – local non-profit energy cooperative
• Construction and Operations Plan (COP) submitted to BOEM December 2017
• NEPA scoping for Draft & Final EIS
Vineyard Wind
Wind energy procurement

- Rhode Island announcement: Deepwater Wind selected for 400MW project through MA procurement process
- RI Office of Energy Resources and Division of Public Utilities & Carriers independently evaluated proposals
- Deepwater Wind enter negotiations with National Grid
- BOEM approved Site Assessment Plan in October 2017
- PPA for 90 MW South Fork Wind Farm approved by Long Island Power Authority
- COPs in development
Orsted Energy – Bay State Wind

• SAP approved by BOEM in June 2017
• Survey work recently completed:
  – Benthic geophysical and geotechnical surveys
  – Avifauna
  – Cable reconnaissance
  – FLIDAR and met buoys operational
• Construction and Operations Plan in development
• Transmission connection proposed to Brayton Point
Proposed sale notice for unleased areas

• Lease Areas OCS-A 502 and 503 went unsold during the 2015 Lease Sale
• On December 16, 2016 and January 4, 2017, Statoil Wind and PNE Wind individually submitted unsolicited lease requests for both lease areas
• At Task Force meeting in May, recommendation to move forward with leasing
• Draft Proposed Sale Notice recently reviewed by Task Force
• Proposed sale notice to be issued in January 2018
• Auction planned for Summer 2018
Thank you

www.mass.gov/ezm/