Agenda

❖ Background and Motivations
❖ The MD/DE Electricity System
❖ Federal Planning Process
❖ Status of the Proposed Offshore Wind Projects
❖ MD-PSC recent decision (August 2020)
Background

❖ **Three Month Research grant ---** First State Marine Wind, University of Delaware
  ❖ Climate change urgencies and low-carbon energy transitions
  ❖ Strong cluster of subject matter experts (Center for Research in Wind)
  ❖ Create informal opportunities for local engagement

❖ **Partners:** DE Sea Grant and CReW
Motivations for Our Research

- Climate change urgencies to reduce CO$_2$ and other GHGs
- Offshore wind = one of the only utility scale low-carbon electricity sources available now
- Establish an independent, science-based voice on siting challenges, benefits, and uncertainties
- Highlight how local communities can engage in the decision process – “early and often”
A transition over the last decade:

- **Imported** natural gas replaced coal
- The share of electricity generated by renewable energy is about 2%
- Electric Power = 3rd largest source of GHG emissions (after industrial #2 and transportation #1)
- Consumes almost 100 times more energy than it produces

Source: Energy Information Administration, Electric Power Monthly

Source: [https://www.eia.gov/state/?sid=DE#tabs-4](https://www.eia.gov/state/?sid=DE#tabs-4)
[https://www.eia.gov/state/?sid=DE](https://www.eia.gov/state/?sid=DE)
MARYLAND and Delaware ELECTRICITY PROFILES

Maryland Net Electricity Generation by Source, Mar. 2020

- Natural Gas-Fired
- Coal-Fired
- Nuclear
- Hydroelectric
- Nonhydroelectric Renewables

Delaware Net Electricity Generation by Source, May. 2017

- Natural Gas-Fired
- Coal-Fired
- Nonhydroelectric Renewables

Source: Energy Information Administration, Electric Power Monthly

DE Legislation -- Renewable Requirements

- Renewable Portfolio Standard = 25% of electricity retail sales from renewable resources by 2025
- Passes in 2005 and increased in 2010
- Key elements include:
  - 3.5 % carve-out for PV solar
  - Encouraging energy-efficient

https://www.eia.gov/state/?sid=DE#tabs-4
LOW CARBON Electricity CHOICES?

- Need to consider ALL viable technology options
  - Utility-scale and community solar
  - Rooftop solar
  - Geothermal
- Offshore wind is one of the only utility scale low-carbon electricity sources available now
  - Near huge coastal electricity loads
  - Large offshore wind resource
  - Buildable continental shelf
  - Can be cost competitive with today’s electricity
BUT…….

• Doesn’t it cost too much? What about natural gas?
• Will it reduce our CO$_2$ and address sea level rise?
• What happens when the wind doesn’t blow?
• Will offshore wind supply make our grid more resilient?
• How will this effect coastal communities?
• What does Delaware get out of this?
Levelized Cost of Electricity

*2019 prices; Price needed to cover required investment returns after all capital, operating, financing and tax costs, excluding subsidies
Source: BloombergNEF

Growth of Offshore Wind Globally
22GW in operation and > 5000 turbines spinning

6.1 GW added in 2019


Edited slide from Ørsted
• Bureau of Ocean Energy Management (BOEM) given authority under EPAct 2005

• 30 CFR 585 released in 2009 provides regulatory framework for federal waters

• Offshore wind lease sales began in 2011

• BOEM works with state task forces prior to lease area designation

• 16 lease areas have been sold in public auctions

• **Call areas (13)** are nascent ocean tracts under consideration for possible leasing
U.S. State Offshore Wind Policy Commitments

- Over 22,000 MW committed by 2035
- Almost 14,000 MW committed by 2030
- 8 states
- $80 Billion in gross revenue possible
- Global forecasts predict 154 to 193 GW of Offshore Wind by 2030 and 500 GW by 2050
- Regulatory project pipeline for U.S. is calculated at 25,824 MW.

*Slide source courtesy of NREL. Walt Musial.*
BOEM Planning Process – Public engagement opportunities

- Initiate Leasing Process (RFI/Call)
- Area Identification: Wind Energy Areas
- Publish Leasing Notices
- Lease Granted
- Pre-survey Meetings/Plan
- Site Assessment & Surveys (maximum timeframe)
- NEPA/Environmental Reviews
- Auction
- BOEM Reviews & Approves SAP
- Submit COP (with Project Design Envelope – optional)
- BOEM Deems COP Complete & Sufficient
- BOEM Approves COP
- Installation

PREPARES NEPA DOCUMENTS
PUBLIC COMMENT PERIOD & PUBLIC MEETINGS

Source: Edited Slide from M. Boatman. BOEM
Estimated Decision Timeline

**Planning & Analysis**
- ~ 2 YEARS
  - Intergovernmental Task Force
  - Request for Information or Call for Information and Nominations
  - Area Identification
  - Environmental Reviews

**Leasing**
- ~ 1-2 YEARS
  - Publish Leasing Notices
  - Conduct Auction or Negotiate Lease Terms
  - Issue Lease(s)

**Site Assessment**
- UP TO 5 YEARS
  - Site Characterization
  - Site Assessment Plan

**Construction & Operations**
- ~ 2 YEARS (+25)
  - Construction and Operations Plan
  - Facility Design Report and Fabrication and Installation Report
  - Decommissioning
  - Environmental and Technical Reviews

STATE AND LOCAL PLANNING PROCESSES

• Cable connections
• Land-based O&M and training facilities
• Redevelopment of port facilities
• Coastal Zone Management Act, etc.
Estimated Construction & Operation > 30 years

2 years of construction

25 years of operation

2 years of decommissioning

Stakeholder Engagement

Slide adapted from Offshore Wind Energy Class. University of DE
Delaware and Offshore Wind Working Group

• Gov. Carney established the group (Aug. 2017)
• Submitted a report with recommendations (Aug. 2018)
• Eight formal meetings and four public comment workshops
• Recommended no immediate procurement of offshore wind from a project already approved by another state (Maryland).

Maryland PSC Decision – May 2017
Approved two Offshore wind projects

- Maryland offshore wind target 1568 MW
- Procured by the state so far = 368 MW
- Supported by Offshore Renewable Energy Credits (ORECs) --- bought by utilities
- Delaware & Maryland Wind Energy Areas (leases)
- Ratepayer bill increase by 1.4% or $1.40/month.
MARYLAND LEASE AREA

Fed/State Boundary
Traffic Separation Scheme
Maryland Call Area
OCS Lease Blocks
Official Protraction Diagram

Nautical Miles
Kilometers
US Wind - Maryland Wind Energy Area

- Off of Ocean City and as far north as Fenwick Island
- 248 MW --- Either 30 - 8 MW or 20 -- 12 MW
  - Turbine size TBD
- Could provide power to an ~ 76,000 homes
- Proposed distance to shore has varied from 12 – 17m
- Italian Developer (Toto Construction) with an office in Baltimore
Maryland PSC Decision – May 2017
Delaware Wind Energy Area

- Danish Developer Ørsted (Skipjack project)
- 120 MW = Ten -- 12 MW turbines
- Powers 35,000 homes
- 20 year contract @ 2023 Price is $171.30/MWh rising 1%/year to $206.95 in 2042
Delaware Wind Energy Area

- Closest point to the DE coast estimated at 19m
- Underground cable to shore proposed in Fenwick Island State Park – now cancelled
- Installation & commercial operation projected – 2023
MD-PSC Process

• January 18\textsuperscript{th} Hearing, Ocean City

• June Evidentiary Hearing (see Rosemary’s excellent summary)

• Approved GE 12MW Turbine
• Reduces total number of turbines (15 to 12?)
• This could modify visual impact
• Stakeholder engagement was “deficient” & now will be documented
STATUS OF THE PROJECTS

Skipjack  ---  Developer, Ørsted
  ▪ Submitted construction and operation plan (COP)
  ▪ Selected & approved 12 MW turbine
  ▪ Committed $13.2 million infrastructure investment (thus far)

US Wind (Marwin)  ---  Developer, Toto
Construction
  ▪ Propose using a FLiDAR (MET tower cancelled)
  ▪ Turbine not selected and COP not submitted
How can Delaware reap some of the potential benefits?

• Reduce greenhouse gas (GHG) emissions & other pollutants
• Reduce regional water consumption
• Reduce electricity transmission congestion in Delmarva Peninsula
• **Realize economic development commitments**
  • Port developments
  • Community financial benefits
  • Suppliers

L-R
Mayor Becker (Lewes), Bonnie, Former Mayor Kuhns (Rehoboth), Dr. Jame McCray (DE Sea Grant), Jen McCann (RI Sea Grant)
How can the DE community address the potential challenges?

- Understanding the dynamic public & political process of clean energy options
  - Legal processes
  - Local social & traditional media
  - Sensitivities to local perceptions of being marginalized
- “Early and often” engagement essential
- Participating in public engagement opportunities & NEPA decision points
How can the DE community address the potential challenges?

- Building the knowledge base quickly and with transparency
  - Trust in science & the NEPA process
  - Recognize uncertainties
- Exploring the prospects of community benefit packages with the developers
  - The experience of East Hampton (Ørsted’s project)
  - [https://southforkwind.com/about-south-fork-wind](https://southforkwind.com/about-south-fork-wind)
- PART 2 – November 6th
What are some future activities to watch?

• Existing MD commitments cover 368 MW, but their goal is 1568 MW (400MW by 2026)
• Alternative substation and cable connect locations on the DE shore
• Location of Operation and Maintenance (O&M) facility (now obligated in Ocean City)?
• Additional state/utility purchases and turbine installations in the existing MD lease areas
  • 750 MW potential for lease = > 62 turbines (US Wind)
• Additional Wind Energy Areas and leases?
Thank you for your attention!

• FAQs link: https://bit.ly/UD_Offshore_Wind_FAQ
• BOEM website: https://www.boem.gov/renewable-energy
WHERE ARE WE NOW?

| COP Submittal | Completeness and sufficiency review |
| Public Scoping | Publish Notice of Intent in *Federal Register* |
| | 30-day public comment period |
| | Hold public meetings |
| | Receive input on issues and alternatives |
| Draft Environmental Impact Statement | Prepare with cooperating agencies |
| | Publish Notice of Availability in *Federal Register* |
| | 45-day public comment period |
| | Hold public hearings |
| Final Environmental Impact Statement | Address public comments with cooperating agencies |
| | Publish Notice of Availability in *Federal Register* |
| Record of Decision | “One Federal Decision” |
| | Minimum 30-day wait period |

Figure 5: Timeline of NEPA process and steps for each stage of the process.