



Virtual Offshore Wind Energy Laboratory and Simulator

VOWELS



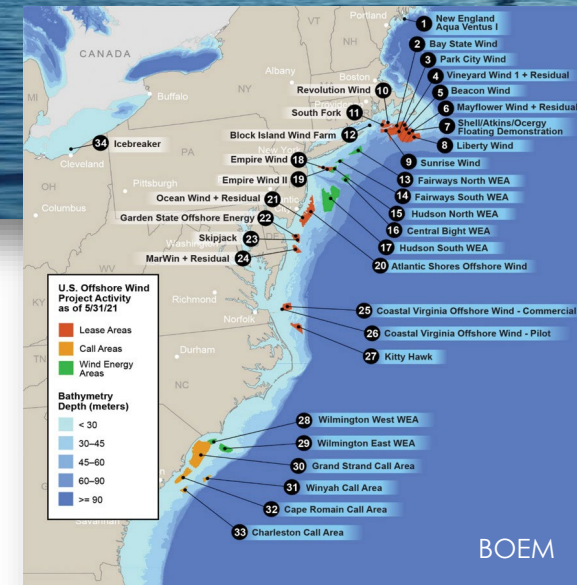


AGENDA

- ▶ **Program Overview & Role of Advisory Committee**
- ▶ **Dashboard Demo & Description of Forecasting Approach**
- ▶ **Summary of Current Offshore Wind Research**
- ▶ **Overview of the Weather Innovation and Smart Energy & Resilience (WISER) Program**
- ▶ **Q&A Session**

VOWELS Objective

- Improve our understanding of the dynamics of offshore wind generation and grid integration...
- giving special attention to high impact, low probability weather-driven events...
- in the New England—NY—Mid Atlantic region.



Goals

- Promote a smoother, more predictable integration of offshore wind
- Catalyst for research & collaborative activities addressing industry concerns related to weather-related events



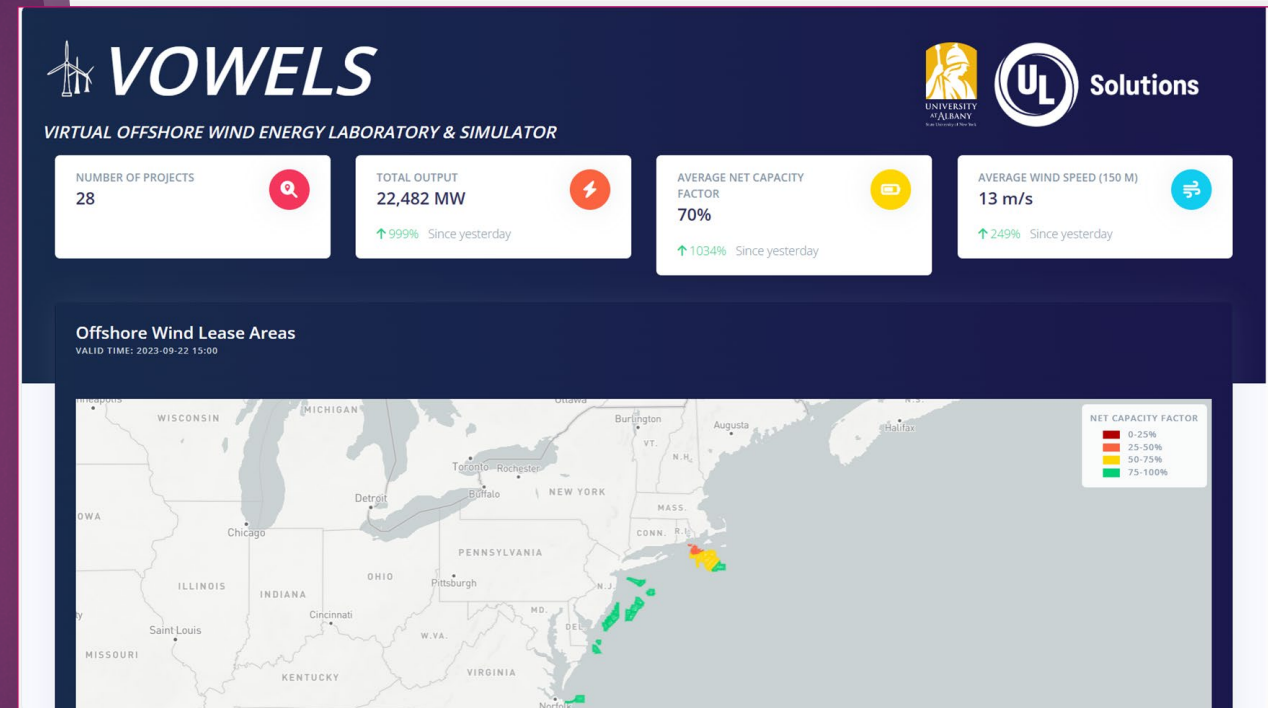
“Laboratory” research topics:

- Extreme winds & storms
- Large ramps
- Sea breezes & low-level jets
- Lightning
- Wind droughts
- Predictability of high impact events
- Coincidence with load & renewables
- Affects of climate change



“Simulator” component:

- Modeling output of planned projects in real-time via online **VOWELS dashboard**
- Forecasts by **UL Solutions**
- Power output & weather data
- Current, previous & next 24 hrs
- Wind project details
- Future clearinghouse for relevant research & other information



Advisory Committee

- Forum to address regional offshore wind generation & integration insights and concerns among stakeholders
- Networking & collaboration
- Guide research area priorities
- Access to Dashboard
- Meetings ~3X/year

