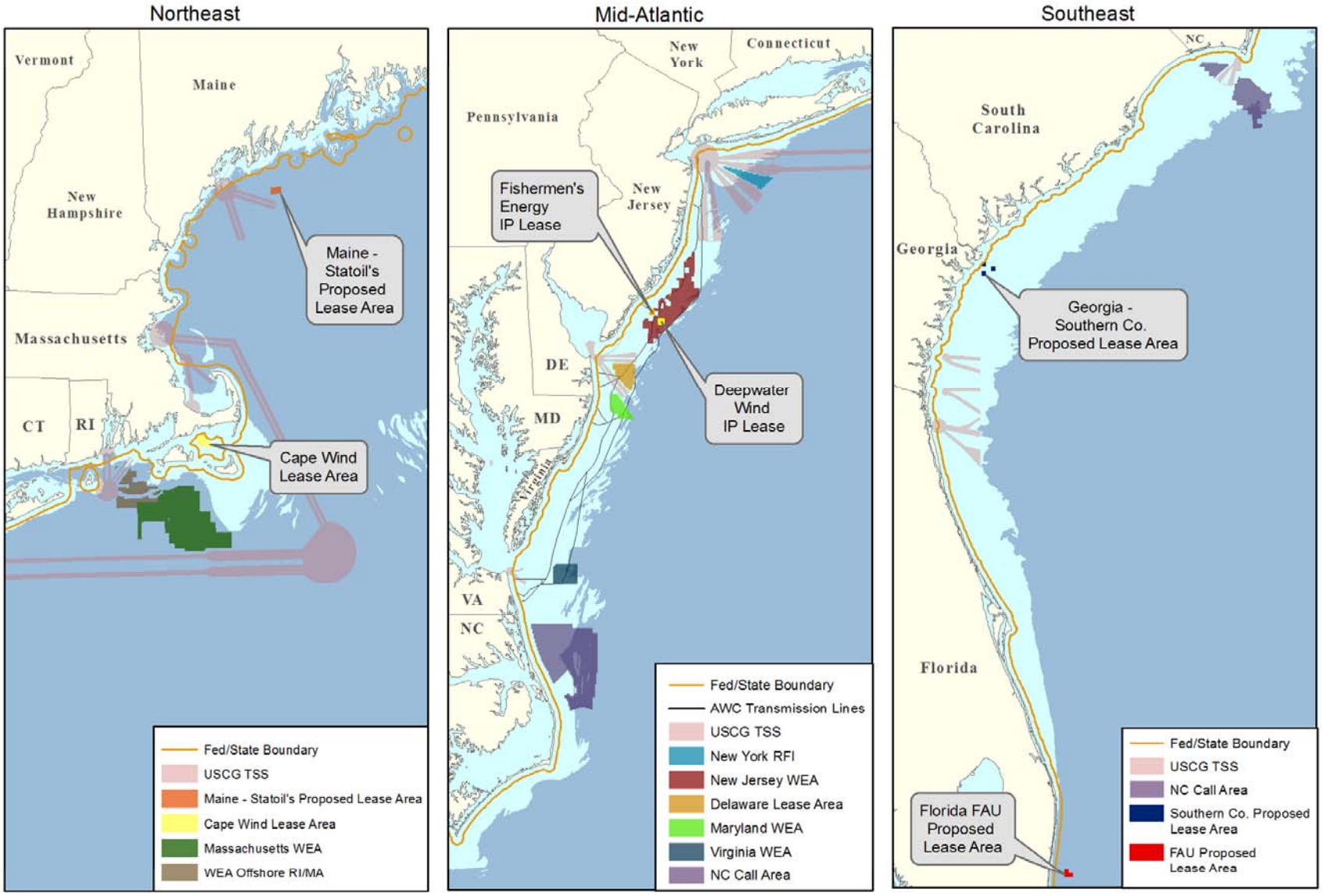
BOEM Update *Offshore Renewable Energy Research*

MARINE BOARD SPRING MEETING
April 10-11, 2013

Atlantic OCS Wind Energy Program - Maine to Florida



Standards Development & Research to Date

- Project: 528 Comparative Study of OWTG Standards (MMI) - **Complete**
- Project: 670 Design Standards of OWT (ABS) - **Complete**
- Project: 651 Evaluate the Effect of Turbine Period of Vibration Requirements on Structural Design Parameters (Applied Physical Sciences Corp) - **Complete**
- Project: 672 Development of an Integrated Extreme Wind, Wave, Current, and Water Level climatology to Support Standards-Based Design of Offshore Wind Projects (Vtech) – **95%**
- Project 709 Example SMS and Audit Criteria/Procedures Template and Checklist - **95%**
- Project: 710 Safety of Renewable Energy Operations in the US OCS(BMT) – **35%**
- Project:705 Design Guide for Station Keeping Systems of **Floating** OWTs(ABS) – **35%**
- Project: 706 Checklist of Items for the Design Basis Document for OWT(ABS) – **50%**

Potential Future Project Topics

- **Advertised**
  - Applicability of existing Geotechnical foundation design codes to large diameter foundations.
  - Development of fatigue design methodology for OWTs.
- **FY'14+**
  - Geotechnical: Assess the affects of long-term cyclic loading on lateral soil strength parameters, investigate methodologies for modeling the affects.
  - Met-ocean: Develop "Regional" n-year met-ocean parameters (Wind speed, Wave heights, Current velocities, Tidal amplitudes) for the various wind planning areas on OCS, determine limits of applicability (proximity to shoreline before coastal roughness impacts are felt).
  - Develop Consensus (US) methodology for estimating wave breaking impacts on OWTs (monopiles, jackets and **floaters**) – Continuation of effort begun in Project 670
  - Evaluate IEC 61400 Type Class requirements for Rotors/Turbines, develop recommendations for ensuring US specific hurricane conditions are covered by the type certification.
  - Convene a panel of experts to audit the CVA effort for Cape Wind Project and recommend CFR language for process improvements and incorporating lessons learned.

TRB Report (305) - recommendations

- **Regulatory Authority exists and is being implemented**
  - Developer is responsible for proposing a comprehensive set of standards, guidelines and recommended practices that conform with BOEM standards. The CVA comments on the adequacy of the proposed standards.
  - The scope of BOEM mandated third party review should include:
    - Blades, blade controls, tower and structural supports, foundation, infield cables and connectors, export cables, and other structural and electrical systems.

TRB Report (305) - recommendations

- **Regulatory Authority exists and is being implemented**
  - The third-party review ensures the following:
    - Design adheres to good industry practice and the basis of the design is appropriate for the location and stated objectives of the project, site-specific conditions have been appropriately addressed, and the identified codes and standards are adhered to;
    - Quality assurance/quality control processes in place to ensure that fabrication and manufacturing comply with the design and identified codes and standards;
    - All transportation and field installation activities are performed in a manner ensuring that the facility meets the design intent.
  - Third-party reviewer provides periodic reports to BOEM with review findings and note any deviations or concerns.
  - Ability to substitute type certification of a wind turbine for portions of third-party design review subject to the type certification matching site conditions

TRB Report (305) - Recommendations

- BOEM should have staff competent to select qualified third parties and to approve projects
  - Beginning to acquire -- Recent FY 2013 personnel hires in response
- BOEM should retain responsibility for final approval
  - BOEM has begun the regulatory process to make changes to 30 CFR Subpart G
- TRB 310 (TA&R project 686) - Regulating Worker Safety in renewable Energy Operations on the OCS
  - Just completed, BOEM/BSEE briefed on findings and will begin review to determine course of implementation

Questions

- State Activities -- http://boem.gov/Renewable-Energy-Program/State-Activities/Index.aspx
- Renewable Techology Studies -- http://www.bsee.gov/Research-and-Training/Renewable-Energy-Research-(REnR).aspx