



Offshore Wind Standards Webinar

Walt Musial

Principal Engineer

Offshore Wind Technical Advisory Panel Chairman

National Renewable Energy Laboratory

September 26, 2017

Purpose of This Meeting

- Inform interested parties of industry plans to create national standards for offshore wind
- Describe methods for industry involvement and participation and determine level of interest

**This meeting is not an official meeting of the
AWEA Wind Standards Committee
or
the AWEA Offshore Wind Technical Advisory Panel**

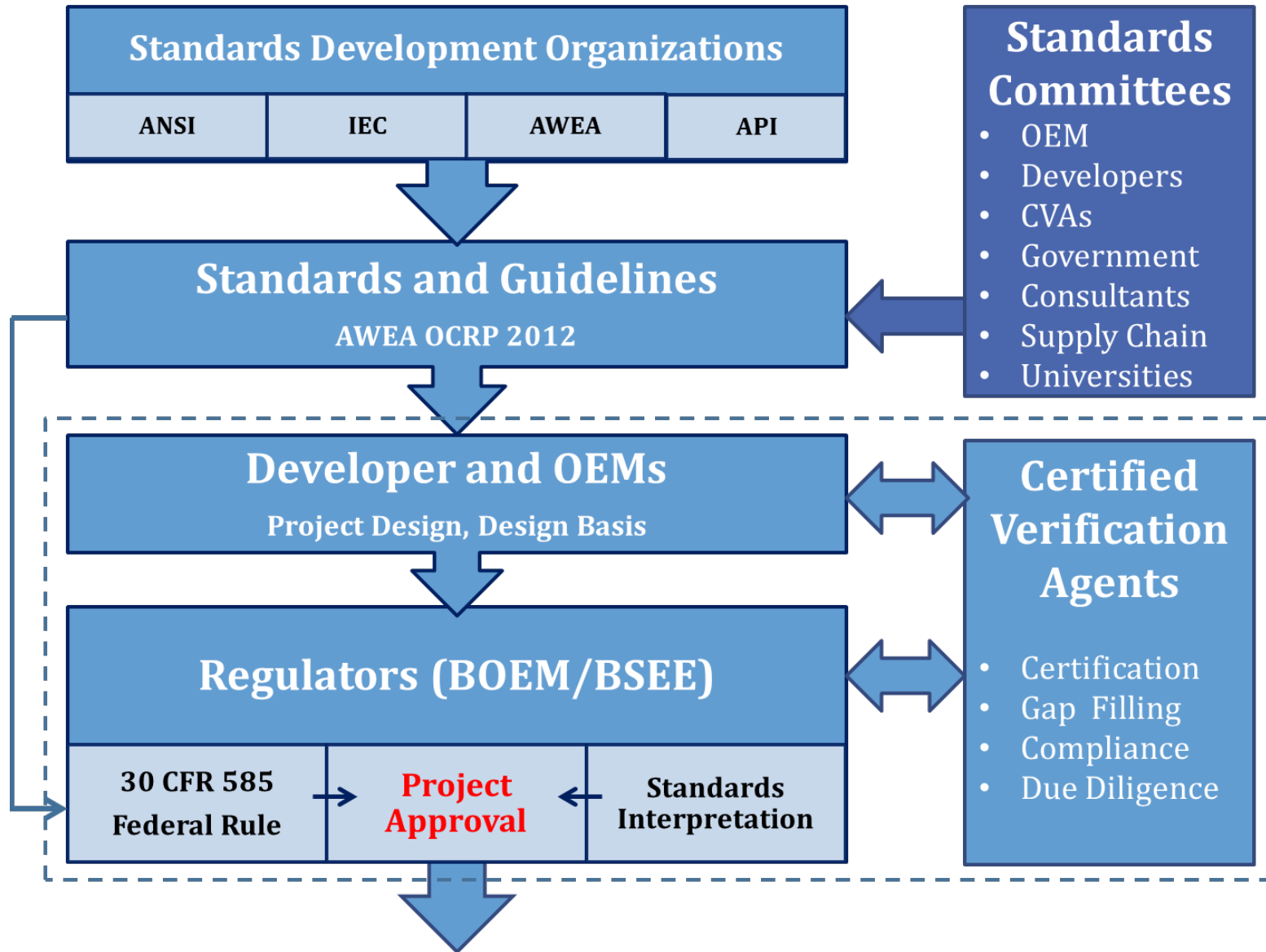
Project Objective

To complete the development of a comprehensive set of consensus-based guidelines and standards to guide the safe and orderly deployment of offshore wind energy that account for the unique offshore conditions on the U.S. Outer Continental Shelf and state waterways

Why do we need U.S. Standards?

- More efficient regulatory process
- More confidence in design approvals for regulators
- Increased clarity for developers and certified verification agents (CVA)
- More transparency and objectivity for public
- Increased safety throughout the life of project
- Lower project cost

Standards Use in U.S. Offshore Wind Project Development



BOEM/BSEE Authority to Regulate Offshore Wind

- Section 8 of the **Outer Continental Shelf Lands Act (OCSLA)**, as amended by Section 388 of the **Energy Policy Act of 2005** authorizes....
- Secretary of the Interior to grant leases, easements, or rights of way on the Outer Continental Shelf for “Offshore Renewables”
- Energy Policy Act of 2005 also requires the Secretary [promulgate any necessary regulations](#) to carry out this authority
- CFR 30 585 rule was issued in 2009 and covers the offshore wind facility development process (cradle to grave) but did not specify specific standards to use

Updating 30 CFR 585 Regulations

- 30 CFR 585 does not recognize any standards or guidelines yet
- There are two ways to adopt new compliance requirements for offshore wind into the regulations in the United States*:
 - 1) Explicit rulemaking.** Regulators, such as BOEM or BSEE, may enact explicit requirements through direct statements made in the 30 CFR 585.
 - 2) Incorporation by reference.** Regulators may refer to existing documents in the CFR, thereby giving them the force of law. Currently AWEA is one of the organizations recognized by the American National Standards Institute (ANSI) which is qualified to write and publish national standards for the wind industry.
- By extension of AWEA's authority, documents or parts of documents can be recognized by regulators in 30 CFR 585.

*Kerns and West (2016) "Offshore Wind Design Tools in the United States: A Modelling State of Practice Report" July 2016

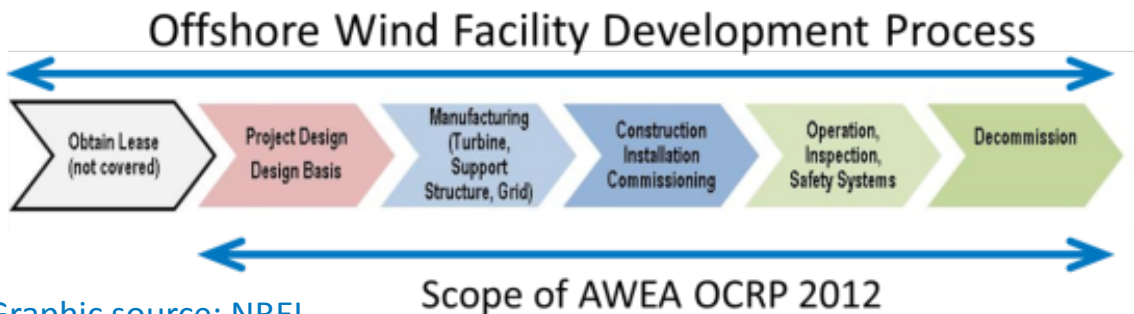
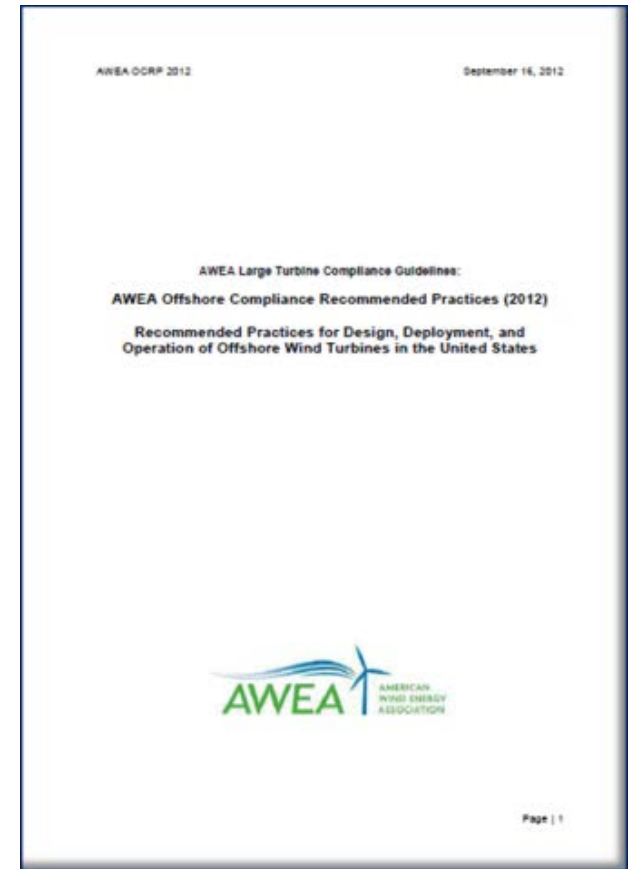
Background for U.S. Offshore Standards

- Offshore wind projects have more regulatory and design complexity than land-based
 - ❑ Greater scrutiny in public space with vast array of stakeholder and existing use challenges
 - ❑ Greater technical complexity (wind/wave load interactions)
- There is no single source from existing standards that sufficiently covers offshore wind turbines
- AWEA OCRP 2012 was published; a consensus-based roadmap for applying “best industry practices” by referring to existing standards and guidelines

AWEA Offshore Compliance Recommended Practice (OCRP) 2012

“Current Best Practices”

- Over 50 stakeholders/subject matter experts participated in AWEA OCRP between 2009 and 2012
- AWEA OCRP was published in October 2012 as a **Recommended Practice Document**.
- AWEA OCRP 2012 was structured as “cradle to grave” document for relevance to BOEM 30 CFR 585
- Dozens of standards, guidelines, and recommended practices from various industries and certifying bodies are cited and mapped to development process through AWEA OCRP



<http://awea.files.cms-plus.com/FileDownloads/pdfs/AWEA%20Offshore%20RP2012%20FINAL%202012%20October%2010.pdf>

AWEA OCRP 2012 is a roadmap on how to use existing standards

Codes and Standards Hierarchy

The Order of Document Priority



AWEA OCRP



IEC 61400-3
IEC 61400-1
IEC 61400-22



ISO 19902



API RP2A

ROADMAP



LOADS



RESISTANCE



US UNIQUE

AWEA OCRP 2012 Deficiencies

Current Guidance	Upgrade Needed
European Experience Only	U.S. Experience needs to be added
AWEA Wind Standards Committee mandates 5 year review cycles	AWEA OCRP is 5 Years old in 2017
Hurricane design guidance is incomplete	Design practices should include best practices and consider all U.S. regions
Floating wind is not considered at all; IEC TC-88 61400-03-2 prepared guideline	Floating market pipeline has tripled since 2015; industry guidance is needed
Guidance on addressing soils and soil/structure interactions not helpful	Detailed attention to geo-technical data requirements is needed
Guidance on addressing ice loading interactions is incomplete	Clarification should be added to AWEA OCRP 2012 on ice load design requirements
Guidance on addressing loading from breaking waves is incomplete	Clarification should be added to AWEA OCRP 2012 on breaking wave design requirements
Guidance on addressing metocean data requirements is incomplete and ambiguous	A guideline is needed to address metocean requirements

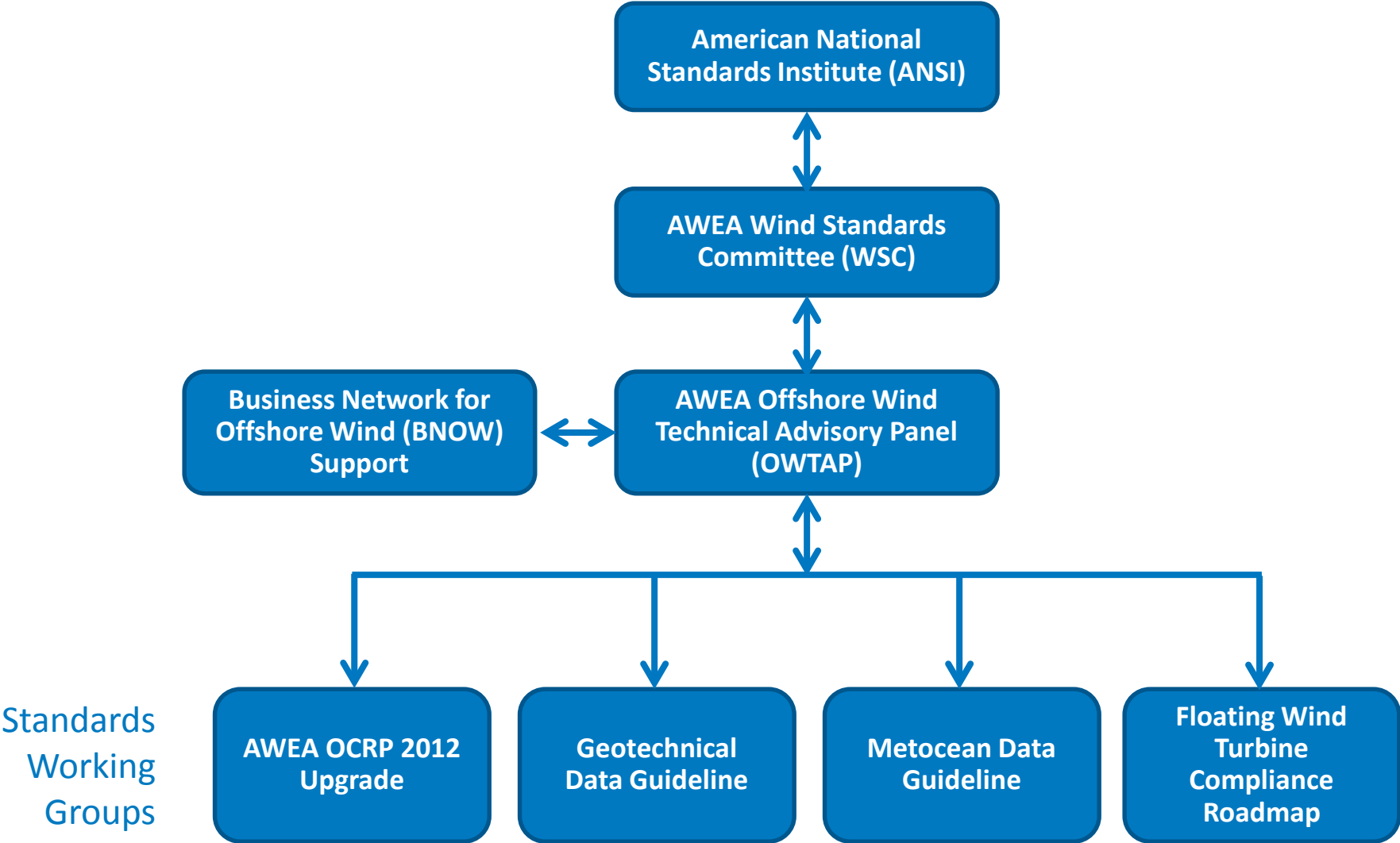
Key U.S. Offshore Activities in the Past Five Years

- Offshore Wind Standards Workshop held June 17-18, 2014 in Arlington VA hosted by BOEM, AWST, and NREL <https://www.awstruepower.com/assets/Offshore-Workshop-Agenda.pdf>
- Annual offshore wind standards meetings have been held at AWEA Offshore Wind Workshops
- Significant progress in API RP2A, IEC 61400-01, 61400-03-1, and 61400-03-2
- Multiple industry projects have progressed including 30 MW Block Island Wind Farm
- Technical Workshop on the “State of Practice of Offshore Wind Design Tools” held on April 27 and 28, 2016 played a critical role in developing next steps for U.S. requirements and standards for offshore wind. Recommendations documented by Kerns and West “Offshore Wind Design Tools in the United States: A Modelling State of Practice Report”
- Offshore Wind Technical Advisory Panel (OWTAP) was proposed to AWEA in December 2016 by BOEM director.
- The formation of the OWTAP was approved by the WSC in a 27-0 -1 vote in September 2017.

Key Recommendations for Standards Development from April 27-28 State of Practice Workshop

1. Form a **technical advisory panel** to oversee the development of offshore wind standards
2. Form a maintenance team to update and **expand AWEA OCRP 2012**
3. Develop a separate guideline on the proper collection, analysis, and interpretation of the various **metocean** parameters required for planning, design, construction, operation, and decommissioning
4. Develop a separate guideline on the proper collection, analysis, and interpretation of the various **geotechnical datum** required to go from planning to design of OWT.
5. Develop a separate guideline as a corollary to AWEA OCRP 2012 on the design, construction, commissioning, and operation, inspection, and decommissioning of **floating offshore wind systems**.

Proposed Offshore Wind Standards Organizational Structure



Role of Offshore Wind Technical Advisory Panel (OWTAP)

- Provide strategic guidance for all U.S. standards and guidelines developed under AWEA/ANSI rules for offshore wind
- Form working groups and approve scope of activities
- Recruit conveners to lead working groups
- Advise working groups on scope, schedule, and content
- Advise WSC and working groups on recruitment of subject matter experts (SME) for working groups
- Review and approve recommended practice and standards documents
- Submit PINS for new work items to AWEA WSC

Proposed OWTAP General Guidelines

- Membership by invitation
- Membership approval through AWEA Wind Standards Committee
- Each regular member of OWTAP has one vote
- One vote maximum per organization
- Regulators (BOEM) participate as non-voting members
- Composition of all sub-committees to follow ANSI/AWEA rules
- All members participate at their own expense
- Members are generally expected to attend two physical meetings per year and quarterly calls – Active membership will be reviewed annually
- BNOW and AWEA will coordinate membership rosters

Role of Working Groups

- Propose technical work scopes for approval by OWTAP/WSC
- Conduct regular meetings and develop guidelines and standards in accordance with approved scope
- Maintain active membership of qualified SME and communicate changes to BNOW and OWTAP
- Maintain document control on web-based collaboration website
- Maintain agreed upon schedules for deliverables

- Serve as administrator of activities to ANSI
- Work with BNOW to communicate with sub-committees, maintain rosters, prepare and distribute meeting agendas, minutes, and materials
- Facilitate the promulgation of new work items, Standards and Recommended Practices to ANSI
- Provide meeting space for working groups and OWTAP at annual AWEA conferences
- Maintain efficient communication with ANSI, BNOW and OWTAP

Timeline and Schedule

- **Public Webinar – September 26, 2017 at 11am ET**
- **OWTAP Planning Meeting – October 23, 2017 NYC**
- **Organize working groups Nov 2017 to April 2018**
- **Working Group Kickoff Meetings- April 3, 2018 – Princeton NJ at International Partnering Forum**

Next Steps

- Establish/Approve OWTAP Committee
- Write work scopes and PINS
- Establish preliminary rosters for working groups
- Please call or email Lizzie Barminski at if you have any questions:

Elizabeth Barminski

Working Group Coordinator & Researcher

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Elizabeth@offshorewindus.org

Poll Questions

- Are you or your organization interested in participating on one of the working groups?
 - Yes
 - No
- What is your primary area of interest?
 - AWEA OCRP 2012 Maintenance
 - Floating Guidelines
 - Metocean Guidelines
 - Geotech Guidelines
 - None

Thank you for your attention

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Photo Credit : Dennis Schroeder-NREL