



Offshore Wind Subcommittee

Walt Musial, Chair

March 28, 2023

Agenda:

March 28th , 2022

1:30 PM ET – 2:30 PM ET

- 1:30 PM: Offshore Wind Standards Overview – Walt Musial
- 1:45 PM: Relevance to the regulatory process and updates – Christy Lan (BSEE)
- 1:55 PM: Working Group Status Update:
 - **Working Group 1:** ACP Offshore Compliance Recommended Practices (ACP OCRP 2012) Maintenance. Presented by: Graham Cranston (DNV) & Rain Byars (Shell)
 - **Working Group 2:** U.S. Floating Offshore Wind Systems. Presented by: Lars Samuelsson (ABS)
 - **Working Group 3:** U.S. Offshore Wind Metocean Conditions Characterization. Presented by: Michael Drunsic (WSP).
 - **Working Group 4:** U.S. Geotechnical and Geophysical Investigations and Design. Presented by: Matt Palmer (Wood Thilsted)
 - **Working Group 5:** U.S. Offshore Wind Submarine Cables. Presented by: Georg Engelmann (Excipio Energy).
- 2:20 PM: Closing Remarks by Walt Musial and Q&A
- 2:30 PM: Adjourn

Background:

BOEM/BSEE Authority to Regulate Offshore Wind

- **The Energy Policy Act of 2005** authorized the Department of the Interior (Bureau of Ocean Energy Management (BOEM)) to grant leases ... on the Outer Continental Shelf for offshore renewables and to promulgate any necessary regulations.
- **30 CFR 585 rule** was issued in 2009 - covers offshore wind facility development process (cradle to grave); does not specify standards – however compliance requires “**Best Practices**” to be used.
- Between 2009 & 2012, the industry developed **AWEA OCRP 2012**; a consensus-based roadmap to facilitate “**best industry practices**”.
- AWEA OCRP 2012 is now outdated and does not comply with ANSI/ACP rules.
- U.S. consensus **Recommended Practices** are under development through the ANSI/ACP process under this initiative. These new documents provide:
 - Guidance to developers, CVAs, and regulators for project design and approval
 - Procedural protections enabling them to be referenced in the U.S. regulations (e.g., 30 CFR 585), and/or
 - Explicitly quoted in U.S. regulations.

U.S. Offshore Wind Standards Initiative

Overall Objective

To develop comprehensive consensus-based U.S. roadmaps under ANSI/ACP rules that navigate the existing standards and guidelines to:

- Facilitate safe designs and orderly deployment of U.S. offshore wind energy;
- Account for the unique constraints of the U.S. Outer Continental Shelf and state waterways, and existing laws,
- Provide the U.S. Department of the Interior (DOI) with industry-led recommendations for “best practices” with procedural protections provided by ANSI approval process.

Why Do We Need These U.S. Standards Roadmaps?

- Increase efficiency in the U.S. offshore wind regulatory **process**.
- Increase confidence in design approvals for **regulators**.
- Clarify regulatory requirements for **developers**.
- Create transparency for the **public**.
- Increase safety for **workers**.
- Lower cost of **projects**.

Organizers and Sponsors

	<p>Walt Musial</p>	<p>Leadership</p>
	<p>Liz Burdock Julia Gerringer</p>	<p>Organizational Support</p>
	<p>Tom Vinson Duane Brown</p>	
	<p>Mike Derby Nate McKenzie</p>	<p>Funding and Technical Advice</p>
 	<p>Dan O'Connell - BOEM Marilyn Sauls - BOEM Cheri Hunter - BSEE Christy Lan - BSEE Mark Kozak - BSEE</p>	

Organizational Structure

**Existing ACP
Standards
Development
Structure**

American National
Standards Institute (ANSI)

ACP Wind Technical
Standards Committee
(WTSC)

Business Network for
Offshore Wind (BNOW)
Support

ACP WTSC Offshore Wind
Subcommittee

**Recommended
Practices Working
Groups**

ACP OCRP
2012
Maintenance

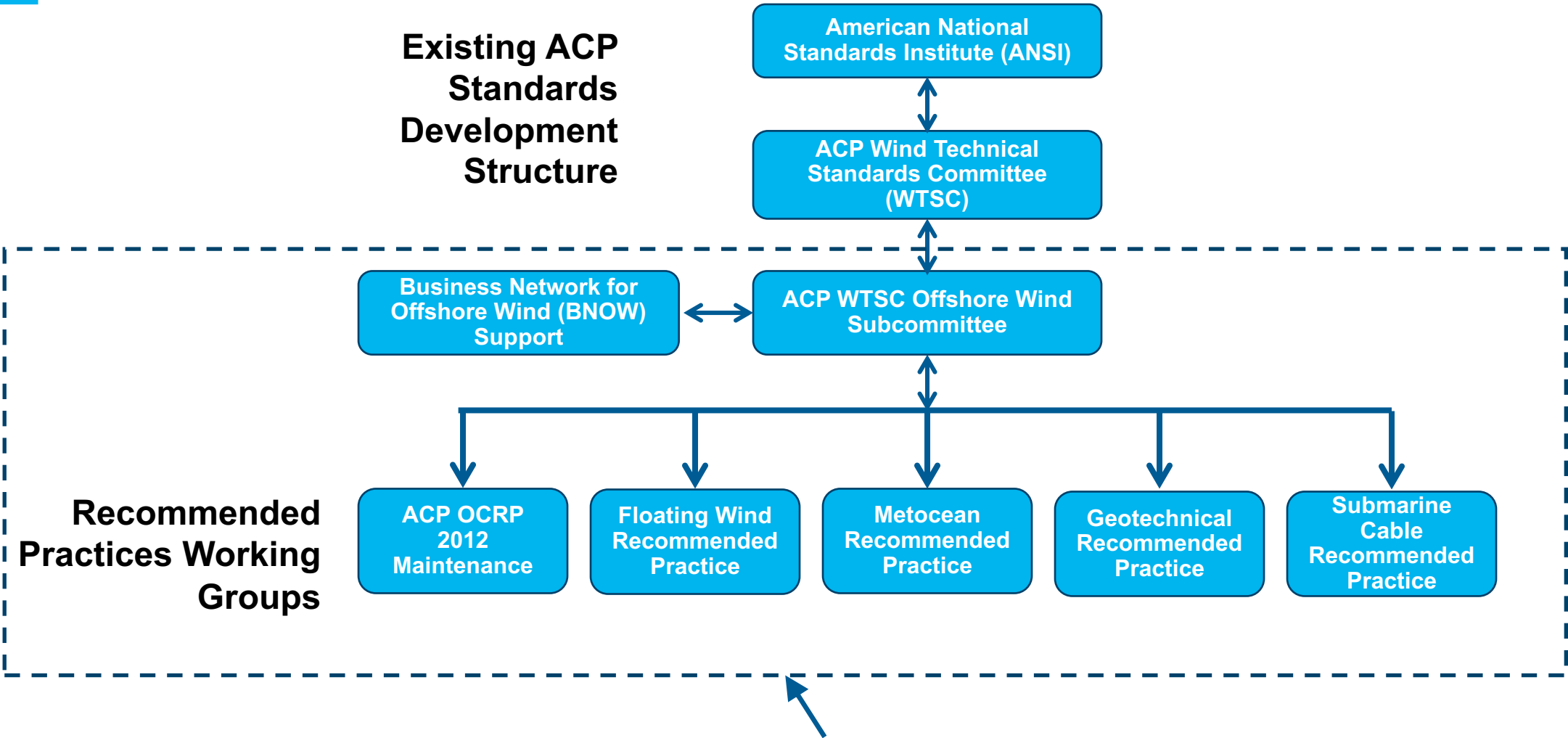
Floating Wind
Recommended
Practice

Metocean
Recommended
Practice

Geotechnical
Recommended
Practice

Submarine
Cable
Recommended
Practice

U.S. Offshore Wind Standards Initiative



Recommended Practices Working Groups

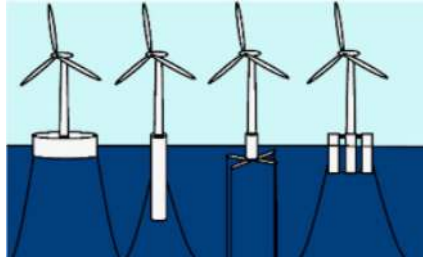


Working Group 1

**ACP Offshore
Compliance
Recommended
Practices (ACP
OCR 2012)
Maintenance**

Graham Cranston
(DNV)
Rain Byars (Shell)

Published



Working Group 2

**U.S. Floating
Offshore Wind
Systems**

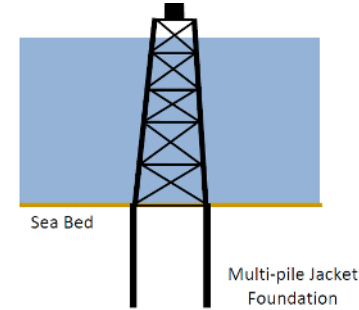
Lars Samuelsson
(ABS)
Leif Delp (Equinor)



Working Group 3

**U.S. Offshore
Wind Metocean
Conditions
Characterization**

Michael Drunsic (WSP)
Lorry Wagner
(Ventolines B.V.)



Working Group 4

**U.S.
Geotechnical
and Geophysical
Investigations
and Design**

Matt Palmer
(Wood Thilsted)
Mathieu Guinard
(Northland Power)



Working Group 5

**U.S. Offshore
Wind Submarine
Cables**

Georg Engelmann
(Excipio Energy)
Bob Hobson (Burns &
McDonnell)
Darin Lawton (Burns &
McDonnell)

Initiative Highlights

- Inaugural meeting in October 2017.
- Over 300 participants from diverse industry backgrounds.
- Five autonomous working groups were formed.
- Semi-annual face-to face gatherings and frequent convenor virtual meetings to integrate content and provide consistency.
- ACP OCRP-1-2022 is published and available from ANSI at:
<https://webstore.ansi.org/standards/ansi/ansiacpocrp2022>
- Four other documents are moving through the approval process.

High Level Process and Status

Internal Review

Submit Project
Initiation
Notice (PIN)



Convene
Working
Groups as
Consensus
Body and
Develop
Consensus RP



Offshore Wind
Subcommittee
Review and
Comment



Resolve
Comments
and Submit
Final Draft



SDO submits
BSR8 to ANSI
and Initiates
45-day Public
Review – SDO
sends draft for
WTSC Ballot



Resolve Public
Comments –
BSR9 for Final
ANSI Approval
and
Publication



ANSI Approval
and
Publication

Floating
OCR-2
Metocean
OCR-3
Geotech
OCR-4

Public Review and Publication

Subsea
Cables
OCR-5

Offshore
Compliance
OCR-1

Relevance to the Regulatory Process

Christy Lan – Bureau of Safety and Environmental Enforcement (BSEE)



Offshore Compliance Recommended Practices (OCRCP) Edition 2

Graham Cranston
Rain Byars



Overview

- Serves as a Roadmap for application of international and US requirements to Offshore Wind in U.S. waters;
- Addresses gaps, overlaps, and conflicts;
- Does not intend to create new requirements; and
- Published as an American National Standard in June 2022. Now available through ACP/ANSI:
<https://webstore.ansi.org/standards/ansi/ansiacpocrp2022>

U.S. Floating Wind Systems Recommended Practices

Lars Samuelsson

Leif Delp



Scope - 2021

- This recommended practice specifies essential design requirements to ensure the structural integrity, floating stability and the mooring system of floating wind turbines in US waters.
- Its purpose is to provide safety level equivalent to international praxis taking into account the US requirements and unique conditions.
- This document is intended to be used together with the appropriate IEC and US standards.

Status

- We are following the same approach as the ACP / ANSI initiative for land-based turbines as well as for towers and only address the US unique aspects.
- For all other aspect, we will refer to IEC TS 61400-3-2, Ed. 1 2019-04, Wind energy generation systems – Part 3-2: Design requirements for floating offshore wind turbines.
- The document has been distributed for comments.

IEC 61400-3-2 Approach

ISO TC 67 19000 Serie of Standards for use
in the Oil and Gas Industry



- IEC 61400-1**
2005, Third Edition
2019, Fourth Edition
- Wind turbine design requirements
 - Onshore-only

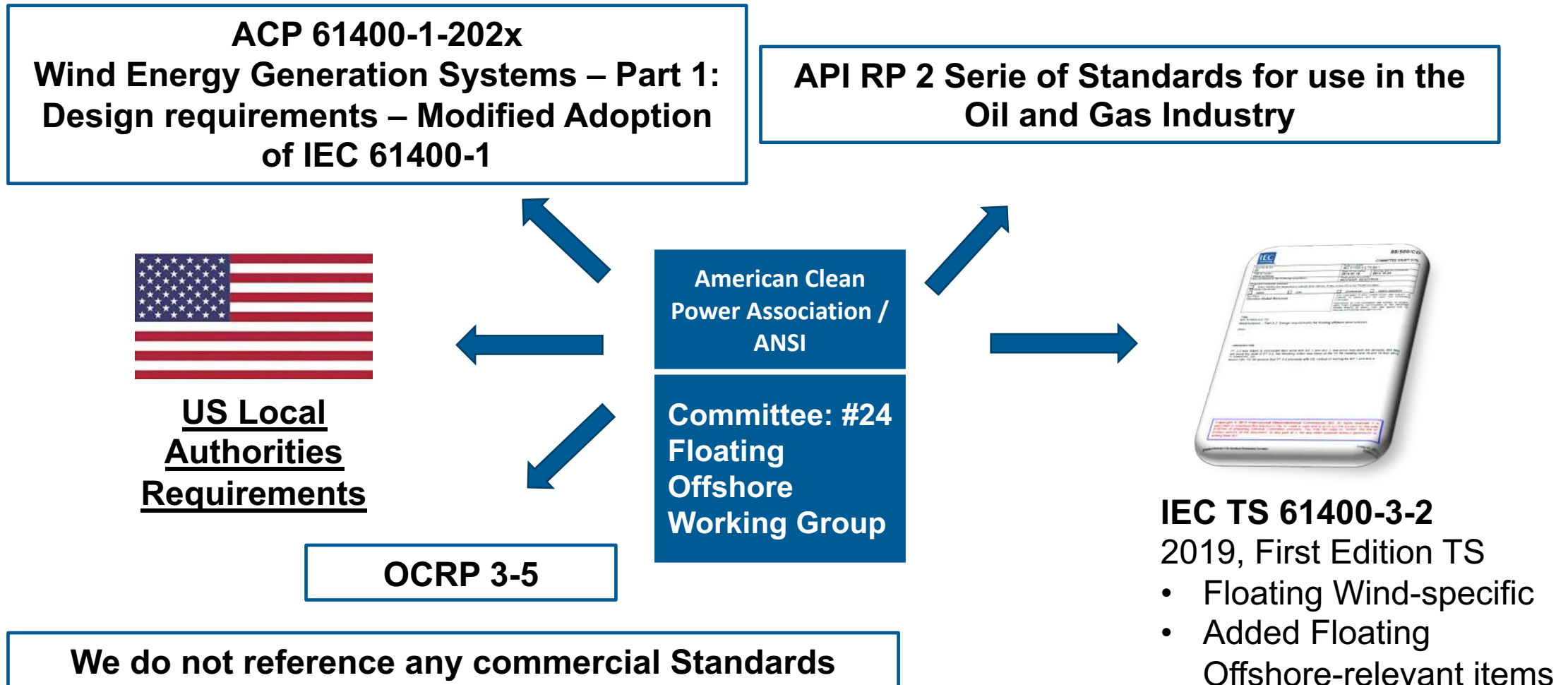


- IEC 61400-3-1**
2009, First Edition
2019, First Edition (-3-1)
- Added Offshore-relevant items
 - Focus on fixed-bottom



- IEC TS 61400-3-2**
2019, First Edition TS
- Floating Wind-specific
 - Added Floating Offshore-relevant items

WG2 Approach



WG2 Approach

~~ACP 61400-1-202x
Wind Energy Generation Systems – Part 1:
Design requirements – Modified Adoption
of IEC 61400-1~~

API RP 2 Serie of Standards for use in the
Oil and Gas Industry



US Local
Authorities
Requirements

OCRP 3-5

American Clean
Power Association

Committee: #24
Floating
Offshore
Working Group



IEC TS 61400-3-2

2019, First Edition TS

- Floating Wind-specific
- Added Floating Offshore-relevant items

Comments Received

- We were a bit surprised by the comments, especially from entities that been involved throughout the process and received advanced copies of the OCRP-2 document.
- The comments can roughly be divided into 3 categories;
 - Comments from groups that do not understand the approach
 - Comments from groups that do not agree with the approach
 - Constructive comments

Organization	# of Comments
SGRE	32
New Bedford Port Authority	7
Burns & McDonnell	2
NREL - Walt Musial	7
NREL - George Hagerman	3
BOEM	12
DNV	15

Europe – 47

US – 31

None of the entities commenting on the document have been actively involved in the development of the document

Way Forward

U.S. Offshore Wind Metocean Conditions Characterization Recommended Practices

Michael Drunsic
Lorry Wagner



Scope and Objective

- **Develop recommended practice for metocean conditions characterization in U.S. waters (both fresh and salt water).**
- **Includes collection, assessment, and characterization of metocean conditions for offshore wind facilities, considering the users' requirements for planning, design, construction, operations, and maintenance (O&M), life extension, repowering, and decommissioning.**

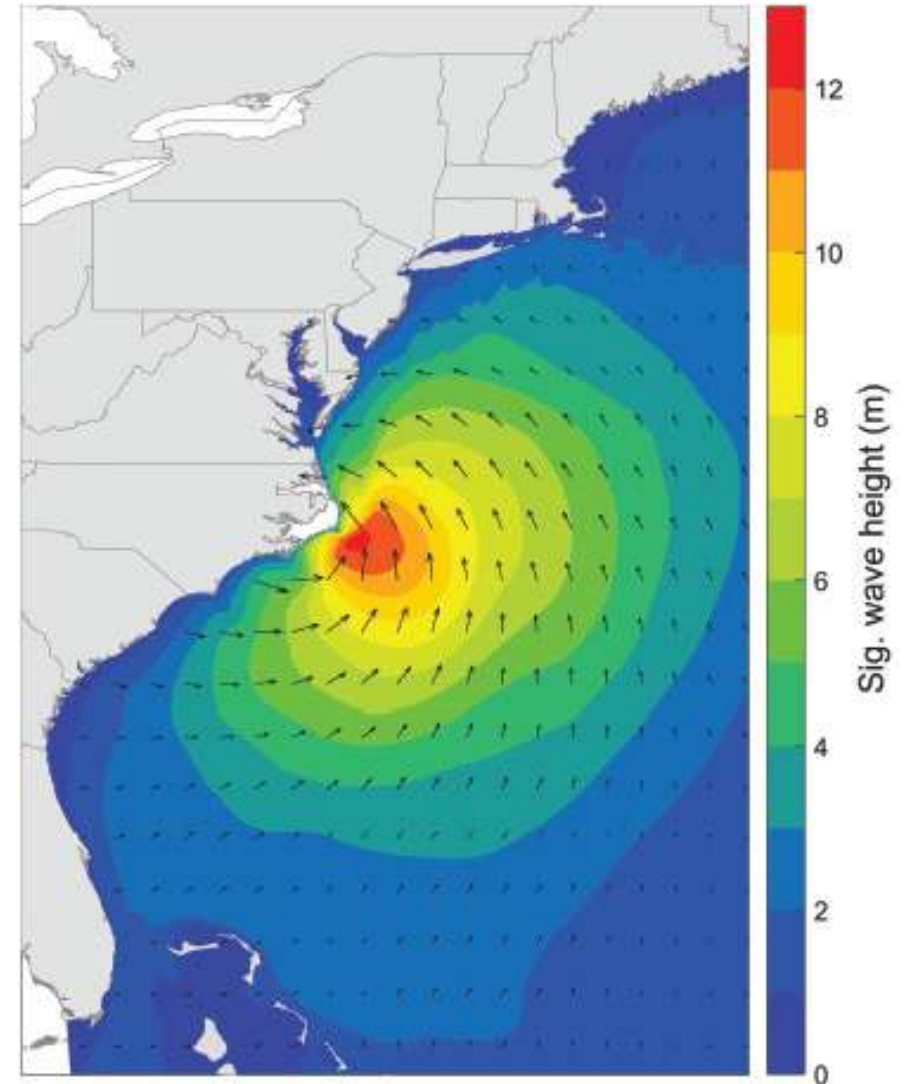


Image source: POWER-US

Current Status

- Draft was submitted for review by other working groups and Offshore Wind Subcommittee members in January followed by 30-day review period.
- Comments reviewed, addressed, and all sections revised as applicable. Final review in December 2022.
- Draft for public comment expected to be available January 2023.

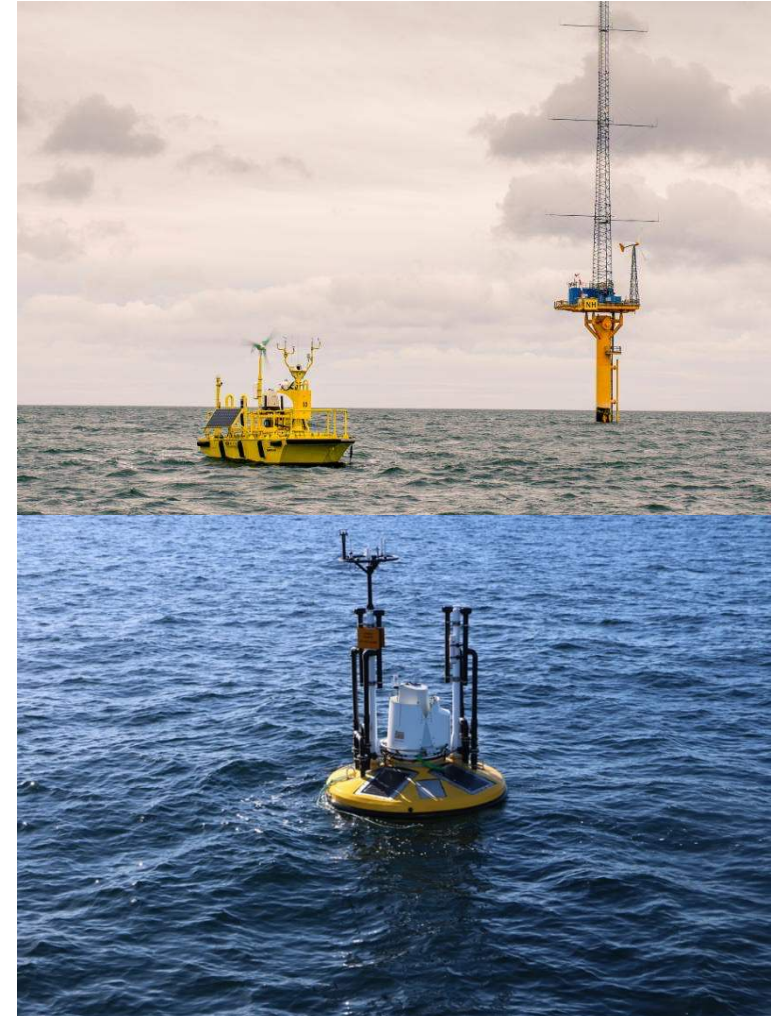


Image sources: Axys Technologies (top), Fugro (bottom)

U.S. Recommended Practices for Geotechnical and Geophysical Investigations and Design

Matt Palmer

Mathieu Guinard

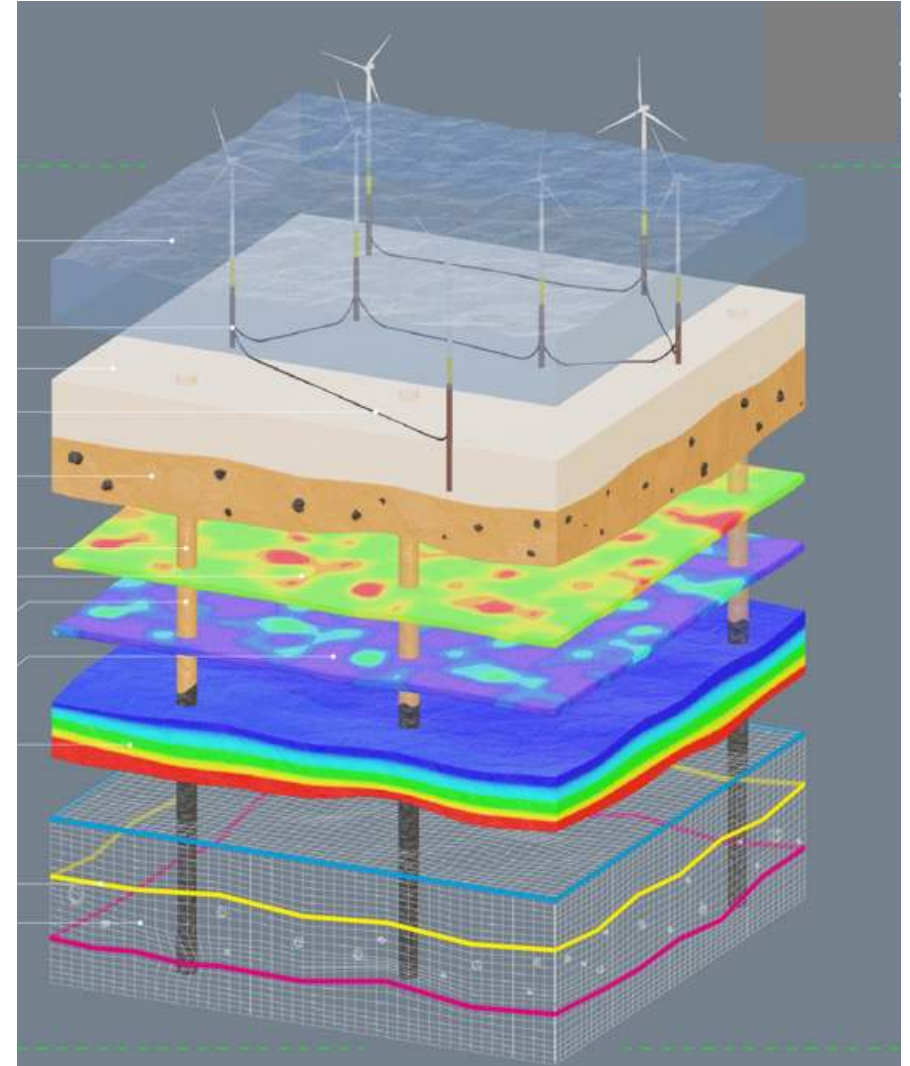


Scope

- **Make recommendations on the use of standards and guidelines related to geotechnical and geophysical concerns**
- **Covers offshore wind facilities in US state or federal waters, fresh or salt water, any water depth**
- **All foundation types, both fixed and floating**
- **Investigation, interpretation, and geotechnical design**
- **Soil types, subsurface hazards, and reporting requirements**
- **Geotechnical or geophysical considerations for cable burial**

Current Status

- Subcommittee review in progress - 216 comments were received from 4 different organizations
- Significant majority of comments came from a single entity – we are currently negotiating resolution of those comments with that entity



Recommended Practices for Submarine Cables

Georg Engelmann
Bob Hobson
Darin Lawton



Current Status

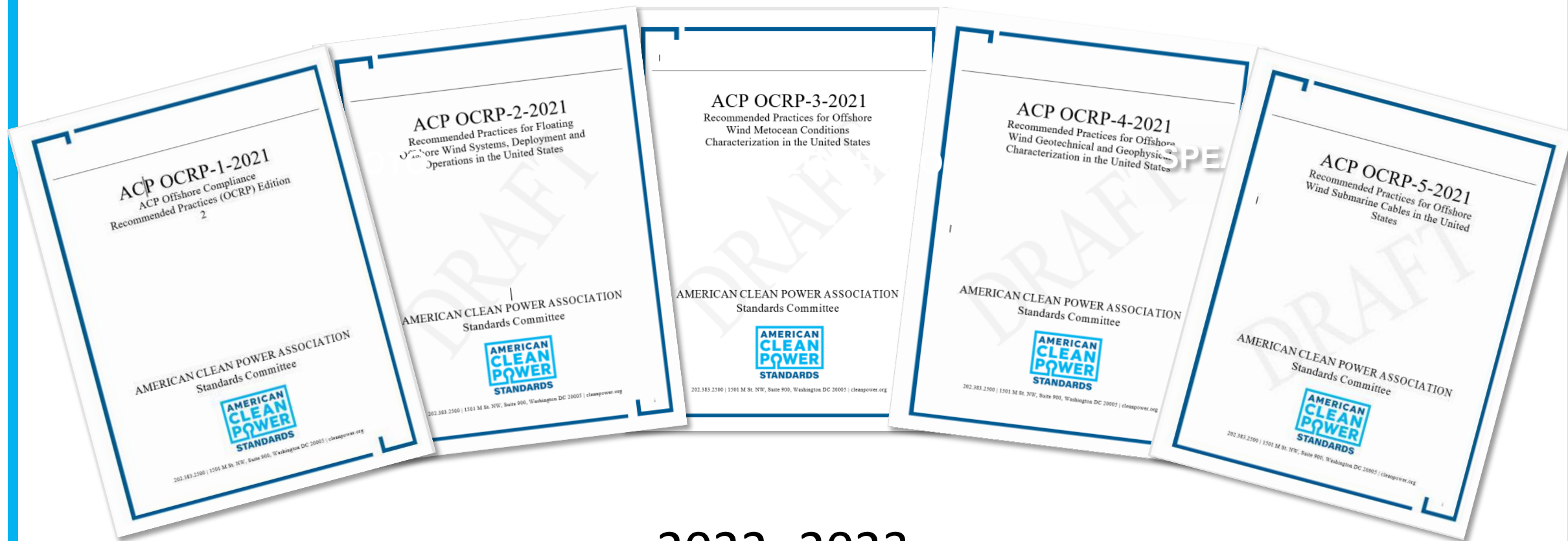
- Document submitted for public review in Summer 2022.
- Document approved by technical subcommittee.
- Only BOEM/BSEE and DNV supplied public comments (175 total)
- Comments addressed; document updated
- No substantive changes requiring resubmittal/re-ballot
- DNV accepted editors responses to comments
- BOEM/BSEE acceptance yet outstanding
- Will issue to upon resolution to ANSI for publication

Recognition to Darin Lawton, Bob Hobson and the WG5 Team Members, in both US and UK/EU, for their time in spite of the bubbling OSW marketplace.

Timeline of Key Next Steps

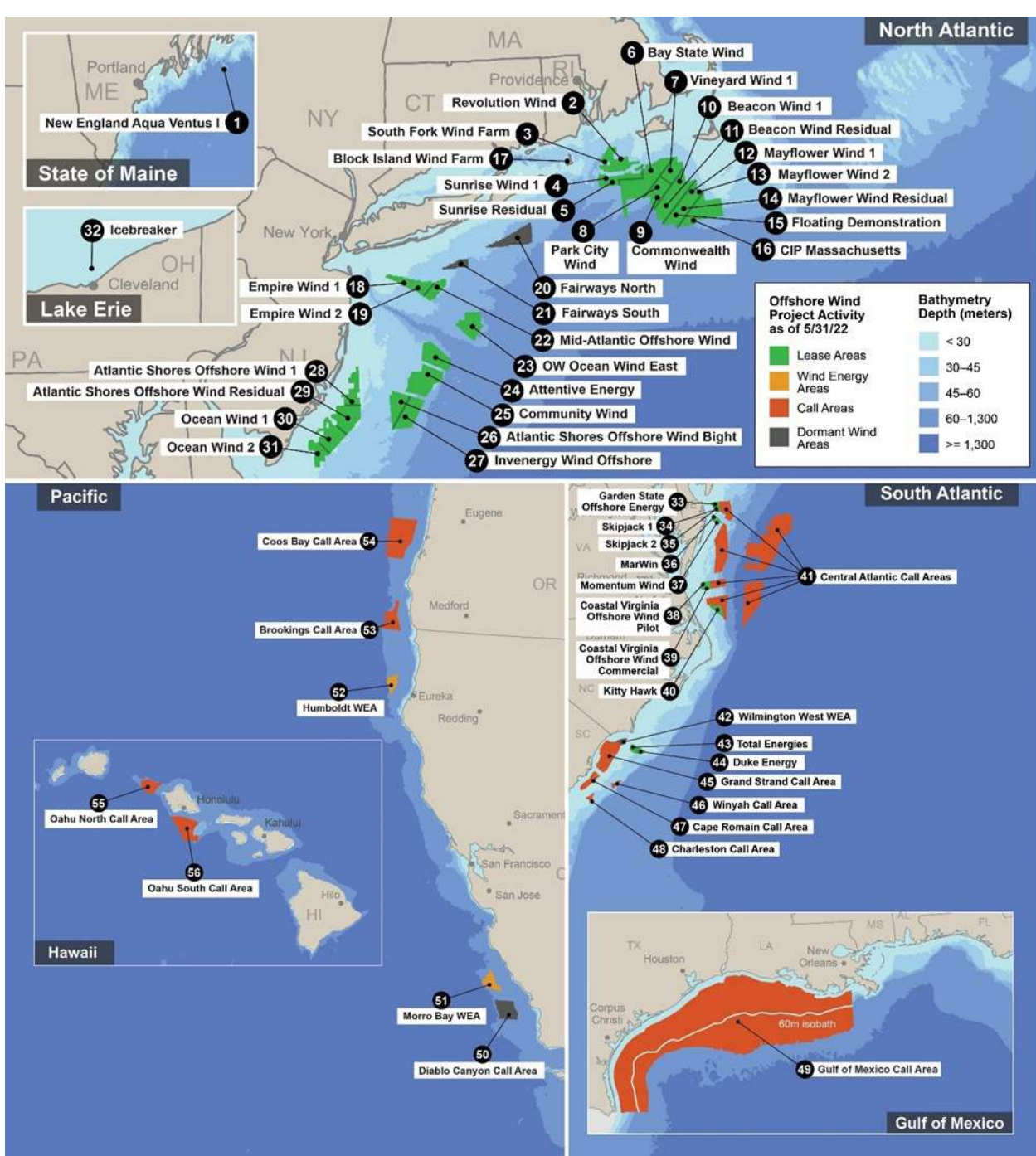
- Working group 5 is expected to reach final publication of ACP OCRP-5-2023 in January 2023.
- ACP OCRP-3 and ACP OCRP-4 are expected to be submitted for Public review and ACP WTSC ballot by end of 2022.
- ACP OCRP-2 is resolving comments and will submit for public review in 2023.

Product: 5 Recommended Practices Documents



2022- 2023

Why we are doing this.





Q&A

Thank you.

Questions? Contact
standards@cleanpower.org