

Regulatory Framework and Related Experiences

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Organized by



Quest Offshore



The Westin Houston, Memorial City 28-29 June 2021

What is ABS?

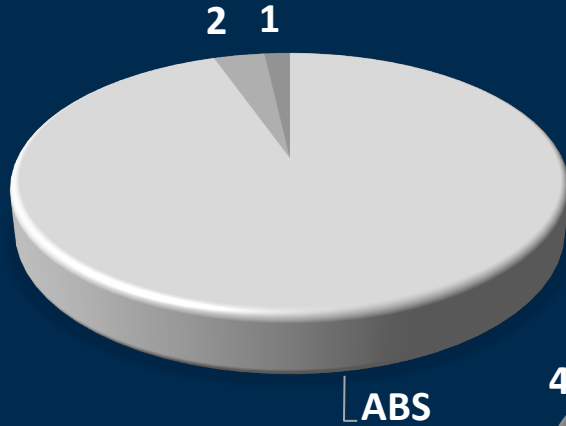
- **ABS Mission**

The mission of ABS is to serve the public interest as well as the needs of our members and clients by promoting the security of life and property and preserving the natural environment

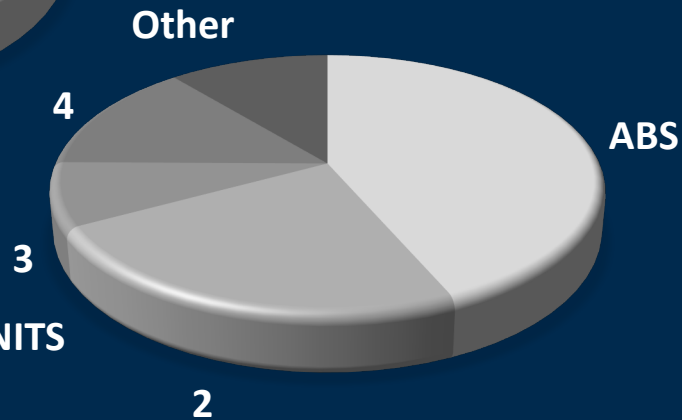
- Founded in 1862 by 9 US marine insurance companies
- 'Not-For-Profit' Marine Classification Society
- No owners/shareholders, ABS Board of Directors are appointed from its Membership
- ABS Members are the owners, operators, designers and builders of ships, offshore units and associated equipment
- ABS as a class society represents industry and helps develop standards related to;
 - Design
 - Construction
 - Operational maintenance

World Leader in Offshore

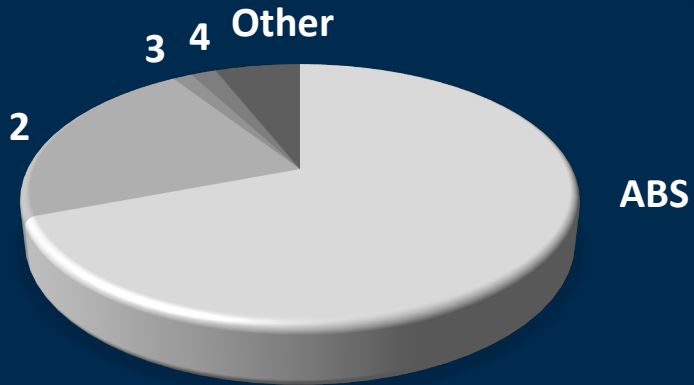
53 CVA UNITS ON THE US OCS



>180 CLASSED PRODUCTION UNITS



>500 CLASSED DRILLING UNITS

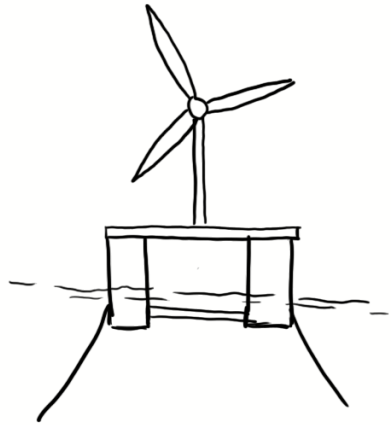


World Leader in Classing Floating Offshore Wind

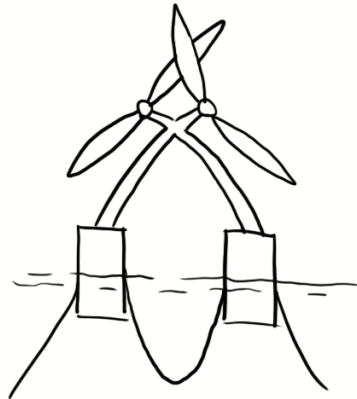
- We certified the first ever SEMI based FOWT
- We are in process of Classing close to 80 MW of Floating Wind
- We have experience from reviews of many different type of ABS Offshore Wind

Floating Wind Solutions

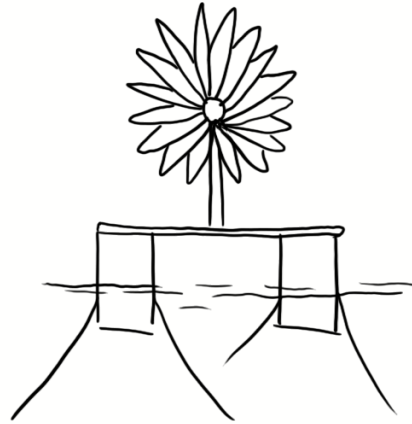
Why do we need Standards



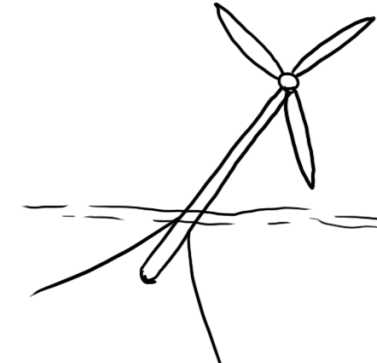
As proposed by
the Sponsor



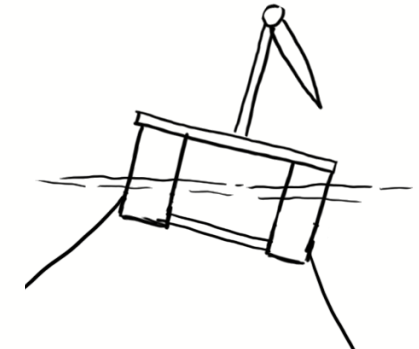
As specified in the
RFQ



As designed by the
Senior Analyst



As produced by the
programmers

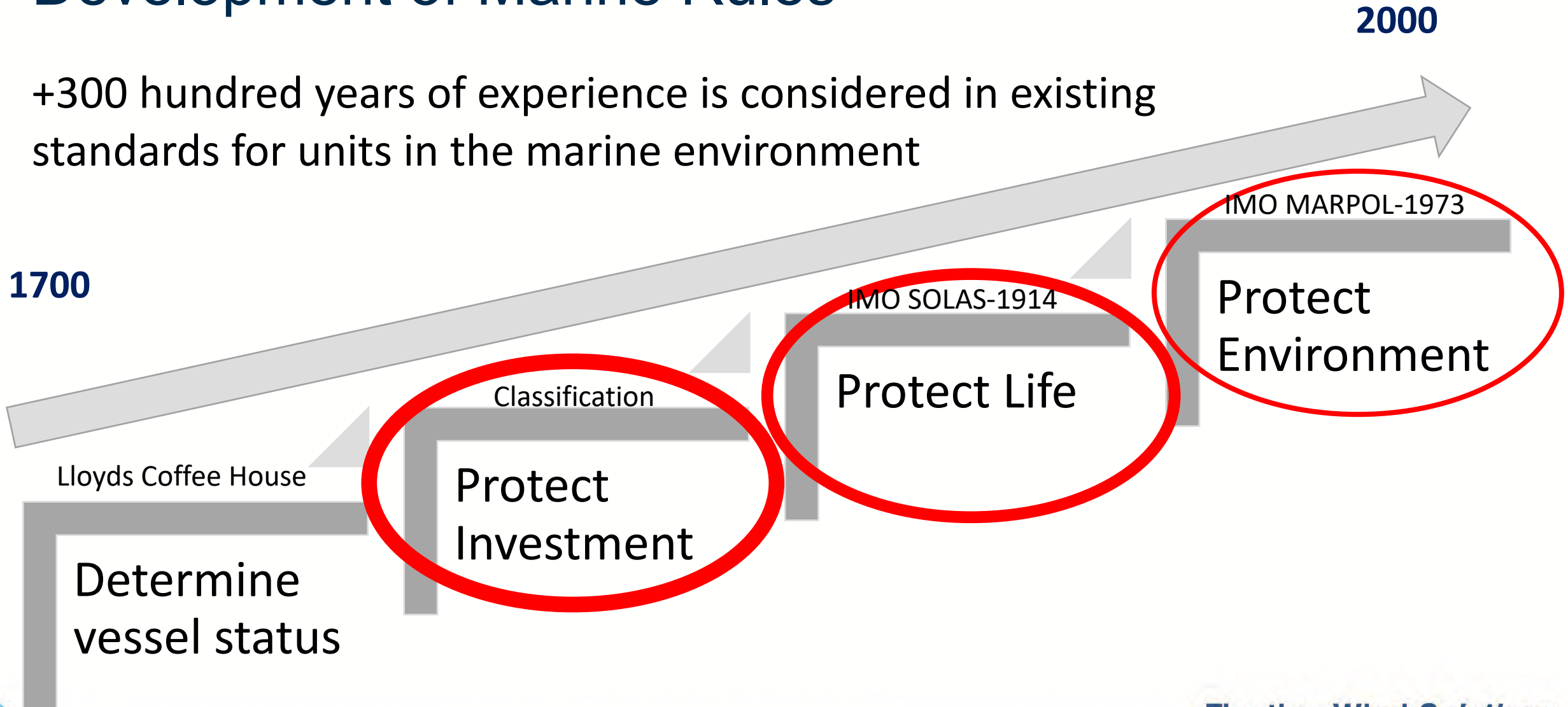


As installed on site

What the Sponsors Daughter
Wanted

Development of Marine Rules

+300 hundred years of experience is considered in existing standards for units in the marine environment

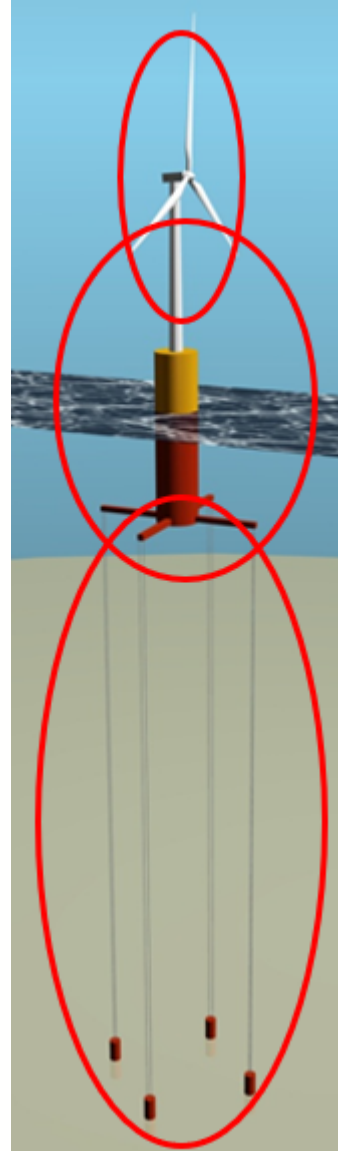
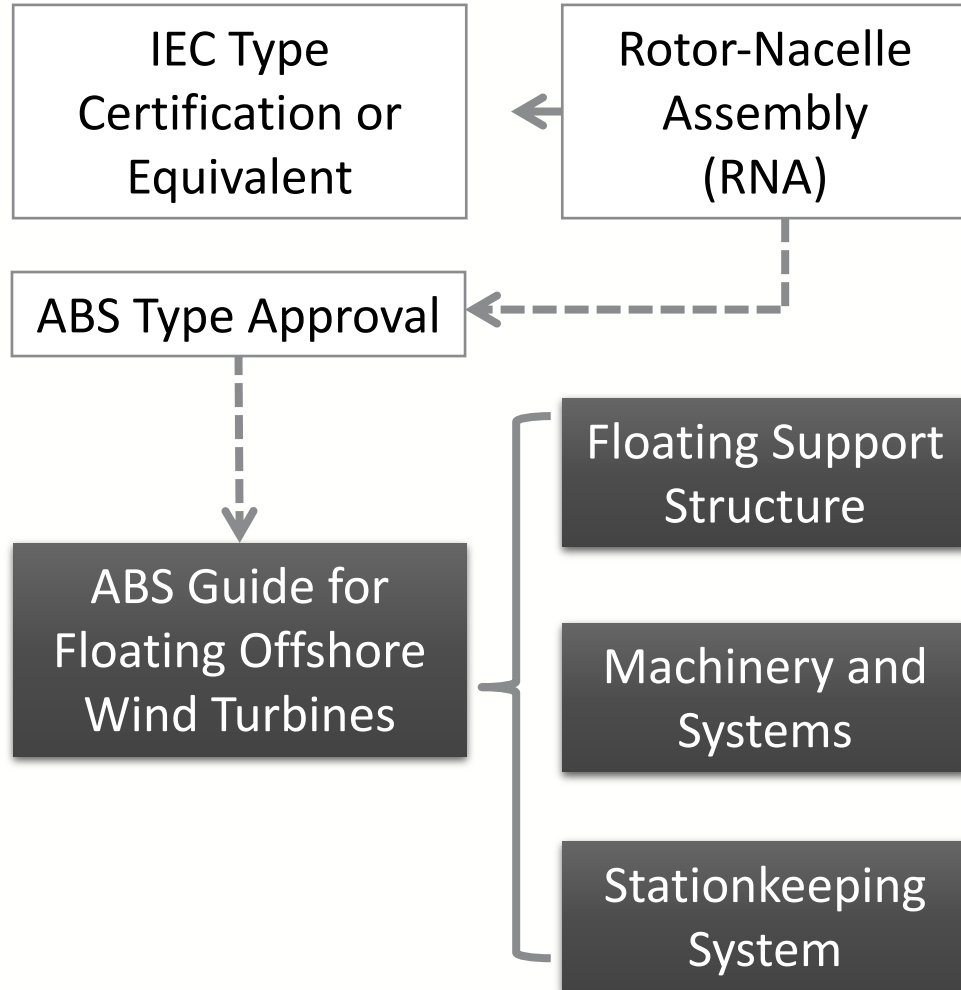


À A1 , Offshore Wind Turbine Installation (Floating), FL(25) 2045, 20km Offshore Viana do Castelo



© Principle Power

ABS Guide For FOWT



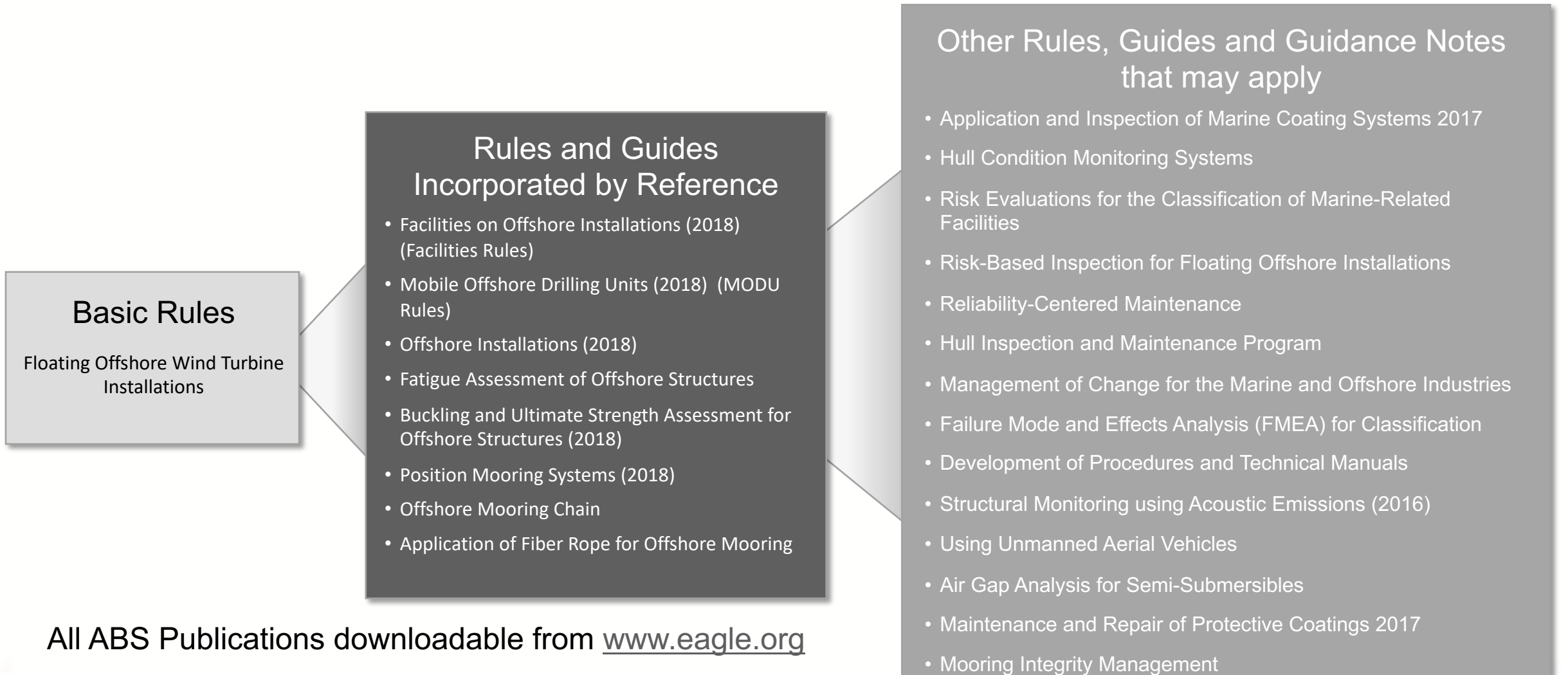
ABS Guidance Notes For FOWT

- Global response parameters
- Environmental load calculation
- Global motion analysis
- Air gap analysis
- Mooring strength analysis
- Mooring fatigue analysis

IEC TC88 PT61400-3-2

- ABS Guide is aligned with the IEC Design Requirements for Floating Offshore Wind Turbines document

Rules, Guides and Guidance Applicable to FOWT's



IEC 61400-3-2 Approach for International Standard



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

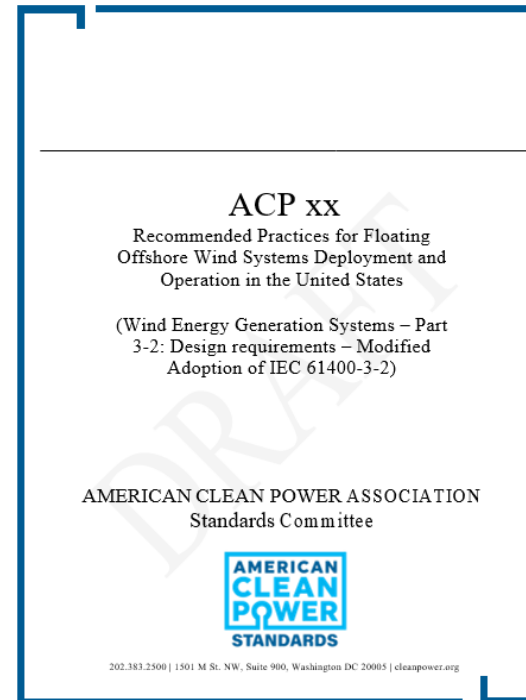
- Floating Wind-specific
- Added Floating Offshore-relevant items

ACP / AWEA Approach for US Standard

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

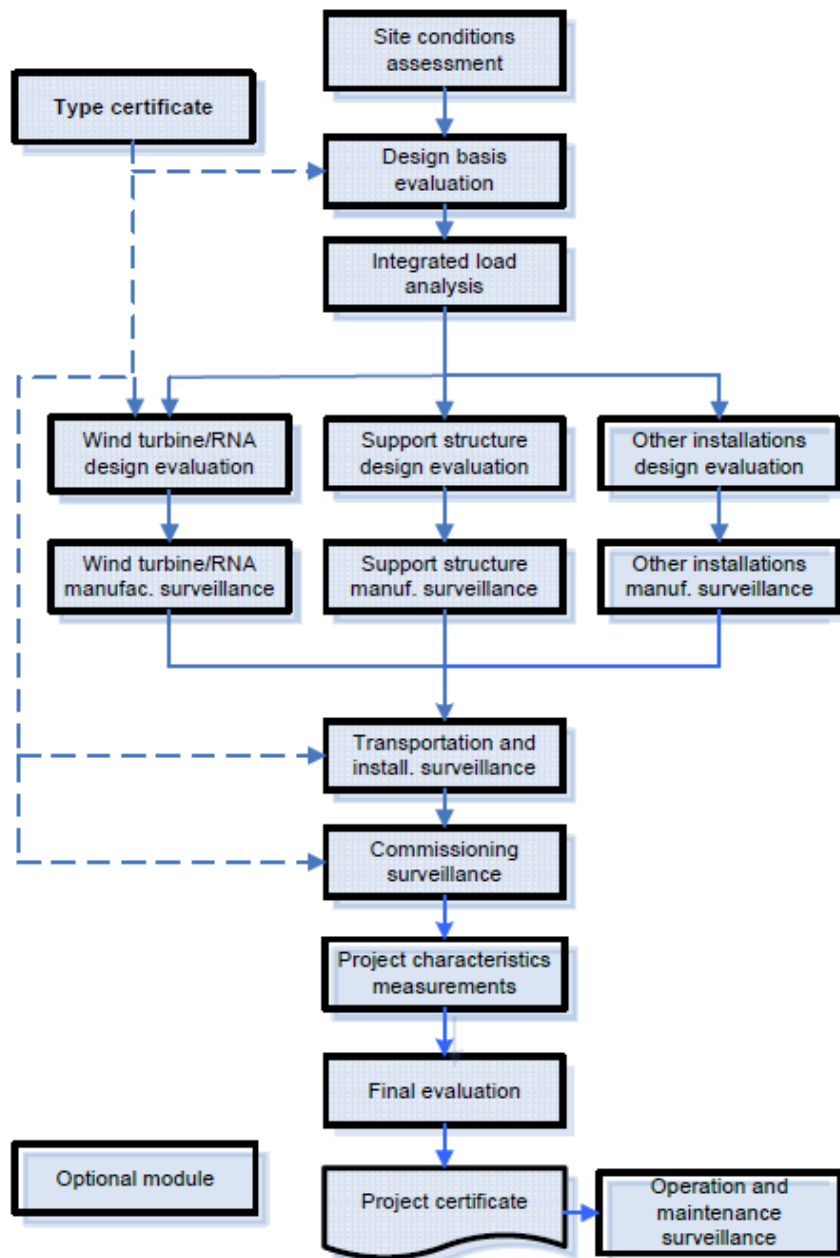


**US Local
Authorities
Requirements**



IEC TS 61400-3-2
2019, First Edition TS

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



IECRE Project Certification

- Project Certification based on Design Basis approach
- During fabrication, the inspection/audit activities shall focus on the quality system implemented during manufacturing and evaluate that the quality system is appropriate.
- The RECB will tailor a scope of work for surveillance activities. The exact scope should be defined during the project design basis
- Operation and maintenance surveillance shall be carried out at regular intervals based on an agreement between applicant and RECB.

From IECRE OD-502 Project Certification Scheme

<http://www.iecre.org/documents/refdocs/pdf/od-502ed.1.0.pdf>

Floating Wind Solutions

What is in Common

Bottom Founded Wind



- Turbine
- Multiple Identical Units

Floating Wind



Floating Production



- Anchors
- Mooring
- Structural integrity
- Floating stability
- Motions
- Marine systems
- Fabrication
- Installation

Floating Wind Solutions

We have done this before

- Eighteen American shipyards built 2,710 Liberty ships between 1941 and 1946
- Four different types of the same concept was produced with the same basic dimensions:
 - EC2-S-C1: Basic Type Cargo 2,580
 - EC2-S-A1: Collier 24
 - Z-EC2-S-C2: Tank transport 8
 - Z-ET1-S-C3: Tanker 62
 - Z-EC2-S-C5: Boxed aircraft transport 36
- The first ships required about 230 days to build
- The average from keel laying to delivery was about 60 days, the fastest 4 days, 15 h and 16 min
- Assembly-line style, from prefabricated sections made this possible



Source: ABS Workhorse of the Fleet
by Gus Bourneuf Jr.

Existing Processes Applicable to Floating Wind

Sister Vessels (USCG)

- A responsible officer of the shipbuilding company attests in writing that the two vessels are sisters;
- The vessels are constructed in the same shipyard, within approximately two years of one another;
- **The same drawings are used in the construction of both vessels.**

Extension of Approval (USCG)

- The two vessels must be of the same type and certification.
- Previously approved plans must meet all current regulations
- The vessels must be authorized for identical routes.
- **The owner of the original plans must authorize their use.**
- If a system is modified from the previously approved plans, the submitter must seek a separate approval for that system

Relocation (ABS)

- Structural strength analysis and fatigue life re-evaluation for the hull structure , etc. **(if the new location has milder environmental conditions than the current site, the reassessment may not need to be performed).**
- Design review related to the new position mooring system and anchoring.
- Design review related to any other modifications affecting class items.



Thank You

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