DNV·GL

ENERGY

ETIP Ocean Webinar Standardisation and Certification of Ocean Energy

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- About DNV GL
- The role of standards and certification
- Risk and risk-based Certification
- Elements of the risk-based certification
 - Technology Qualification
 - Standards, Recommended Practices
- Communication with Stakeholders

We are a global classification, certification, technical assurance and advisory company

OUR PURPOSE

TO SAFEGUARD LIFE, PROPERTY AND THE ENVIRONMENT

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- From 1st February 2021, to support and bring value to our customers and accelerate the energy transition, DNV GL has combined its current Oil & Gas and Power & Renewables businesses into one new business area called Energy Systems.
- Energy Systems will consist of approximately 4000 energy experts, making it a world leading resource of independent energy experts and certification body.
- •DNV GL will change its name to DNV on 1st March 2021. The name simplification is a natural consequence of a successfully completed merger and of having operated as a fully integrated company for several years now.

 Standards provide the technical requirements while Certification is a service provided by an independent competent body to demonstrate compliance with the standards.

- -Reduction / handling of uncertainties
- -Control of risks
- -Re-assurance to Stakeholders (Underwriters, Investors, Authorities)
- -Trading facilitation
- -Improvement of supply chain
- -Provision of a common "language"
- -Definition of expectations between parties
- –Provision of legal framework
- -Effective product development
- -Consolidation and updating of knowledge

Certification and Marine Renewables Development

- **Risk** and **reward** define the capacity to attract finance (and the type of finance).
- Standards and certification
 - -are key instruments to control **risks** to <u>acceptable levels</u> in a demonstrable way.
 - -provide all stakeholders with a degree of confidence (risk management) leading to trade facilitation, legal framework, supply chain and services development, insurance and capital costs reduction and efficiency and reliability improvement.
- Well established industries tend to have standards with high degree of prescriptive requirements as the technology is mature and the level of innovation is reduced or introduced in small incremental steps.
- Marine Renewables is in an early stage and requires a different approach that was established around the Technology Qualification process (DNV-OSS-312 first issued in 2008) providing a robust foundation for risk control and handling of uncertainties and novelty.
- For tidal, a further important step was given allowing DNV GL to keep the risk based approach but also to establish technical requirements providing the industry with a more predictable and effective process.

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Some Challenges Regarding Certification of Marine Renewables

Although there is a consensus that the LCOE for Marine Renewables is very high, the projection of LCOE in the future is affected by:

- Uncertainty on the relevance of the CAPEX data obtained so far
- Uncertainty on the generation and limited OPEX
- Evolution of technology
- Adequacy of supply chain and equipment
- Early stage financial costs
- Market size

Standards, Certification and LCOE

Low LCOE are associated with:

- Good level of predictability (performance, time, manufacturing, installation, maintenance)
- Competitive and largely available supply chain
- More prescriptive standards and processes
- Large markets
- Low financial costs

Basically, the risks are understood and controlled and proportional to the reward.

For innovative technologies, it is essential that the identification of risks and establishment of mitigation actions are carried out as they will lead to success.



Link Between Risk Based Certification and Success Criteria (Competitive LCOE)



Risk Based Certification and Communication with Stakeholders



Certification Modules (Prototype, Type and Project) - Scope

Codes and Standards - Transference of Technology

- Knowledge is consolidated under standards, recommended practices and guidelines.
- This knowledge can be transferred to marine renewables once screened (by the Technology Qualification) for relevance / suitability and gaps.
- The transference of technology has the benefit to make use of existing supply chains, services and methods, making the development of the marine renewables more effective and efficient.
- Example of range of standards and rules available:
 - -<u>https://www.dnvgl.com/rules-standards/index.html</u>
- Example of how existing standards from other industries can be applied in the tidal sector:
 - -<u>https://rules.dnvgl.com/docs/pdf/DNVGL/ST/2015-10/DNVGL-ST-0164.pdf</u>

DNV GL Certification - Tidal



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DNV GL Certification - Wave



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Certification Phases and Certificates – Communicating with Stakeholders



- statement of Feasibility
- prototype Certificate
- type Certificate
- component Certificate
- project Certificate
- a conditioned certificate with a limited validity of up to 1 year may be issued where non-safety related requirements

- The IEC Conformity Assessment Board is developing a certification scheme for marine renewables.
- The process also uses the technology qualification process to perform certification.
- There are several Technical Specifications that have been developed under the IEC TC-114 that are to provide the technical requirement for the certification. Only IEC or ISO standards are accepted for certification.
- There are still many gaps in the standard process to provide enough support to type and project certification.

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