

Development of International Standards and Certification schemes for Marine Energy Technologies

Deliverable D1.2.1 Report on workshop in The Netherlands



Author

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Revision history

REVISIO	N DATE	AUTHOR	ORGANISATION	DESCRIPTION
V3	12/06/2017	Peter	DMEC	New reporting template
V2	31/05/2017	Martijn	NEC	Complete report, added list of participants, Flip-over notes and evaluation
V1	23/05/2017	Peter	DMEC	First Draft report
VO	14/05/2017	Anton Schaap	DMEC	Initial Notes

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Attendance 1.



Deelnemers 12 mei 2017 - NEC te Delft

Naam	Bedriif	
Martijn Geertzen	NEN	
Peter Scheijgrond	Dutch marine energy	1/2
Mark de Kloet	AnteaGroup	No.
Paul Dinissen	Bluerise	- 68
Arnout Bijlsma	Deltares	ull -
Dick de Jong	Lloyd's register	10.
Martijn van Roermund	ECN	hok
Marcel Westerink	AnteaGroup	(h)
Dolf Pasman	Deepwater-energy	
Jan Kenkhuis	Bluewater	hili
Patrick Saat	Tocardo	. Ca
Reinier Rijke	Water2Energy	-L
Marnix Mulder	Bureau Marnix Schottel.	Alle
Ruud Caljouw	Dynasim	Bal
Hans Kursten	Profin Sustainable Energy Solutions	H.
Menno Broers	BT projects	
Antonio Jarquin-Laguna	TU Delft	X
Erik-Jan Ridder	Marin	
Frank van Bockel	Lloyd's register	- A
Chris Roland Holst	b2bsure	the

Britta Schaffreister DITEC Thys Mandersbot Tocardo ANTON Schrap MET-Support Guido Massaco Tocardo

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2. Meeting location

NEN, Delft, NL

Meeting Schedule Start: 9:30 - 12:30

3. Agenda

- 1. Introduction & motivation of interest/involvement in certification
- 2. Presentations on MET-Certified project:
 - o Standards under IEC/TC114
 - Certification under IECRE ME OMC
- 3. Discussion on involvement

4. Introduction & motivation

The workshop started with a extensive introduction and discussion round:

- **Patrick Saat:** *Tocardo*: Type certification for T2 turbine (in cooperation with DNV-GL). DNV-GL has its own DNL-GL standards for tidal turbines. DNV-GL Netherlands is not active in field of certification of Tidal turbines, but do other types of consultancy. DNV-GL issued Statement of Feasibility for the T2 (under IEC this would be the equivalent of a Statement of Conformity against a Technology Qualification standard (which is still under development))
- Thijs Mandersloot: *Tocardo*: interested in resource assessment for projects and Project certification. Resource assessment of tidal is more complex than for wind, because the spatial variation & waves.
- Hans Kursten: *Profin*: supports Tocardo with the Type Certification process. Has experience with the certification of wind turbines. Is also involved with insurance.
- Arnoud Bijlsma: Deltares: Deltares can perform tests in waves (up to real size) and in currents. Deltares also has inhouse computational tools to support the sector.
- Martijn van Roermund: ECN: Management group plus structural design group. Accredited test lab for wind. Partner in Energiedijken project.
- Guido Massaro: *Tocardo*: Engineering Manager. Certification can help reduce the high cost of financing (now 40% higher than the wind benchmark).
- Anton Schaap: *MET-Support*: Will be working as the convenor of the Loads Measurement New Work Item of the IEC TC114 on marine energy converters standardisation. Question: for full scale or also scale testing? Anton explains for full scale only. Scheijgrond notes that blade vibrations can (should) also be tested at scale, see recent IFREMER paper. The project team should consider widening their scope.
- Mark de Kloet: Antea: Works as a specialist on TC114 PT300 on performance of river current converters. There are about 5 specialists active in this group. Every 2 to 3 weeks an webcon/telcon.
- Frank van Bockel: *Lloyd's register*: Not active in the field of marine energy certification, but is willing to get involved.
- Martijn Geertzen: NEN/NEC: Introduces NEN/NEC and the IEC process. Martijn is responsible for wind, water and solar standardisation at NEC.
- **Peter Scheijgrond:** *DMEC*: Project manager for the MET-Certified project, in which the IEC marine energy standards will be applied in test cases for certification. In this way the applicability of the standards can be tested.
- Chris Roland Holst: *b2bsure*: Insurance broker. Stresses that the costs of financing is determined by the perceived risks in the whole of the project. And Cost of Finance needs to come down.
- Antonio Laquin Laguna: *TU Delft*: Offshore engineering and marine energy. Ocean Energy Platform. PhD in hydraulic drive trains for wind turbines.

- Britta Schaffmeister: DMEC: Britta is the new director of the Dutch Marine Energy Center. TTC Den Oever is now part of DMEC.
- **Ruud Caljouw:** *Dynasim*: provides support to Project developer BT Projects, who develops the TTC Grevelingendam. Has worked for Meygen on resource modeling and Carnegie Australia (assisted with installation of CETO wave piston prototype). Specialised in fluid dynamics. In the future TTC Grevelingendam could perform pressure turbine tests (under IEC-TC4) in 2 narrow ducts as well as free stream turbine tests (under IEC-TC114) in an 11m wide, 5m deep channel.
- Reinier Rijke: Water2Energy: Develops a vertical axis tidal turbine with pitchable blades.
- Marcel Westerink: Antea Group: Consultant; involved in TTC Grevelingendam; Tocardo Kornwerderzand project and Tidal Bridge for Indonesia.
- Marnix Mulder: Bureau Marnix: Schottel hydro sales representative.
- Dick de Jong: *Lloyds Register*: Works with EU and national standards (Rijkswaterstaat for example could demand IEC standards). You need to compare apples with apples.
- Paul Dinissen: Bluerise: Specialist in TC114-PT20 on OTEC Design Assessment.

During the introductions Scheijgrond categorised each participant on a Flip-Over in the context of IEC user groups in the certification process, being:



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5. MET-Certified Presentations

See NL Workshop v2.0 Final (photos).pdf

6. Discussion on involvement

Needs and Barriers:

Oil and Gas Crisis puts pressure on the investments in innovation in new technologies.

One should consider the Operational Date before going into standardisation and certification.

Wake should be considered.

Plants/arrays should be considered.

Wind failures overshadow Marine Energy.

Costs of system of standardisation and certification are too high in relation to the amount of projects foreseen.

Insurers are reluctant to accept non-standardised tests. (3 different tests lead to three different results)

Design Tools could be developed by Research Centres.

Floating requirements should be considered.

The insurance companies would like to see the certification of all aspects of a marine energy project. Eg. operational hours for full-scale turbines in the water. Under -200 for Power Performance it states: "The test should take place over a minimum of a spring-neap cycle (15 days) [...] It is acceptable to record data on subsequent days with a maximum duration of the test period of 90 days." Question remains: how are operational hours included in the certificate issued? Is it part of a Type Certificate?

Typically a CB certifies the design aspects of marine energy converter. Also, they can issues statements of conformity that tests performed at Test Labs have been performed according to the relevant standard (eg. Performance of the turbine, loads measurements or power quality).

Tocardo would like to see certification of tidal turbine arrays (wake effects etc.), but according to Martijn Geertzen the certification will always follow the developments and not lead. So first tidal arrays will have to be deployed and experience has to be gained. Scheijgrond explains that the array effects could be examined in prescribed scale tests. A Test Report issued by an accredited Test Lab can receive a Statement of Conformity by a Certification Body. In this way it can provide assurance to the End User (investor / project financer). Marnix Mulder hopes that certification costs will remain affordable since the tidal market is much smaller than for example wind, so the ability to earn back the costs for the system (IEC) is limited.

Scheijgrond goes around the table to ask how people want to be involved:

AnteaGroup, Tocardo, Bluerise, MET-Support, DMEC are already closely involved and members of NEN mirror committee.

Deltares needs to consider the relevance of marine testing amongst the wide variety of testing they provide for the market.

B2Bsure is keen to get involved and has some ideas for funding their contribution and will get back to us.

ECN does not have its own test facilities for marine, but could consider expanding their accreditation as a Test Lab for wind under IEC and provide (marine) Test Lab services to DMEC and TTC-GD in the future, once the system is operational

At the close of the meeting each participant was asked to fill in an evaluation form

7. Evaluation

MET-Certified Workshop

Friday 12th May 2017

Event Feedback overview

Feedback of 8 people was received.

Organisations: unspecified, Tocardo, Lloyds Register, Bureau Marnix, Schottel Hydro, Bluerise

1. Please rate the following aspect of the workshop:

Session	1 Poor	2 Average	3 Good	4 Excellent	N/A
MET-CERTIFIED			3.1		
Standardisation			3		
Certification			3.1		
Market needs			2.6		

Any comments:

Not enough time

More time

Eleborate with an example on how certification can be applied

Examples wind might help to see interactions and time lines.

Durations.

Not enough time to do a real workshop

2. Please rate the organisation and hospitality:

Logistics & hospitality	1 Poor	2 Average	3 Good	4 Excellent	N/A
Organisation			3.4		
Venue			3.1		
Catering			3		

Any comments:

Workshop took too long unfortunately

3. What were the two best things about the workshop:

Good overview of the certification process and the MET-CERTIFIED project

Lively discussion

Certification process

Interaction

Getting to know the system of standardisation/certification Diverse group of stakeholders Good mix of presentations and discussion

4. Which two things about the workshop would you change:

Less dense information on the sheets

Some more time for a structural discussion on topics

A speaker of one of the companies involved

Make clear what expertise you want to add

Duration

Time control

Second workshop in September

More involvement of large Offshore companies

5. How would you rate the workshop overall? (please circle)

Rate from 1 to 5, with 5 being the best/highest score

1	2	3 3.4	4	5
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6. Do you have any other feedback you wish to add?

Do contact me

Introductions took too long (45 min)

Extended introduction was a good idea, because it allowed people to talk freely without the context of the presentations and later you discover how everything falls into place

Next time prepare part of your Flip-Over scheme with categories, so that the introduction can go faster and people can see the context

Plan for the afternoon, not the morning. People will rush off to go to afternoon appointments. If you have people for the afternoon, they will stay on for networking.

3 hours is not enough to cover all.

8. Post workshop actions

A C T I O N / R E C O M M E N D A T I O N	ASSIGNED TO	DEADLINE
Put up a few Project Posters	BV / EMEC/ POM	Before each workshop
Project project flyers (or use A4 project poster)	PL (Dominique)	18 th June
Prepare attendance list to be signed	BV / EMEC/ POM	Before each workshop
Prepare Hand-out Materials (printed slides in hand- out style, Agenda, Evaluation Form, business cards)	BV/EMEC/POM	Before each workshop
Prepare stakeholder groups/clusters to categorise participants and discuss	BV/EMEC/POM	Before each workshop
Allow for enough time to introduce, discuss and expand on issues	BV/EMEC/POM	Before each workshop
Ask participants if they are alright with sharing their details with the other participants	BV / EMEC/ POM	at each workshop