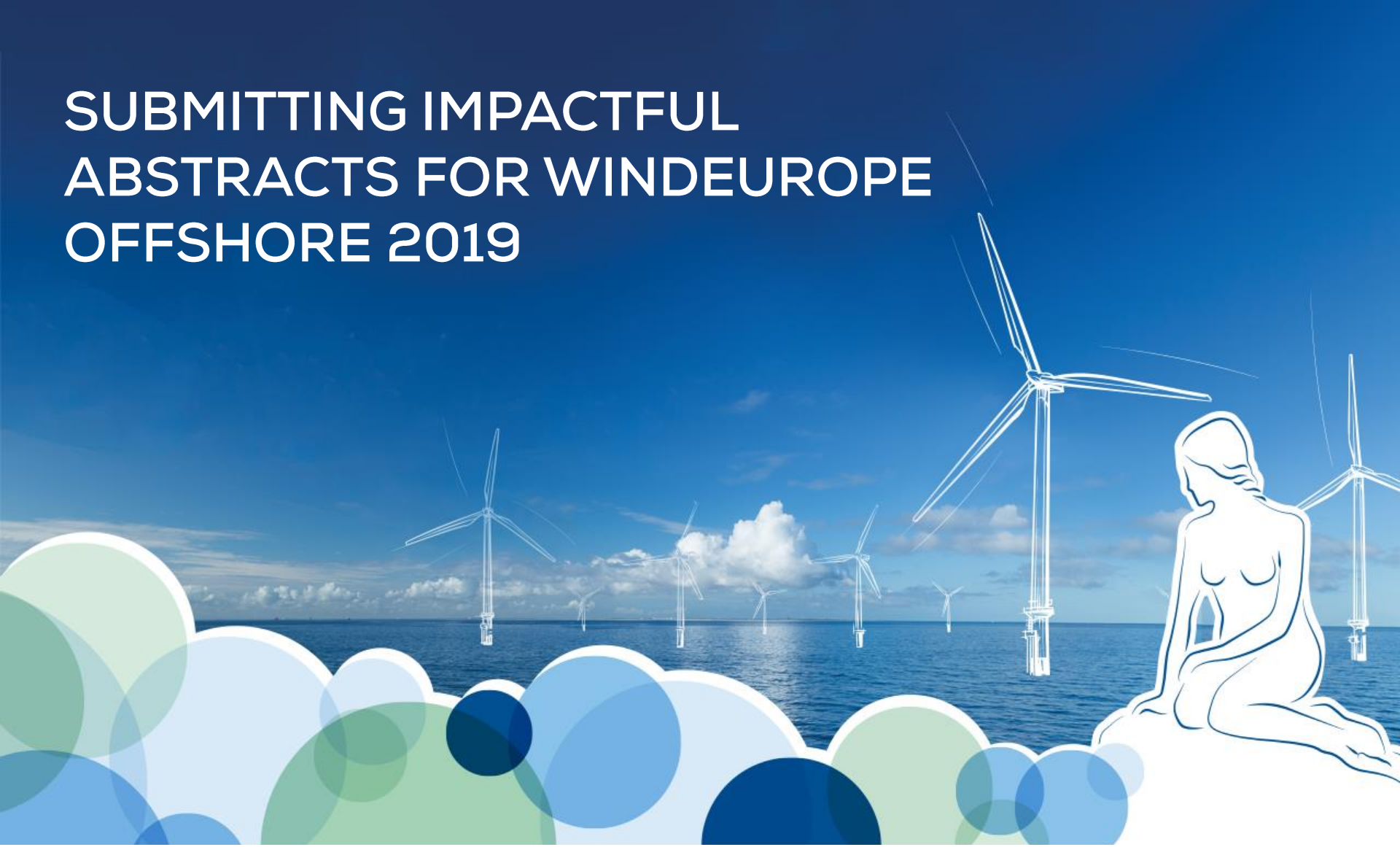
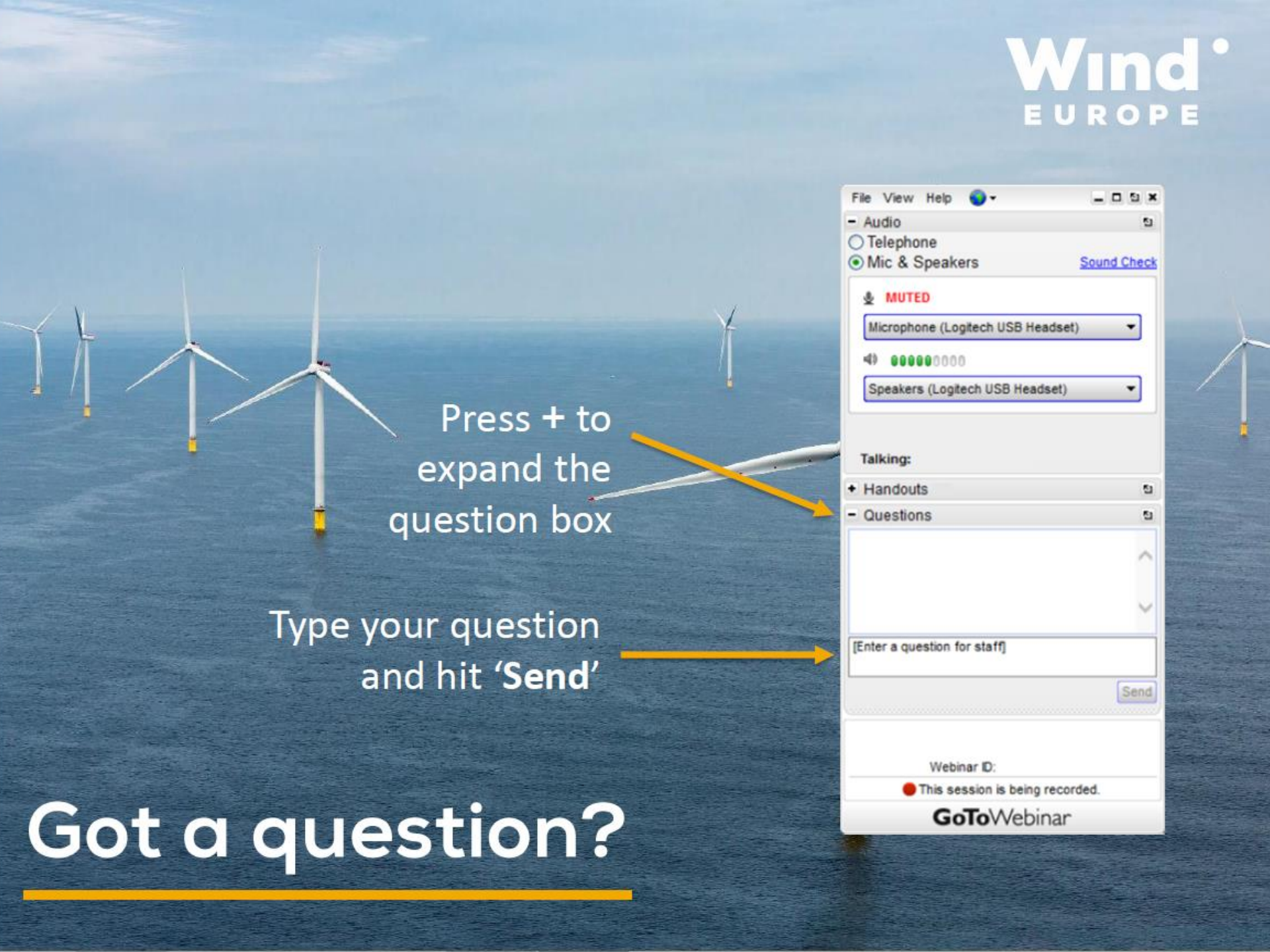
SUBMITTING IMPACTFUL ABSTRACTS FOR WINDEUROPE OFFSHORE 2019



WindEurope OFFSHORE 2019
26-28 NOVEMBER
COPENHAGEN

IN COLLABORATION WITH: DANISH WIND INDUSTRY ASSOCIATION

windeurope.org/offshore2019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Short Recap
Processes and timelines

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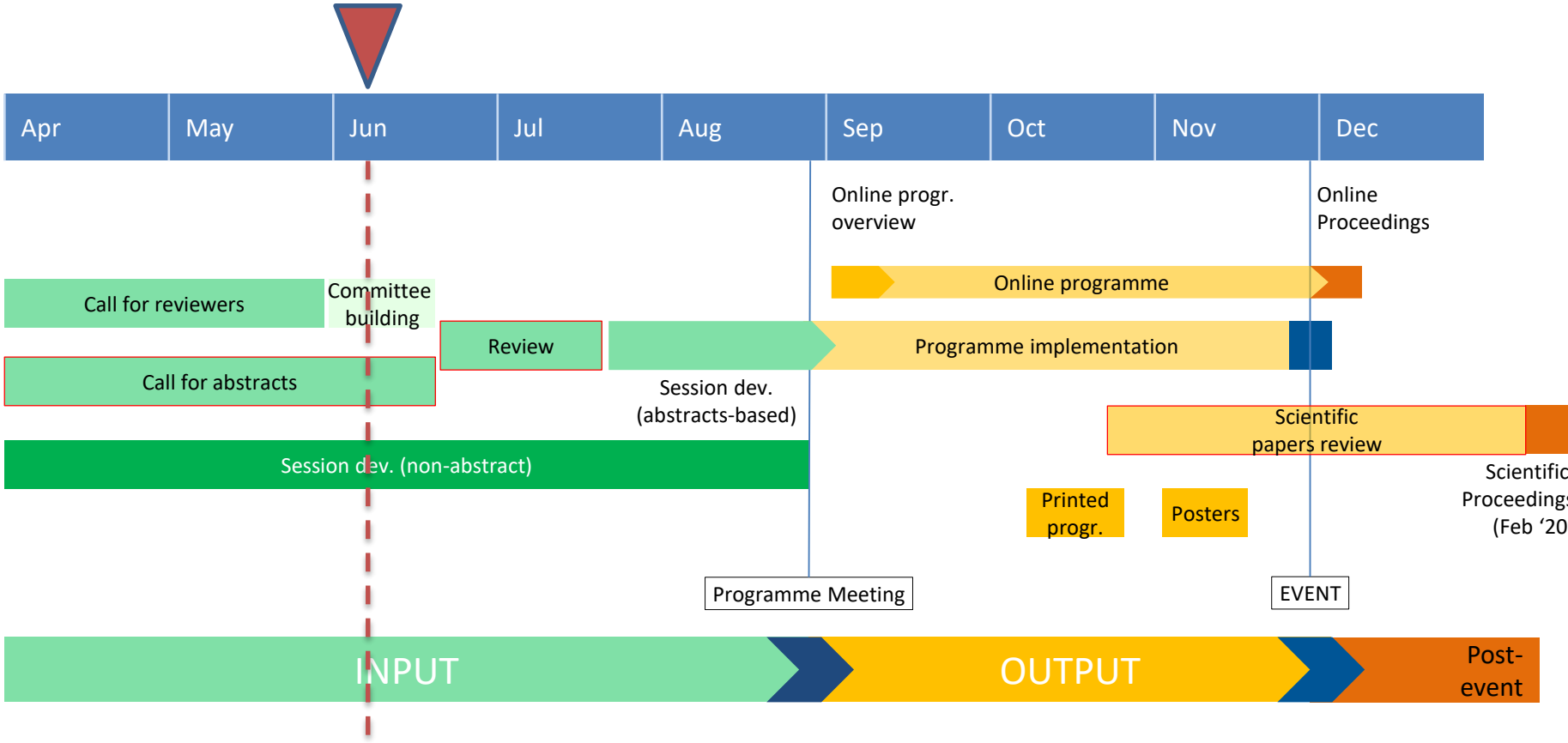
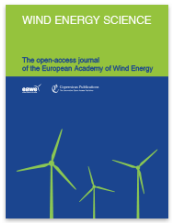
General event timeline



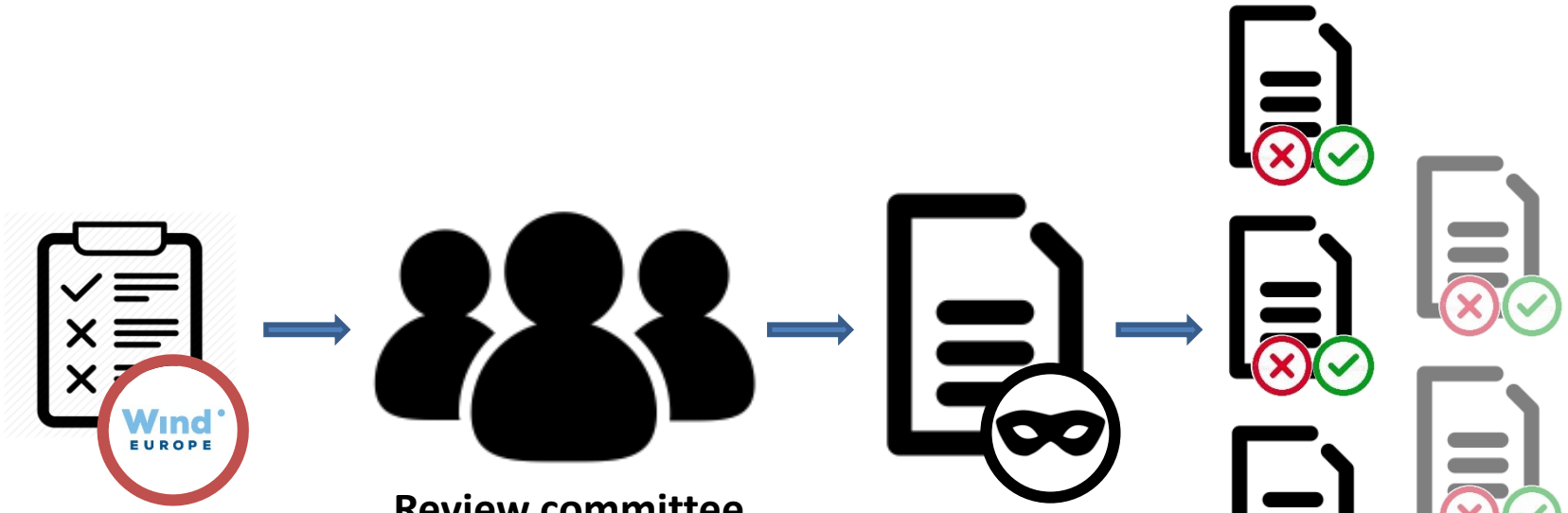
WindEurope Secretariat | Members | EAWE | Non-Members | Danish Associations

Oxford Abstracts



Wind Europe DB

Review process (June-July)



Criteria and guidelines set by WindEurope

Review committee
150+ WindEurope and EAWE members who volunteered to review and score abstracts

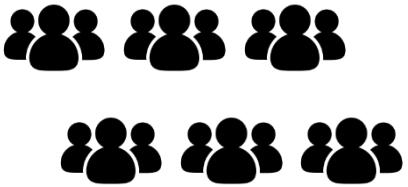
Anonymous review

Min. 3 reviews per paper (5 in average)

Grading criteria

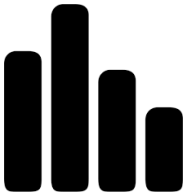
Essential criteria
Innovative content
Contribution to industry knowledge
Relevance to topic
Clarity of presentation

Selection process (July-August)



Programme committee, drawn from WindEurope working groups and advisory bodies + from EAWE network, receives review outcomes.

Committee considers average grade, reviewer comments and recommendation.



Committee draws shortlist, groups of abstracts by theme.

Committee members draft **session proposals.**

WindEurope & committee review and discuss session proposals at **programme meeting.**

WindEurope EXEC makes final decision and signs off.

Your audience

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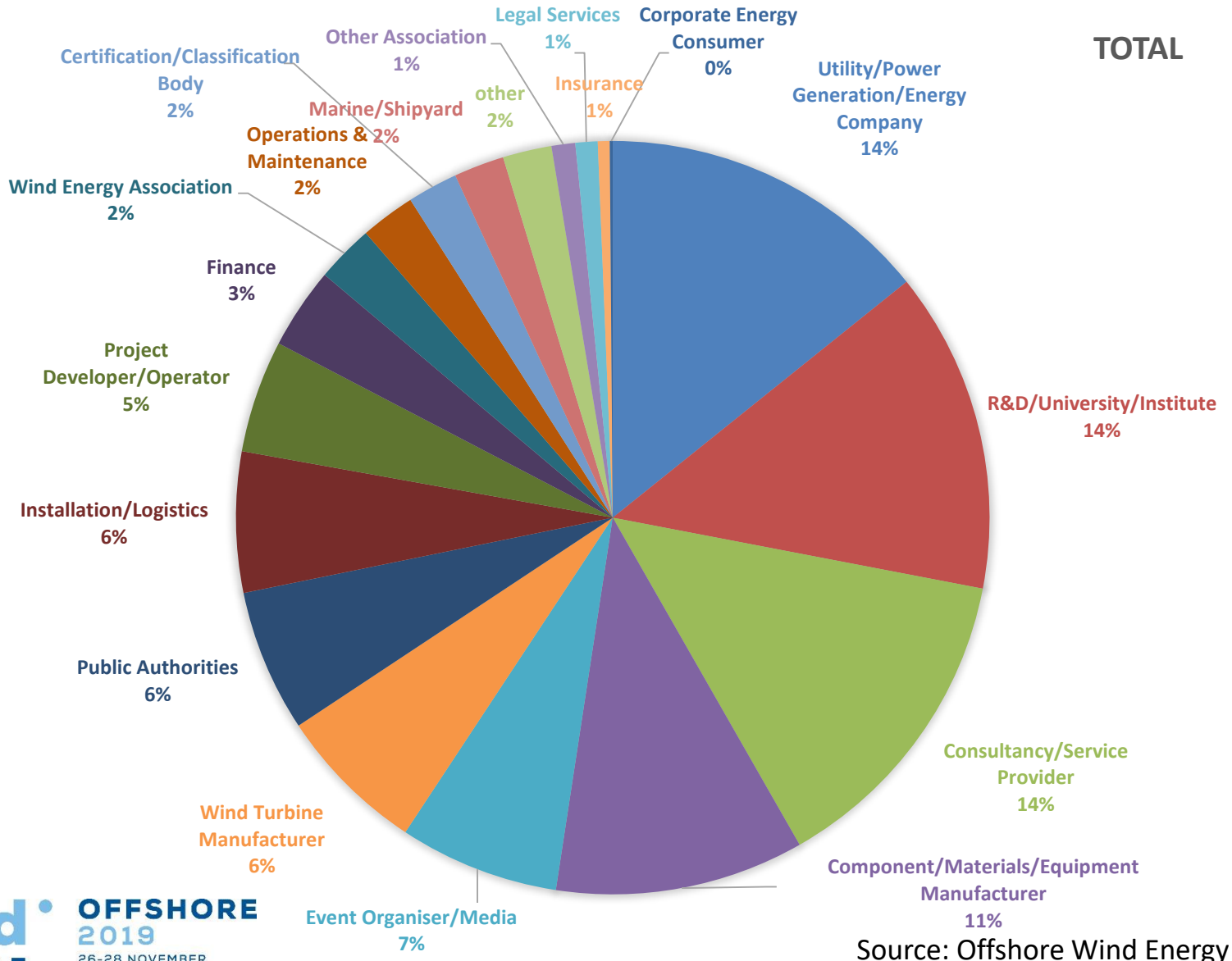
Know your audience



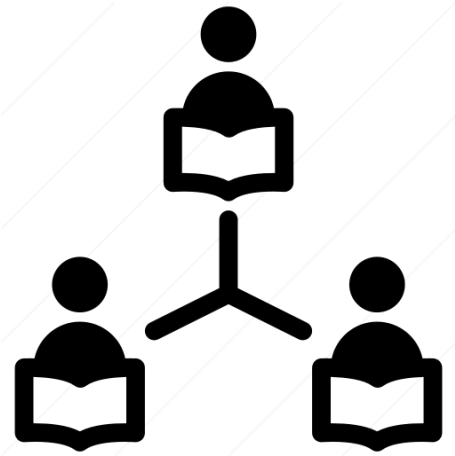
Source: Offshore Wind Energy 2017

Know your audience

Source: Offshore Wind Energy 2017

Know your audience

- What are they looking for:



Learn **from their peers** about **solutions/methods** they can **apply in their daily job**	**Real-world experience** and **examples**	**Analysis of empirical data**

Know your audience

- What they are NOT looking for:

Paying delegates do not like to hear sales pitches.
If they want to know about your products, they will visit your exhibition stand.

How to write an impactful abstract

Mike Anderson, former CTO of RES
Long-standing member of WindEurope programme committees

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What is an abstract?

- A short, structured text to make people want to hear your story and learn from you.
- It should include:
  - **General summary: why this work and what scope?**
  - **Approach/method: how did you work?**
  - **Results: what did you find?**
  - **Conclusions: what is the impact?**
  - **Learning objectives: what will delegates learn?**

How to write an impactful abstract?

General summary:

- this section should include the importance of your work, the difficulty of the area, and the impact it might have if successful.
- What *problem* are you trying to solve and what is the *scope* of your work?

How to write an impactful abstract

Approach/method:

- *How did you go about solving* or making progress on the problem? Did you use simulation, analytic models, prototype construction, or analysis of field data?

How to write an impactful abstract

Results:

- *What's the answer?* Put the result there, in numbers. Avoid vague, hand-waving results such as "very "small", or "significant."

How to write an impactful abstract

Conclusions and learning objectives

- *What are the implications* of your answer? Are your results *general*, potentially generalizable, or specific to a particular case?
- What do you expect *others* to *learn* from your work?

Dos and don'ts

- Avoid marketing jargon and superlatives.
- Avoid putting in brand names and trademarks.
- Make it clear that your claims will be substantiated and backed by data or concrete examples.
- Put the emphasis on how your work can bring the sector forward.

WindEurope Offshore 2019
Topics & updates

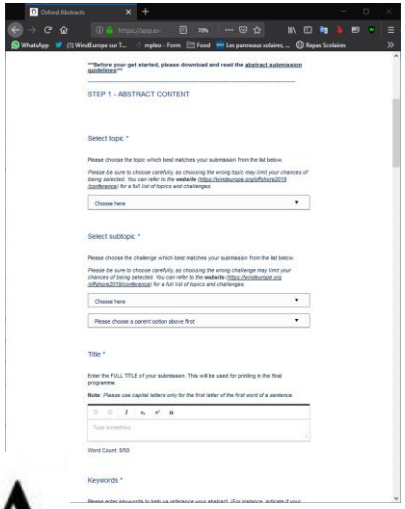
Wind EUROPE

Abstracts format

Only one format for abstracts…

…but option to apply for a publication in the European Academy of Wind Energy's *Wind Energy Science* journal

- Online submission
- Plain text
- Standard set of review criteria



eawe
european academy of wind energy

Topics covered by the call for abstracts

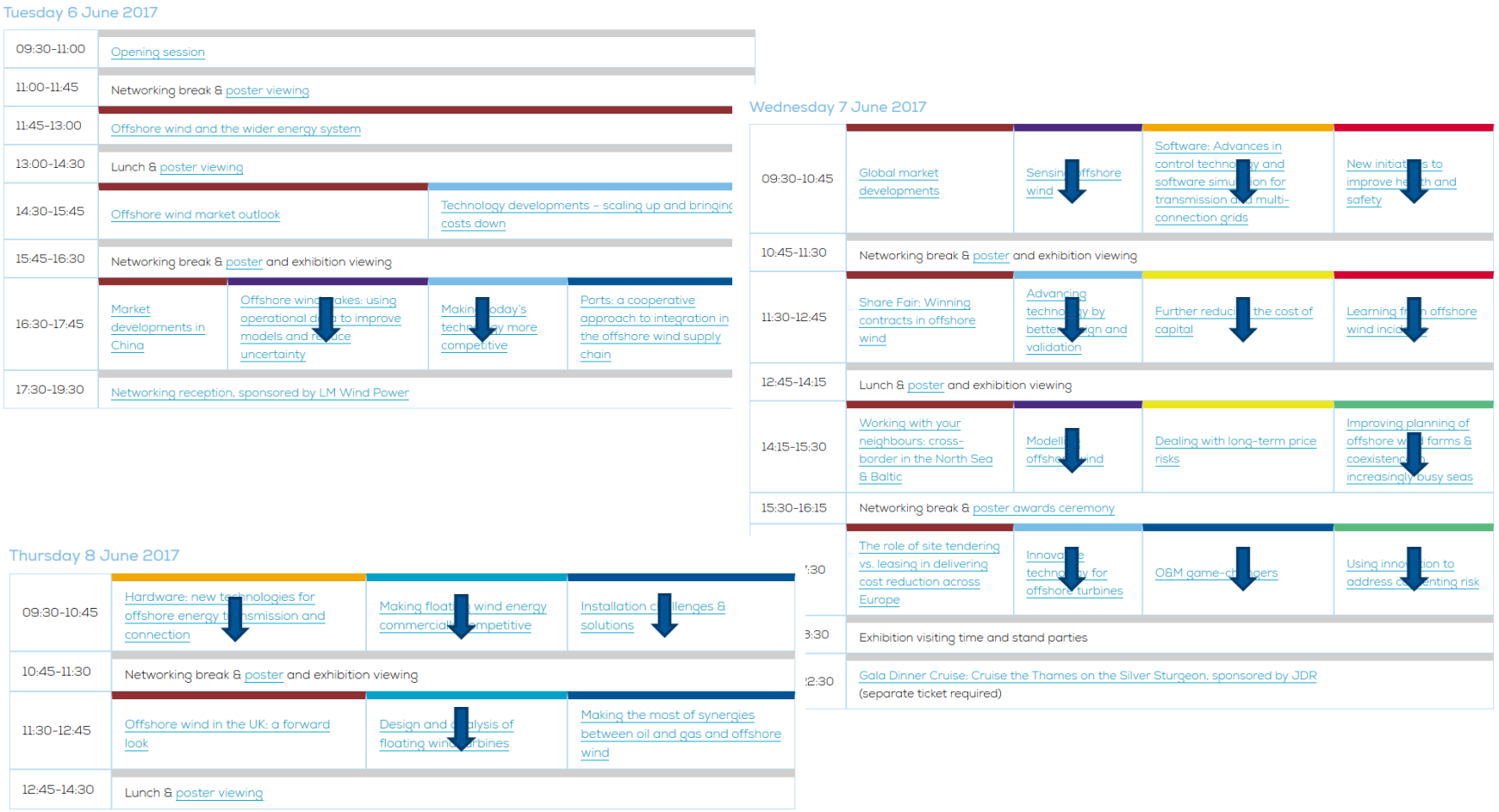
- Turbine Technology
- Floating Offshore Wind
- O&M, installation & logistics
- Resource assessment
- Grid development, storage, electrification and market integration
- Environmental impacts & spatial planning
- Skills, health & safety

Where do abstracts appear in the programme?

At Offshore Wind 2017 in London:

- 56% of sessions (17 sessions out of 30) included abstract content.
- 77% of technical sessions (17 out of 22) included abstract content.

Where do abstracts appear in the programme?



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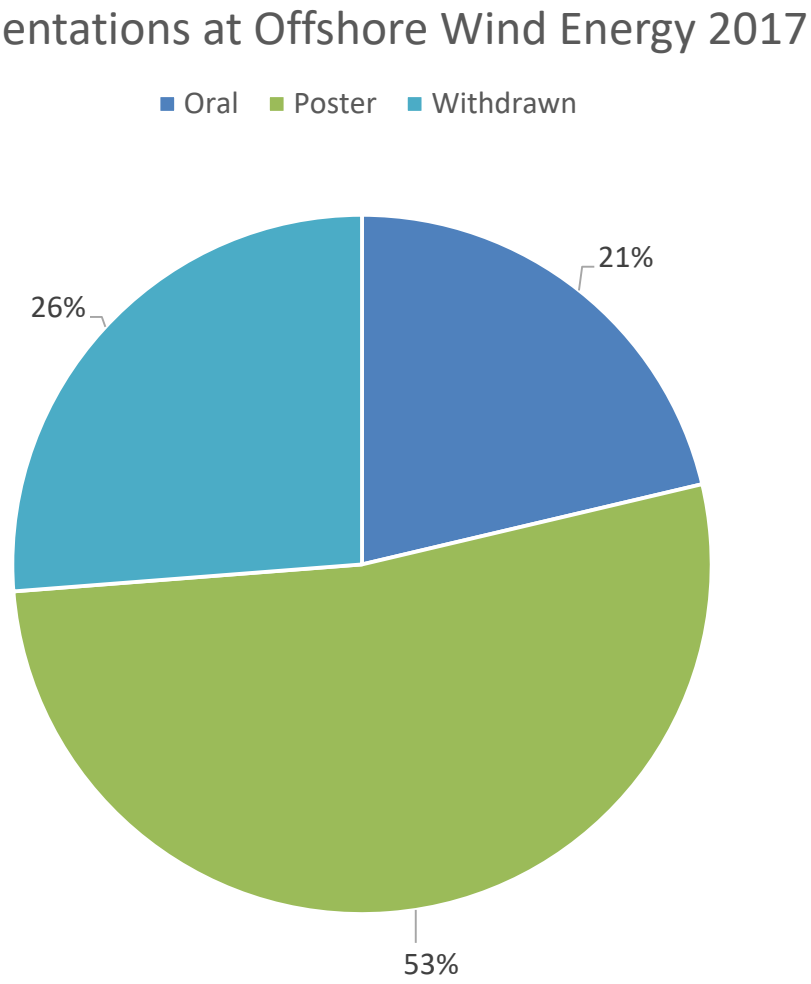
Sessions including abstracts at Offshore Wind Energy 2017

In numbers...



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Abstracts at Offshore Wind Energy 2017

Oral, poster or both?

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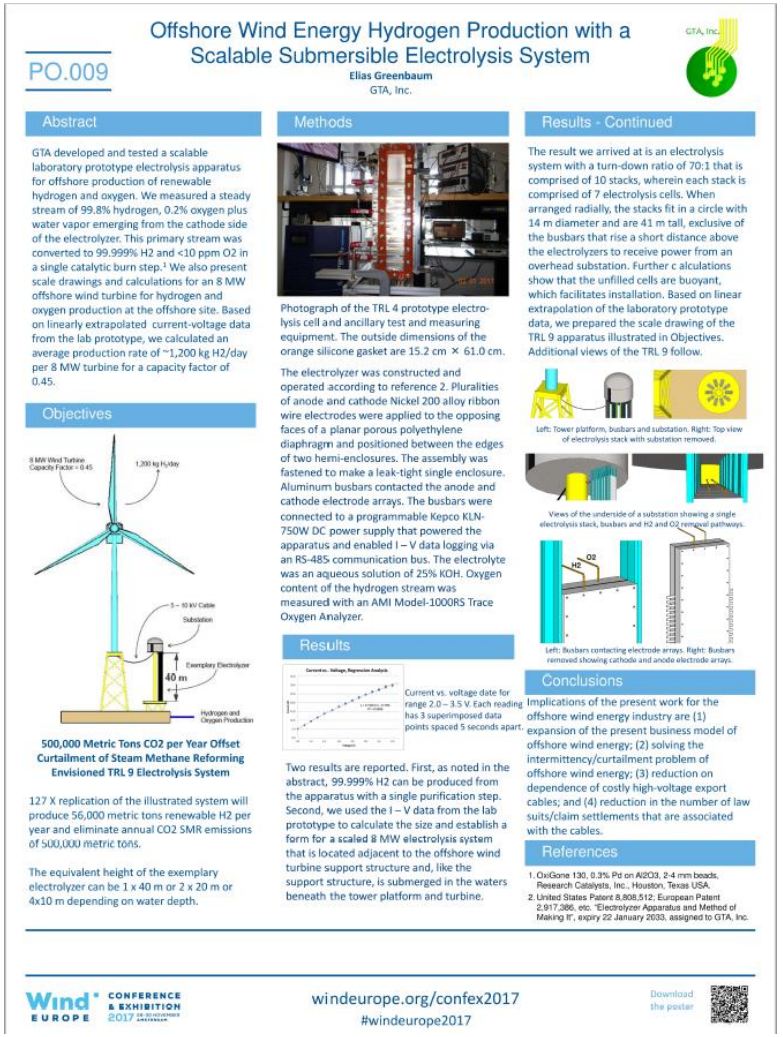
Why posters?

- Often, the amount of good content exceeds the number of slots available in conference sessions. We offer poster presentations to avoid missing out on such content.
- For presenters: this is a different way to present your work and a great opportunity to network.
- You can **combine** an **oral presentation** with a **poster**

What is a poster?

- A presentation of your work that is **more detailed than your abstract** but **more concise than a full article…**



Offshore Wind Energy Hydrogen Production with a Scalable Submersible Electrolysis System

PO.009

Elias Greenbaum
GTA, Inc.

GTA, Inc.

Abstract

GTA developed and tested a scalable laboratory prototype electrolysis apparatus for offshore production of renewable hydrogen and oxygen. We measured a steady stream of 99.8% hydrogen, 0.2% oxygen plus water vapor emerging from the cathode side of the electrolyzer. This primary stream was converted to 99.999% H2 and <10 ppm O2 in a single catalytic burn step.[1] We also present scale drawings and calculations for an 8 MW offshore wind turbine for hydrogen and oxygen production at the offshore site. Based on linearly extrapolated current-voltage data from the lab prototype, we calculated an average production rate of ~1,200 kg H2/day per 8 MW turbine for a capacity factor of 0.45.

Objectives

500,000 Metric Tons CO2 per Year Offset Curtailment of Steam Methane Reforming Envisioned TRL 9 Electrolysis System

127 X replication of the illustrated system will produce 56,000 metric tons renewable H2 per year and eliminate annual CO2 SMR emissions of 500,000 metric tons.

The equivalent height of the exemplary electrolyzer can be 1 x 40 m or 2 x 20 m or 4x10 m depending on water depth.

Methods

Photograph of the TRL 4 prototype electrolysis cell and ancillary test and measuring equipment. The outside dimensions of the orange silicone gasket are 15.2 cm × 61.0 cm.

The electrolyzer was constructed and operated according to reference 2. Pluralities of anode and cathode Nickel 200 alloy ribbon wire electrodes were applied to the opposing faces of a planar porous polyethylene diaphragm and positioned between the edges of two hemi-enclosures. The assembly was fastened to make a leak-tight single enclosure. Aluminum busbars contacted the anode and cathode electrode arrays. The busbars were connected to a programmable Kepco KLN-750W DC power supply that powered the apparatus and enabled I – V data logging via an RS-485 communication bus. The electrolyte was an aqueous solution of 25% KOH. Oxygen content of the hydrogen stream was measured with an AMI Model-1000RS Trace Oxygen Analyzer.

Results

Current vs. voltage date for range 2.0 – 3.5 V. Each reading has 3 superimposed data points spaced 5 seconds apart.

Two results are reported. First, as noted in the abstract, 99.999% H2 can be produced from the apparatus with a single purification step. Second, we used the I – V data from the lab prototype to calculate the size and establish a form for a scaled 8 MW electrolysis system that is located adjacent to the offshore wind turbine support structure and, like the support structure, is submerged in the waters beneath the tower platform and turbine.

Results - Continued

The result we arrived at is an electrolysis system with a turn-down ratio of 70:1 that is comprised of 10 stacks, wherein each stack is comprised of 7 electrolysis cells. When arranged radially, the stacks fit in a circle with 14 m diameter and are 41 m tall, exclusive of the busbars that rise a short distance above the electrolyzers to receive power from an overhead substation. Further c alculations show that the unfilled cells are buoyant, which facilitates installation. Based on linear extrapolation of the laboratory prototype data, we prepared the scale drawing of the TRL 9 apparatus illustrated in Objectives. Additional views of the TRL 9 follow.

Left: Tower platform, busbars and substation. Right: Top view of electrolysis stack with substation removed.

Views of the underside of a substation showing a single electrolysis stack, busbars and H2 and O2 removal pathways.

Left: Busbars contacting electrode arrays. Right: Busbars removed showing cathode and anode electrode arrays.

Conclusions

Implications of the present work for the offshore wind energy industry are (1) expansion of the present business model of offshore wind energy; (2) solving the intermittency/curtailment problem of offshore wind energy; (3) reduction on dependence of costly high-voltage export cables; and (4) reduction in the number of law suits/claim settlements that are associated with the cables.

References

1. OxiGone 130, 0.3% Pd on Al2O3, 2-4 mm beads, Research Catalysts, Inc., Houston, Texas USA.
2. United States Patent 8,808,512; European Patent 2,917,386, etc. "Electrolyzer Apparatus and Method of Making It", expiry 22 January 2033, assigned to GTA, Inc.

Wind EUROPE CONFERENCE & EXHIBITION 2017

windeurope.org/confex2017
#windeurope2017

Download the poster

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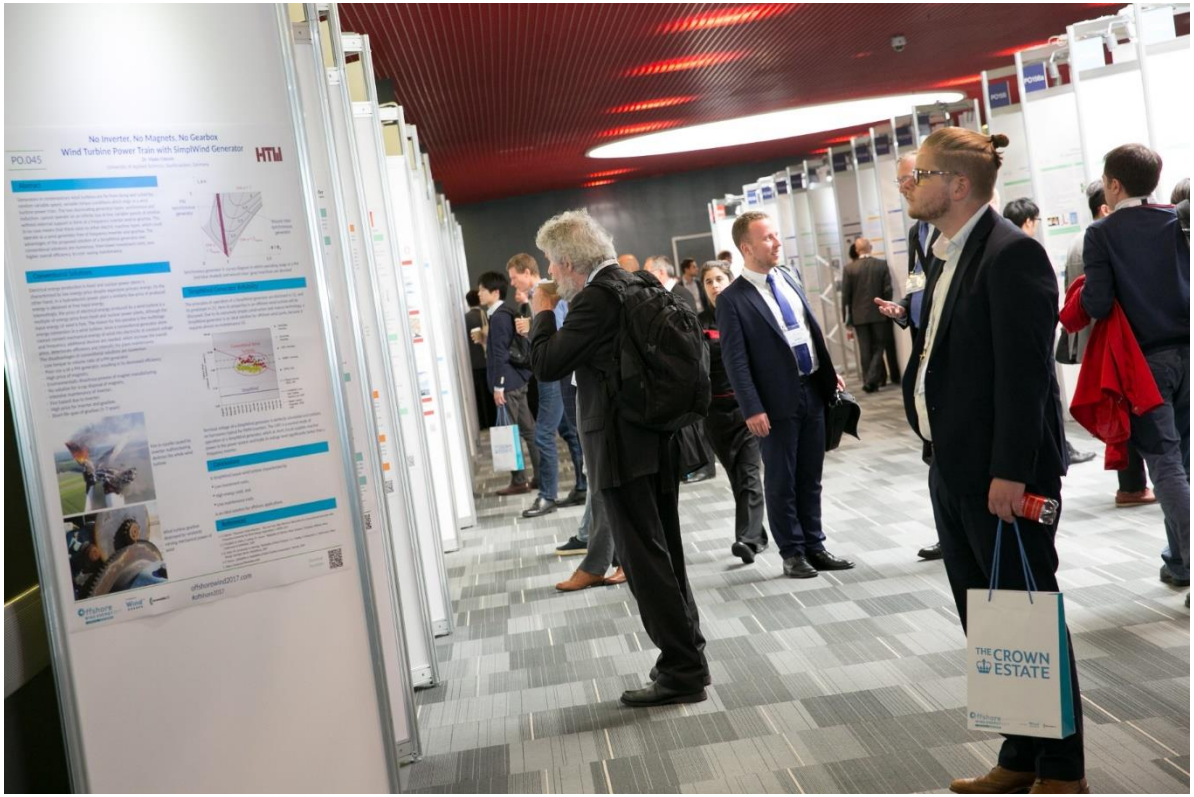
What is a poster?

- …displayed in an **area of great traffic**!



What is a poster?

- A great basis for **one-to-one** and **in-depth conversations** and **networking**

What is a poster?

- An easy way to share your work, through onsite downloads via the **embedded QR codes** and after the event, via the **online proceedings.**

Did you know that…

1 poster = 100 downloads

= A full session room!

Poster award ceremony

Winners get a free full conference pass for one of the next WindEurope events

In practice

Submitting an abstract with Oxford Abstracts

THANK YOU

Submit your abstract by 15 June 2019

windeurope.org/offshore2019

conference@windeurope.org

For membership related inquiries:

membership@windeurope.org

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