



INTRODUCTORY NOTE

IEA WIND TASK 11 TOPICAL EXPERT MEETING #99

ON

FLOATING OFFSHORE WIND ARRAY CHALLENGES AND OPPORTUNITIES

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BACKGROUND

The offshore wind resource is significant for many countries and is already, or slated to be, a key contributor to the electrical grid production plans of many countries. For some, their coastal waters include extensive regions of shallow depths (less than 60m), where fixed-bottom supports for offshore wind turbine are feasible. However, the majority of the offshore wind resource across the globe is in depths where the only feasible technical approach is to use floating supports.

Much of the research on floating turbines to date has focused on the engineering of an individual turbine and support structure. However, as developers move forward with field trials and plan for larger scale commercial arrays, they will face a new, but common, set of layout issues that did not arise for fixed-bottom offshore wind plants. Some are opportunities, such as shared moorings or anchors, while others are challenges, such as understanding new wake motion dynamics.

MOTIVATION

Currently, floating offshore wind energy technology is fragmented among IEA Wind tasks, with some aspects being addressed in Tasks 26 (Cost of Wind), 30 (Offshore Code Comparison), 37 (Systems Engineering), and 40 (Downwind Turbines). However, floating offshore wind energy is at the frontier of wind technology and community interest. Many governments, industries, and developers are currently marching forward with pilot or even second-generation floating wind projects, but there are challenges and opportunities that are common to all countries. The IEA Wind program can seize on the momentum for floating wind deployment and address some of these common issues in an international, collaborative setting.



OBJECTIVES

This topical expert meeting is intended for participants to exchange information and ideas that relate to the opportunities and challenges that are unique to floating offshore wind arrays and do not overlap with other IEA tasks. These opportunities and challenges would also be shared by researchers or developers across the globe. Topics that form the base of a new IEA Task proposal and that will be discussed include:

- Anchoring and Moorings: reduce cost, optimise performance through sharing of moorings, reusable anchors, installation efficiencies at scale, etc.
- Cabling and Export: inter-array cabling, export, umbilical design, export systems, HVDC, installation efficiencies at scale, etc.
- Metocean Assessment: meso to micro modelling, increasing accuracy, impact of climate change, risk of extreme conditions, etc.
- Control of Floating Farms: control algorithms designed specifically for floating assets, response to extreme conditions, opportunities to alleviate loading through whole wind farm control, etc.
- Installation, Operations and Maintenance: increasing weather windows, reliability-based design, predictive maintenance, access to floating assets, etc.
- Being a Good Neighbour: co-location of industries, avoiding conflict with shipping/fisheries, increasing social acceptance, etc.

INTENDED PROGRAM

Preliminary Remarks

TEM#99 will be the first online organized IEA Wind TEM and will take place over three days: Wednesday, July 15 – Friday, July 17 – Monday, July 20. Each day will be dedicated to specific topics, and participants will have to sign up for the sessions they wish to attend. The sessions will be structured as follows:

- Presentations (20 minutes)
- Discussion in small groups (60 minutes)
- Synthesis (20 minutes)

In order to facilitate discussion in groups of 6-8 people, a draft of the IEA Wind Task proposal will be sent out to invitees prior to the meeting, and they will be given two weeks' time to submit comments on the document. It will be used as a base for the group talks.

Participants are encouraged to contribute actively either by presenting, chairing a small group discussion or taking notes for the group. They can volunteer using the registration form.



Tentative Agenda

Monday, June 29

Registered experts receive an explanatory presentation + a link to a survey to indicate their interest for each Research Area & Topic. To be watched and filled until July 6.

Wednesday, July 6

Presenters and note takers are informed, a 2nd survey for prioritization of topics is circulated

Tuesday, July 14

Registered experts receive an invitation for each session, with an overview of the participants & a link to the community page for 1-slide introductions and pre-recorded videos can be found

All times hereafter are indicated in Central European Summer Time (CEST, UTC+2).

Wednesday, July 15

13:30 -15:10 Session 1: Anchoring & Moorings

16:00 - 17:40 Session 2: Cabling & Export

Friday, July 17

13:30 - 15:10 Session 3: Metocean Assessment

16:00 - 17:40 Session 4: Control of Floating Farms

Monday, July 20

13:30 - 15:10 Session 5: Installation, Operations & Maintenance

16:00 - 17:40 Session 6: Being a Good Neighbour

INTENDED PARTICIPATION

- Wind turbine OEMs
- Offshore wind turbine owners and operators
- Offshore wind component suppliers
- Offshore wind turbine service and repair providers
- Marine economy unions and advocates
- Marine wildlife and environmental experts
- Research institutions
- Funding agencies



EXPECTED OUTCOMES

A report will document the proceedings of the meeting. This report will provide:

- The state of existing floating offshore wind array planning
- Challenges and opportunities for offshore wind arrays common to all developers
- Scope for proposed IEA Task for submission to IEA Executive Committee

PRACTICAL DETAILS

Individual Outlook invitations will be sent separately for each session, including the meeting link and the list of participants. Please accept these invites to confirm your presence.

A community page on the IEA Wind Platform will be set up shortly before the meeting. All introductory slides as well as pre-recorded presentations will be available there.