



MONT CROSIN, SWITZERLAND, SUISSE EOLE (PHOTO CREDIT: © FMB/ BKV AG)

TASK 11 REPORT 2020

Base technology information exchange

Task 11 of the IEA Wind Technology Collaboration Programme (TCP) promotes and disseminates knowledge on emerging wind energy topics. This is accomplished through Topical Expert Meetings (TEMs), in which invited experts meet to exchange information on R&D topics of common interest to the IEA Wind TCP members.

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Task 11 also disseminates knowledge by developing IEA Wind TCP Recommended Practices and Factsheets. Many IEA Wind

Recommended Practices have served as the basis for both national and international standards.

Task 11 has been part of the IEA Wind TCP since 1978 and nearly every member country participates. It allows members to react quickly to new technical and scientific developments and information needs.

Task 11 reports and activities bring the latest knowledge to wind energy experts in the member countries and offers recommendations for the future work of the TCP. Task 11 is also a catalyst for starting new IEA Wind TCP research Tasks.

Progress and Achievements

Topical expert meetings

TEMs are conducted as workshops, where information is presented and discussed in an open manner. Generally, oral presentations are expected from all participants. Meeting proceedings are made available to Task 11 participating countries immediately, and to the public one year later. Five TEMs were held in 2020:

TEM#98 Blade erosion: 29 participants from 12 countries met to discuss wind turbine blade lifetime and performance. Those two topics are central concerns for wind farm operators and blade manufacturers to avoid blade erosion. TEM#98 took place on 6-7 February 2020 at the DTU Risø Campus in Roskilde (Denmark). Raul Prieto, Joshua Paquette, and Leon Mishnaevsky took the technical lead in the organization of the meeting. This multidisciplinary topic generated a great deal of interest and technical discussion on the factors and causes of leading-edge erosion. The most promising technologies and business practices to combat blade erosion were also discussed.

TEM#99 Floating offshore wind arrays challenges and opportunities:

The meeting was held on 17, 20, and 22 July 2020 online. 103 participants from 18 countries discussed offshore wind resources which are an important resource for many countries and already contribute to their power system generation plans. The objective of TEM#99 was to exchange information and ideas on the opportunities and challenges specific to offshore floating wind, without overlap with other IEA tasks. The creation of floating reference networks is desirable in order to evaluate different component designs and control strategies or operating methods. It is also one of the avenues to explore, so that methods and costs are shared by countries.

TEM#100 on aviation system cohabitation: This TEM, organized by Swiss and Swedish experts, 8 and 9 December 2020 gathered, in an online meeting, 32 participants from eight countries. Processes to obtain building permits for new wind turbines from civil aviation or airports are still unclear and variable. Following intense discussions, the participants agreed upon the best practices for mitigation of conflicts between wind turbines and aviation systems. Different measures were studied to allow WT to coexist with radars not only today, but also in the future.

TABLE 1. COUNTRIES PARTICIPATING IN TASK

Table 1. Task 11 Participants in 2020		
	Country/Sponsor	Institution(s)
1	Belgium	Government of Belgium
2	Canada	Natural Resources Canada
3	CWEA	Chinese Wind Energy Association (CWEA)
4	Denmark	Danish Energy Authority
5	Finland	Business Finland
6	Germany	Federal Ministry for Economic Affairs and Energy (BMWi)
7	Ireland	Sustainable Energy Agency Ireland (SEAI)
8	Italy	Ricerca sul Sistema Energetico (RSE S.p.A.)
9	Japan	New Energy and Industrial Technology Development Organization (NEDO)
10	Korea	Korea Institute of Energy Technology Evaluation and Planning (KETEP)
11	Mexico	Instituto de Investigaciones Electricas (IIE)
12	Netherlands	Rijksdienst Voor Ondernemend (RVO)
13	Norway	Norwegian Water Resources and Energy Directorate (NVE) and The Research Council of Norway, Norges Forskningsråd
14	Spain	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)
15	Sweden	Energimyndigheten (Swedish Energy Agency)
16	Switzerland	Swiss Federal Office of Energy (SFOE)
17	United Kingdom	Offshore Renewable Energy Catapult (ORE)
18	United States	U.S. Department of Energy (DOE)

Wind energy is moving fast—so are we!

Task 11 can be seen as the backbone of the IEA Wind TCP's activities. Active researchers and experts from participating countries are invited to attend the Topical Expert Meetings. The topics, selected by Task 11 and approved by the IEA Wind TCP Executive Committee, cover the most important wind energy issues for decades.

If a TEM attracts sufficient interest, it can serve as a kick-off for the process of organizing a new research task within the IEA Wind TCP. In 2020, task proposals for 'Wind Farm Control' and 'Wind Turbine Blade Recycling' were presented to the ExCo following the organization of relative TEMs. Now, the task workplan on Electrical Infrastructure Components is under development.



FIGURE 1. ATTENDANCE AT TEM#98 ON BLADE EROSION IN ROSKILDE, DENMARK (PHOTO CREDIT: TASK 11 OA)

TEM#101 on hybrid power plant challenges and opportunities:

This TEM took place online on 24-26 August, gathering 74 experts from 16 different countries. Technical lead was assumed by Jennifer King and Katherine Dykes. While many renewable energy companies are announcing and pursuing strategies to commercialize hybrid power plants, many questions remain regarding their design, operation, and control. In many cases, solar and/or storage will be added to existing wind plants to increase capacity/value. The IEA Wind TCP can seize on the momentum for hybrid power plants and address some of these common issues in an international, collaborative setting.

TEM#102 on airborne wind energy challenges and opportunities:

This TEM was organized online on 23-24 September by Kristian Petrick, Udo Zillmann, Stefanie Thoms, Chris Vermillion, Jochem Weber, Roland Schmehl, and Andy Clifton, with as many as 92 experts from 18 different nations present. This is proof of the strong interest in the whole field of Airborne Wind Energy (AWE), with the potential to provide access to stronger and more stable high altitude wind resources, including in remote areas and floating seas. A recent road mapping exercise among Airborne Wind Europe members concluded that AWE system deployment can be expected to be in the gigawatt range by 2030.

Leadership Team Summit 2020

The first Leadership Team Summit was organized in 2020, increasing the dynamics of the TCP Wind:

- To accelerate the procedure for new Task approval
- To discuss the interaction with other IEA TCPs
- To discuss legal changes needed to make the TCP Wind more sustainable
- To provide key messages/initiatives to IEA Paris through the Secretariat

Outcomes and Significance

Task 11 can be seen as the backbone of the IEA Wind TCP's activities. Active researchers and experts from participating countries are invited to attend these meetings. Meeting topics, selected by the IEA Wind TCP Executive Committee, have covered the most important wind energy issues for decades. In 2020, Task 11 participants held a dedicated meeting in conjunction with the spring ExCo meeting. It was a great opportunity to discuss the strategic orientation of the Task and define priorities for the next term.

Next steps

The Task 11 remained dynamic in 2020 with fast-track and online TEMs. The IEA Wind TCP will remain a leading actor of the wind energy development in 2021, reacting quickly to topics of top priority.

The following TEM topics have been selected for 2021:

- TEM#103: Offshore Licensing and Consenting
- TEM#104: Implementing an Asset Management Standard

Task 11 Contact and information

Phase: 2021-2023

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