



Report 2022

Task 11

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Wind SCOUT

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Task 11 promotes and disseminates knowledge on emerging wind energy topics through international cooperative activities.

This is accomplished through Topical Expert Meetings (TEMs), in which active researchers, industry, and government experts meet to exchange information on R&D topics of common interest to the IEA Wind TCP members. When considered beneficial, a factsheet will be prepared with the main results of a TEM. Task 11 also disseminates knowledge by developing recommended practices. Many

IEA Wind recommended practices have served as the basis for national and international standards.

In 2021, Task 11 was intensely involved in establishing updated and detailed procedures which improve internal communication within the IEA Wind TCP. This had the purpose of accelerating the approval processes for new Tasks and supporting the operating

agents. Regular meetings with the leadership team had the aim of increasing the dynamics of the TCP Wind and defining the conditions for TEMs to be organised in collaboration with other IEA TCPs. The TEM#108 on Technology Transfer and Adoption, initially planned for 2022, was cancelled due to imposed travel restrictions. The meeting was finally rescheduled and will take place online at the beginning of 2023.

The reports and activities of Task 11 bring the latest knowledge to wind energy experts in its member countries, offer recommendations for the future work of the TCP, and operate

as a catalyst for starting new IEA Wind TCP Research Tasks.

Introduction

Task 11 of the IEA Wind Technology Collaboration Programme (TCP) promotes and disseminates knowledge on emerging wind energy topics through international cooperative activities. 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. TEMs can be catalysts for starting new IEA Wind TCP research Tasks, addressing specific internal

needs, or serving as a dissemination platform.

Furthermore, Task 11 shares knowledge by developing IEA Wind TCP recommended practices and fact-sheets. Many of which have provided the basis for national and international standards.

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

Table 1. Countries Participating in Task 11 (2022).

COUNTRY/SPONSOR	INSTITUTIONS
Belgium	Government of Belgium
Canada	Natural Resources Canada (NRCan)
CWEA	Chinese Wind Energy Association (CWEA)
Denmark	Danish Energy Agency
Finland	Business Finland
Germany	Federal Ministry for Economic Affairs and Climate Action (BMWK)
Ireland	Sustainable Energy Agency Ireland (SEAI)
Italy	Ricerca sul Sistema Energetico (RSE S.p.A.)
Japan	New Energy and Industrial Technology Development Organisation (NEDO)
Korea	Korea Institute of Energy Technology Evaluation and Planning (KETEP)
Netherlands	Rijksdienst Voor Ondernemend (RVO)
Norway	Norwegian Water Resources and Energy Directorate (NVE) and The Research Council of Norway, Norges Forskningsråd
Spain	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)
Sweden	Energimyndigheten (Swedish Energy Agency)
Switzerland	Swiss Federal Office of Energy (SFOE)
United Kingdom	Offshore Renewable Energy Catapult (ORE Capapult)
United States	U.S. Department of Energy (DOE)

Progress and Achievements

Topical Expert Meetings

TEMs are conducted as workshops, where information is presented and discussed openly. Generally, oral presentations are expected from all participants. Meeting proceedings are made available to countries participating in Task 11 immediately and to the public one year later. Although several subjects were retained as interesting for potential TEMs, two TEMs have been organised under the 2022 term.

The 2021 TEMs has also been published and disseminated, contributing to new Tasks or factsheets for wind communities. TEM#100 on Aviation System Cohabitation led to best practices for mitigating conflicts between wind turbines and aviation systems. TEM#101 on Hybrid Power Plants Challenges and Opportunities opens and TEM#102 on Airborne Wind Energy Challenges creates the foundations for new Task proposals.

TEM #108 Technology Transfer and Adoption in the Wind Energy Sector

TEM#108 was hosted online by the IEA Wind Task 11 Operating Agents and convened by Stephen Wyatt and David Wallace from Offshore Renewable Energy Catapult (UK), as well as Andy Clifton and Ines Wurth from enviConnect (Germany). Input from more than 30 experts and nine presentations was used to provide an overview of the field and guide the discussion in breakout groups and plenary sessions. The closing session resulted in strong interest in developing a detailed scope to propose a new IEA Wind Task surrounding technology transfer.

TEM #109 Grand Challenges in Wind Energy

TEM#109 took place in Boulder (U.S.), assembling about 120 experts, including leaders of the IEA Wind TCP and beyond. The objective was

to understand the essential requirements needed for wind energy to succeed in supplying the foundation of a carbon-neutral energy system. The event highlighted gaps in scientific knowledge, design, and deployment practices. Specific initiatives have been proposed to address these gaps. Insights from the Grand Challenges TEM provided numerous inputs for the IEA Wind TCP next-term strategy.

Highlights

Supporting IEA cross-cutting activities: Collaborating for a multi-TCP Topical Expert Meeting on Hydrogen in 100% renewable energy systems.

As we achieve higher shares of Variable Renewable Electricity (VRE) such as wind and solar, we begin to experience increased issues of constraint and curtailment, reducing the viability of development. VRE is furthermore likely to become the primary source for generating hydrogen from electrolysis. This offers an opportunity to reduce emissions outside the electricity sector and contribute to additional non-CO2 environmental benefits.

The space concerning the integration of hydrogen technologies with renewable energy is occupied by many dispersed stakeholders, each with different priorities. The IEA promotes collaboration between the Technology Collaboration Programmes (TCPs), fostering knowledge exchange, preventing duplication of efforts, and facilitating greater outcomes. Additional benefits of converting wind energy to hydrogen include energy security and economic development, both promoted within the IEA Wind TCP.

Task 11 has organised several online and in-person meetings in 2022, which lay the foundations for a cross-cutting collaboration between the wind, PV, and Hydrogen TCPs, referred to as the TEM 106. The goal is to address the specific challenge of a 100% renewable energy system

and realise the IEA 2050 net zero scenario.

Outcomes and Significance

Task 11 is at the core of the IEA Wind TCP's activities. Active researchers and experts from almost all participating countries are invited to attend its meetings. Meeting topics selected by the IEA Wind TCP Executive Committee have covered the most critical wind energy issues for decades. In 2022, Task 11 participants convened online in conjunction with the spring ExCo meeting. The session served as an opportunity to redefine the Task's priorities after the COVID pandemic and select an ambitious new TEM agenda to reach the Task 11 goals.

Next Steps

The IEA Task 11, Wind Scout, will remain a leading actor in the upcoming activities of the TCP, responding quickly to high-priority topics. Several new topics have raised the interest of the Task members.

The following TEM topics have been prioritised for the successive terms:

- Renewable Hydrogen (September 2023).
- Superconductivity (To be confirmed).
- Wind Instrumentation Development (November 2023).
- Harmonised Life Cycle Assessment (Sustainability) (September 2023).
- And the TEM#104 Wind Farm Asset Management is planned for 2024.

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