



Annual Report 2024

Task 11

Photo: Tahkoluoto offshore wind farm, Pori in 2017. (Source: Hannele Holttinen)

Wind SCOUT

Authors: Lionel Perret & Sébastien Daviet, Planair SA, Switzerland

The mission of IEA Wind TCP is to promote high impact wind energy research and communication through international collaboration.

Task 11 Wind SCOUT (Strategy, Collaboration & Outreach on Urgent Topics of Wind Energy Research) is focused on achieving the TCP mission by bring-

ing together international experts to exchange experience and knowledge in Topical Expert Meetings (TEMs).

In addition, Task 11 also supports the creation of recommended practices in those areas where there is consensus about a particular new technology or method that can be adopted to support wind energy developers, investors or

decision makers. Task 11 is a key tool for the IEA Wind TCP to promote international collaboration and information exchange. Task 11 has three objectives:

1. **Organize four Topical Expert Meetings (TEMs) on** strategically relevant topics every year, gathering researchers, industry and government experts.

2. Support TCP internal needs for TCP dynamic. Supporting Leadership Team for TCP outreach, promoting Recommended Practices, maintaining updated Task 11 website, suggesting and following up on Executive Committee Meetings.

3. Support Task dynamics. Creating more regular exchange and work within Task 11; creating a Teams space for active members and organizing a yearly meeting.

In 2024, four new Topical Expert Meetings (TEM) were successfully organized, bringing together over 170 international experts, primarily from industry and prestigious universities and government research centers.

The third edition of the Recommended Practices for Wind/PV Integration Studies Report [1] has been published and compiled by IEA Wind TCP Task 25 “Design and Operation of Energy Systems with Large Amounts of Variable Generation” and IEA PVPS TCP Task 14.

Introduction

The selection of topics for Topical Expert Meetings is an active process involving the members of the IEA Wind TCP Executive Committee (ExCo) and internationally recognized experts who are focused on speeding up the development and deployment of wind energy. Four TEMs per year are organized under Task 11.

The Operating Agent (OA) solicits topics for future meetings that are presented and validated during one of the Three annual ExCo meetings. A host country and organization are identified, and an expert writes an introductory note that is sent out with the meeting invitation.

As wind energy evolves in a changing energy system and new policy landscape, new challenges appear requiring new knowledge and solutions. The TEMs organized in 2024 reflect on the new challenges that affect many or all our members and participants from the research community, industry and public stakeholders. In 2024, Task 11 consisted of 17 members (countries and sponsors) (Table 1).

COUNTRY/SPONSOR	INSTITUTIONS
Belgium	Government of Belgium
Canada	Natural Resources Canada (NRCan)
CWEA	Chinese Wind Energy Association (CWEA)
Denmark	Danish Energy Agency (DEA)
Finland	Business Finland
Germany	Federal Ministry for Economic Affairs and Climate Action (BMWK)
Ireland	Sustainable Energy Authority of Ireland
Italy	Ricerca sul Sistema Energetico (RSE S.p.A.)
Japan	New Energy and Industrial Technology Development Organization (NEDO)
Korea	Korea Institute of Energy Technology Evaluation and Planning (KETEP)
Netherlands	Rijksdienst voor Ondernemend Nederland (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 Catapult)
United States	U.S. Department of Energy (DOE)

Table 1. Countries Participating in Task 11

The broad range of disciplines, organizations and countries involved in TEMs, allows us to have diverse points of view on any of the topics discussed. This approach, which is core to the Task 11 nature, results in powerful analysis including particularities that can be found in specific regions and complementary points of view, often involving scientific, technical, economic and legal expertise.

The identification of common obstacles and possible solutions through benchmarking methods, creation of common databases or revision of existing methods are frequently considered and discussed during TEMs.

Progress and Achievements

In 2024, four Task 11 Topical Expert Meetings (TEMs) [2] were organized, addressing both high-level strategic planning and specific technical topics to advance the wind energy sector's knowledge and capabilities.

TEM#113: Net Zero Electricity System Studies

TEM#113, hosted by the Sustainable Energy Authority of Ireland (SEAI), took place in Dublin, Ireland, on April 8-9, 2024. The meeting, co-located with Task 25 and Task 53 spring sessions, brought together over 40 international experts to discuss key considerations for guiding frameworks on net zero electricity roadmap studies.

Discussions focused on grid integration challenges, global pathways to net zero electricity, and lessons learned from existing studies. These insights will inform future work on net zero electricity, providing valuable resources across various jurisdictions, technologies, and agencies.

The proceedings have been published and are now available online [3]. The key outcomes of the workshop highlighted knowledge gaps and identified priority R&D areas for the following themes:

- The role of wind energy in the net-zero electricity system
- Energy system modeling for net zero
- Power system modeling for net zero
- Electricity markets

TEM#111: Reanalyses for Wind Energy

Held on April 25-26, 2024, at the Technical University of Denmark in Lyngby, TEM#111 attracted more than 80 participants from academia, utilities, developers, consultants, and data providers. The meeting aimed to improve access to and documentation of reanalysis datasets, promote their validation, and share successful applications for wind energy.

The event served as a collaboration platform between reanalysis providers and the wind energy community, fostering the exchange of knowledge to enhance the application of these datasets for future wind energy projects.

The proceedings have been published in August 2024 and are available online [4]. Two workstreams have been identified, which the TEM#111 organisation team manage:

- A “within-wind” workstream, where we will carry out activities relevant primarily only for wind energy purposes.
- A “beyond-wind” workstream, where we will advocate at a higher level for a fair and proper use of reanalysis for planning and operation of power systems, from a practitioner's perspective.

TEM#110: Wind Energy Instrumentation Development (Round 2 Follow-up)

On May 2, 2024, a follow-up to TEM#110 was convened virtually by Sandia National Laboratory. The two-hour online meeting provided an opportunity to revisit discussions from the in-person TEM held in November 2023.

It focused on the ongoing need for instrumentation development to support future wind energy field campaigns,

assessing the importance of such instruments, and sharing best practices for deployment. The session also explored how to enhance coordination and development efforts amidst resource constraints.

TEM#112: Impact of Extreme Weather on Wind Energy Systems

TEM#112, hosted by the National Renewable Energy Laboratory (NREL), took place at Rutgers University in New Brunswick, NJ, USA, on October 28-29, 2024. Over 30 international experts gathered to explore the impact of extreme weather events, such as tropical cyclones and extratropical storms, on wind turbine reliability and lifespan.

This meeting proved instrumental in fostering the exchange of research findings, identifying critical gaps in current knowledge, and discussing emerging trends and future challenges for the wind energy industry.

All documents validated and published for TEMs are available on the website of Task 11 [2].

The third edition of the Recommended Practices for Wind/PV Integration Studies [1] report has been published and compiled by IEA Wind TCP Task 25 - Design and Operation of Energy Systems with Large Amounts of Variable Generation and IEA PVPS TCP Task 14.

This latest edition compiles over 15 years of expertise and international collaboration to offer updated methodologies, assumptions, and best practices for conducting system impact studies in power systems with high shares of wind and solar energy. This report is the result of a collaborative effort involving experts from over 20 countries. It reflects contributions from leading research institutes, universities, system operators, and industry stakeholders, ensuring the recommendations are robust, practical, and globally applicable.

Highlights

Outreach & Dissemination

- The third edition of the Recommended Practices for Wind/PV Integration Studies [1] report has been published and compiled by IEA Wind TCP Task 25 - Design and Operation of Energy Systems with Large Amounts of Variable Generation and IEA PVPS TCP Task 14.

- Four Topical Expert Meetings (TEM) were successfully organized, bringing together over 170 international experts, primarily from industry and prestigious universities and government research centers: TEM#110, TEM#111, TEM#112, and TEM#113.

- TEM#113 Net Zero proceedings have been published and are now available online [3]. The key outcomes of the workshop highlighted knowledge gaps and identified priority R&D areas.

- TEM#111 Reanalysis for Wind Energy proceedings have been published in August 2024 and are available online [4].

Outcomes and Significance

The TEMs organized in 2024 have had a significant impact on advancing wind energy knowledge and collaboration.

TEM#111: Reanalyses for Wind Energy has successfully established a dynamic platform for cross-sector collaboration, connecting with the Wind Energy Measurement and Certification (WEMC). This effort led to the formation of the WEMC Reanalysis Working Group (RWG). The outcomes from TEM 111 were showcased at international conferences and workshops, further expanding their reach.

TEM#112: Impact of Extreme Weather on Wind Energy Systems has catalyzed international collaboration on the effects

of extreme weather events, such as tropical cyclones and extratropical storms. Participants expressed interest in creating a new IEA Wind Task dedicated to enhancing wind energy system performance under these extreme conditions.

TEM#113: Net Zero Electricity System Studies focused on developing a guiding framework for net-zero electricity systems, identifying best practices, research needs, and fostering sector-wide collaboration. Its results are already being applied by utilities, policymakers, and academics to optimize renewable energy integration and guide research efforts.

TEM#110: Wind Energy Instrumentation Development established a network of specialists focused on improving wind measurement technologies. The resulting collaboration will drive advancements in performance and efficiency, supporting better decision-making and effective wind energy system deployment.

Next Steps

IEA Wind Task 11, Wind Scout, will continue to serve as a key interface between the IEA Wind TCP Executive Committee, member countries, international experts, and host institutions, responding flexibly to emerging priorities in wind energy development.

The following TEMs have been prioritized for the upcoming term:

- TEM#114: Artificial Intelligence for Wind Energy – scheduled for June 11-12, 2025, in Denver, Colorado, USA.

- TEM#116: Cybersecurity for Wind Energy Systems – scheduled for October

14, 2025, at the University of Texas at Dallas, USA.

- TEM#117: Circular Economy for Wind Supply Chains – planned for February 2026.

- TEM#118: Automated Robotics for Wind Farms – scheduled for October 20-21, 2025, at the University of Limerick, Ireland. Further information about the organisation of these various events is available at the following link: TEMs - IEA Wind TCP

To enhance collaboration, knowledge sharing, and the dissemination of best practices, several internal tools are being developed within IEA Wind TCP.

References

[1] iea-wind.org/wp-content/uploads/2025/02/RP-16-Ed-3-Wind-PV-Studies_final_2a.pdf

[2] iea-wind.org/task11/tems/

[3] iea-wind.org/task11/tems/

[4] iea-wind.org/task11/tems/

Task Contact

Lionel Perret
Planair SA
Switzerland
lionel.perret@planair.ch

Sébastien Daviet
Planair SA
Switzerland
sebastien.daviet@planair.ch

Website:
iea-wind.org/task11/