Technology Collaboration Programme
by iea

ExCo 90
Newsletter
December 2022

Online Meeting 7-10 November 2022

Photo: Dhruvin Pandya, Unsplash

iea wind

Editorial

While the crisis triggered by the pandemic is slowly easing – allowing IEA Wind meetings to take place in person again – the "new" energy crisis caused by the war in Ukraine had a noticeable impact on renewable energies. On the online ExCo 90 meeting, the reports shared by ExCo Member Countries showed how the deployment targets in the field of wind energy have increased again, often in combination with a planned acceleration of their implementation.

Yet, supply relationships as well as market systems are experiencing major changes, making adjustments and interventions necessary. At the same time, disrupted supply chains and increasing costs of raw materials and components have challenged the long-standing trend of continuous cost reduction. Finally, market systems are generating unexpectedly high profits for individual energy players, and, for the first time, consideration is being given to skimming off these unplanned windfall profits to be able to reduce the burdens elsewhere.

Therefore, it is crucial that new technical concepts are thought up and tested, successful measures and technologies are optimized even further, and findings and solutions are shared collaboratively as quickly as possible. The reports on planned energy islands or the progress in floating wind are impressive examples of how innovative the ExCo Member Countries are in their efforts.

Equally impressive are the successes and plans of the numerous IEA Wind TCP Tasks, which are increasingly interlinked. The exchange of expertise and the progress built on each other's results across institutional, national, and continental borders show how unique and valuable the Wind TCP is for accelerating further development of wind energy technology.

The aggregation of knowledge into Recommended Practices continues to be a very successful way of sharing knowledge and experience, with not only each other but also with those who are still in the early stages of using wind energy. Very much in the spirit of the IEA, which is based on the premise that successful energy transitions must be fair and inclusive, offering a helping hand to those in need and ensuring the benefits of the new energy economy are shared widely.

Best regards,
Stephan

Stephan Barth, *ForWind*
Chairman of the IEA Wind TCP
stephan.barth@forwind.de

iea wind

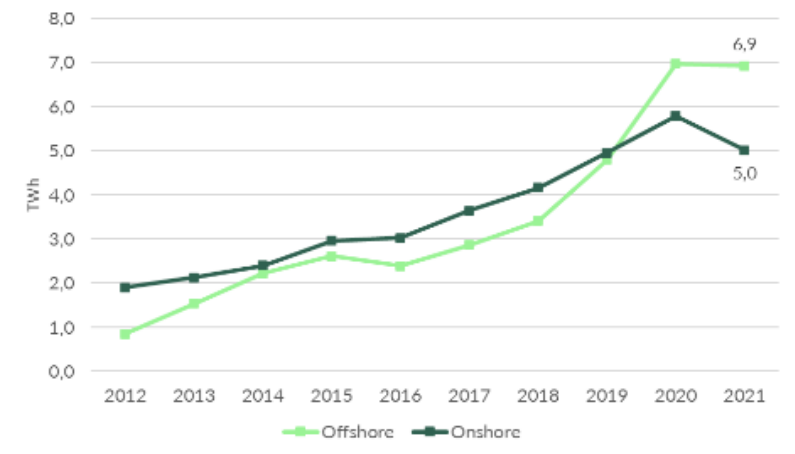
Belgium
Country Presentation

For more information please contact:
Jan Hensmans
Directorate-General Energy
Jan.hensmans@economie.fgov.be

Key highlights

- 2nd offshore-zone to be developed before 2030 = > doubling capacity to 6GW
  = > Extension to 8GW by 2040
- Creation of an offshore energy transmission hub in the form of an artificial island
  = >Grid connection up to 3,5 GW
- Strong focus on offshore wind energy research ; spill-over with onshore wind energy topics

Evolution wind energy in TWh



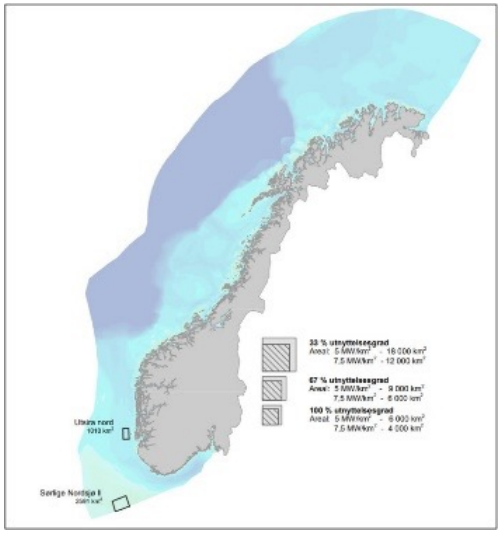
Norway
Country Presentation

Key highlights

- The high installation rate onshore from the past years have slowed down, due to end of support scheme
- Introduction of windfall tax and production task for wind power planned from 2023
- Two areas for offshore wind power has been opened and the government is working on criteria for auction and competition for developers

For more information please contact:
Ann Østenby
NVE
amo@nve.no

Two opened areas for offshore wind power and the area needed for future development



iea wind

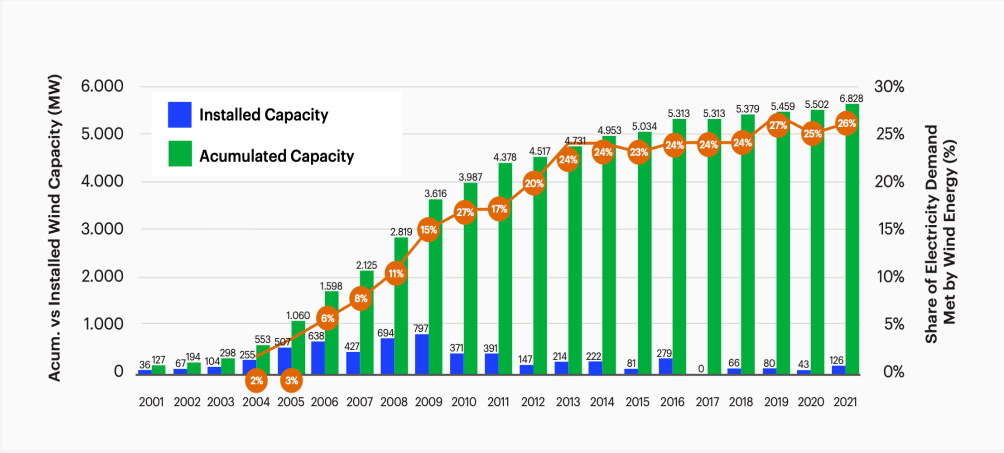
Portugal
Country Presentation

For more information please contact:
Teresa Simões
LNEG
Teresa.simoes@lneg.pt

Key highlights

- Portugal has its first floating offshore wind farm fully operating - WindFloat Atlantic, with a 24MW nominal capacity
- The wind-based electrical energy supplied 26% (13.27 TWh) of the country's electricity demand, reaching a total installed capacity of 5.6 GW. The instantaneous electricity demand met by wind energy reached a maximum of 108% in 2019
- Although in revision, NCEP 2030 plans for wind are: 9.0 GW onshore and 0.3 GW offshore by 2030 through hybridization, overplanting and repowering procedures

Installed and cumulative wind power capacities and share of electricity demand met by wind energy



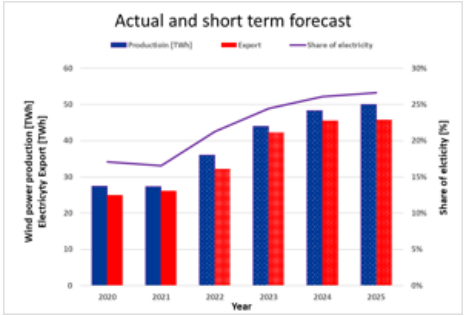
Sweden
Country Presentation

Key highlights

- In 2021, installed wind power capacity reached 12,1 GW. Wind power accounted for 16% of electricity production (26,6 TWh)
- Wind power is geographically spread all over Sweden, with a majority installed capacity now located in the north of Sweden
- The wind turbines that are put into operation in Sweden are usually with a power capacity between 4—5 MW and are expecting to produce between 12 – 16 GWh per year

For more information please contact:
Andreas Gustafsson
Swedish Energy Agency
andreas.gustafsson@energimyndigheten.se

Short term forecast for wind power electricity production and electricity export.



iea wind

Task 30
OC6 Project

Key highlights

- Work in Phase III was performed in conjunction with Task 47 and focused on validation of the aerodynamic load for a floating offshore wind turbine as it experiences large surge and pitch motion, as would occur during normal operation in waves
- Dataset used came from the UNAFLOW project, which performed testing in the wind tunnel at Politecnico di Milano – where a robot was used to move a wind turbine in an oscillatory way representing motion in waves
- Significant findings from this work were that the pitch and surge motion themselves don't create significant unsteadiness in aerodynamic loading. Rather, pitch/torque control injects unsteadiness

For more information please contact:
Amy Robertson
National Renewable Energy Laboratory
Amy.Robertson@nrel.gov

https://iea-wind.org/task30/

Politecnico di Milano wind tunnel during the UNAFLOW project with scaled DTU-10MW RWT (image credit: Alessandro Fontanella, Politecnico di Milano)

Task 41
Enabling Wind to Contribute to a Distributed Energy Future

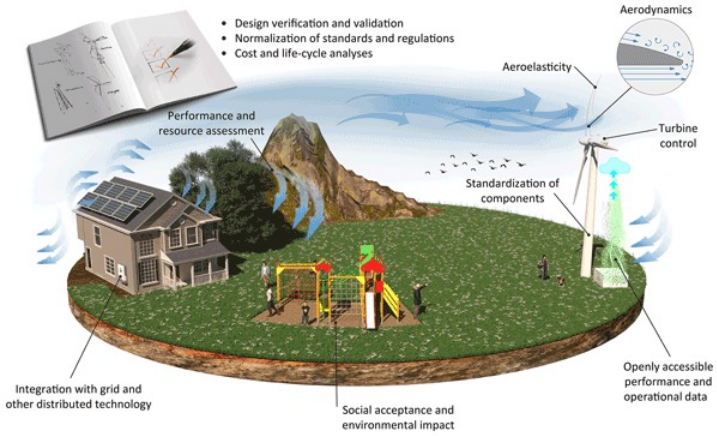
Key highlights

- Collaborated with Task 54 (Cold Climate Wind) researchers to produce A Framework for Characterizing the Risk of Ice Fall and Ice Throw from Small Wind Turbines
- Hosted a University Research Collaborative symposium for presentations from students at four different universities
- Started planning for a Phase II extension of the task

For more information please contact:
Alice Orrell
Pacific Northwest National Laboratory
Alice.Orrell@pnnl.gov

https://iea-wind.org/task41/

Graphical abstract from the Current status and grand challenges for small wind turbine technology publication that members from the European Academy of Wind Energy Small Wind Turbines Technical Committee published in collaboration with Task 41 members.



iea wind

Task 48
Airborne Wind Energy

For more information please contact:
Kristian Petrick
Airborne Wind Europe
kristian.petrick@airbornewindeurope.org

https://iea-wind.org/task48/

Key highlights

- The MegAWES Reference model and simulation framework offers, like the NREL 5MW wind turbine, a relatively detailed reference model of a multi-megawatt AWE system. It can be used to test concepts in an early stage of development without the excessive costs of building a real system
- On Social Acceptance of AWE a literature review and a first scientifically sound survey at AWE site in Northern Germany were carried out by a TU Delft PhD student. First indications show in general a positive feedback; sound emissions will need to be further investigated
- Two Life-Cycle Analyses for fixed-wing systems show that these AWE systems have a significantly lower mass than wind turbines and have an about 40% lower Global Warming Potential

MegAWES simulated fixed-wing aircraft (Source: TU Delft).

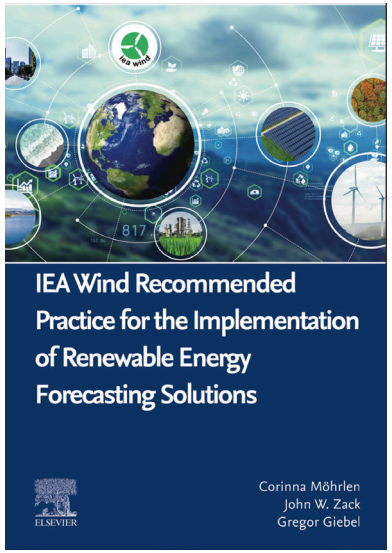
Task 51
Forecasting for the Weather Driven Energy System

Key highlights

- Second version of our Recommended Practice, including solar, data transfer and data requirements for local measurements
- Two games motivating why one should use probabilistic forecasts rather than deterministic ones
- State-of-the-Art and Research Gaps workshop held in Dublin in Sept. 2022, paper being worked on

For more information please contact:
Gregor Giebel
DTU Wind and Energy Systems
grgi@dtu.dk

https://iea-wind.org/task51/



The IEA Wind Recommended Practice for the Implementation of Renewable Energy Forecasting Solutions is the second edition, advising end users what to look for in a forecasting service.

iea wind

Task 52
Power Large-Scale Deployment of Wind Lidar

For more information please contact:
Julia Gottschall
Fraunhofer IWES
IEAWind.Task52@iwes.fraunhofer.de

https://iea-wind.org/task52/

Key highlights

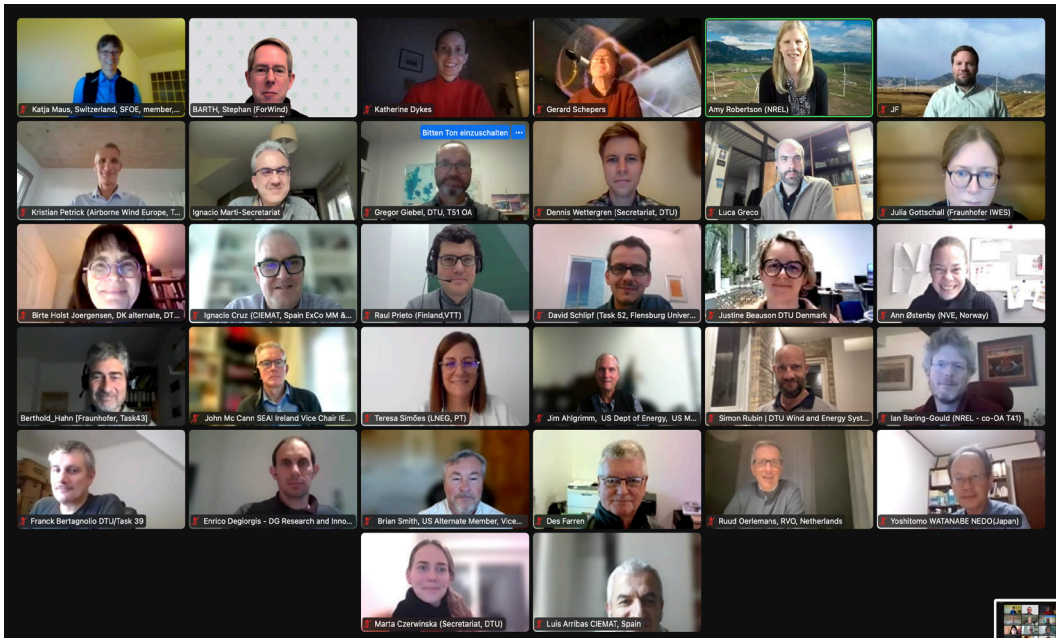
- Task 52 successfully kicked off in May 2022 with online General Meeting (https://doi.org/10.5281/zenodo.6828890)
- Six active working groups (as of early Nov 2022) under four central themes: "Universal inflow characterisation", "Replacing met masts", "Connecting wind lidar", and "Accelerating offshore wind deployment" (https://iea-wind.org/task52/)
- First in-person meeting for about three years in Vienna in Oct 2022, together with Tasks 41 and 54, with focus on wind lidar in cold climate and complex terrain

Scanning lidar setup close to shore, representing one of Task 52's key activities for the next four years (Picture: ©Oldbaum)

Next ExCo Meeting in Japan 10-13 May 2023

ExCo 91 will be held as a physical meeting in Japan. Detailed agenda and invitations will be sent by the secretariat in due course.

The ExCo 90 took place online on 14-17 November 2022



iea wind

Misc.

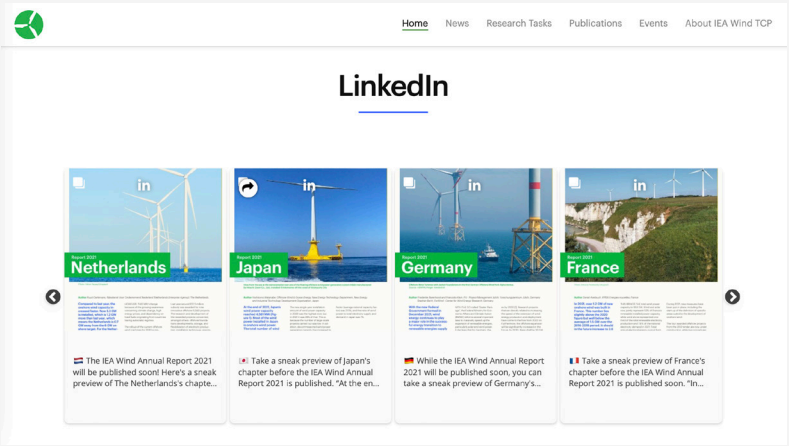
Annual Report sneak previews on LinkedIn

IEA Wind Annual Report is in the final stage of preparation. See previews on our LinkedIn.

https://www.linkedin.com/company/iea-wind/

LinkedIn feed on website

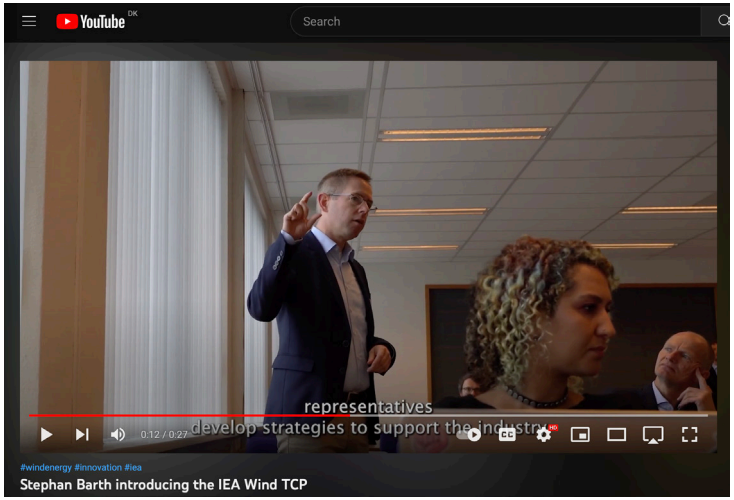
A widget has implemented allows real-time updates of posts.



https://www.youtube.com/@IEAWIND

Video interviews in the making

IEA WInd has a new YouTube channel. Subscribe and share the content.



Grand Challenges Communications

12+ videos with the authors will be produced and published during 2023. First in the video campaign will be Paul Veers, upon publication of the overview paper.

iea wind