

# ExCo 87 Newsletter

June 2021

Online Meeting 17-20 May 2021



iea wind



**Stephan Barth**, ForWind  
New Chair Executive Secretary IEA Wind  
TCP  
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## Stephan Barth is new IEA Chair Executive Secretary IEA Wind TCP

IEA Wind TCP welcomes Stephan Barth as new IEA Chair. We also thank John McCann for the excellent job he has been doing as Chair for the past 2.5 years.

John McCann, Programme Manager at SEAI, says: "2019 and 2020 brought an increased focus worldwide on accelerating wind energy deployment to address climate change. Wind energy demonstrated its capacity to be a major part of a cost effective low carbon energy solution both onshore and offshore. The IEA Wind TCP continued to expand its research portfolio to address the future challenges of both accelerating deployment and upscaling technology. COVID 19 brought challenges both within the energy sector and for international research collaboration. The IEA Wind TCP successfully adapted to this changed environment, without disruption to research collaboration, by moving completely to online meetings and events during the crisis."

Stephan Barth, Managing Director at ForWind, is happy to take on the task as Chair for IEA Wind TCP: "The transition to a decarbonized energy supply is taking place globally and at an increasing pace. The dawn of the hydrogen era is already on the horizon and will depend heavily on cost-effective and reliable wind energy technologies leading this transition on a large scale. For this reason, we at IEA Wind will continue our mission to promote high impact wind energy research and communication through international collaboration."

## ExCo 87 Overview

### Key highlights

- Francisca Klein elected unanimously as Vice Chair
- The extension proposal for Task 39 was approved by email ballot
- The new Research Task 48 Airborne Wind Energy was approved by email ballot before ExCo 87
- The new Research Task 49 Integrated Design of Floating Wind arrays was approved by email ballot before ExCo 87
- The new Research Task 50 on Hybrid Power Plants was approved by email ballot
- Task 31 Final Report was approved by email ballot
- Task 29 Final Report was approved by email ballot
- Proposal for developing a new TEM on Offshore Licensing and Consenting was approved by email ballot
- Proposal for developing a new TEM on Implementing an Asset Management Standard was approved by email ballot

# Austria

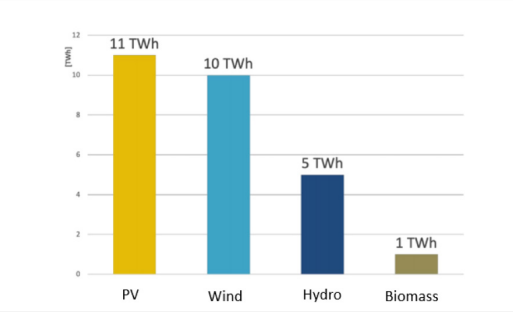
## Country Presentation



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### Key highlights

- Ambitious national energy targets: "100% electricity from RES till 2030" "Climate neutrality till 2040"
- Need to accelerate deployment: Net surplus of 400-500 MW annual installations is required until 2030
- New Renewable Energy Law in preparation: Height of Market premium enacted by Ministry on an annual basis  
Site-specific support scheme



**RES Targets for 2030**  
**[Additional installations]**

# EU/Wind Europe

## Country Presentation

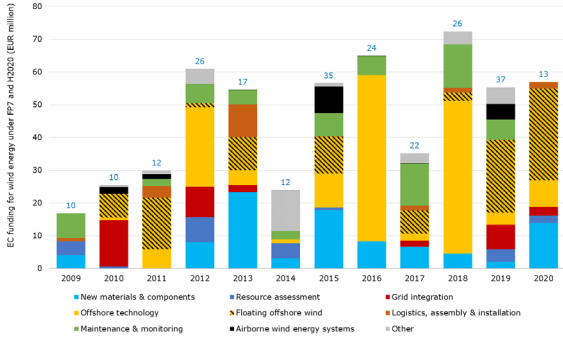


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### Key highlights

- Highlight 1: €57M invested in new wind energy projects in 2020
- Highlight 2: Focus on large-scale projects, mostly on offshore and floating technologies as well as material research
- Highlight 3: Despite COVID-19-related supply chain disruptions, the EU has added 10.8 GW in wind energy capacity

**The graph shows the development of R&I funding [Telsnig 2020]**





# Italy

Country Presentation



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## Key highlights

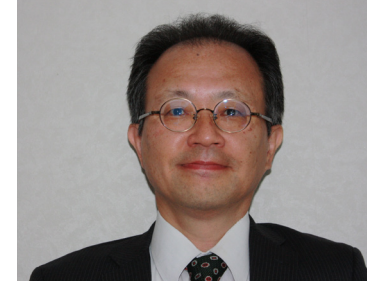
- Three joint PV-wind auctions to access the incentives held: 87% of the plants in the ranking (884 MW) were wind plants
- The low electricity demand combined with the effects of the lockdown brought renewables (70%) and wind (15%) penetration to very relevant peaks
- Italy was one of the first countries strongly affected by the COVID pandemic and consequent lockdowns: record low new power capacity



Blade Lifter transport system through a small village to the site of installation of Rocche Bianche wind plant (credit: FERA Srl).

# Japan

Country Presentation

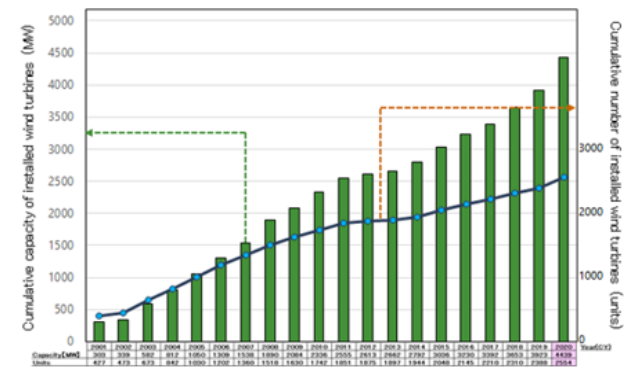


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## Key highlights

- In 2020, the number of wind power plants increased by 516 MW, up 13.2% from the previous year
- The power generation from wind power has increased from 0.76% in the previous year to 0.89% in 2020
- A public-private council has summarized targets for introducing offshore wind power in 2030 and 2040

## Deployment Statistics Installed capacity of wind power in Japan



Source: Japan Wind Power Association



# Task 25

## Task presentation

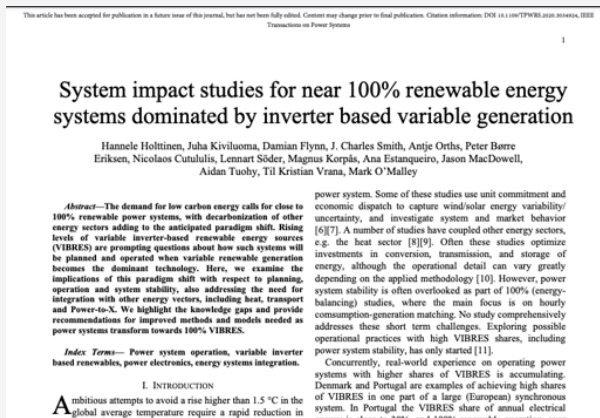


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### Key highlights

- Task 25 new phase started: Work plan for 2021-24 was presented to ExCo, with WPs on challenges on Planning, Balancing, Stability and Markets. Collaboration with other IEA TCPs and the new Global Power System Consortium GPST planned
- Curtailments of wind: High curtailments in China continued the trend from 2019 to be reduced to a very moderate level. In Europe, Ireland, Denmark, Italy and Germany see increasing trend – also record high shares of wind in 2020
- First recommendations for 100% RE system impact studies outdevelopmentenergy in the electricity system record achieved in 2019

**Recommendations for system impact studies towards 100% renewables, Open access in <https://ieeexplore.ieee.org/document/9246271>**



# Task 26

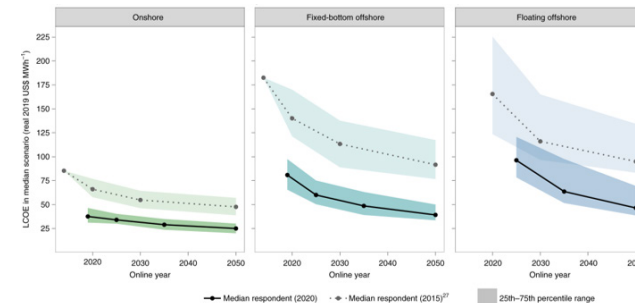
## Task presentation

### Key highlights

- Objective Highlight: Task 26 seeks to inform on the cost and value of wind energy to understand past and future trends as well as wind energy competitiveness
- Publication Highlights: Task 26 has recently published work in Nature Energy and Joule detailing expert projections of future wind energy costs and providing a comprehensive view on compensation levels for offshore wind power among in Asia, the US, and Europe respectively
- Publication Key Takeaway: In 2020 experts anticipated future onshore and offshore wind costs to decline 37–49% by 2050, resulting in costs 50% lower than predicted in 2015. Source (Wiser et al. 2021; <https://www.nature.com/articles/s41560-021-00810-z>)



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## Task 28

### Task presentation



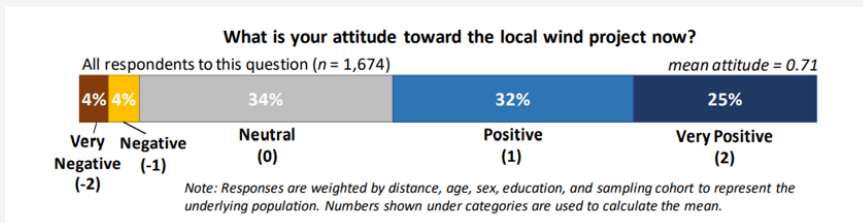
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### Key highlights

- RECENT INTERNATIONAL PUBLICATIONS  
Understanding community acceptance of a potential offshore wind energy project in different locations: an island-based analysis of place-technology fit, by Devine-Wright & Wiersma. February 2020
- Wind turbine audibility and noise annoyance in a national U.S. survey: Individual perception and influencing factors co-authored by Gundula Hübner and Johannes Pohl, Germany, Joe Rand, and Ben Hoen, Jeremy Firestone, T. Ryan Haac, Matthew Landis, and Debi Elliott, USA
- New June 2021: Publication of best practice guidelines on Offshore Wind Farm Project Community Acceptance and Stakeholder Engagement, from participating member countries. By Garry Keegan, Ireland

### Rand, Hoen, Hübner and Lantz. National Survey of Attitudes of Wind Power Project Neighbors, Overall Attitudes : Suummary Results (November 2019)



## Task 29

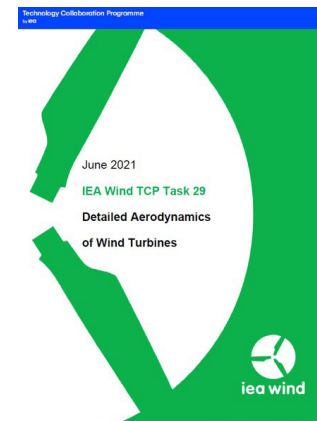
### Final report



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### Key highlights

- IEA Task 29 on wind tunnel measurements completed very successfully. Final report will be delivered soon
- Large 10MW+ turbines are exposed to challenging atmospheric conditions (e.g. a veer of 40 degrees over a 10 MW rotor plane) which violate all aerodynamic modelling assumptions
- Many countries have started up aerodynamic measurement programs to understand these challenges. A cooperation on this specialised field is proposed in a new IEA Task



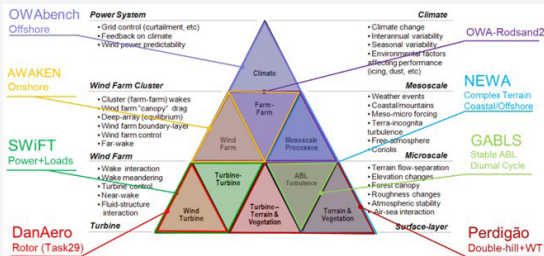
# Task 31 Final report



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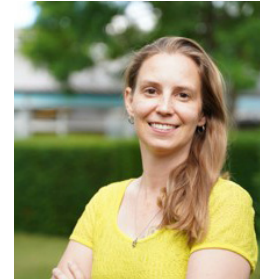
## Key highlights

- Most productive Phase Completed: 7 benchmarks on wind conditions and 2 on wakes addressing meso-micro coupling, turbine performance and wake dynamics, array efficiency, numerical site calibration and flow in complex terrain and canopies
- AWAKEN Wakes experiment: US-led \$20M+ project, open for international collaboration, to run until 2024 prioritizing farm-farm interaction
- New Task under discussion: Build industry-wide consensus on the adoption of a model evaluation framework and quality-assurance criteria for engineering wind farm flow models used in energy yield assessment, site suitability and wind farm design



Multi-Scale Building-Block Framework and associated datasets

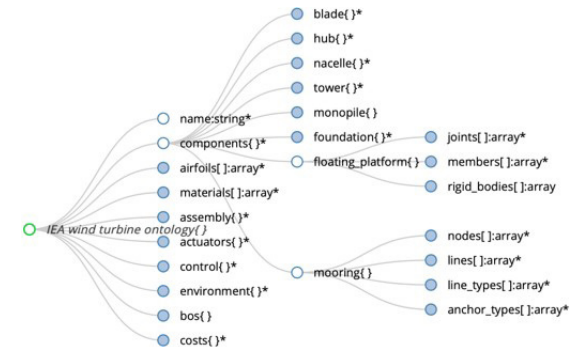
# Task 37 Task report



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## Key highlights

- 15 MW Offshore Reference TurbineNew offshore reference turbine now has fixed and floating support structure designs! 35 unique website visits per day and 13 citations since last year
- WindIOTurbine ontology extended to drivetrain and offshore platforms, plant ontology version 1 nearly complete!
- Expert WorkshopsReference energy system workshop held in collaboration with task 25 (grid integration) and 26 (wind cost and value) – proceedings to be published soon!





# Task 39

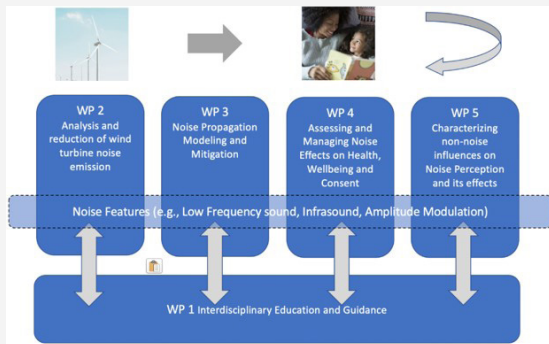
## Extension proposal



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### Key highlights

- Serration benchmark: An airfoil profile with 2 serration geometries has been acoustically measured in 5 different wind tunnels (in DE, DK & NL). Data analysis is ongoing
- WTNoise code benchmark: Noise prediction codes from 6 institutes have been compared. A number of modeling issues have been identified. These will be further investigated
- Revised work programme 2021-24: Task 39 has submitted a 3 years' extension proposal. The new programme will extend the original more technical scientific activities to human perception and acceptance



### New structure and WPs for Task 39 - Phase 2 work programme

# Task 40

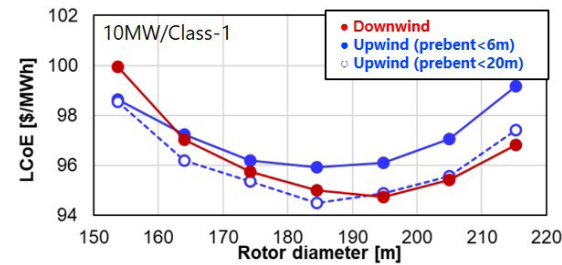
## Extension proposal



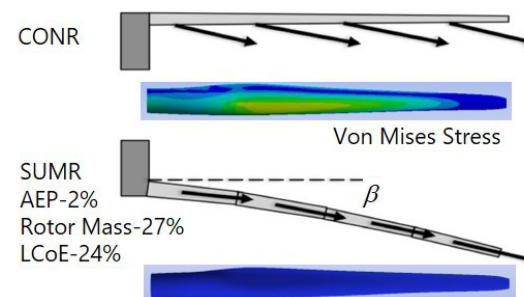
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### Key highlights

- Scalability benefits of downwind turbines on LCoE were shown by the system engineering approach under 10MW/Class-1 condition
- 5 engineering models were developed for the tower shadow and the root-blockage effects of downwind turbines
- Long term wind direction change was shown to affect the extreme load of downwind turbines in passive-yaw idling



**Innovative concepts are applicable only for downwind turbines.**



**Downwind was shown to be promising for larger scale turbines.**