



ExCo 85 Newsletter

June 2020

KRJ

Rosenfeldt Jakobse...



LCC

Luis Cano CIEMAT

RO

Ruud Oerlemans (RVO NL)



RB

Raymond Byrne (Dundalk...)

LGCS

Luca Greco CNR-INM We...

CHL

Charlotte Hede Linde (DTU)

JA

Masataka Owada

≡



Pierre-Jean Rigole

CHL

Jim Ahlgrimm

渡部 良朋

≡

B

KD

BN

KR

GB

Seung-Ho Song (KwangW...

Barenhorst, Friederike (PtJ)

Kirstine Dahlgaard (DTU)

balaraman.niwe

Karina Remler (DEA)

Garrett Barter (NREL)

Seung-Ho Song (KwangW...

Jaime Agredano Diaz

Ann Myhrer Østenby

Cris Hein (NREL)

Schepers, J.G. (Gerard)

Birte Holst Joergensen

Chat

Jim Ahlgrimm, US Dept of Energy (to All): 15.16
usa question for Garry - why a best practice guide and not a recommended practice?

Klein, Franciska (PtJ, Germany) (to All): 15.26
What are the plans to involve engineers

Klaus Rosenfeldt Jakobsen (DTU) (to All): 15.26
Task 26 - Cost of Wind - Eric -

Klein, Franciska (PtJ, Germany) (to All): 15.26
that was a question to Suzanne and Garry for the extension of Task 28 from Franciska (Germany)

Klein, Franciska (PtJ, Germany) (to All): 15.31
Great opportunity for Task 26 to link IEA Wind Task 26 with IRENA via this joint workshop in last autumn.

Klaus Rosenfeldt Jakobsen (DTU) (to All): 15.43
Task 34 - WREN - Env Effects by Cris

Hannele Holttinen Task25 (to All): 15.47
Task 26 - cost projections from DK/Ea, will these be similar than the extensive database made by NREL some time back? Are there updates to NREL figures? These are very future energy system's IEA)

Balaraman(NIWE, Che...
Balaraman (India)- Is the decommissioning and in Task34?

John Mc Cann SEAL (C...
Cris, Great to see the Based Management

TTJ

CH

LAC

HR

HHT

Thomas Telsnig - JRC

Klein, Franciska (PtJ)

Luis Arribas - CIEMAT

Harald Rikheim

Hannele Holttinen Task25

Stephan Barth (ForWind)

Niina Helistö

Alice Orrell

Paul Dockrill Canada

Andrew Clifton (Task 32)

NH

AO



Online Meeting 26-29 May 2020



Mic



Camera



Screen



Leave



Ignacio Martí, Executive Secretary IEA Wind TCP

Milestone for the IEA ExCo 85 meeting

- An online success

At IEA Wind TCP we have had recently our first online Executive Committee meeting. Despite the short notice and the novelty of this format, it has been a very successful meeting. We had more than 80 participants from Europe, America and Asia in some of our sessions, which is around doubling the participation and we had a very active audience with many questions and comments. The survey that was circulated after the meeting showed that more than 90% of the participants found the meeting productive and more than 75% of the participants felt comfortable about sharing opinions during the meeting. There are also things to improve and we received many suggestions about how to make online meetings even more productive. Now that

we have learned how to make good presentations, how to have online discussions and what content works better online, we can incorporate this format to the portfolio of IEA Wind TCP ExCo activities.

A global international network of experts, sharing information, developing joint research activities and shaping a strategic vision about wind energy is the core of IEA Wind TCP; all of our activities continued during the lockdown as wind energy continued to deliver power to the grid, proving that we have a strong, reliable and resilient network that can adapt to new circumstances. Adding the online work to our activities makes our TCP also more flexible, removing some of the barriers for new countries to join.

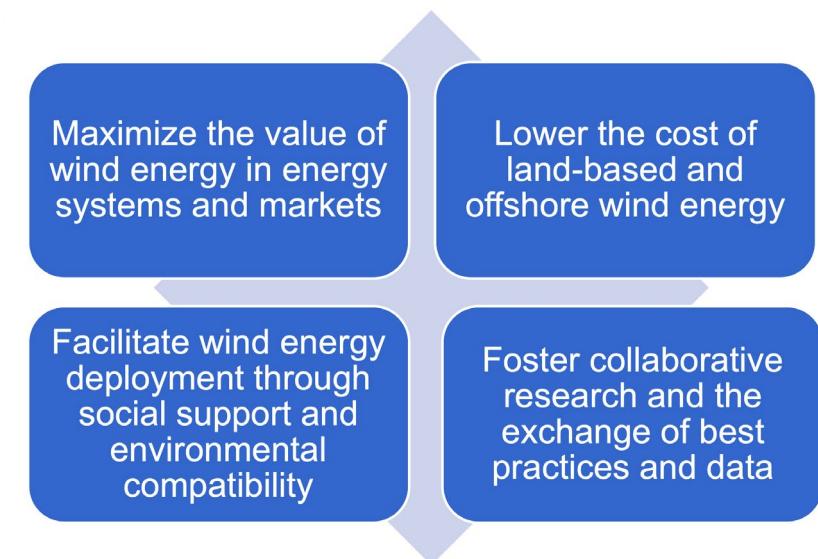
Now it is easier than ever, if you want to know about wind energy and to collaborate with countries around the globe on R&D and deployment of wind energy join us!

- Ignacio Martí

A handwritten signature of Ignacio Martí.

For more information please contact secretariat@ieawind.org

IEA Wind TCP Strategic Objectives 2019-2024



Task 25

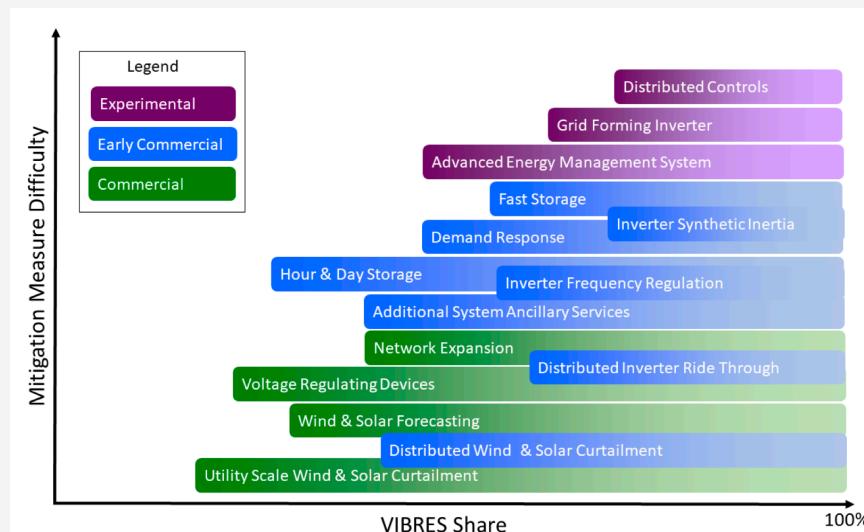
Status Report

DESIGN AND OPERATION OF ENERGY SYSTEMS WITH LARGE AMOUNT OF VARIABLE GENERATION

Key highlights

- Task 25 has published updated fact sheets on Grid Integration of Wind and Solar in their web page <https://community.ieawind.org/task25/home>
- Task 25 new focus area is recommendations for how to study power system operation and design towards 100% renewables. The first journal article has been published at WIREs: B-M Hodge et al: Addressing technical challenges in 100% variable inverter-based renewable energy power systems <http://dx.doi.org/10.1002/wene.376>. There is a need for new modelling tools including flexible loads and storage. Fundamental changes are needed regarding grid stability in this new context

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ENABLING WIND TO CONTRIBUTE TO A DISTRIBUTED ENERGY FUTURE

Key highlights

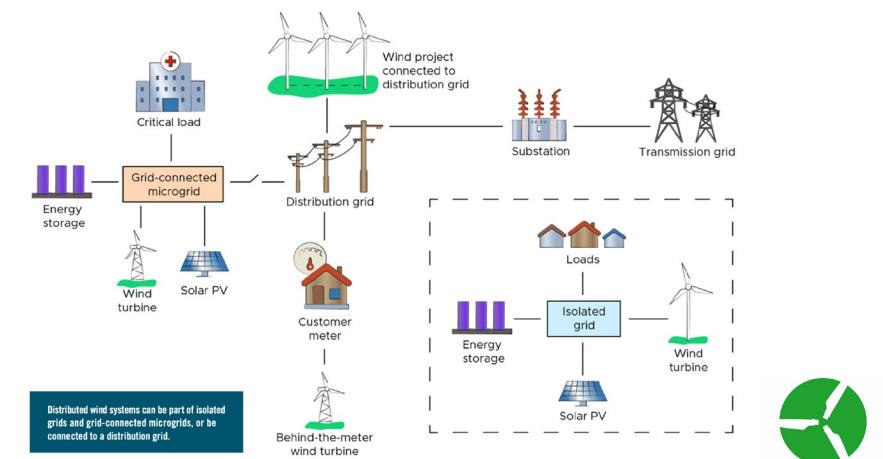
- Identification of existing standards and technical challenges for small and mid-size wind turbines in progress
- An assessment of existing simulation and modelling tools for distributed wind has been completed
- Small wind turbine manufacturers from US and Canada are participating in Task 41 activities



Alice Orrell
Pacific Northwest National Laboratory (PNNL)

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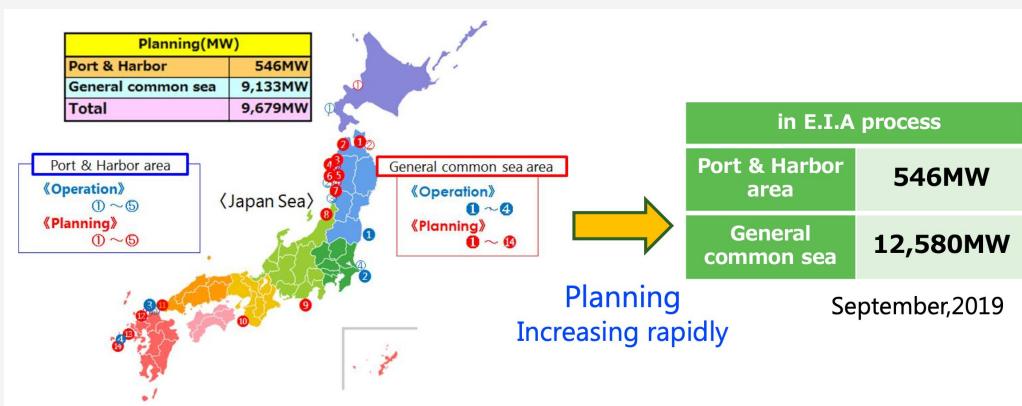
Distributed Wind System



Key highlights

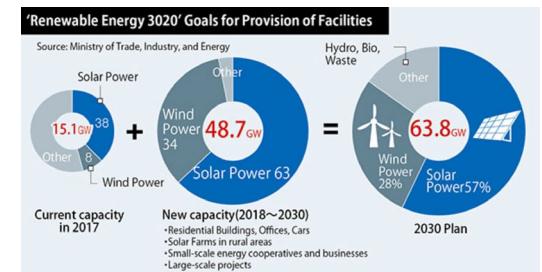
- Installed capacity in 2019 reached 3923 MW with 270 MW installed
- Offshore wind power plants plans are growing quickly with 12580 MW in planning process (data as of September, 2019)
- There is government support for research and development of offshore wind projects

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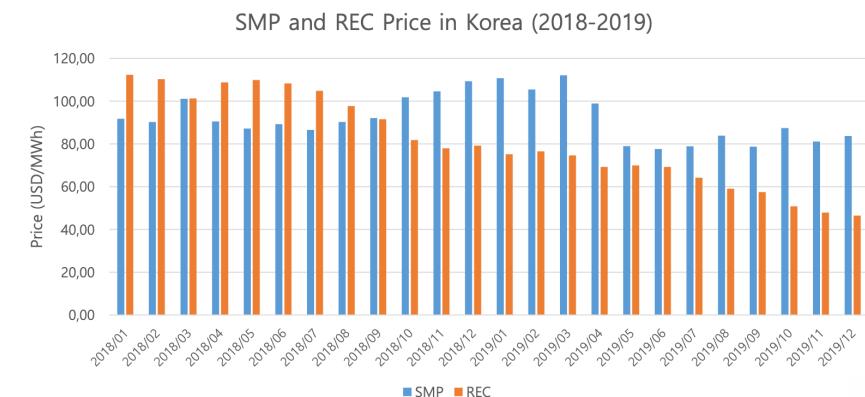
Key highlights

- Installed capacity in 2019 reached 1490 MW (72 MW offshore) with 191 MW installed.
- Auction prices for wind energy dropped to 46 USD/MWh, more than 50% reduction in 2 years



- Main barriers for deployment are complex permitting processes and social acceptance with opposition by local residents. Grid connection availability and curtailment are emerging issues. The government is acting to address all these issues

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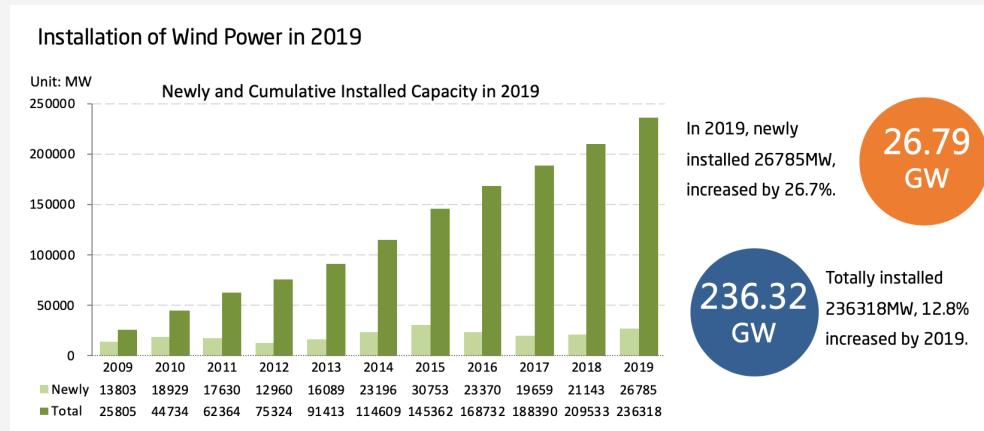


Key highlights

- Installed capacity in 2019 reached 236.32 GW (7026 MW offshore) with 26.79 GW installed (2493 MW offshore)
- 5.5% of China electricity demand supplied by wind energy in 2019
- Target of achieving 20% of primary energy consumption by non-fossil energy in 2030
- Subsidy free market will be in place from 2021 onwards
- 10 MW Dongfang wind turbine assembled in September 2019



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Key highlights

Recent successful Topical Expert Meetings on:

- Wind Farm Control
- Wind Plant Decommissioning Repowering and Recycling
- Erosion of Wind Turbine Blades

Next Topical Expert Meetings:

- Floating Offshore Wind Arrays
- Aviation System Cohabitation
- Hybrid Power Plants

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- Task 11 is actively implementing the strategy of IEA Wind and positioning participating countries as leaders in worldwide wind energy research.
- New members welcome for 2020! Contact us.

Task 39

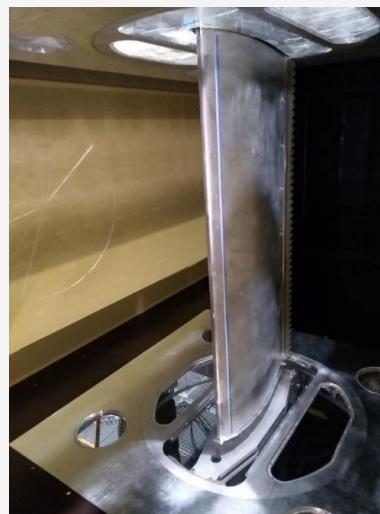
Status Report

QUIET WIND TURBINE TECHNOLOGY



Franck Bertagnolio, DTU Wind Energy

Serrated airfoil in wind tunnel



Key highlights

- A roadmap for required technological advancements to further reduce onshore wind turbine noise impact on the environment has been produced, now to be disseminated
- An international wind turbine noise regulation catalogue is being developed
- Serration benchmark with comparison of anechoic wind tunnels ongoing. Cooperative work between DLR/DTU/TUDelft
- Main wind turbine manufacturers involved in Task 39 activities

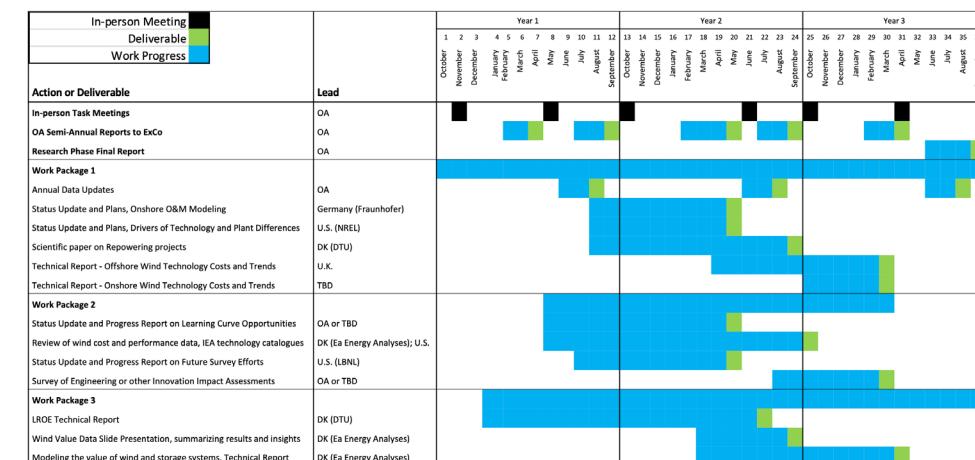
For more information please contact:
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Key highlights

- Accepted paper in Applied Energy for publication on Land based wind energy cost trends in Germany, Denmark, Ireland, Norway, Sweden and the US
- Joint workshop with IRENA to explore a Global Survey of Renewable Energy Financing Costs
- Expert survey on future onshore and offshore costs to be sent in summer

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Task 40

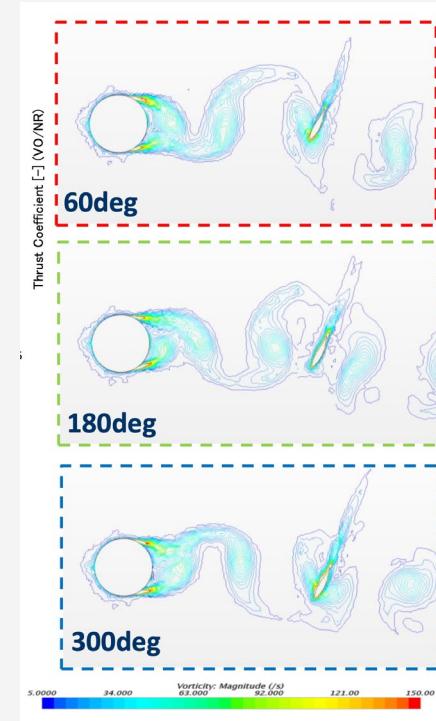
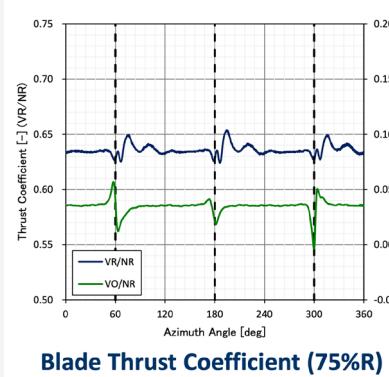
Status Report

DOWNWIND TURBINE TECHNOLOGIES

Key highlights

- Tower shadow simulations successfully completed including dynamic tower shadow loads on a 2 MW wind turbine
- New design load cases being considered for downwind turbines
- Blade optimization for downwind turbines being developed

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WIND ENERGY SYSTEMS ENGINEERING



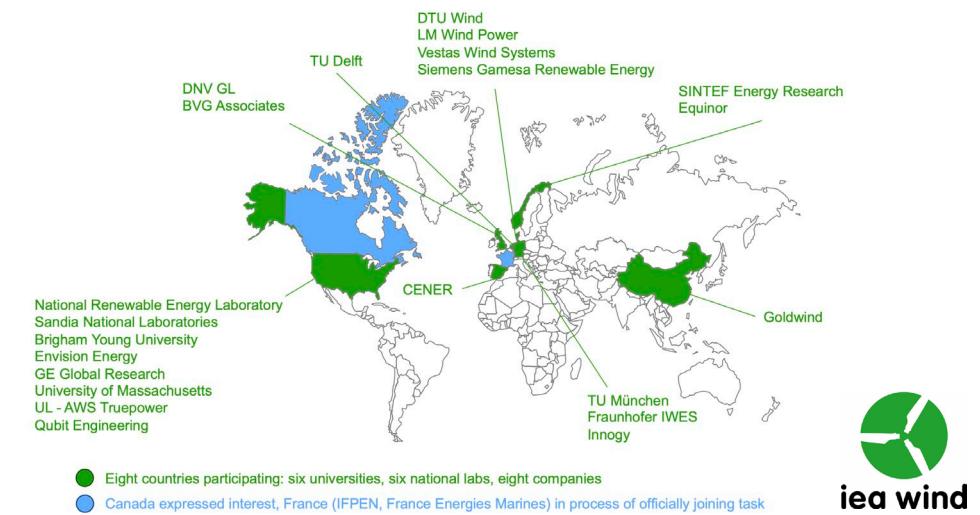
Garrett Barter, NREL

Key highlights

- IEA Wind 15MW Reference Wind Turbine completed through tight NREL-DTU collaboration. IEA Wind 10 MW and 3.4 MW also released
- Significant progress on developing an "ontology" suitable for wind plant wake flow analysis and layout optimization

- Collaboration to extend the framework to cover all remaining turbine components (drivetrain, towers, monopiles, floating platforms, moorings, etc.)
- Coordinating workshops with other tasks to explore system impacts of their technologies

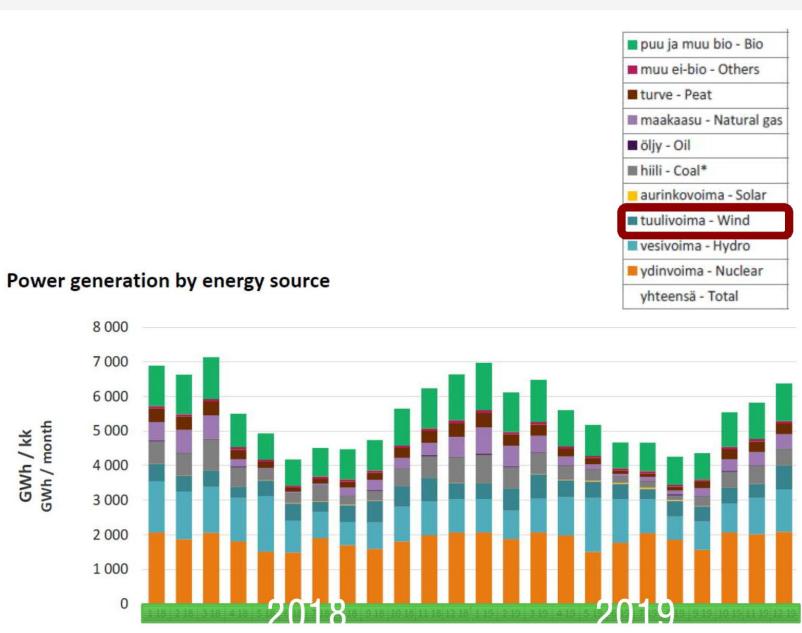
Country Participation



Key highlights

- Installed capacity in 2019 reached 2284 MW with 243MW installed.
 - All wind power plants installed in 2019 were subsidy free
 - Public perception of wind energy improving

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Key highlights

- Installed capacity in 2019 reached 6.104 MW (1.7 GW offshore) with 28 MW installed.
 - 47.2% of Denmark's electricity demand was covered by wind energy
 - Horns Rev 3, Denmark's largest offshore wind farm to date (406.7 MW) inaugurated in 2019
 - 2019 was the cleanest year for CO₂ emissions related to electricity generation
 - Danish Climate Act aims to reduce greenhouse gas emissions by 7% in 2030 and become climate neutral by 2050

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European Commission

EU Presentation



Carlos Eduardo Lima da Cunha, DG Research & Innovation

- Opportunities still in significant cost reductions based on technology development and auctions
- EU has spent 55.3 million euro in new wind energy projects in 2019 with focus on offshore technology and floating wind (78 million euro invested in floating since 2009)

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Floating offshore wind - Operating and upcoming



Key highlights

- Installed capacity in 2019 reached 192 GW (12GW offshore) with 13.2GW installed
- EU aims at reaching 32% RES by 2030 and climate neutrality in 2050
- Main challenges for wind energy are long permitting procedures, regulatory changes and citizen protests

Key highlights

- Installed capacity in 2019 reached 4520 MW (3563 MW offshore) with 228 MW installed (all onshore)
- The Dutch climate agreement aims at a 49% CO₂ reduction by 2030
- New support system introduced
- Offshore development going slower than planned, uncertainty created by special planning and financing projects in early stages
- Borssele 5 innovation offshore wind power plant under construction

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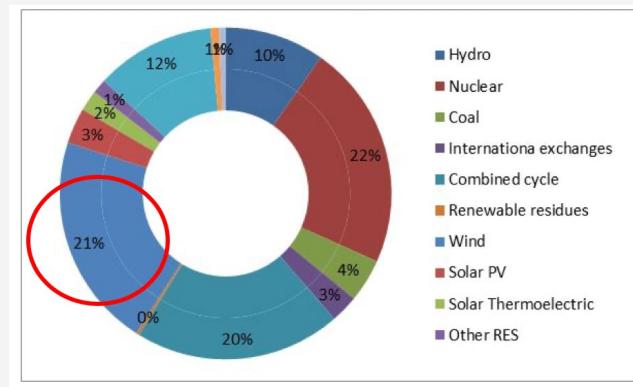
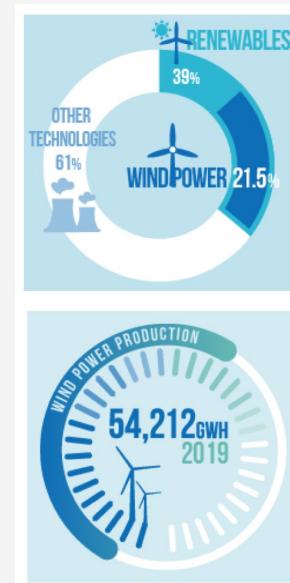
Spain

Country Presentation

Key highlights

- Installed capacity in 2019 reached 25704 MW with 2243 MW installed (all onshore)
- Spanish market gaining speed with 24629 MW approved by planning bodies and 2364 MW under construction
- 39% of Spain's electricity demand in 2019 was supplied by wind energy. 76% instantaneous penetration of wind energy in the electricity system record achieved in 2019

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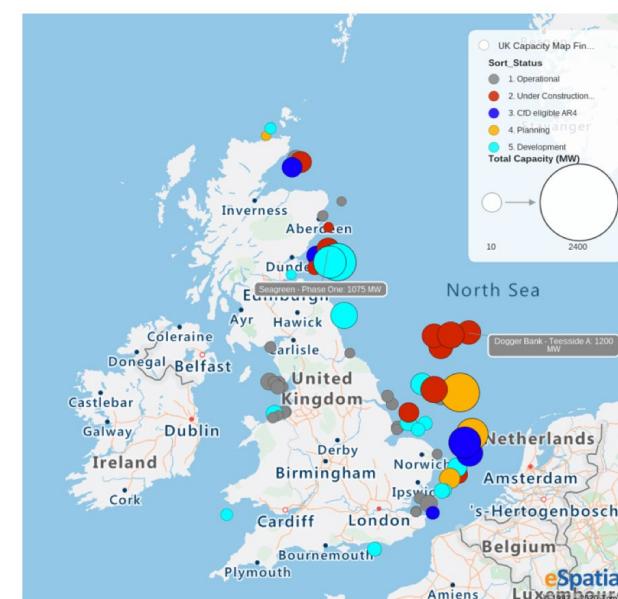
United Kingdom

Country Presentation

Key highlights

- Installed capacity in 2019 reached 24 GW (24.000 MW) with 9.8 GW installed offshore
- Six offshore wind projects with total capacity of 5.46GW secured CfDs in Round 3 with weighted average strike price of £40.67/MWh meaning that they are actually "subsidy-free"
- Baseline scenario for offshore wind is to reach 28 GW by 2030
- The Contracts For Difference (CFD) mechanism is currently under review

Offshore wind projects



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Austria

Country Presentation



Andreas Krenn, Energiewerkstatt

Key highlights

- Installed capacity reached 3159 MW with 152 MW installed in 2019
- Austria's objective to reach 100% RES electricity in 2030
- Challenges lead to an average development time for wind projects of 3 to 8 years
- Future projects will have to be installed in lower wind speed areas

For more information please contact:
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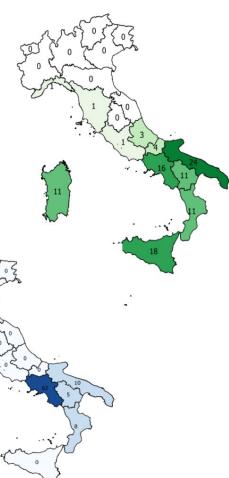
Key highlights

- Installed capacity in 2019 reached 10510 MW with 725 MW installed
- National Energy and Climate Action Plan includes 19.3 GW of wind energy (0.9 GW offshore) for 2030
- Wind projects have won 99% of the auctioned capacity in 2019

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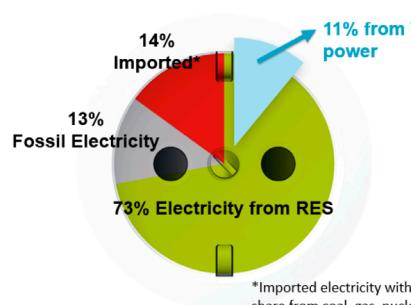
Italy

Country Presentation



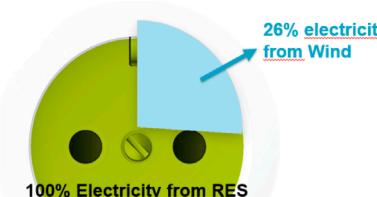
WAY FORWARD TOWARDS RES TARGETS

Electricity production in Austria



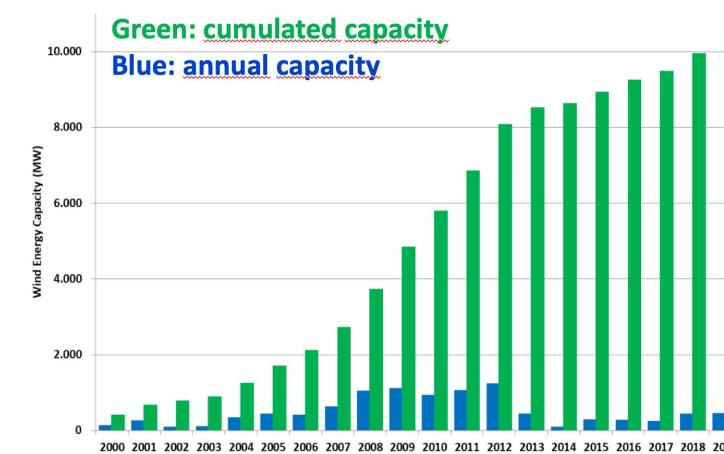
Values for 2018

Source: www.igwindkraft.at



Target for 2030

Trend of annual wind power capacity and regional distribution



Key highlights

- Installed capacity in 2019 reached 3.58 GW with 752 MW installed
- 2019 was a record year for wind, becoming the second largest domestic source of energy in Greece
- National Energy and Climate Action Plan includes 66% RES in electricity production (29% share of wind) with 7 GW of wind energy installed by 2030
- Focus on reducing permitting time from 7+ years to 2 years and grid strengthening

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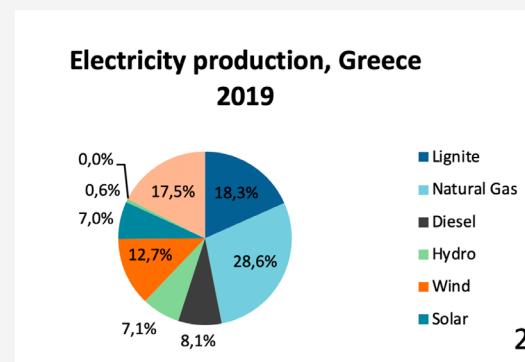


Table 1. Key National Statistics 2019: GREECE

Total (net) installed wind power capacity*	3.58 GW
Total offshore capacity	0.00 GW
New wind power capacity installed	0.73 GW
Decommissioned capacity (in 2019)	0.01 GW
Total electrical energy output from wind	7.23 TWh
Wind-generated electricity as percent of national electricity demand	12.7 %
Average national capacity factor (based on average installed capacity during the year)	25.6 %
Target (2030 National Plan for Energy and Climate)	7.0 GW
National wind energy R&D budget	1.7 mio Euros

*Installed wind power capacity: Use nameplate power ratings of the installed wind turbines

Task 28 - Social Science of Wind Energy Acceptance

- New Task extension proposed

Task 34 - Working Together to Resolve Environmental Effects of Wind Energy

- Tethys web numbers: 6079 documents, 94917 visits, 177935 pageviews
- Task extension proposal presented

Task 42 - Lifetime Extension Assessment

- Task in the initial stages
- Gap analysis in procedures required for life extension completed
- Procedures for determining risk of failure and preventive maintenance in progress

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