IEA Wind TPC Task 41

Danish EUDP project

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About IEA Wind Task 41

Operating Agent

National Renewable Energy Laboratory

Pacific Northwest National Laboratory

Period

2019-2023

No annual fee needed

Website

https://community.ieawind.org/task41/home

Distributed Wind (DW) Technology

Wind turbines deployed in a distributed application, connected at a distribution voltage (nominally 70 kV) or below – located behind the meter, in front of the meter, or in an off-grid application.

Task 41 Participants	
Austria	Fachhochschule Technikum Wien
Belgium	Vrije Universiteit Brussel
Canada	Canada Natural Resources Canada
CWEA	China Wind Energy Association (CWEA), China General Certification (CGC), Goldwind, and Inner Mongolia University of Technology
Denmark	Denmark Technical University (DTU) & Nordic Folkecenter for Renewable Energy
Ireland	Dundalk Institute of Technology
Japan	New Energy and Industrial Technology Development (NEDO)
Korea	Korea Institute of Energy Research
Spain	CIEMAT
USA (OA)	National Renewable Energy Laboratory Pacific Northwest National Laboratory

IEA Wind Task 41 – motivation

- DW has become a growing portion of the energy supply - expansive pontential for DW markets

- The costs of DW systems have not yet decreased in the similar way as the cost of large utility scale and offshore wind technologies, as well as of solar PV

- Need to understand and answer many questions
  - whether the advances, that have lowered the cost for utility scale turbines, are valid if applied to DW?
  - which of the technological innovations are most appropriate for distributed technologies?
  - why has the DW industry not applied these innovations?
  - which additional research may be needed to understand their applicability?

IEA Wind Task 41 - collaboration

Overall objective

coordinate international research on DW technology, technology development or assessment to allow DW to integrate into future markets, and processes or procedures to support the cost effective development of DW technologies.

IEA Task 41 collaboration

- **accelerate the development & deployment** of DW technology
- **improve** small and distributed turbine standards
- **address** integration challenges
- **share** cost reduction experiences
- **allow** for the expanded sharing of research innovation
- **increase** the competitiveness of wind and accelerating the replacement of fossils fuels

IEA Task 41 outcome will lead to the **expanded global use** of wind energy with focus on DW applications!

IEA Wind Task 41 - five areas of technical collaboration

- Research to support an update of existing wind standards, expanding consumer confidence while allowing needed technology innovation → **WP1**
- Technical data sharing in both process and practice, providing researchers and the wider industry access to global information → **WP2**
- Expanded research and collaboration around the integration of DW technologies, focusing on new and advancing markets such as off-grid, microgrids, and advanced distribution networks → **WP3**
- Outreach and expand collaboration of ongoing R&D activities that could address specific challenges associated with DW technologies → **WP4**
- DW innovation and downscaling of utility scale technology → **WP5**

EUDP project funding

- Essential for **DTU Wind Energy for being part** of the IEA Wind TPC Task 41
- Support **DTU Wind Energy** work in the IEA Wind TPC Task 41 to create common publications in peer-reviewed journal based on the results and experiences stemming from other past and ongoing research.
- Strengthen collaboration between DTU Wind Energy, Danish stakeholders and international partners
- Participation in international collaboration also helps promote Danish acquisition of knowledge about the newest trends and methodologies.
- Attract the best international players to project consortia with Danish partners, providing that results are anchored in Denmark and create added value for Danish players.

EUDP project

Period: 2020 – 2023

Website: https://www.vindenergi.dtu.dk/english/research/research-projects/iea-wind-tcp-task-41

Overall objectives

- identify and explore studies of **particular Danish interest of DW** for cost effective technology development and integration into an continuously evolving Danish electrical system.
- strengthen the **Danish players and stakeholders**, contributing to further increasing the penetration of wind power into the electricity, while still maintaining the high level of security of supply.

This will done by DTU Wind Energy by collaborating and contributing to the IEA Wind TPC Task 41 international activities through communication, exchanging information, sharing results and carrying out concrete analyzes and investigations in the shape of reports and publications.

Project is organized into 5 work-packages closely following the IEA Wind TPC Task 41 planned work-packages

EUDP project – overall targets

- build up a stakeholder network of relevant Danish players within the area of DW technology
- organize and strengthen the Danish influence and participation in IEA collaborations
- achieve and consolidate the Danish knowledge and experience within DW area
- promote and disseminate the results of IEA Wind Task 41 activities to the Danish stakeholders
- provide recommendations and guidelines to IEA deliverables that can be used by both Danish industry, researchers and society at large
- form the basis for eventually new Danish standards aligned to international efforts, set of specifications of DW data sharing catalog and support the integration of DW into Danish electrical system
- collaborate with ongoing IEA Wind Task activities that address specific challenges associated with DW technologies (Task 19, Task 25, Task 26, Task 28, Task 36).

EUDP project - delivarables

DW players and stakeholders willing to be involved in dialogs for some delivarables ?

No.	Delivarables	Delivery date
D1.1	Report on recommendations for potential standards changes that will be used to drive additional national and international research	Nov 2021
D1.2	Compendium on recommendations for potential conformity assessment requirements	Aug 2020
D2.1.	Report on the adopted metadata and taxonomies specific for DW and metadata catalogue.	Oct 2020
D2.2	Guideline for best practices for compiling DW distributed object catalogues. Data Management Plan Template, for Danish actors.	May 2021
D2.3	Report on suggested improvements for time series simulation tools when working with DW.	Nov 2021
D3.1	Report on control strategies of wind turbines in future distribution systems based on the delivarable D15 of IEA Wind Task 41 and tailored to the requirements of Danish stakeholders.	Nov 2022
D3.2	Contribution to the D14 delivarable report of IEA Task 41	May 2020
D3.3	Contribution to the D16 delivarable report of IEA Task 41	Nov 2020
D3.4	Contribution to the D17 delivarable report of IEA Task 41	Nov 2021
D4.1	Report describing specific DW aspects/gaps relevant for the Danish players and stakeholders.	Nov 2022

Thank you