



# Lessons learnt from NER 300 projects and summary of the programme's closed door event

Innovation Fund knowledge-sharing

*JRC.C.7 – Faidra Filippidou, Thomas Telsnig*

*Virtual meeting 26/02/2021*

# What we will talk about

NER300 programme

NER300 Knowledge sharing process

Assessing the results and usage of template

Conclusions – Findings and potential synergies to explore among projects

What can we learn and apply at the Innovation Fund?

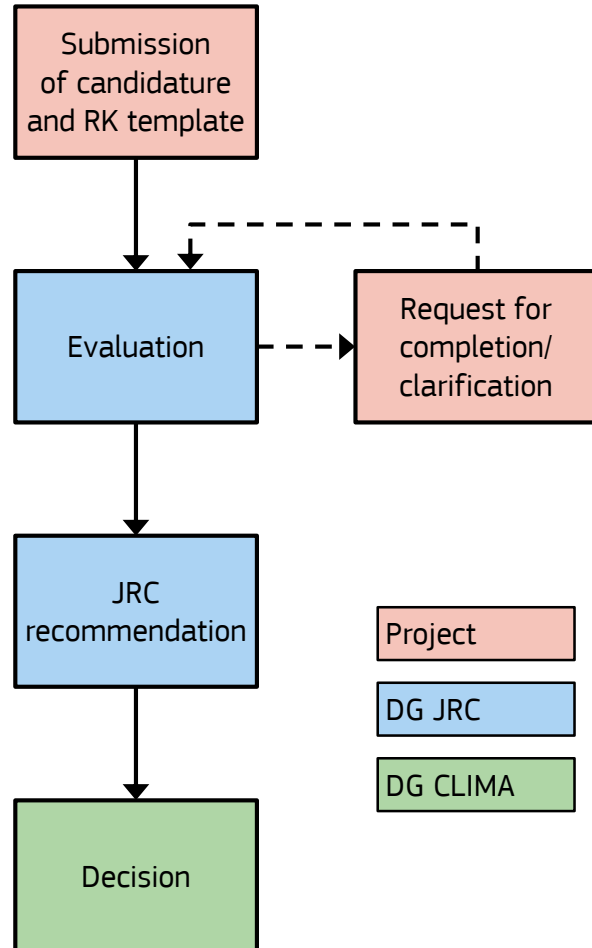
# NER300 programme – Knowledge Sharing process

- One of the world's largest programmes for innovative low-carbon projects, funded by the EU emissions trading system (ETS)
- A catalyst for the demonstration of innovative renewable energy technologies and environmentally safe carbon capture and storage on a commercial scale within the EU
- Funded from the sale of 300 million allowances from the new entrants' reserve set up for the EU ETS
- Two calls for proposals: the first one was awarded in December 2012, the second in July 2014

## NER300



# NER300 programme – Knowledge Sharing process



- Knowledge sharing template includes a set of questions addressing:
  - Technical set-up and performance,
  - Costs,
  - Project Management aspects
  - Environmental impact and
  - Health and Safety.

# NER300 programme – Dissemination strategy

There are two types of relevant knowledge to be collected and shared defined by the level of sensitivity:

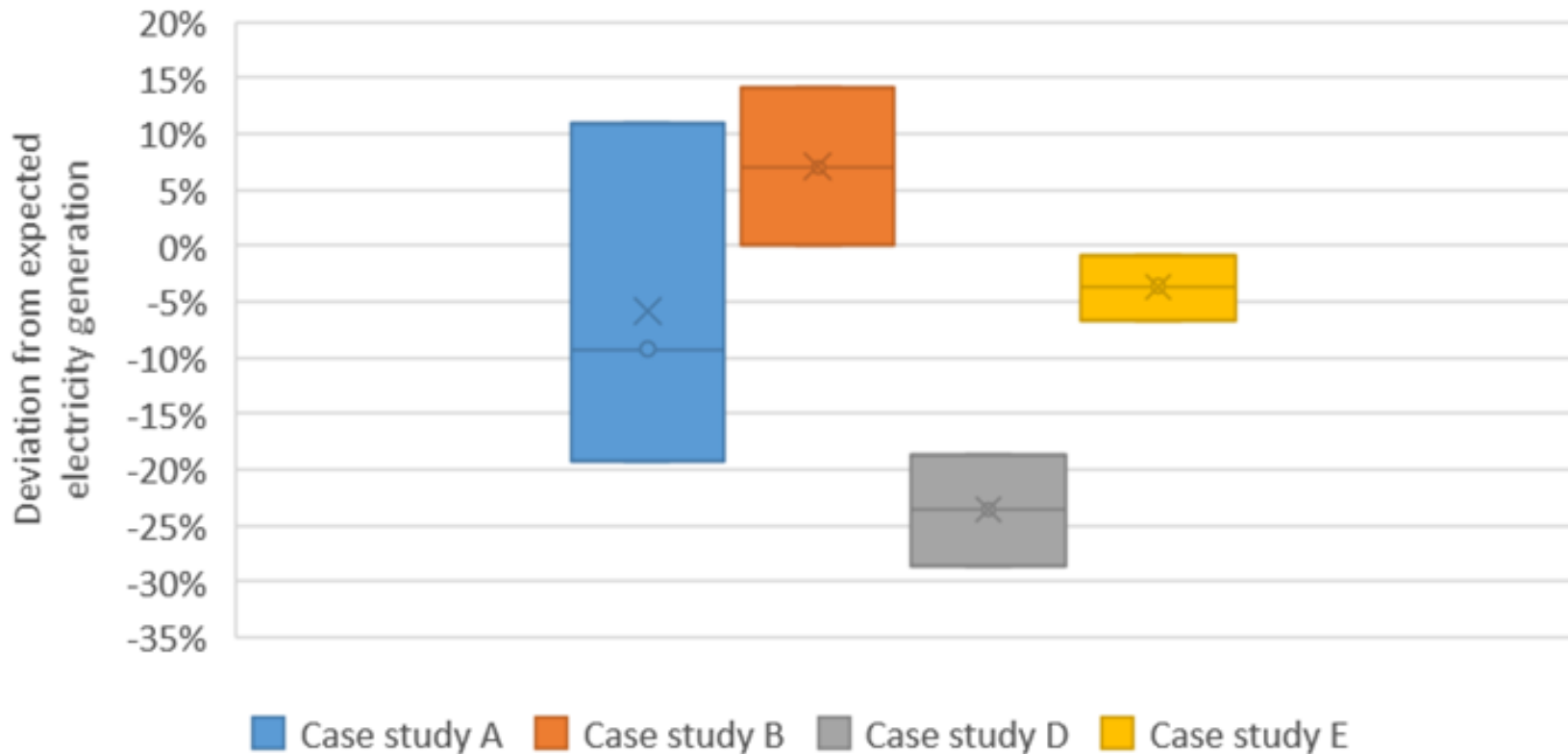
- **Level 1 (L1)** knowledge is only to be **shared with other projects** in a particular technology category  
One L1 community will be set up for each technology category
- **Level 2 (L2)** knowledge is of **general interest** and includes collated and anonymised L1 knowledge  
Target audience for L2 is the general public, industry, research, government, NGO and other interest groups and associations

# Wind energy projects in 2020 Knowledge Sharing exercise

Project	Country	Technology category	Wind turbine model	Capacity (MW)
Windpark Blaiken	Sweden	Onshore Wind	2.5MW Nordex and Dongfang	225
Windpark Handalm	Austria	Onshore Wind	3MW Enercon E-82 E4	39
Nordsee One	Germany	Offshore Wind	6.2MW126 Senvion	334.8
Veja Mate Offshore	Germany	Offshore Wind	6MW Siemens SWT-6.0-154	402
WindFloat Atlantic	Portugal	Floating Offshore Wind	8.4MW Vestas V164	25
Vertimed	France	Floating Offshore Wind	8.4MW SG 154	25

- Innovation aspects of onshore projects include technologies that allow operation at high altitudes or harsh and cold climates.
- Offshore wind projects include several technical innovations with respect to components (e.g. XL monopile foundations, bolted flange transition pieces, among others) and installation methods (e.g. bubble curtain) which to a large extent became the norm in the fast evolving offshore wind market.

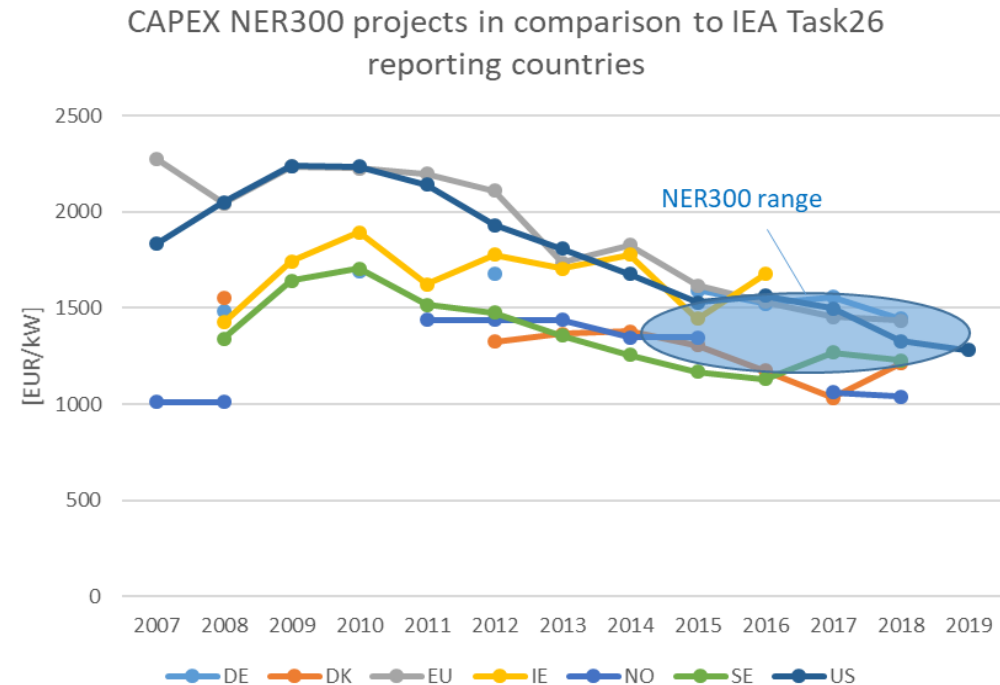
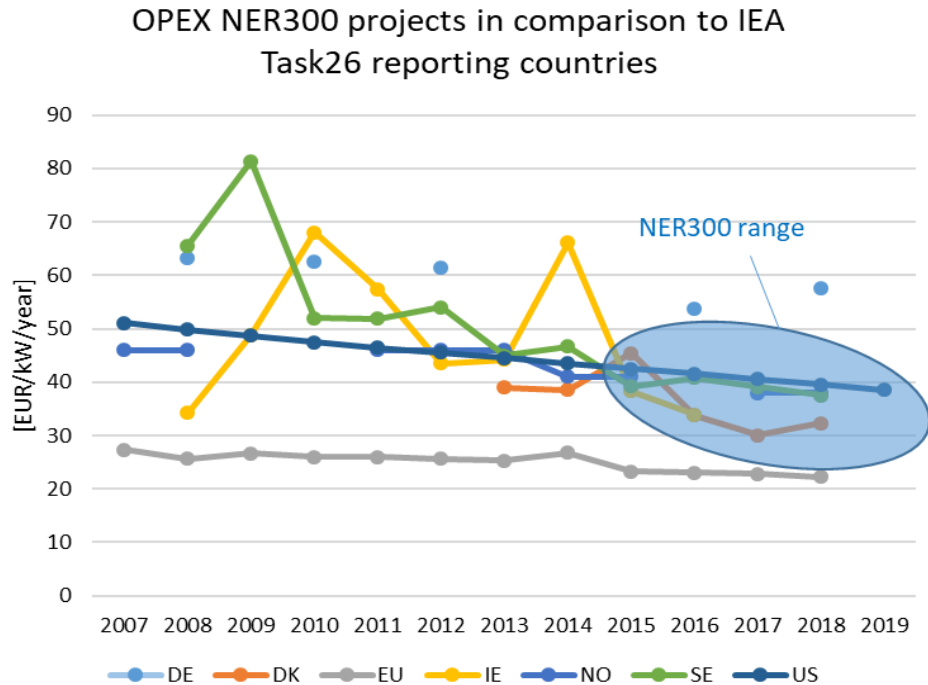
# Technical set-up and performance - Technical set-up and performance



- Projects show some deviation from the expected electricity generation for the respective years (+15% to -30%)
- A common reason seems to be low wind speeds in these years, particularly in the summer months
- Other issues reported include unplanned outages due to component failure or curtailment

→ Why is projected electricity generation different upfront? Potential synergies among projects to improve/align methods for prognosis?

# Knowledge sharing – Costs (Onshore)



- Reported costs confirm a decrease in O&M costs since the commissioning of the first project and a general consensus with international data with values ranging between 30 to 50 EUR/kW/year since 2015.
- The latter might indicate that innovations affecting the operational life cycle stage of projects in NER 300 projects contributed positively to the decrease of O&M costs over time



# Knowledge Sharing – Environmental impact and Health & Safety

All wind energy projects are reducing the amount of CO<sub>2</sub> eq. emissions when compared to the mean production by the energy system today.

- all projects perform environmental assessments and have advanced awareness that develops through their years into operation.
- projects are using Life Cycle Assessment tools and investigations to forecast the lifecycle environmental impacts of the respective ecosystems that the projects are located.

No major health and safety incidents or near misses are being reported by the projects.

# Findings of the closed door event – Projects view on lessons learned

- Among the key lessons learned NER300 projects referred to technical and organisational aspects along the life cycle of the project (e.g. developing expertise in project development, stakeholder engagement and project management during construction)
- On the technical side some of the innovations implemented became state of the art in the wind industry or are already planned to be implemented in future projects of the project sponsors
- Projects perceived the Knowledge Sharing process within the NER300 programme as appropriate, however projects of the same category might explore an enhanced exchange of knowledge
- The Knowledge Sharing template suited well in monitoring the projects with some categories strongly depending on national legislation (e.g. environmental impact) thus having limited significance in the KS process among projects
- Some suggestion of the projects for improving the KS template include a simplification of sections which are more based on qualitative information (e.g. Health & Safety) and to improve the structure of the KS document (e.g. include ToC)

# Conclusions – Findings and potential synergies to explore among projects

- The **KS methodology worked well** and no significant problems or concerns stemming from the application of the methodology arise
- Given the limited availability of **reported years** at this stage, no trend or learning effect in the development of most indicators can be observed. However, a more consolidated and aligned reporting of data in future submissions might allow conclusions in this regard (e.g. on O&M reporting).
- A **refinement of the Knowledge Sharing template** to align the reported data of the projects and especially subsequent data submissions might allow future conclusions on how these indicators develop and the effect of NER 300 innovations.
- LCAs for **current operation and forecasts** are a very useful tool regarding the environmental performance of projects



*Upcoming publication*

# Thank you – Questions?

You can reach us at: [Thomas.TELSNIG@ec.europa.eu](mailto:Thomas.TELSNIG@ec.europa.eu) or [JRC-NER300@ec.europa.eu](mailto:JRC-NER300@ec.europa.eu)



© European Union 2020

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Slide xx: [element concerned](#), source: [e.g. Fotolia.com](#); Slide xx: [element concerned](#), source: [e.g. iStock.com](#)

