



Technology Transfer Committee (TTC) Status December 2021

N**ORTH**
WIND

Technology Transfer Committee 2021

Work program, status end of 2021

1. Development and organisation of webinars
2. User case studies - collaboration Research and Industry
3. Developments new technologies/innovations
4. Spin Outs

Webinar arranged in NorthWind 2021

- **17.09.2021 - Control and operation of wind farms.**
 - Presentations from Trønderenergi and SINTEF Energi
- **29.10.2021 – Environmental Design and Operation**
 - Presentations from NINA, NTNU, SINTEF Ocean and SINTEF Energi
- **17.11.2021 – Regulation and Framework in development and operation Offshore Wind**
 - Presentations from UiO, NORWEA and Aker Offshore Wind
- **29.11.2021 – EU wind R&I strategy and Calls**
 - Presentations from ETIP wind, EERA JP Wind, RCN and SINTEF
- **07.12.2021 – Workshop: The Norwegian wind power controversy**
 - Presentations and discussion between researchers and industry/Community/other Stakeholders

9 User Case Studies proposed from Industry

#	Description
1	Proof of concept for wind power in Longyearbyen and other off-grid settlements in arctic climatic environments. Contributing to a zero emission energy system in Longyearbyen. Relevant for off-grid locations.
2	New methods for installing OFW turbines by finding alternatives to use of large construction vessels
3	Develop meteorological hindcast database to be used by NorthWind partners for their needed input for meteorological timeseries offshore
4	To secure operational control of offshore wind farms, critical infrastructure and exposed assets in remote areas, and data generated, on or off grid. Develop next generation security system with quantum resistant technology, and robustness for 24/7 unmanned operation, based on highest level of end to end security for data connectivity, system integration, monitoring and remote control
5	Develop a HV dynamic export cable (220kV+). Design and qualification of a HV dynamic export cable (220kV+) for floating offshore wind
6	Reduce uncertainty for wind farm development. Development of Cost efficient floating LIDARS
7	Automated O&M and inspection schemes using drones (both in air and underwater). To study in detail how such inspection schemes can reduce OPEX as well as CAPEX.
8	Design a deepwater frame mooring system with interarray cable dynamic arrangement to size a deepwater frame mooring system with fibre mooring lines connecting floaters. Interarray cable arrangement will be developed including considerations of benefit of suspended free hanging cables
9	Integration of seaweed-farming in offshore windfarms. To understand whether seaweed-integration can contribute to increased CO2-storage in offshore windfarm areas

Development of new technologies

- Startups

NorthWind have been approached by two startups. NorthWind have given advises and facilitated meetings with NorthWind Partners and startups.

1. A new cost effective technology for replacement of wind turbine blades for floating offshore wind. New design for floating offshore foundation.
2. Development of a new wind turbine foundation and an installation tool for floating wind farms.

NorthWind is facilitating the process for further development of the technologies together with new funding.

Both technologies can create new projects – i.e. IPNs, JIPs, etc

New technology/user case

Anti bird collision system

- SINTEF hold a patent from 2018 to apply wind control technology to develop a anti collision system to prevent birds from collisions with wind turbines
- Fugro have developed a lidar-buoy for wind resource measurements
- Can the Lidar-buoy be used to track birds?
- If so – combine the Lidar-buoy system with the Anti bird collision patent
- A new solution to prevent bird collisions with wind turbines

Possible new spin out projects

- A NorthWind Partner has challenged NorthWind on Life Cycle Analysis of floating wind turbine foundations. SINTEF Ocean are working with a proposal on LCA analysis of concrete versus steel foundations
- To strengthen the research on environmental impact, especially for offshore wind – A KSP-proposal are under development. Deadline 9th of February