



# EERA DEEPWIND 2018 CLOSING REMARKS

John Olav Giæver Tande, Director NOWITECH  
Chief Scientist / Research Manager, SINTEF Energy Research  
[John.tande@sintef.no](mailto:John.tande@sintef.no)  
EERA DeepWind, Trondheim, Jan 19, 2018



# NOWITECH (2009-2017)

- A joint pre-competitive research effort
- Focus on deep offshore wind technology (+30 m)
- Budget EUR 40 millions
- Co-financed by the Research Council of Norway, industry and research partners
- 25 PhD/post doc grants
- **Key target:**  
**innovations reducing cost of energy from offshore wind**
- **Vision:**
  - large scale deployment
  - internationally leading

## Research partners:

- ▶ SINTEF Energy (host)
- ▶ IFE
- ▶ NTNU
- ▶ SINTEF Ocean (MARINTEK)
- ▶ SINTEF Foundation

## Industry partners:

- ▶ CD-adapco
- ▶ DNV GL
- ▶ DONG Energy
- ▶ Fedem Technology
- ▶ Fugro OCEANOR
- ▶ Kongsberg Maritime
- ▶ Norsk Automatisering
- ▶ Statkraft
- ▶ Statoil

## Associated research partners:

- ▶ DTU Wind Energy
- ▶ Michigan Tech Uni.
- ▶ MIT
- ▶ NREL
- ▶ Fraunhofer IWES
- ▶ Uni. Strathclyde
- ▶ TU Delft
- ▶ Nanyang TU

## Associated industry partners:

- ▶ Devold AMT AS
- ▶ Energy Norway
- ▶ Enova
- ▶ Innovation Norway
- ▶ NCEI
- ▶ NORWEA
- ▶ NVE
- ▶ Wind Cluster Norway

# Offshore wind has cost reduction opportunities in multiple areas including scale effects

## Turbines & plant



- Larger turbines and wind farms
- Increased reliability
- Scale effects and industrialisation

## Substructures



- Standardised and optimised offshore foundation design and design criteria
- Industrialised manufacturing

## Transmission



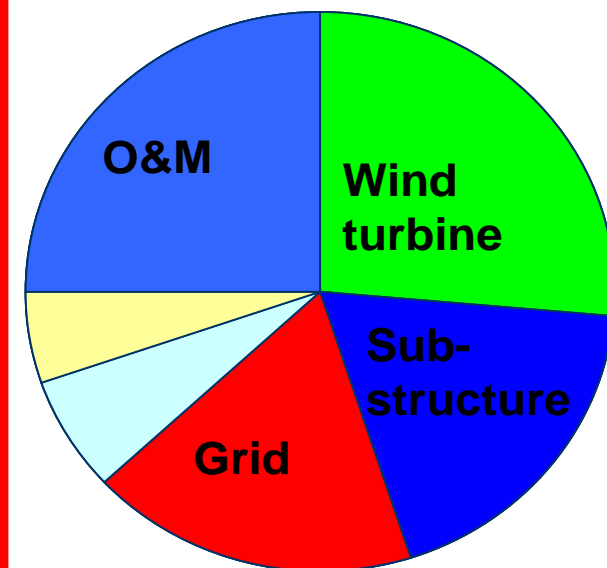
- eBoP optimisation of substation and transmission capex
- Innovative transmission solutions
- Improved grid access

## O&M



- Low OPEX drivetrains
- Turbine and component quality
- Condition monitoring, diagnostics, preventive maintenance

**NOWITECH**  
focus

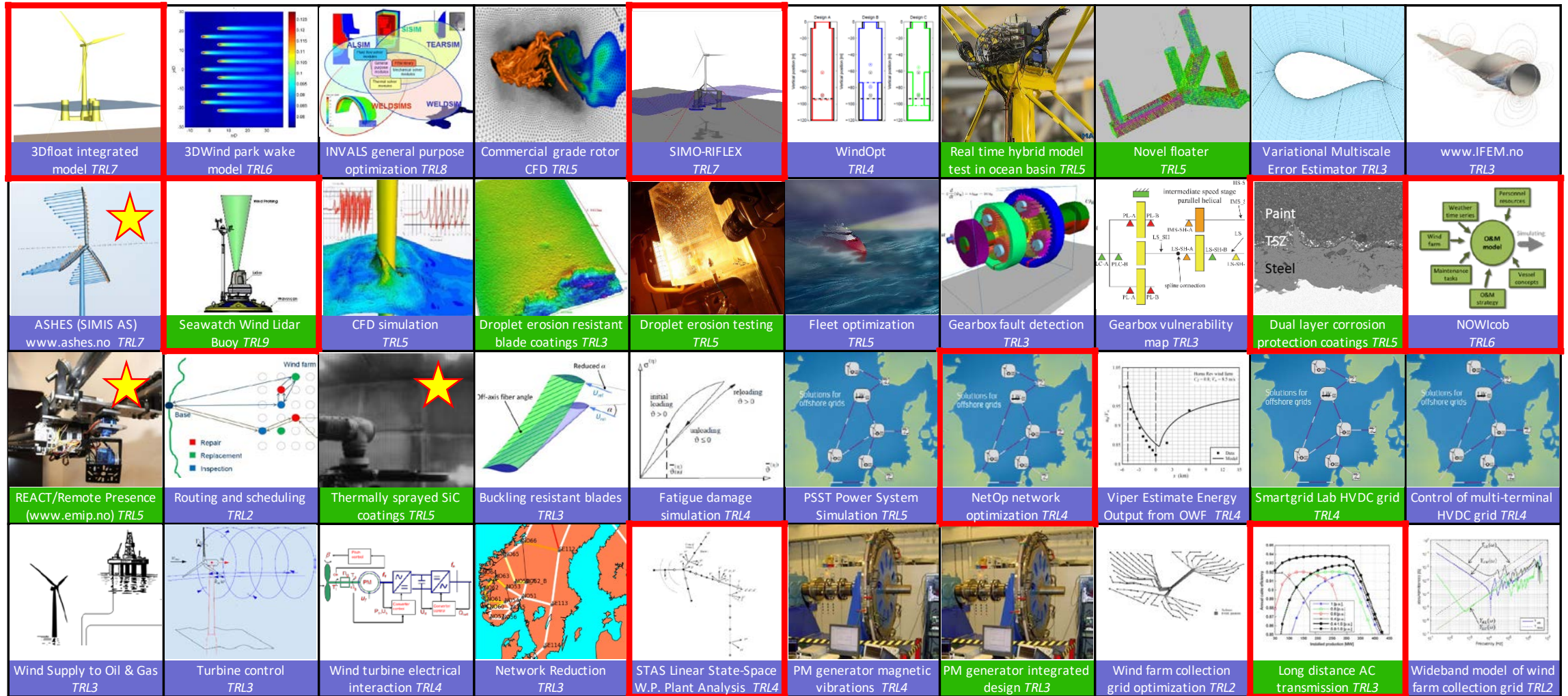


**LPC distribution of offshore wind farm (example)**

Source: Siemens, MHI-Vestas, MAKE



# NOWITECH has 40 innovations in progress



# Potential value of innovations

---

NPV: > 5000 MEUR\*

IMPELLO

\* Result from analysis carried out by Impello Management AS for a subset of innovations by NOWITECH. NPV is calculated as socio-economic value of applying the innovations to a share of new offshore wind farms expected in Europe until 2030.

# Why continue NOWITECH as a research network?

---

- Leverage on results from NOWITECH
- Keep momentum in cooperation
- Increase visibility and impact
- Enhance dissemination and communication of results
- Organize EERA Deepwind
- Share open research and data
- Joint publications
- Share scientific advice and research strategies
- Align with EERA JPwind
- Collaboration across projects
- Attract funding
  - ✓ Access to research facilities
  - ✓ Facilitate researcher mobility
  - ✓ Joint R&D projects
- ...

# NOWITECH research network

- Research network sharing open results
- Focus on deep offshore wind technology (+30 m)
- Budget in-kind by the individual partners, possibly with additions from the Research Council of Norway and industry
- **Key target:**  
increasing the economic attractiveness of offshore wind through generation of new knowledge, models, processes and technology
- **Vision:**
  - large scale deployment
  - internationally leading





# NOWITECH research network

- National network with international participation
- Non-exclusive
- Volunteer basis
- National meetings 4-6 times per year, physical or by skype
- International meeting 1-2 times per year, aligned with EERA Deepwind and other events, possibly also outside Norway
- Lean structure (management board + general assembly)
- Participation by invitation
- Commitment by Lol
- ...

National partners in management board:

- ▶ SINTEF Energy (host)
- ▶ IFE
- ▶ NTNU
- ▶ SINTEF Ocean
- ▶ SINTEF Foundation

International partners in general assembly (TBC):

- ▶ DTU Wind Energy
- ▶ Michigan Tech Uni.
- ▶ MIT
- ▶ NREL
- ▶ Fraunhofer IWES
- ▶ Uni. Strathclyde
- ▶ TU Delft
- ▶ Nanyang TU





# Summing up EERA Deepwind 2018

---

- Excellent presentations
- Vibrant positive atmosphere
- Global participation with delegates from all over Europe, but also from USA, Japan, Korea and China
- Good mix of academia and industry
- Gender balance can be better 😊
- Thank you to hotel staff, conference assisting staff from NTNU and SINTEF, session chairs, speakers and audience
- See you at EERA Deepwind 2019!







Technology for a better society