



# EERA DeepWind'2018

## 15th Deep Sea Offshore Wind R&D Conference, Trondheim, 17 - 19 January 2018

<b>Wednesday 17 January</b>	
09.00	Registration & coffee
	<b>Opening session – Frontiers of Science and Technology</b> Chairs: John Olav Tande, SINTEF and Trond Kvamsdal, NTNU
09.30	Opening note by chair
09.35	Alexandra Bech Gjørsv, CEO, SINTEF
09.50	Jørn Scharling Holm, Technology Partnerships Manager, Ørsted
10.05	Hanne Wigum, Manager Renewable Technology, Statoil
10.20	Matthijs Soede, Research Programme Officer, EC
10.35	Aiden Cronin, ETIPwind
10.50	Nils Røkke, Chair, European Energy Research Alliance (EERA)
11.05	Panel debate, moderated by Prof Johan Hustad: <i>the role of R&amp;I to maximize the economic attractiveness of offshore wind.</i>
11.55	Closing by chair
12.00	Lunch
	Parallel sessions
	<b>A1) New turbine and generator technology</b> Chairs: Harald G. Svendsen, SINTEF Energi
	<b>C1) Met-ocean conditions</b> Chairs: Joachim Reuder, Uni of Bergen, Birgitte Rugaard Furevik, met.no
13.00	Introduction by Chair
13.05	<i>Lightweight design of the INNWIND.EU and AVATAR rotors through multi-disciplinary optimization algorithms</i> , A.Croce, Politecnico di Milano
13:30	<i>Initial Design of a 12 MW Floating Offshore Wind Turbine</i> , P.T.Dam, University of Ulsan, Korea
13:50	<i>Performance Assessment of a High Definition Modular Multilevel Converter for Offshore Wind Turbines</i> , R.E.Torres-Olguin, SINTEF Energi
14:10	<i>Mitigation of Loads on Floating Offshore Wind Turbines through Advanced Control Strategies</i> , D. Ward, Cranfield University
14:30	Closing by Chair
14.35	Refreshments
	<b>A2) New turbine and generator technology (cont.)</b>
	<b>C2) Met-ocean conditions (cont.)</b>
15.05	Introduction by Chair
15.10	<i>Integrated design of a semi-submersible floating vertical axis wind turbine (VAWT) with active blade pitch control</i> , F.Huijs, GustoMSC
15.30	<i>Evaluation of control methods for floating offshore wind turbines</i> , W.Yu, University of Stuttgart
15.50	<i>Impact of the aerodynamic model on the modelling of the behaviour of a Floating Vertical Axis Wind Turbine</i> , V.Leroy, LHEEA and INNOSEA
16.10	Closing by Chair
18.00	We welcome you to an informal reception at <a href="#">Dokkhuset</a> . A jazz club and concert venue in an old industrial building by the old dock. There will be a musical performance by <a href="#">Kristoffer Lo</a> and some light refreshments.

# EERA DeepWind'2018

## 15th Deep Sea Offshore Wind R&D Conference,

### Trondheim, 17 - 19 January 2018

Thursday 18 January		
	Parallel sessions	
	<b>D1) Operation &amp; maintenance</b> Chairs: Thomas Welte, SINTEF Energi Marcel Wiggert, Fraunhofer IWES	<b>E1) Installation and sub-structures</b> Chairs: Michael Muskulus, NTNU, Arno van Wingerde, Fraunhofer IWES
09.00	Introduction by Chair	Introduction by Chair
09.05	<i>Wind Turbine Gearbox Planet Bearing Failure Prediction Using Vibration Data</i> , S. Koukoura, University of Strathclyde	<i>Floating offshore wind turbine design stage summary in LIFES50+ project</i> , G. Pérez, TECNALIA
09.30	<i>Data Insights from an Offshore Wind Turbine Gearbox Replacement</i> , A.K. Papatzimos, University of Edinburgh	<i>A comprehensive method for the structural design and verification of the INNWIND 10MW tri-spar floater</i> , D. Manolas, NTUA
09.50	<i>Further investigation of the relationship between main-bearing loads and wind field characteristics</i> , A. Turnbull, University of Strathclyde	<i>Reducing cost of offshore wind by integrated structural and geotechnical design</i> , K. Skau, NGI and NTNU
10.10	<i>Damage Localization using Model Updating on a Wind Turbine Blade</i> , K. Schröder, University of Hannover	<i>Catenary mooring chain eigen modes and the effects on fatigue life</i> , T.A.Nygaard, IFE
10.30	Refreshments	
	<b>D2) Operation &amp; maintenance (cont.)</b>	<b>E2) Installation and sub-structures (cont.)</b>
11.00	<i>Using a Langevin model for the simulation of environmental conditions in an offshore wind farm</i> , H.Seyr, NTNU	<i>A numerical study of a catamaran installation vessel for installing offshore wind turbines</i> , Z. Jiang, NTNU
11.20	<i>The LEANWIND suite of logistics optimisation and full life-cycle simulation models for offshore wind farms</i> , F.D. McAuliffe, Univeristy College Cork	<i>FSFound – Development of an Instrumentation System for novel Float / Submerge Gravity Base Foundations</i> , P. McKeever, ORE Catapult
11.40	<i>Analysis, comparison and optimization of the logistic concept for wind turbine commissioning</i> , M. Wiggert, Fraunhofer IWES	<i>Integrated conceptual optimal design of jackets and foundations</i> , M. Stolpe, Technical University of Denmark
12.00	Closing by Chair	Closing by Chair
12.05	Lunch	
	<b>B1) Grid connection and power system integration</b> Chairs: Prof Kjetil Uhlen, NTNU Prof Olimpo Anaya-Lara, Strathclyde University	<b>G1) Experimental Testing and Validation</b> Chairs: Tor Anders Nygaard, IFE Ole David Økland, SINTEF Ocean, Amy Robertson, NREL
13.05	Introduction by Chair	Introduction by Chair
13.10	<i>Ancillary services from wind farms</i> , Prof William Leithead	<i>Wind tunnel experiments on wind turbine wakes in yaw: Redefining the wake width</i> , J.Schottler, ForWind, University of Oldenburg
13.35	<i>North Seas Offshore Network: Challenges and its way forward</i> , P.Härtel, Fraunhofer IWES	<i>A Detached - Eddy - Simulation study: Proper - Orthogonal - Decomposition of the wake flow behind a model wind turbine</i> , J.Göeing, Technische Universität Berlin
13.55	<i>Towards a fully integrated North Sea Offshore Grid: An engineering-economic assessment of a Power Link Island</i> , M. Korpås, NTNU	<i>BOHEM (Blade Optical HEalth Monitoring)</i> , P. McKeever, ORE Catapult
14.15	<i>Generic Future Grid Code regarding Wind Power in Europe</i> , T.K.Vrana, SINTEF Energi	<i>Scaled Wind Turbine Setup in Turbulent Wind Tunnel</i> , F. Berger, CvO University of Oldenburg
14.35	Refreshments	
	<b>B2) Grid connection and power system integration (cont.)</b>	<b>G2) Experimental Testing and Validation (cont.)</b>
15.05	<i>Statistical Analysis of Offshore Wind and other VRE Generation to Estimate the Variability in Future Residual Load</i> , M.Koivisto, DTU Wind Energy	<i>Documentation, Verification and Validation of Real-Time Hybrid Model tests for the 10MW OO-Star Wind Floater semi FOWT</i> , M.Thys, SINTEF Ocean
15.25	<i>A demonstrator for experimental testing integration of offshore wind farms with HVDC connection</i> , S.D'Arco, SINTEF Energi	<i>Validation of the real-time-response ProCap measurement system for full field flow measurements in a model-scale wind turbine wake</i> , J.Bartl, NTNU
15.45	<i>Optimal Operation of Large Scale Flexible Hydrogen Production in Constrained Transmission Grids with Stochastic Wind Power</i> , E.F.Bødal, NTNU	<i>Experimental Study on Slamming Load by Simplified Substructure</i> , Byoungcheon Seo, University of Ulsan, Korea
16.05	<i>Small signal modelling and eigenvalue analysis of multiterminal HVDC grids</i> , Salvatore D'Arco, SINTEF Energi AS	<i>Physical model testing of the TetraSpar floater in two configurations</i> , M.Borg, DTU Wind Energy
16.25	Closing by Chair	Closing by Chair
16.30	Refreshments	
17.00	Poster session	
19.00	Conference dinner	

Side event 1645-1845: Presentation of French research centres and companies involved in offshore wind energy  
<http://www.france.no/no/norge-oslo/fransk-delegasjon-pa-erra-deepwind-2018/>



# EERA DeepWind'2018

## 15th Deep Sea Offshore Wind R&D Conference, Trondheim, 17 - 19 January 2018

### Thursday 18 January

#### 17.00: Poster Session with refreshments

##### Session A

1. *Load estimation and O&M costs of Multi Rotor Array turbine for the south Baltic Sea*, M. Karczewski, Lodz University of Technology
2. *Dynamic Responses Analysis for Initial Design of a 12 MW Floating Offshore Wind Turbine with a Semi-Submersible Platform*, J.Kim, University of Ulsan, Korea

##### Session B

3. *Experimental Validation of a Novel Inertia-less VSM Algorithm*, Luis Reguera Castillo, University of Strathclyde
4. *Reducing Rapid Wind Farm Power Fluctuations Using the Modular Multilevel Converter*, A.A.Taffese, NTNU
5. *SiC MOSFETs for Offshore Wind Applications*, S. Tiwari, NTNU/SINTEF Ocean

##### Session C

6. *Extreme met-ocean conditions in a Norwegian fjord*, Z. Midjiyawa, Meteorologisk instiutt
7. *Modelling of non-neutral wind profiles - current recommendations vs. coastal wind climate measurements*, P. Domagalski, Lodz University of Technology
8. *Uncertainty estimations for offshore wind resource assessment and power verification*, D. Foussekis, Centre for Renewable Energy Sources

##### Session D

9. *Using a Langevin model for the simulation of environmental conditions in an offshore wind farm*, H.Seyr, M.Muskulus, NTNU
10. *On the effects of environmental conditions on wind turbine performance – an offshore case study*, E. González, CIRCE – Universidd de Zaragoza

##### Session E

11. *Design optimization with genetic algorithms: How does steel mass increase if offshore wind monopiles are designed for a longer service life?* L. Ziegler, Rambøll Wind
12. *Coupled Hybrid Mooring Systems for Floating Offshore Wind Farms for Increased System Stability*, M. Goldschmidt, Offshore Wind Consultants Ltd.
13. *Experimental Study on Slamming Load by Simplified Substructure*, A. Krogstad, NTNU
14. *Effect of hydrodynamic load modelling on the response of floating wind turbines and its mooring system in small water depths*, Kun Xu, NTNU
15. *A GPS/accelerometer integrated hub position monitoring algorithm for offshore wind turbine with monopile foundation*, Z. Ren, NTNU
16. *Supply chains for floating offshore wind substructures - a TLP example*, H.Hartmann, University Rostock
17. *Critical Review of Floating Support Structures for Offshore Wind Farm Deployment*, M Leimeister, REMS, Cranfield University
18. *Assessment of the state-of-the-art ULS design procedure for offshore wind turbine sub-structures*, C. Hübler, Leibniz Univ Hannover
19. *Offshore Floating Platforms: Analysis of a Solution for Motion Mitigation*, A.Rodriguez Marijuan, Saitec Offshore Technologies
20. *State-of-the-art model for the LIFES50+ OO-Star Wind Floater Semi 10MW floating wind turbine*, A. Pegalajar-Jurado, DTU
21. *Validation of a CFD model for the LIFES50+ OO-Star Wind Floater Semi 10MW and investigation of viscous flow effects*, H. Sarlak, DTU
22. *Nonlinear Wave Load Effects on Structure of Monopile Wind Turbines*, M. Mobasheramini, Queens University, Bryden Center
23. *Designing FOWT mooring system in shallow water depth*, V. Arnal, LHEEA, Centrale Nantes
24. *Construction Possibilities for Serial Production of Monolithic Concrete Spar Buoy Platforms*, C. Molins, UPC-Barcelona Tech
25. *Extreme response estimation of offshore wind turbines with an extended contour-line method*, J-T.Horn, NTNU
26. *Fabrication and Installation of OO-Star Wind Floater*, T.Landbø, Dr.techn.Olav Olsen

##### Session F

27. *Experimental validation of analytical wake and downstream turbine performance modelling*, F. Polster, Technical University of Berlin
28. *Reduce Order Model for the prediction of the aerodynamic lift around the NACA0015 airfoil*, M.S. Siddiqui, NTNU
29. *Fast divergence-conforming reduced orders models for flow*, E. Fonn, SINTEF Digital

##### Session G

30. *Sensitivity analysis of the dynamic response of a floating wind turbine*, R. Siavashi, University of Bergen
31. *Offshore Wind: How an Industry Revolutionised Itself*, M. Smith, Zephir Ltd
32. *Parameter Estimation of Breaking Wave Load Model using Monte Carlo Simulation*, S. Wang, DTU Wind Energy
33. *Emulation of ReaTHM testing*, L. Eliassen, SINTEF Ocean
34. *Multiple degrees of freedom real-time actuation of aerodynamic loads in model testing of floating wind turbines using cable-driven parallel robots*, V. Chabaud, NTNU/SINTEF Ocean
35. *A 6DoF hydrodynamic model for real time implementation in hybrid testing*, I. Bayati, Politecnico di Milano
36. *Kalman Estimation of Position and Velocity for ReaTHM Testing Applications*, E.Bachmann Mehammer, Imperial College London/SINTEF Energi
37. *Numerical modelling and validation of a semisubmersible floating offshore wind turbine under wind and wave misalignment*, S.OH, ClassNK

##### Session H

38. *Impact on wind turbine loads from different down regulation control strategies*, C. Galinos, DTU

**Side event 1745-1845:** Presentation of French research centres and companies involved in offshore wind energy  
<http://www.france.no/no/norge-oslo/fransk-delegasjon-pa-erra-deepwind-2018/>

19.00: Dinner



EERA DeepWind'2018  
15th Deep Sea Offshore Wind R&D Conference,  
Trondheim, 17 - 19 January 2018

<b>Friday 19 January</b>		
<b>Parallel sessions</b>		
	<b>H) Wind farm control systems</b> Chairs: Karl Merz, SINTEF Energi Prof Olimpo Anaya-Lara, Strathclyde University	<b>F) Wind farm optimization</b> Chairs: Yngve Heggelund, CMR Henrik Bredmose, DTU Wind Energy
09.00	Introduction by Chair	Introduction by Chair
09.05	<i>Real-time wind field estimation &amp; model calibration using SCADA data in pursuit of closed-loop wind farm control</i> , B.Doeckemeijer, Delft University of Technology	<i>The DIMSELO Project (Dimensioning Sea Loads for Offshore Wind Turbines)</i> , F. Pierella, IFE
09.25	<i>Mitigating Turbine Mechanical Loads Using Engineering Model Predictive Wind Farm Controller</i> , J.Kazda, DTU Wind Energy	<i>A savings procedure based construction heuristic for the offshore wind inter-array cable layout optimization problem</i> , S. Fotedar, University of Bergen
09.45	<i>Local stability and linear dynamics of a wind power plant</i> , K.Merz, SINTEF Energi	<i>Calibration and Initial Validation of FAST.Farm Against SOWFA</i> , J.Jonkman, National Renewable Energy Laboratory
10.05	<i>Wind farm control</i> , Prof William Leithead	<i>An Experimental Study on the Far Wake Development behind a Yawed Wind turbine</i> , F. Mühle, NMBU
10.25	Closing by Chair	Closing by Chair
10.30	Refreshments	
<b>Closing session – Strategic Outlook</b> Chairs: John Olav Tande, SINTEF and Michael Muskulus, NTNU		
11.00	Introduction by Chair	
11.05	<i>WindBarge: floating wind production at intermediate water depths</i> , J. Krokstad, NTNU	
11.25	<i>OO-Star Wind Floater – The cost effective solution for future offshore wind developments</i> , Trond Landbø, Dr.techn.Olav Olsen	
11.55	<i>The first floating wind turbine in France: Status, Feedbacks &amp; Perspectives</i> , I. Le Crom, Cenrale Nantes	
12.25	<i>Progress of EERA JPwind towards stronger collaboration and impact</i> ; Peter Hauge Madsen, DTU Wind Energy	
12.40	Poster award and closing	
13.00	Lunch	

Side event (0800-1700): IEA OC5 meeting