EERA DeepWind'2020
17th Deep Sea Offshore Wind R&D Conference, Trondheim, 15 - 17 January 2020

Wednesday 15 January		
09.00	Registration & coffee	
	Opening session – Frontiers of Science and Technology Chairs: John Olav Tande, SINTEF and Prof Trond Kvamsdal, NTNU	
09.30	Opening and welcome by chair	
09.40	*Bringing offshore wind forward through R&I*, Head of EERA JP wind, Peter Eecen, TNO	
10.00	*The grand challenges in the science of wind energy*, Katherine Dykes, DTU	
10.20	*How offshore wind will help Europe go carbon-neutral*, Lizet Ramirez, WindEurope	
10.40	*Introduction to the 1.2 GW Floating Offshore Wind Farm Project in Korea*, Hyunkyoung Shin, University of Ulsan	
11.00	*Offshore wind status and outlook for China*, Dr. Liu Yongqian, Renewable Energy School, North China Electric Power University	
11.20	*How technology is driving global offshore wind*, Chair ETIPwind, Aidan Cronin, SiemensGamesa	
11.55	Closing by chair	
12.00	Lunch	
	Parallel sessions	
	A) New turbine and generator technology Chairs: Karl Merz, SINTEF Prof Gerard van Bussel, TU Delft	**C1) Met-ocean conditions** Chairs Joachim Reuder, University of Bergen (UiB), Erik Berge, The Norwegian Meteorological Institute
13.00	Introduction by Chair	Introduction by Chair
13.05	*Introduction to the FARWIND concept for sustainable fuel production from the far-offshore wind energy resource,* C.Gilloteaux, Centrale Nantes - CNRS	*Evaluation of different methods for reducing offshore wind measurements at oil platforms to 10 m reference height,* E.Berge, Norwegian Meteorological Institute
13.30	*Comparison of Electrical Topologies for Multi-rotor System Wind Turbines,* P.Pirrie, University of Strathclyde	*Ship-based multi-sensor remote sensing and its potential for offshore wind research,* C.A.Duscha, UiB
13.50	*An Aerospace Solution to Leading Edge Erosion,* P.Greaves, ORE Catapult	*Taking the motion out of floating lidar: A method for correcting estimates of turbulence intensity,* F.Kelberlau, NTNU
		Framework for optimal met-ocean sensor placement in offshore wind farms, E.Salo, University of Strathclyde
14.30	Closing by Chair	Closing by Chair
14.35	Refreshments	
	H) Wind farm control systems Chairs: Karl Merz, SINTEF and Xabier Munduate, CENER	**C2) Met-ocean conditions (cont.)**
15.05	Introduction by Chair	Introduction by Chair
15.10	*Model predictive control on a wind turbine using a reduced order model based on STAS,* A.Skibelid, NTNU	*Dynamic response of bottom fixed and floating wind turbines. Sensitivity to wind field models, F.G.Nielsen*, UiB
15.30	On the Stochastic Reduced-Order and LES-based Models of Offshore Wind Farm Wake, M.B.Paskyabi, UiB	*Relevance of sea waves and farm-farm wakes for offshore wind resource assessment,* J.Fischereit, DTU Wind Energy
15.50	*Consequences of load mitigation control strategies for a floating wind turbine*, E.Bachynski, NTNU	*Dependence of Floating Lidar Performance on External Parameters – Results of a System Classification Focussing on Sea States, G.Wolken-Möhlmann, Fraunhofer IWES*
16.10	Closing by Chair	Closing by Chair
18.00	Conference reception at To Tårn	

Side events

Wednesday 15 January, 1300-1530: Havvind haster: Hvordan skal vi lykkes? (Norwegian only, read more here)

Thursday 16 January: 1300 – 1430: Offshore wind lighthouse initiative

The EU funded SETWind project has a vision of creating an ambitious pan-European effort in offshore wind energy research that will contribute to achieving the targets set in the Paris Agreement. Fostering international collaboration in offshore wind energy is crucial to reach the ambitious goals, but also makes economic sense.

This workshop is organized by the SETWind project together with ETIPwind and EERA JPwind to support the development of offshore wind energy. The workshop is at the venue of the EERA DeepWind R&I conference and is open for all registered conference participants.

Read more about the ocean of opportunities at https://www.eerajpwind.eu/offshore-wind-an-ocean-of-opportunities/.

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Thursday 16 January		
	D1) Operation & maintenance Chairs: Iver Bakken Sperstad, SINTEF Volker Berkhout, Fraunhofer IWES	**E1) Installation and sub-structures** Chairs: Prof Arno van Wingerde, Fraunhofer IWES Prof Michael Muskulus, NTNU
09.00	Introduction by Chair	Introduction by Chair
09.05	*Potential of machine learning algorithms for the identification of structural damages in offshore jacket structures,* D.Cevasco, University of Strathclyde	*Nonlinear hydroelastic responses of monopile and spar wind turbines in regular waves,* V.Leroy, LHEEA Lab, Centrale Nantes
09.30	*Automated inspection of offshore wind turbine foundation using complementary NDT and defect detection techniques,* S.Subramaniam, Brunel Innovation Centre	*From pre-design to operation: Outlook and first results of the FloatStep project,* H.Bredmose, DTU Wind Energy
09.50	*Load Estimation for Condition Monitoring in Wind Turbines Based on Physical Modeling,* M.Pagitsch, RWTH Aachen Univ.	*Structural Design of a Prestressed-Concrete Spar-type floater for 10 MW wind turbines,* S.Oh, ClassNK
10.10	*Digital Assistance in the Maintenance of Offshore Wind Parks,* M.Stepputat, Fraunhofer	*Mooring line dynamics of a semi-submersible wind energy platform. Cross validation of two commercial numerical codes with experimental data, R.Chester*, University College Cork
10.30	Refreshments	
	D2) Operation & maintenance (cont.)	**E2) Installation and sub-structures (cont.)**
11.00	*Life Extension of Offshore Wind Farms: A Decision Support Tool,* M.Shafiee, Cranfield University	*Wave-induced collision loads and moments between a spar-buoy floating wind turbine and an installation vessel,* D.Lande-Sudall, Western Norway University of Applied Sciences
11.20	*A versatile and highly accurate sensor technology for load measurements*, T.Veltkamp, TNO Energy Transition	*Implementation of Substructure Flexibility and Member-Level Load Capabilities for Floating Offshore Wind Turbines in OpenFAST,* J.Jonkman, NREL
11.40	*Are seakeeping simulations useful for the planning of offshore wind O&M?* S.Gueydon, MARIN	*Levelized Cost of Energy and Life Cycle Assessment of IDL Tower,* N.Saraswati, TNO
12.00	Closing by Chair	Closing by Chair
12.05	Lunch	
	B1) Grid connection and power system integration Chairs: Prof Kjetil Uhlen, NTNU Prof Olimpo Anaya-Lara, Strathclyde University	**G1) Experimental Testing and Validation** Chairs: Tor Anders Nygaard, IFE Ole David Økland, SINTEF, Amy Robertson, NREL
13.05	Introduction by Chair	Introduction by Chair
13.10	*VIKINGS: Offshore Wind Integration within the Stand-alone Electric Grid at Oil and Gas Offshore Installations,* W.He, Equinor	*RAVE (Research at alpha ventus) offers its 10 years of measurement data to support research in offshore wind power,* B.Lange, Fraunhofer IWES
13.35	*Feasibility assessment of wireless series reactive compensation of long submarine AC cables,* G.Lugrin, SINTEF	*Managing data to develop digital twins, demonstrate new technology and provide improved wind turbine/wind farm control during operation,* P.McKeever, ORE Catapult
13.55	*Power Oscillation Damping from Offshore Wind Farms Connected to HVDC via Diode Rectifiers,* O.Saborio-Romano, DTU Wind Energy	*Experimental Investigations on the Fatigue Resistance of Automatically Welded Tubular X-Joints for Jacket Support Structures*, K.Schürmann, Leibniz University Hannover
14.15	*Dynamic Analysis of Power Cable in Floating Offshore Wind Turbine,* M.Sobhaniasl, University of Rome	*Determination of the Yaw Moment of a Downwind-coned Rotor under Yawed Conditions: Limitations of a Blade Element Momentum Theory Method*, C.W.Schulz, Hamburg University of Technology
14.35	Refreshments	
	B2) Grid connection and power system integration (cont.)	**G2) Experimental Testing and Validation (cont.)**
15.05	*Can levelised revenues from auctions be used to deduct levelised cost of offshore wind farms? The case of Kriegers Flak,* L.Kitzing, DTU	*Hydrodynamic testing of a flexible, large-diameter monopile in regular and irregular waves: observations and effects of wave generation techniques,* E.Bachynski, NTNU
15.25	*Measuring cost reductions of offshore wind using European offshore auctions,* L.Kitzing, DTU	*Validation of Drift Motions for a Semi-submersible Floating Wind Turbine and the Associated Challenges,* M.Y.Mahfouz, Stuttgart Wind Energy
15.45	*Forecasting Wind Power as a Dispatchable Generation Source for Grid Frequency Control,* L.May, Strathclyde University	*Hybrid Modelling for Engineering Design of Floating Offshore Wind Turbine Foundations – Model Coupling and Validation,* P.D.Tomaselli, DHI
16.05	*Surrogate model of offshore farm to farm wake effects for large scale energy system applications,* J.P.Murcia, DTU	*On the real time hybrid modelling of floating offshore wind turbine using ducted fan(s),* F.Petrie, Oceanide
16.25	Closing by Chair	Closing by Chair
16.30	Refreshments	
17.00	Poster session	
19.00	Conference dinner	

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Poster session with refreshments (17.00-19.00 Thursday 16 January)

1. *Multi-objective model predictive control for a multi-rotor wind turbine*, J.Urdal, NTNU
2. *Introducing wake effects from offshore wind farm clusters to Danish power integration system,* X.G.Larsén DTU Wind Energy
3. *Evaluation of different wind fields for the investigation of the dynamic response of offshore wind turbines,* A.Nybø, UiB
4. *Wave-modified two-equation model to study wave-wind interaction in shallow waters,* M.B.Paskyabi, UiB
5. *Comparison of long-term and short-term wind power forecasting methods,* C. Lau, Industrial Technology Research Inst.
6. *Vertical profiles of wind velocity, turbulence intensity and temperature beyond the surface layer,* P.Domagalski, WindTak
7. *COTUR – estimating the COherence of TURbulence with wind lidar technology,* M.Flügge, NORCE
8. *Polymorphic uncertainty in met-ocean conditions and the influence on fatigue loads,* C.Hübler, ForWind
9. *Evaluation of Gaussian wake models under different atmospheric stability conditions: comparison with large eddy simulation results, M.Krutova, UiB*
10. *A novel approach to computing super observations for probabilistic wave model validation,* P.Bohlinger, Norwegian Meteorological Inst.
11. *Hub-based vectoral reduction of turbulent wind fields for actuator-disc wind turbine models,* V.Chabaud, SINTEF
12. *Comparison of Weather Window Statistics and Time Series Based Methods Considering Risk Measures, J.Lübsen, Fraunhofer IWES*
13. *A Conceptual Framework for Data-driven Reliability-centred Evolutionary and Automated Maintenance of Offshore Wind Farms,* K.Aslansefat, University of Hull
14. *Applications and platforms in digitalisation of wind farm O&M – community feedback and survey results,* V.Berkhout, Fraunhofer IEE
15. *Identification and prioritization of low performing wind turbines using a power curve health value approach, S.Pfaffel, Fraunhofer IEE*
16. *Innovative, Low Cost, Low Weight and Safe Floating Wind Technology Optimized for Deep Water Wind Sites: The FLOTANT Project,* A.Castro, The Oceanic Platform of the Canary Islands
17. *Short-term Offshore Wind Speed Forecasting with an Efficient Machine Learning Approach*, M.B.Paskyabi, UiB
18. *Vortex interaction in the wake of a two- and three-bladed wind turbine,* L.Kuhn, NTNU
19. *Sensitivity analysis of cost parameters for floating offshore wind farms,* C.Maienza, Univ of Campania
20. *Flow model integration into the STAS framework for optimal control of wind power plants,* S.Dankelman, SINTEF
21. *Optimization of reactive power dispatch in offshore wind power plants,* K.Das, DTU Wind Energy
22. *Simulation of wind turbine wake meandering pattern,* B.Panjwani, SINTEF
23. *A Numerical Study on the Effect of Wind Turbine Wake Meandering on Power Production of Hywind Tampen,* B.Panjwani, *SINTEF*
24. *Surge decay CFD simulations of a Tension Leg Platform (TLP) floating wind turbine,* A.Borràs Nadal, IFP Energies Nouvelles
25. *Hydrodynamic Investigation of Large Monopile for Offshore Wind Applications: Numerical and Experimental Approaches,* A.Moghtadaei, Queens University of Belfast
26. *Optimization-based calibration of hydrodynamic drag coefficients for a semi-submersible platform using experimental data of an irregular sea state,* M.Böhm, ForWind
27. *Laboratory test setup for offshore wind integration with the stand-alone electric grid at oil and gas offshore installations,* O.Mo, SINTEF
28. *Friction coefficients for steel to steel contact surfaces in air and seawater*, R.J.M. Pijpers, TNO
29. *Numerical and Experimental Investigation of MIT NREL TLP under regular and irregular waves,* M. Vardaroglu, Università della Campania
30. *Load Estimation and Wind Measurement Considering Full Scale Floater Motion*, A.Yamaguchi, University of Tokyo
31. *A study on dynamic response of a semi-submersible floating wind turbine considering combined wave and current loads,* Y.Liu, University of Tokyo
32. *GANs assisted super-resolution simulation of atmospheric flows,* D.T.Tran, NTNU
33. *Liner parameter-varying model of wind power plant for power tracking and load reduction,* K.Kölle, SINTEF
34. *Fast divergence-conforming reduced basis methods for stationary and transient flow problems,* E.Fonn, SINTEF
35. *State of the art and research gaps in wind farm control. Results of a recent workshop,* G.Giebel, DTU
36. *Optimization of wind turbines using low cost FBG shape sensing technology*, C.M. da Silva Oliveira, Fibersail
37. *SpliPy – Spline modelling in Python,* K.Johannessen, SINTEF

19.00	Dinner

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Friday 17 January	
	F) Wind farm optimization. Chairs: Yngve Heggelund, NORCE and Henrik Bredmose, DTU Wind Energy
09.00	Introduction by Chair
09.05	*Effect of wind direction on wind park performance using Actuator Surface Modelling (ASM) with and without nacelle effects,* B.Panjwani, SINTEF
09.25	*Design Optimization of Spar Floating Wind Turbines Considering Different Control Strategies*, J.M.Hegseth, NTNU
09.45	*Far off-shore wind energy-based hydrogen production: Technological assessment and market valuation designs,* M.Woznicki, CEA
10.05	*Optimising the utilisation of subsea cables in GW scale offshore wind farm collector networks using energy storage*, P.Taylor, University of Strathclyde
10.25	Closing by Chair
10.30	Refreshments
	Closing session – Strategic Outlook Chairs: John Olav Tande, SINTEF and Prof Michael Muskulus, NTNU
11.00	Introduction by Chair
11.05	*Offshore wind is going big,* Kristian Holm, Head of wind turbine technology, Equinor
11.35	*Zero Emission Energy Distribution at Sea (ZEEDS),* Jim Stian Olsen, Innovation Program Manager, Aker Solutions
12.05	*Status and outlook of European offshore wind research and innovation*; Dr. Carlos Eduardo Lima Da Cunha, Policy Officer, European Commission, DG Research & Innovation
12.35	Poster award and closing
13.00	Lunch