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TUESDAY, 15 NOVEMBER 2016				WEDNESDAY, 16 NOVEMBER 2016				THURSDAY, 17 NOVEMBER 2016			
Wind Workshop Day 1				Wind Workshop Day 2				Wind Workshop Day 3			
				8:30 – 10:30	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3	8:45 – 10:20	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3
					SESSION 3A: Harmonics I	SESSION 3B: Stability Issues	SESSION 3C: Power System Balancing		SESSION 7A: Hydro Power and Wind Integration	SESSION 7B: Value of Wind/Solar Power	SESSION 7C: Forecasting II
					COFFEE BREAK (40 MIN)				COFFEE BREAK (30 MIN)		
9:00 – 13:00	Foyer			11:10 – 13:00	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3	10:50 – 12:50	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3
	Registration				SESSION 4A: Modelling	SESSION 4B: Voltage Control	SESSION 4C: Market & Economic Issues		SESSION 8A: Integration Studies	SESSION 8B: Grid Connec- tion of Off- shore Wind Power Plants	SESSION 8C: Integration Aspects II
	LUNCH 11:30 – 13:00				LUNCH 13:00 – 14:00				LUNCH 13:00 – 14:00		
13:00 – 15:00	Grand Waterfront 1 - 3			14:00 – 15:40	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3	14:00 – 15:20	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3
	Welcome & Session 1: Keynote Session				SESSION 5A: Harmonics II	SESSION 5B: Innovations	SESSION 5C: Integration Aspects I		SESSION 9A: Frequency Control Considerations	SESSION 9B:	SESSION 9C: Grid Codes
	COFFEE BREAK (30 MIN)				COFFEE BREAK (20 MIN)				BREAK (10 MIN)		
15:30 – 17:50	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3	16:00 – 18:10	Grand Waterfront 1	Grand Waterfront 2	Grand Waterfront 3	15:30 – 16:30	Grand Waterfront 1 - 3		
	SESSION 2A: Ancillary Services	SESSION 2B: RFG Implemen- tation in Europe	SESSION 2C: Storage Examples		SESSION 6A: Inertia Issues	SESSION 6B: Grid Code Validation	SESSION 6C: Forecasting I		SESSION 10: Closing Session – Panel Discussion		
18:00	POSTER SESSION & RECEPTION			19:30	WIND DINNER						

TUESDAY, 15 NOVEMBER 2016

09:00 – 13:00 **Registration**
11:30 – 13:00 **Lunch**
13:00 – 13:10 **Welcome**

13:10 – 15:00	SESSION 1 – KEYNOTE SESSION: WIND POWER IN POWER SYSTEMS, SPECIAL FOCUS: AUSTRIA
> Session Chair	Thomas Ackermann (Energynautics, Germany)
13:10 – 14:30	Presentations (20 min. each)
	<ul style="list-style-type: none">• Status of Wind Power in Power Systems around the World T. Ackermann (Energynautics, Germany) (Submission-ID WIW16-253)• Impact of Wind Power on Power Grid Operation K. Kaschnitz (APG, Austria) (Submission-ID WIW16-198)• Network Development In The Transmission Grid Of APG H. Popelka (APG, Austria) (Submission-ID WIW16-WIW16-199)• Renewables and the Impact on the Electricity Market H. Proidl (E-Control, Austria) (Submission-ID WIW16-27X)
14:40 – 15:00	Discussion

15:00 – 15:30 **Coffee Break**

15:30 – 17:50	SESSION 2A – ANCILLARY SERVICES
> Session Chair	Eckard Quitmann (Enercon, Germany)
15:30 – 17:30	Presentations (20 min. each)
	<ul style="list-style-type: none">• Wind Generation Participation in Power System Frequency Response V. Gevorgian, Y. Zhang (NREL, USA) (Submission-ID WIW16-8)• Diverse Fast Frequency Response Services in Systems with Declining Synchronous Inertia N. Miller, S. Pajic (GE Energy Consulting, USA) (Submission-ID WIW16-125)• Controllable Grid Interface for Testing Ancillary Service Controls and Fault Performance of Utility-Scale Wind Power Generation V. Gevorgian, P. Koralewicz, R. Wallen, E. Muljadi (NREL, USA) (Submission-ID WIW16-7)• Wind Frequency Reserve Control: Performance Assessment Through Simulation and Impacts on Wind Turbines' Operation Y. Wang, J. Callec, G. Delille, D. Guy (EDF, France) (Submission-ID WIW16-98)• The Design and Practice of the Power Regulation Ancillary Service Market in the Northeast China Grid H. Zhang, S. Du (Northeast Power Dispatching Center of SGCC, China) (Submission-ID WIW16-30)• System Frequency as Robustness Indicator and Input Parameter for Future Synthetic Inertia Response J. Garzon, K. Burges, M. Döring (Ecofys Germany, Germany), S. Remppis (University of Stuttgart, Germany) (Submission-ID WIW16-172)
17:30 – 17:50	Discussion

15:30 – 17:30	SESSION 2B – RFG IMPLEMENTATION IN EUROPE
> Session Chair	Ralph Pfeiffer (Amprion, Germany)
15:30 – 17:10	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Implementation of a Network Code on Requirements for Grid Connections of Generators: Commission Regulation (EU) 2016/631 of 14 April 2016 H. Urdal (ENTSO-E WG CNC) (Submission-ID WIW16-175) • National Implementation in Estonia of COMMISSION REGULATION (EU) 2016/631 of 14 April 2016 Establishing a Network Code on Requirements for Grid Connection of Generators J. Kilter (Elering, Estonia) (Submission-ID WIW16-203) • Implementation of the Requirements of EU Regulation Establishing a Network Code on Requirements for Grid Connection of Generators for Offshore Power Park Modules – The Dutch Experience B. van Hulst (TenneT, Netherlands) (Submission-ID WIW16-051) • European Network Codes – Great Britain Implementation Progress R. Wilson (National Grid, United Kingdom) (Submission-ID WIW16-197) • EU Network Code Requirements for Generators - National Implementation in Germany (FNN) L. Hankel (VDE-FFN, Germany) (Submission-ID WIW16-056)
17:10 – 17:30	Discussion

15:30 – 17:10	SESSION 2C – STORAGE EXAMPLES
> Session Chair	Paul Gardner (DNV GL - Energy, United Kingdom)
15:30 – 16:50	Presentations (20 min. each)
	<ul style="list-style-type: none"> • District Heating and Cooling is a Cost-Effective Way to Integrate the Fluctuating Wind Energy – It’s Like a Virtual Battery A. Dyrelund (Ramboll Energy, Denmark) (Submission-ID WIW16-194) • Control Strategy and Sizing of a Flywheel Energy Storage Plant for the Frequency Control of an Isolated Wind-Hydro Power System J. I. Sarasúa, B. Torres, J. I. Pérez-Díaz (Technical University of Madrid (UPM), Spain), M. Lafoz (CIEMAT, Spain) (Submission-ID WIW16-151) • Using Smart Loads to Improve Frequency Response at Hydro-Québec and Enhance Renewable Energy Integration F. Monette, P. Cadieux (Hydro-Québec TransÉnergie, Canada), A. Moreau (IREQ/Hydro-Québec, Canada), S. Jasmin, P. Trudel (Systemex Energies, Canada) (Submission-ID WIW16-227) • wind2hydrogen – A Pilot Plant for the Production of Renewable Hydrogen A. Zauner, R. Tichler (Johannes Kepler University Linz, Austria) (Submission-ID WIW16-118)
16:50 – 17:10	Discussion

18:00 POSTER SESSION & RECEPTION

08:30 – 10:30	SESSION 3A – HARMONICS I
> Session Chair	Jian Sun (Rensselaer Polytechnic Institute, USA)
08:30 – 10:10	Presentations (20 min. each)
	<ul style="list-style-type: none">• Harmonic Stability – Practical Experience of a TSO C. Buchhagen, M. Greve, A. Menze, J. Jung (TenneT TSO, Germany) (Submission-ID WIW16-12)• New Evaluation Methods for Harmonic Emission of Renewable Generation I. Athamna, M. Mühlberg (FGW – Federation of German Windpower and other Renewable Energies, Germany), F. Santjer (UL International [DEWI], Germany), K. Malekian, F. Safargholi (TU Chemnitz, Germany), M. Meyer (Helmut-Schmidt-University, Germany), H. Vennegeerts (FGH, Germany), J. Meyer, M. Domagk (TU Dresden, Germany), F. Ackermann, S. Reichert (Fraunhofer ISE, Germany), R. Klosse, K. Kuech (WindGuard Certification, Germany) (Submission-ID WIW16-128)• Cross Coupling of Grid-Connected Inverter Impedance over Frequency – Phenomena, Effects and Modelling Y. Xu, H. Nian (Zhejiang University, China), J. Sun (Rensselaer Polytechnic Institute, USA) (Submission-ID WIW16-208)• Modeling and Autonomous Control of STATCOM for Damping Wind Power System Resonance Y. Zhang, X. Chen (Nanjing University of Aeronautics and Astronautics, China), J. Sun (Rensselaer Polytechnic Institute, USA) (Submission-ID WIW16-207)• Power Quality Improvement of Wind Power Plants by Active Filters Embedded in STATCOMs Ł. Kocewiak, L. Zeni, B. Hesselbæk, N. Barberis Negra, T. Stybe Sørensen (DONG, Denmark), M. Gautschi, B. Blaumeiser, S. Vogelsanger (ABB, Switzerland) (Submission-ID WIW16-34)
10:10 – 10:30	Discussion

08:45 – 10:30	SESSION 3B – STABILITY ISSUES
> Session Chair	Slavomir Seman (Siemens, Germany)
08:45 – 10:05	Presentations (20 min. each)
	<ul style="list-style-type: none">• Research on Transient Stability of Large Scale Onshore Wind Power Transmission via LCC HVDC R. Cai, M. Andersson, H. Xie (ABB, China) (Submission-ID WIW16-52)• Damping Power System Oscillations by Wind Power Plants S. De Rijcke, N. Hamann (Nordex Energy, Germany), A. Harjula, J. Seppanen, A. Kuusela, I. Luukkonen (Fingrid OYJ, Finland) (Submission-ID WIW16-93)• Enhanced Stability Analysis of Wind Turbines Concerning Subsynchronous Control Interactions S. Jensen (Senvion, Germany) (Submission-ID WIW16-31)• Simulative Investigations on the Transient Behaviour of Fossil Power Plants during Shutdown Processes C. Gierow, M. Hübel, J. Nocke, E. Hassel (University of Rostock, Germany) (Submission-ID WIW16-156)
10:05 – 10:30	Discussion

08:30 – 10:30	SESSION 3C – POWER SYSTEM BALANCING
> Session Chair	Aaron Bloom (NREL, USA)
08:30 – 10:10	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Twenty Years of European Wind Power Production – Balancing Effects in Europe with a Focus on Germany P. Henckes, A. Knaut, F. Obermüller (University of Cologne, Germany) (Submission-ID WIW16-127) • Power System Operational Flexibility Assessment - Methods and Case Studies from US Power Systems A. Tuohy, E. Lannoye, E. Ela (EPRI, USA), J. Matevosjan, C. Anderson (ERCOT, USA), A. Alvarez, W. Dong, L. Plano, B. Moradzadeh (Pacific Gas & Electric, USA) (Submission-ID WIW16-159) • Balancing Wind Energy Within the South African Power System B. Ernst (Fraunhofer IWES, Germany), R. van Heerden, T. Bischof-Niemz, C. Mushwana (CSIR, South Africa) (Submission-ID WIW16-32) • Sizing of Secondary Reserves Covering Short-Term Variability L. Wagner, N. Martensen (Energynautics, Germany), F. Montealegre (Ecofys, Germany) (Submission-ID WIW16-243) • Best Practice of Integrating Renewables into the German Energy Markets with Virtual Power Plants as Technology to Manage the "Energiewende" T. Buschmann, U. Focken, M. Lange (energy & meteo systems, Germany) (Submission-ID WIW16-97)
10:10 – 10:30	Discussion

10:30 – 11:10 Coffee Break

11:10 – 13:00	SESSION 4A – MODELLING
> Session Chair	Bernd Weise (DlG SILENT, Germany)
11:10 – 12:30	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Latest Developments in Negative Sequence Extensions for Generic RMS Models of Wind Turbines J. Fortmann (HTW Berlin, Germany), F. Schaube (Senvion, Germany), A. Mendonça (Wobben Research and Development, Germany), A. Morales (DlG SILENT Ibérica, Spain), Ö. Göksu, P. Sørensen (DTU, Denmark) (Submission-ID WIW16-139) • Compatibility of IEC 61400-27-1 Ed1 and WECC 2nd Generation Wind Turbine Models Ö. Göksu, P. Sørensen (DTU, Denmark), J. Fortmann (HTW Berlin, Germany), A. Morales (DlG SILENT Ibérica SL, Spain), S. Weigel (DlG SILENT, Germany), P. Pourbeik (PEACE PLLC, USA) (Submission-ID WIW16-126) • Unified Framework for Model Validation N. Menemenlis, M. Huneault, R. Gagnon (IREQ/Hydro-Québec, Canada), C. Smith (UVIG, USA), R. Zavadil (EnerNex, USA), R. Quint (NERC, USA), S. Yang (Bonneville Power Administration, USA) (Submission-ID WIW16-160) • Comparison of Standard Wind Turbine Models with Vendor Models for Power System Stability Analysis A. Honrubia-Escribano, E. Gómez-Lázaro (University of Castilla-La Mancha, Spain), F. Jiménez-Buendía (Gamesa Innovation & Technology, Spain), E. Muljadi (NREL, USA) (Submission-ID WIW16-29)
12:30 – 13:00	Discussion

11:10 – 13:00	SESSION 4B – VOLTAGE CONTROL
> Session Chair	Charles-Éric Langlois (Hydro-Québec TransÉnergie, Canada)
11:10 – 12:40	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Voltage Control Support and Coordination between Renewable Generation Plants in MV Distribution Systems L. Petersen, F. Iov (Aalborg University, Denmark), A. D. Hansen, M. Altin (DTU, Denmark) (Submission-ID WIW16-70) • Dynamic Voltage Support of DFIG Wind Power Plants C. Wessels, M. Ruben (Nordex Energy, Germany) (Submission-ID WIW16-135) • Voltage Transient in Large Wind Power Collector Networks D. Muthumuni, L. Kothalawala, A. Gogarrizi (Manitoba HVDC Research Centre, Canada), S. Wijesinghe (Innogy Renewables, United Kingdom) (Submission-ID WIW16-226) • STATCOM Option with DFIG Wind Turbine Systems C. Wessels, M. Gessert (Nordex Energy, Germany), T. Christ, T. Küper (Westnetz, Germany) (Submission-ID WIW16-146) • Wind Farm Cable Temperature Monitoring: Implementation and Learning K. Kazerooni, A. Poralis (WSP Parsons Brinckerhoff, United Kingdom), D. Ruthven, P. Cunningham (SP Energy Networks, United Kingdom) (Submission-ID WIW16-104)
12:40 – 13:00	Discussion

11:10 – 13:00	SESSION 4C – MARKET AND ECONOMIC ISSUES
> Session Chair	Hannele Holttinen (VTT, Finland)
11:10– 12:40	Presentations (15 min. each)
	<ul style="list-style-type: none"> • Revenue Sufficiency and Reliability in a Zero Marginal Cost Future B. Frew, M. Milligan, G. Brinkman, A. Bloom, K. Clark, P. Denholm (NREL, USA) (Submission-ID WIW16-193) • Reliability through Spatial Aggregation – The Capacity Value of Wind Power in Europe S. Hagspiel (University of Cologne, Germany) (Submission-ID WIW16-42) • Empirical Analysis of Congestion Management Actions in Germany and their Interaction with Specific Boundary Conditions M. Döring, K. Burges (Ecofys Germany, Germany), W. Friedl, H. Aghaie (AIT – Austrian Institute of Technology, Austria) (Submission-ID WIW16-234) • Economic Impact Assessment of using Congestion Management Methods to Enable Increased Wind Power Integration on Gotland, Sweden V. Gliniewicz, G. Ryckebusch (Vattenfall R&D, Sweden), D. A. Brodén (KTH Royal Institute of Technology, Sweden) (Submission-ID WIW16-258) • The Maturing of Wind Integration in Australia: Improvements Required in Market Operation for More Consistent, Economic and Efficient Dispatch Outcomes R. Jennings (Pacific Hydro, Australia), J. Dyson (Greenview Strategic Consulting, Australia), K. Summers (Pacific Hydro, Australia) (Submission-ID WIW16-117) • Stochastic Trading Across Time under German TSO Constraints S. Ottersen, D. Jost, M. Jansen, M. Siefert (Fraunhofer IWES, Germany) (Submission-ID WIW16-224)
12:40 – 13:00	Discussion

13:00 – 14:00 LUNCH

14:00 – 15:40	SESSION 5A – HARMONICS II
> Session Chair	Łukasz Kocewiak (DONG Energy Wind Power, Denmark)
14:00 – 15:20	Presentations (20 min. each)
	<ul style="list-style-type: none"> Characterization of Harmonic Emission of Individual Wind Turbines and PV Inverters based on Measurements, Part II – Wind Turbines F. Santjer, K. Nolopp, S. Tentzerakis (UL International [DEWI], Germany), S. Adloff (WRD Wobben Research and Development, Germany), I. Athamma, M. Mühlberg (FGW – Federation of German Windpower and other Renewable Energies, Germany), M. F. Meyer, M. Jordan (Helmut-Schmidt-University, Germany), R. Klosse, K. Kuech (WindGuard Certification, Germany), F. Ackermann (Fraunhofer ISE, Germany), J. Meyer, M. Domagk, M. Pourarab (TU Dresden, Germany) (Submission-ID WIW16-167) Application of Type 4 Wind Turbine Harmonic Model for Wind Power Plant Harmonic Study L. Shuai, K. H. Jensen (Siemens Wind Power, Denmark), Ł. Kocewiak (DONG, Denmark) (Submission-ID WIW16-161) Feasibility of a Standard Passive Harmonic Filter for Wind Farm Connections at Medium Voltage Level A. Kazerooni, L. Koo, (WSP Parsons Brinckerhoff, United Kingdom), C. Brozio, E. Chalmers (SP Energy Networks, United Kingdom) Z. Emin (PSC UK, United Kingdom) (Submission-ID WIW16-129) A Numerical Matrix-Based method in Harmonic Studies in Wind Power Plants M. K. Bakhshizadeh, J. Hjerrild, Ł. Kocewiak, B. Hesselbæk (DONG, Denmark), F. Blaabjerg, C. Leth Bak, X. Wang, F. Faria da Silva (Aalborg University, Denmark) (Submission-ID WIW16-73)
15:20 – 15:40	Discussion

14:00 – 15:40	SESSION 5B – INNOVATIONS
> Session Chair	Robert Beckmann (Senvion, Germany)
14:00 – 15:20	Presentations (20 min. each)
	<ul style="list-style-type: none"> Wind Turbine High Voltage Generator and System N. Schofield, O. Beik (McMaster University, Canada) (Submission-ID WIW16-236) Superconducting Transformers Enabling Alternative Topologies for Offshore Wind Farms D. Kottonau, S. Hellmann, M. Noe, J. Geisbüsch, (Karlsruhe Institute of Technology, Germany), T. Ackermann (Energynautics, Germany) (Submission-ID WIW16-45) Integration of Islanded Very Large Scale Onshore Wind Power with LCC HVDC and a Small STATCOM – A Novel Control Method M. Andersson, R. Cai, H. Xie (ABB, China) (Submission-ID WIW16-21) Operating Wind Turbines as Dynamically Controllable Loads in Grid-Restoration Scenarios M. Shan, F. Welck, W. Shan, H. Becker, S. Stock (Fraunhofer IWES, Germany) (Submission-ID WIW16-149)
15:20 – 15:40	Discussion

14:00 – 15:40	SESSION 5C – INTEGRATION ASPECTS I
> Session Chair	Eckehard Tröster (Energynautics, Germany)
14:00 – 15:20	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Stability Models in System Integration Studies for Weak Grid Connections M. Laubrock, S. De Rijcke, N. Hamann (Nordex Energy, Germany) (Submission-ID WIW16-46) • Process and Tools for Optimizing Wind Power Projects Connected to Weak Grids A. S. Trevisan, Â. Mendonça, S. Nikolai, S. Adloff, A. El-Deib (Wobben Research and Development, Germany), M. Fischer (Enercon, Canada) (Submission-ID WIW16-75) • Foreseen Integration of Large Amounts of Wind Power in Colombia – System Operator Perspective S. Mesa, E. Cardona (XM [System Operator], Colombia) (Submission-ID WIW16-28) • An Overview on the Issues Regarding the Integration and Operation of Wind Power Plants in the Brazilian Interconnected Power System P. Gomes, S. L. Sardinha, M. Muniz, A. F. Aquino, P. E. M. Quintão, A. L. Araujo Jr, A. Kligerman, F. Lins, A. Torres, Y. Freitas, R. Vieira, L. Monteath, A. Bianco, V. Parga, F. Oliveira, A. D. R. Medeiros (ONS – Operador Nacional do Sistema Elétrico, Brazil) (Submission-ID WIW16-228)
15:20– 15:40	Discussion

15:40 – 16:00 COFFEE BREAK

16:00 – 18:10	SESSION 6A – INERTIA ISSUES
> Session Chair	Helge Urdal (ENTSO-E Secretariat, United Kingdom)
16:00 – 17:50	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Inertia: Basic Concept and Impact on ERCOT Grid J. Matevosyan, P. Du (Electric Reliability Council of Texas, USA) (Submission-ID WIW16-60) • Effects of VSM Convertor Control on Penetration Limits of Non-Synchronous Generation in the GB Power System R. Ierna, J. Zhu (National Grid, United Kingdom), A. J. Roscoe, M. Yu, A. Dysko, C. D. Booth (University of Strathclyde, United Kingdom), H. Urdal (Urdal Power Solutions, United Kingdom) (Submission-ID WIW16-218) • A VSM (Virtual Synchronous Machine) Convertor Control Model Suitable for RMS Studies for Resolving System Operator / Owner Challenges A. J. Roscoe, M. Yu, A. Dyško, C. Booth (University of Strathclyde, United Kingdom), R. Ierna, J. Zhu (National Grid, United Kingdom), H. Urdal (Urdal Power Solutions, United Kingdom) (Submission-ID WIW16-217) • Necessary Time Response of LFSM-O to Ensure Frequency Stability in the ENTSO-E Continental Europe Synchronous Area J. Lehner (TransnetBW, Germany) (Submission-ID WIW16-174) • Inertial Response from Wind Power Plants during a Frequency Disturbance on the Hydro-Québec System – Event Analysis and Validation M. Asmine, C.-E. Langlois, N. Aubut (Hydro-Québec, Canada) (Submission-ID WIW16-150) • Synthetic Inertia versus Fast Frequency Response: a Definition R. Eriksson, N. Modig, K. Elkington (Swedish National Grid, Sweden) (Submission-ID WIW16-133)
17:50– 18:10	Discussion

16:00 – 18:00	SESSION 6B – GRID CODE VALIDATION
> Session Chair	Jens Fortmann (HTW Berlin – University of Applied Sciences, Germany)
16:00 – 17:40	Presentations (20 min. each)
	<ul style="list-style-type: none"> Fault-Ride-Through Measurements and Model Validation of the Siemens Wind Power D3 Variable-speed Direct-drive Wind Turbine Platform M. Pukar, S. W. Rasmussen, R. Sharma, F. Martin (Siemens Wind Power, Denmark), T. Siepker (Siemens, Germany), J. N. Nielsen (Siemens Wind Power, Denmark) (Submission-ID WIW16-103) Asymmetrical Current Injection – Testing and Certification for New German Requirements H. Emanuel (Enercon, Germany), M. Schellschmidt, I. Mackensen, S. Adloff (WRD – Wobben Research & Development, Germany) (Submission-ID WIW16-71) Experimental Model Validation of a Multi-Megawatt Grid Simulator to Reduce Risk of Grid Integration Testing R. Hadidi, J. Leonard, C. Fox (Clemson University, USA), P. Giroux, R. Gagnon (IREQ/Hydro-Québec, Canada) (Submission-ID WIW16-113) Frequency Measurement for Inverter-based Frequency Control S. Engelken, C. Strafiel (WRD– Wobben Research and Development, Germany), E. Quitmann (Enercon, Germany) (Submission-ID WIW16-54) Experimental Full Scale Assessment of Subsynchronous Resonance Behavior of a Wind Turbine with Doubly Fed Induction Generator T. Lund, P. M. Dyrland, G. K. Andersen, M. S. Sjøgaard, L. S. Christensen (Vestas Wind Systems, Denmark), L. S. Rasmussen, J. Rusbjerg (LORC, Denmark), M. Bongiorno, S. Chernet (Chalmers University, Sweden) (Submission-ID WIW16-36)
17:40 – 18:00	Discussion

16:00 – 17:40	SESSION 6C – FORECASTING I
> Session Chair	Nickie Menemenlis (Hydro Québec/IREQ, Canada)
16:00 – 17:20	Presentations (20 min. each)
	<ul style="list-style-type: none"> Impact of Targeted Measurements and Next-Generation Prediction Techniques on Short-Term Wind Ramp Forecasting in the Tehachapi Wind Resource Area J. Zack (AWS Truepower, USA), S.-H. Chen, C.-Y. Chen, C. P. Van Dam, H. Shiu (University of California, USA), C. MacDonald (Sonoma Technology, USA) (Submission-ID WIW16-235) Analysis of Limited Area Models for Wind Power Prediction F. Fioretti, F. Bizzarri, G. Cirillo, C. Pregagnoli (Enel Green Power, Italy), U. De Angelis (Enel Engineering and Research, Italy), F. Marcucci, L. Torrisi, R. Tajani (Italian Air Force Meteorological Service, Italy) (Submission-ID WIW16-33) Short-Term Wind Power Prediction Analysis of Complicated Topography in the Condition of Wind Power Brownouts Y. Cui, Z. Chen (Hubei Meteorological Service Center Meteorological Energy Development Center of Hubei Province, China), L. Liu (Gansu Meteorological Service Center, China) (Submission-ID WIW16-3) Multi-Regional Wind Power Forecasting based on Spatio-temporal Input Information in an Artificial Intelligence Model A. Braun (Fraunhofer IWES, Germany) (Submission-ID WIW16-137)
17:20– 17:40	Discussion

19:30 – 23:00 WIND DINNER (Bus departure 18:45 – 19:00)

08:45 – 10:20	SESSION 7A – HYDRO POWER AND WIND INTEGRATION
> Session Chair	Georg Lettner (EEG/Vienna University of Technology, Austria)
08:45 – 10:00	Presentations (18 min. each)
	<ul style="list-style-type: none">• Provision of Virtual Inertia by Hydro Power Plants R. Schürhuber (Andritz, Austria) (Submission-ID WIW16-269)• Stochastic Optimization for Hydro Storage and Wind Power Management E. Moser (Energieallianz, Austria) (Submission-ID WIW16-267)• Impacts of Harmonised Common Balancing Capacity Procurement in Central Europe B. Burgholzer (EEG/Vienna University of Technology, Austria) (Submission-ID WIW16-266)• Studying Possibilities of Hydropower in Wind Integration H. Farahmand (Norwegian University of Science and Technology, Norway), H. Holttinen, J. Kiviluoma (VTT, Finland), M. Milligan (NREL, USA), L. Söder (KTH Royal Institute of Technology, Sweden) (Submission-ID WIW16-216)
10:00– 10:20	Discussion

08:45 – 10:20	SESSION 7B – VALUE OF WIND/SOLAR POWER
> Session Chair	IEA secretariat (IEA, France)
08:45 – 09:45	Presentations (20 min. each)
	<ul style="list-style-type: none">• System Friendly Deployment – How Variable Renewable Energy Can Contribute to its Own Integration S. Mueller, E. Bianco, T. Dubbeling, M. Heenen (International Energy Agency, France) (Submission-ID WIW16-247)• Survey and Case Studies of Transmission Level PV Integration Assessments Utilizing Generation Forecasts and Innovative Flexibility Resources K. Ogimoto (University of Tokyo, Japan), A. Marinopoulos (ABB, Sweden), K. Clark, B. Mather (NREL, USA), K. Asano, K. Ohbayashi, (NEDO, Japan), K. Frederiksen (Kenergy, Denmark), I. McGill (University of New South Wales, Australia), A. Iaria (RSE, Italy), M. Kraiczy (Fraunhofer IWES, Germany), P. Vingerhoets (KU Leuven, Belgium), C. Mayr, R. Bründlinger (AIT – Austrian Institute of Technology, Austria) (Submission-ID WIW16-246)• IEA Wind Task 25 – Summary of Experiences and Studies for Wind Integration H. Holttinen (VTT, Finland) (Submission-ID WIW16-132)
09:45– 10:20	Discussion

09:00 – 10:20	SESSION 7C – FORECASTING II
> Session Chair	J. Charles Smith (UVIG, USA)
09:00 – 10:00	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Spatio-Temporal Modelling of Wind Power Forecast Errors in Transmission Grids R. Becker, C. Weber (University of Duisburg-Essen, Germany) (Submission-ID WIW16-58) • Use of Forecast Uncertainties in the Power Sector: State-of-the-Art of Business Practices C. Möhrle (WEPROG, Germany), R. J. Bessa (INESC TEC, Portugal), M. Barthod (Meteoswift, France), G. Goretti (Dublin Institute of Technology, Ireland), M. Siefert (Fraunhofer IWES, Germany) (Submission-ID WIW16-211) • About the Challenge to Fulfil Different Customer Needs Concerning the Real-Time Projection of Actual Wind Power Production of a Region or Portfolio O. Steinert, J. Rosenkranz, U. Focken, M. Lange (energy & meteo systems, Germany) (Submission-ID WIW16-143)
10:00 – 10:20	Discussion

10:20 – 10:50 COFFEE BREAK

10:50 – 12:50	SESSION 8A – INTEGRATION STUDIES
> Session Chair	Aidan Tuohy (Electric Power Research Institute – EPRI, United States)
10:50 – 12:30	Presentations (20 min. each)
	<ul style="list-style-type: none"> • Assessment on Interregional Grid Management for Renewable Energy Integration in Japan T. Wakeyama (Renewable Energy Institute, Japan) (Submission-ID WIW16-90) • Sector Coupling in a Highly Renewable European Energy System T. Brown, D. Schlachtberger, A. Kies (Frankfurt Institute of Advanced Studies, Germany), M. Greiner (Aarhus University, Denmark) (Submission-ID WIW16-130) • Does Variable Renewable Energy Promote Grid Expansion? Y. Yasuda (Kyoto University, Japan) (Submission-ID WIW16-91) • Spatial Scale Dependence in Joint Optimisation of Generation and Transmission for Highly Renewable Scenarios J. Hörsch, T. Brown, S. Schramm (Frankfurt Institute for Advanced Studies [FIAS], Germany) (Submission-ID WIW16-124) • Assessing Capacity Value of Wind Power H. Holttinen, J. Kiviluoma (VTT, Finland), M. Milligan, B. Frew (NREL, USA), L. Söder (KTH Royal Institute of Technology, Sweden) (Submission-ID WIW16-136)
12:30– 12:50	Discussion

10:50 – 12:50	SESSION 8B – GRID CONNECTION OF OFFSHORE WIND POWER PLANTS
> Session Chair	Peter W. Christensen (Vestas, Denmark)
10:50 – 12:30	Presentations (20 min. each)
	<ul style="list-style-type: none"> • FixReF: A Current Control Strategy for Offshore Wind Turbines Connected to Different Types of HVDC Transmission C. Prignitz, H.-G. Eckel (Rostock University, Germany), S. Achenbach (Siemens, Germany) (Submission-ID WIW16-185) • North Sea Infrastructure Based on Dogger Bank Modular Island M. van der Meijden (Delft University of Technology TenneT TSO, Netherlands) (Submission-ID WIW16-277) • Simultaneous Connection of Type-3 and Type-4 Off-shore Wind Farms to HVDC Diode Rectifier Units R. Vidal-Albalade (University Jaume I de Castelló, Spain), R. Pena (University of Concepción, Chile), E. Belenguier (University Jaume I de Castelló, Spain), S. Añó-Villalba, S. Bernal-Perez, R. Blasco-Gimenez (Polytechnical University of Valencia, Spain) (Submission-ID WIW16-191) • A Configuration of Offshore HVDC Grid Considering Reliability Standard and Scalability K. Sano (CRIEPI, Japan) (Submission-ID WIW16-44) • Modelling of the Diode-Rectifier Based HVDC Transmission Solution for Large Offshore Wind Power Plants Grid Access S. Seman, N. T. Trinh, R. Zurowski, S. Kreplin (Siemens, Germany) (Submission-ID WIW16-222)
12:30– 12:50	Discussion

10:50 – 12:50	SESSION 8C – INTEGRATION ASPECTS II
> Session Chair	Nis Martensen (Energynautics, Germany)
10:50 – 12:32	Presentations (17 min. each)
	<ul style="list-style-type: none"> • Impact of Large-Scale Wind & Solar Integration on Existing Fossil Generation in United States N. Kumar, M. Gascon, M. C. Liu, F. G. Faham (Intertek, USA), P. Besuner (Component Reliability Consultants, USA) (Submission-ID WIW16-177) • Power System Restoration: How Could Wind Energy Generators be Included into Today's Restoration Plans? H. Becker, D. Mende, T. Hennig, A. Akbulut, L. Hofmann (Fraunhofer IWES, Germany) (Submission-ID WIW16-84) • Improved Feed-in Management with Wind Turbines C. Jauch, A. Gloe (Flensburg University of Applied Sciences, Germany) (Submission-ID WIW16-62) • Overplanting in Offshore Wind Power Plants in Different Regulatory Regimes C. Wolter, H. K. Jacobsen (DTU, Denmark), G. Rogdakis, L. Zeni (DONG, Denmark), N. Cutululis (DTU, Denmark) (Submission-ID WIW16-96) • Cost Efficient Large Scale Onshore Wind Integration G. F. W. Brauner (Vienna University of Technology, Austria) (Submission-ID WIW16-26) • Uncertainty Quantification of the Real-Time Reserves for Offshore Wind Power Plants T. Göçmen, G. Giebel, P.-E. Réthoré, J. P. Murcia Leon (DTU, Denmark) (Submission-ID WIW16-106)
12:32 – 12:50	Discussion

13:00 – 14:00 LUNCH

14:00– 15:20	SESSION 9A – FREQUENCY CONTROL CONSIDERATIONS
> Session Chair	Julia Matevosjan (ERCOT, USA)
14:00– 15:00	Presentations (20 min. each)
	<ul style="list-style-type: none"> • The Value of Frequency Keeping and Governor Response to New Zealand J. Shipper, A. Wood, A. Miller (University of Canterbury, New Zealand), C. Edwards (Transpower, New Zealand), (Submission-ID WIW16-264) • Performance of df/dt-based Inertia Control during Emergency Islanding D. Duckwitz (Fraunhofer IWES, Germany) (Submission-ID WIW16-101) • Power System Frequency Stability Control Strategy by Means of VSC-HVDC L. Cai, X. Lei (GEIRI Europe, Germany), U. Karaagac, J. Mahseredjian (Polytechnical School of Montreal, Canada) (Submission-ID WIW16-68)
15:00 – 15:20	Discussion

14:00 – 15:20	SESSION 9C – GRID CODES
> Session Chair	Hanna Emanuel (Enercon, Germany)
14:00 – 15:00	Presentations (20 min. each)
	<ul style="list-style-type: none"> • The Upcoming European Network Code and its Impact on Commissioning and Operation of Distributed Generation F. Kalverkamp, J. Langstädtler, M. Meuser (FGH Certification, Germany) (Submission-ID WIW16-109) • New Revisions of FGW Power Quality Guidelines J. Rauch, I. Athamna, M. Mühlberg, S. Laurus (FGW – Federation of German Windpower and other Renewable Energies, Germany), J. Fortmann (HTWBerlin, Germany), J. Möller (M.O.E. Moeller Operating Engineering, Germany), F. Santjer (UL International [DEWI], Germany), M. Meuser, (FGH Certification, Germany) (Submission-ID WIW16-120) • What Shall I Do with a Conventional UVRT-Test Rig to Carry out OVRT-Tests and other Tests Required for a Full Model Validation R. Klosse, K. Küch (WindGuard Certification, Germany) F. Loh (Ge Renewable Energy, Germany) (Submission-ID WIW16-119)
15:00 – 15:20	Discussion

15:20 – 15:30 SHORT BREAK

15:30 – 16:30	SESSION 10 – CLOSING SESSION: POWER SYSTEMS WITH 80% RENEWABLES: CONCERNS, FEARS AND HOW TO REALIZE IT
> Session Chair	Adrian Timbus (ABB, Switzerland)
15:30 – 16:10	Presentations (10 min. each)
	<ul style="list-style-type: none"> • Topics addressed <ul style="list-style-type: none"> - Discuss what are the current concerns and fears on increasing further the penetration of renewables and reach 80% share - Discuss challenges for industry stakeholders - Understand the gaps and what the industry should focus on to enable such penetration ratio - How to remove road blockers (technological, regulatory, business wise) • Panelists <ul style="list-style-type: none"> - Bo Hesselbæk (DONG Energy, Denmark) - Eckard Quitmann (Enercon, Germany) - Peter W. Christensen (Vestas, Denmark) - Benjamin Merkt (HanseWerk, Germany)
16:10 – 16:30	Discussions

POSTER PRESENTATIONS

- **Connection of Wind Power Plants at Brazilian Integrated Power Grid**
G. Doyle de Doile (ANEEL - Brazilian National Electricity Agency, Brazil) (Submission-ID WIW16-18)
- **Connection of OWPPs to HVDC Networks Using VSCs and Diode Rectifiers: an Overview**
O. Saborío-Romano, A. Bidadfar, Ö. Göksu, M. Altin, N. A. Cutululis, P. E. Sørensen (DTU, Denmark) (Submission-ID WIW16-37)
- **The Capacity Value in Systems with Multiple Regions and Technologies**
A. Knaut (EWI – Institute of Energy Economics, Germany), S. Hagspiel (University of Cologne, Germany), J. Peter (EWI – Institute of Energy Economics, Germany) (Submission-ID WIW16-41)
- **Basic Characteristics of Synchronous-Compensator-Commutated Inverter (SCI) / HVDC System for Wind Power Plants with Series-Connected Wind Turbine Generators**
S. Nishikata, F. Tatsuta (Tokyo Denki University, Japan) (Submission-ID WIW16-50)
- **System Connection of Small Vertical Axis Wind Turbine Under Strong Wind Condition**
H. Matayoshi, T. Senju (University of the Ryukyus, Japan), T. Funabashi, T. Kato (Nagoya University), A. M. Howlander (University of Hawaii, Hawaii) (Submission-ID WIW16-64)
- **Integrated Electromagnetic-Mechanical Design Method for Optimized Superconducting DC Wind Generators**
Y. Liu, M. Noe, J. Ou (Karlsruhe Institute of Technology, Germany) (Submission-ID WIW16-79)
- **Improvement of Transient Stability of Power Systems by Output Power Control of PMSG-based Wind Power Plant**
N. Patari (Indian Institute of Technology Kharagpur, India), A. Mitra (Visvesvaraya National Institute of Technology Nagpur, India), D. Chatterjee (Indian Institute of Technology Kharagpur, India) (Submission-ID WIW16-82)
- **Enhanced Short-Term Wind Power Forecast using the Augmented Time Series Model for Power Grid Integration**
D. Kim, J. Hur, H. Han (Sangmyung University, Korea) (Submission-ID WIW16-95)
- **Estimation of Potential Wind Power Plant Energy Production Losses Caused by Curtailments Due to Power System Security Issues: Polish Case**
M. Bajor (IEn – Institute of Power Engineering, Poland) (Submission-ID WIW16-105)
- **Possible Improvements for Present Wind Farm Models Used in Optimal Wind Farm Controllers**
J. Kazda, T. Göçmen, G. Giebel, N. A. Cutululis (DTU, Denmark) (Submission-ID WIW16-107)
- **Grid Frequency Analysis for Assessing the Stress on Wind Turbines**
A. Gloe, H. Thiesen, C. Jauch (Flensburg University of Applied Science, Germany) (Submission-ID WIW16-140)
- **Integrating the Excellent Wind Resources in North-West Eurasia for a Sustainable Energy Supply in Europe**
D. Bogdanov, C. Breyer (Lappeenranta University of Technology, Finland) (Submission-ID WIW16-164)
- **Incorporation of Flow-Based Grid Modelling in Multinational Transmission Expansion Planning**
L. Åmellem, M. Korpås, M. Kristiansen (Norwegian University of Science and Technology, Norway) (Submission-ID WIW16-212)
- **Reliability Study of Two Offshore Wind Farm Topologies**
O. Giesecke, R. Karlsson, K. Morozovska, P. Hilber (KTH Royal Institut of Technology, Sweden) (Submission-ID WIW16-225)
- **Power Sharing Control and Transient Stability in AC/DC Systems**
W. Kuehn (Frankfurt UAS, Germany) (Submission-ID WIW16-233)
- **Modelling of Grid-Connected VSCs for Power System Small-Signal Stability Analysis in DVC Timescale**
H. Yuan, J. Hu (Huazhong University of Science and Technology, China) (Submission-ID WIW16-275)