

DEWEK 2012

Preliminary Program

As a consequence of the severe Fukushima nuclear incident in March 2011 the German Federal Government decided to phase-out nuclear power plants and to replace them as far as possible by renewable energies. This so-called "Energiewende" (energy turnaround) includes wind energy as one of the cornerstones. To fulfill the expectations, wind energy in Germany has to go offshore, a real technological challenge for a trustworthy operation of the German far offshore wind farms. As a consequence the government considers wind energy generation and distribution as an important area in many R&D fields with the goal to develop a reliable energy source and to achieve further cost reductions for the electric energy consumers.

The 11th German Wind Energy Conference DEWEK 2012 is a mirror of these challenging research activities which covers various engineering topics from wind turbine design up to grid integration and logistics. But reliable long term energy yield predictions and short term power supply by wind farms has at least the same importance for economically successful wind energy applications than all the wind turbine related design challenges. Therefore many research papers will deal with these questions presenting solutions or first ideas how to diminish the uncertainties of the power and energy output prognoses. In 105 oral presentations and about 85 posters scientists and engineers from in- and outside Germany will present their newest findings. Traditionally these two days of the DEWEK 2012 conference will also be an excellent opportunity to meet the colleagues from universities, research institutions and the engineers of the industry and service providers. In an additional small exhibition research institutes and suppliers will present their knowledge and special products together with the chance to discuss detailed technical topics or simply have a chat with the colleagues of other companies and research institutions. With paper presenting participants from 20 countries the conference offers the opportunity to see and learn what is happening in other countries.

With this focus the conference is very well placed in Bremen, because both, Lower Saxony and Bremen, invest strongly in their North Sea harbors to develop industrial locations for the offshore wind energy industry. Many manufacturers of wind turbines, rotor blades and offshore foundation structures but also very important research institutions can be found now in that region attracting other manufacturers also from abroad to establish themselves with their production facilities in or near to the North Sea harbors of Germany.

To relax a little bit from the intense presentations and discussions, the conference dinner will take place again in the beautiful wine cellar of the historical Bremen town hall. Good food accompanied by wine, beer or other beverages will turn the evening into a perfect get-together at the end of the first conference day.

In this spirit we warmly welcome you in Bremen and wish you an interesting 11th DEWEK and many valuable new contacts and information.

Registration

For the registration we use the online tool "Blue Bookings" of Blue Projects who will collect the payment on behalf of DEWI GmbH. Please use for your registration and payment the conference web site www.dewek.de.

Please contact Blue Projects directly, if you have questions regarding registration and payment:

Email marta@blueprojects.eu
Phone **+49 (0)89 4111 233 19**

Please note that the registration is valid - and will be confirmed by Blue Projects - only after receipt of the full payment.

Registration Fees*

Normal fee	Registration and receipt of payment		
	Early fee until 21.09.2012	Late fee until 1.11.2012	On-site fee after 1.11.2012
Two-day admission with conference dinner	€ 670.-	€ 770.-	€ 820.-
Two-day admission without conference dinner	€ 590.-	€ 690.-	€ 740.-
One-day admission without conference dinner	€ 390.-	€ 450.-	€ 500.-
Students **			
Two-day admission without conference dinner	€ 200.-	€ 255.-	€ 290.-
One-day admission without conference dinner	€ 155.-	€ 195.-	€ 230.-
Extras			
Additional Dinner	€ 80.-	€ 80.-	€ 80.-
Excursion	€ 60.-	€ 60.-	€ 60.-

* All Prices incl. 19% V. A. T. (Please note: Payment only by credit card)

** Full time students only. Maximum age is 30. Proof by a valid student ID.

Please note that authors, too, will have to register for the conference and pay the appropriate fee.

Contact Persons

Scientific Org.: Bernd Neddermann, Dr. Thomas Neumann
 Event Org.: Carsten Ender, Barbara Jurok

Please visit www.dewek.de for more information.

Lectures

7.11.2012, Wednesday

08:00 Registration in the Foyer of the Conference Hall

Opening Session

Room 1: Borgward Saal
Chairperson: J. P. Molly

09:00 **Opening Address**

J. P. Molly, DEWI GmbH

Opening Words

Dr. J. Lohse, Senator of Environment, Construction and Transport of Bremen

A. Wagner, Lord Mayor of the City of Wilhelmshaven

K. Deller, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

J. Smidt, Underwriters Laboratories Inc. (UL)

10:30 **Coffee Break**

Session No. 1: Offshore I - RAVE / FINO

Room 1: Borgward Saal
Chairpersons: N. N.

11:00 **RAVE - A Milestone in Offshore Wind Energy Research (E)**

B. Lange, M. Durstewitz, E. Otto, Fraunhofer IWES

11:15 **Verification of Offshore Wind Turbines at 'alpha ventus' -**

Overview on the Results of the Project RAVE-OWEA (E)

M. Kühn, G. Steinfeld, J. Tambke, J.-J. Trujillo, M. Wächter, ForWind; P. W. Cheng, D. Kaufer, T. Lutz, K. Meister, J. Quappen, A. Rettenmeier, U. Smolka, Universität Stuttgart; J. Dubois, ForWind Leibniz Universität; S. Emeis, R. Foreman, IMK-IFU; J. Kruse, REpower Systems AG; D. Kühnel, T. Neumann, A. Westerhellweg, DEWI; B. Siegmeier, AREVA Wind GmbH

11:30 **Sensing the Offshore Wind in the Vicinity of alpha ventus Wind Farm: A Wind LiDAR Study**

B. Cañadillas, T. Neumann, DEWI

11:45 **Influence of Marine Boundary Layer Characteristics on Power Curves of Multi-megawatt Wind Turbines (D)**

M. Dörenkämper, J. Tambke, G. Steinfeld, D. Heinemann, M. Kühn, ForWind

12:00 **Comparison of the Wind Conditions in the North Sea and the Baltic Sea - An Important Outcome of the FINO Project (E)**

S. Müller, J. Schwabe, T. Kleinselbeck, WIND-consult GmbH

12:15 **Discussion**

12:45 **Lunch Break**

Session No. 2: Testing

Room 2: Kaisen Saal
Chairpersons: N. N.

11:00 **Flexible Interdigital Sensor for Dielectric Cure Monitoring of Composites (D)**

D. Boll, E. Tolstosheeva, C. Brauner, W. Lang, Uni Bremen, IMSAS

11:15 **Demands on Dynamics of LAS (Load Application System) for Full Scale Ground Testing of 1 MW Wind Turbines (D)**

R. Schelenz, D. Bosse, D. Radner, G. Jacobs, RWTH Aachen (IME)

11:30 **HiL-simulation Platform for the Test of Wind Turbine Controllers**

M. Shan, B. Fischer, D. Duckwitz, Fraunhofer IWES

11:45 **Robust Component Control under Difficult Environmental Conditions (D)**

M. C. Eichhorn, A. Trabelsi, S. Zemke, M. Feldt, IAV

12:00 **Test of Wind Turbine Profiles at High Reynolds Numbers in the Cryogenic Wind Tunnel Cologne DNW-KKK (E)**

J. Zhai, R. Rebstock, German-Dutch Wind Tunnels; T. Ahlefeldt, DLR Institute of Aerodynamics and Flow Technology

12:15 **Discussion**

12:45 **Lunch Break**

Session No. 3: Operational Experiences I

Room 3: Lloyd
Chairpersons: N. N.

11:00 **Temporal & Energetic Downtime Losses and its Influence on Wind Farm Economics**

P. Chaves-Schwintek, K. Mönnich, DEWI

11:15 **GIS-based Analysis of the Profitability of Wind Turbines, with Respect to Land Use Restrictions, Wind Speed and Different Hub Height (D)**

F. Haack, L. v. Bremen, J. Tambke, ForWind

11:30 **Influence of Reliability on Operating Profit (E)**

S. Pfaffel, P. Lyding, S. Faulstich, P. Kühn, Fraunhofer IWES

11:45 **Impact of Rotor Imbalance on Wind Turbine Lifetime Consumption (E)**

C. Heilmann, M. Melsheimer, A. Donth, A. Grunwald, BerlinWind GmbH

12:00 **Decommissioning of Wind Farms: Costs and Opportunities (E)**

C. Schwarz, E. Badia, 8.2 Ingenieurbüro Christof Schwarz

12:15 **Discussion**

12:45 **Lunch Break**

Session No. 4: Offshore II - Wind Farms

Room 1: Borgward Saal
Chairpersons: N. N.

13:45 **'GW Wakes': Measuring Wake Effects and Wake Turbulence Characteristics of Very Large Offshore Wind Farms with Synchronised Long-range LiDAR Windscanners (E)**

J. Schneemann, J.-J. Trujillo, D. Trabucchi, G. Steinfeld, M. Wächter, H. Beck, M. Kühn, ForWind; D. Brickwell, BARD Engineering GmbH; B. Stoevesandt, Fraunhofer IWES

14:00 **Detailed Analysis of Offshore Wakes Based on Two Years Data of alpha ventus and Comparison with CFD Simulations (E)**

A. Westerhellweg, B. Cañadillas, F. Kinder, T. Neumann, DEWI

14:15 **Park Correction for FINO1 -**

Wind Speed Measurements at alpha ventus

F. Kinder, A. Westerhellweg, T. Neumann, DEWI

14:30 **Mesoscale Simulation Study of Large Offshore Wind Farms (D)**

E. Stütz, G. Steinfeld, D. Heinemann, ForWind

14:45 **Implications from Wind Park Models for Offshore Wind Park Design (E)**

S. Emeis, Karlsruhe Institute of Technology

15:00 **Discussion**

15:30 **Coffee Break**

Session No. 5: Monitoring

Room 2: Kaisen Saal
Chairpersons: N. N.

13:45 **Stochastic Data Analysis for In-situ Damage Analysis (E)**

P. Rinn, H. HeiBelmann, M. Wächter, J. Peinke, ForWind

14:00 **Shaft Line Monitoring Based on the Instantaneous Angular Speed Observation (E)**

H. André, MAIA EOLIS, France; A. Bourdon, D. Rémond, LAMCOS, France

14:15 **Methodology to Add Blade Loading Information to the SCADA System by Wind Turbine Load Analysis**

C. Ochoa, C. Hofemann, G. van Bussel, TU Delft, Netherlands

14:30 **Condition Monitoring and Non-Destructive Testing of Rotor Blades Using Infrared Thermography (E)**

P. Meinschmidt, J. Aderhold, Fraunhofer WKI; O. Lutz, SVB Otto Lutz; G. Gülker, D. Traphan, Universität Oldenburg, ForWind

14:45 **Performance Monitoring with Generation Forecasting of Brazilian Wind Farms: A Case Study**

L. B. Damas, J. C. Passos, P. A. A. Santos, R. Haas, Santa Catarina Fed. Univ., Brazil

15:00 **Discussion**

15:30 **Coffee Break**

Session No. 6: Grid Integration I

Room 3: Lloyd
Chairpersons: N. N.

- 13:45 **Improving Grid Integration of Wind Energy Power Plants (D)**
S. Stock, K. Rohrig, L. Hofmann, K. Knorr, M. Faiella, L. Löwer, Fraunhofer IWES
- 14:00 **Available Active Power Estimation for the Provision of Control Reserve by Wind Turbines**
M. Siefert, D. Schneider, A. Baier, M. Speckmann, Fraunhofer IWES
- 14:15 **Wind Farm Control Solutions Contributing to Voltage Stability (D)**
H. Emanuel, E. Erdmann, ENERCON
- 14:30 **Harmonic Current Emission of Wind Farms**
F. Santjer, DEWI
- 14:45 **Using Wind Turbine Facilities to Improve Power Quality by Decreasing Harmonic Pollution (E)**
O. Naujocks, R. Schütt, CEwind Center of Excellence
- 15:00 **Discussion**
- 15:30 **Coffee Break**

Session No. 7: Offshore III - Conditions

Room 1: Borgward Saal
Chairpersons: N. N.

- 16:00 **Offshore Power Performance Assessment for Onshore Costs (E)**
P. Clive, SgurrEnergy Ltd., UK
- 16:15 **'Baltic I': Advancing Offshore Wind Power Research - First Results on Probabilistic Wind Power Forecasts (E)**
C. Junk, L. von Bremen, M. Dörenkämper, D. Heinemann, J. Riepe, G. Steinfeld, J. Tambke, M. Wächter, M. Kühn, ForWind; P. W. Cheng, SWE, Univ. of Stuttgart; S. Haag, EnBW Erneuerbare Energien GmbH
- 16:30 **Ship Based-LiDAR Measurements (E)**
G. Wolken-Möhlmann, J. Gottschall, H. Lilov, B. Schillo, B. Lange, Fraunhofer IWES
- 16:45 **KIC InnoEnergy Project Neptune: Development of a Floating LiDAR Buoy for Wind, Wave and Current Measurements**
F. Schuon, IREC, Spain; D. González, UPC / LIM, Spain; F. Rocabados, UPC / RSLAB, Spain; O. Bischoff, SWE Uni Stuttgart; R. Jané, Gas Natural SDG S.A., Spain
- 17:00 **Cost Reduction of Offshore Support Structures by Means of Integrated Design, Turbine Controls and Innovative Transport and Installation Techniques (E)**
T. Fischer, Ramboll Offshore Wind; M. Kühn, Forwind; P. W. Cheng, Universität Stuttgart SWE
- 17:15 **Discussion**

Session No. 8: Wind Resource I

Room 2: Kaisen Saal
Chairpersons: N. N.

- 16:00 **The Influence of Orographic Features on Wind Farm Efficiencies (E)**
J. Schmidt, C. Peralta, B. Stoevesandt, Fraunhofer IWES
- 16:15 **Accurate Long-term Wind Resource Assessment Through Multivariate Analysis (E)**
D. Patané, M. Benso, C. D. Hernández, F. de La Blanca, C. López, Ereda, Spain
- 16:30 **A Study on Extreme Wind Speed in East Asia (3) (E)**
H. Kubo, N. Hayasaki, T. Takagi, A. Yoshimura, ITOCHU Techno-Solutions Corp, Japan; H. Matsumiya, HIKARU WIND Lab, Japan
- 16:45 **Improving Long-Term Correction for Energy Assessments using MERRA & ERA-Interim Data**
B. Jiménez, K. Mönnich, DEWI; F. Durante, DEWI Italy
- 17:00 **Analysis of Thermal Effects on the Wind Farm Flow by the Means of Large Eddy-simulation (D)**
G. Steinfeld, B. Witha, H. Ambroise, M. Dörenkämper, D. Heinemann, ForWind
- 17:15 **Discussion**

Session No. 9: Simulation Wind Turbines

Room 3: Lloyd
Chairpersons: N. N.

- 16:00 **Active Load Alleviation on Wind Energy Converters (E)**
S. Flock, R. Schelenz, E. Öngüt, RWTH Aachen
- 16:15 **Application of a MBS-Software for IEC 61400-1 Load Calculations of Wind Turbines**
F. Gutzeit, J. Schwarte, A. Keil, Nordex Energy GmbH; H. Freudenberg, Institut für Mechatronik e.V.
- 16:30 **Influence of Shear Deformation on the Elastic Behavior of Large Blades and Support Structures in Offshore Wind Turbine Simulations (D)**
P. Klausmann, S. Kleinhansl, S. Streiner, O. Lieser, Aero Dynamik Consult GmbH; F. Vorpahl, Fraunhofer IWES
- 16:45 **Modelling of Active Flow Control for Noise Reduction of Future Wind Turbines (D)**
A. Wolf, Th. Lutz, E. Krämer, University of Stuttgart (IAG)
- 17:00 **Validation of a Drivetrain Simulation Model with Measurement Data from the Gearbox Reliability Collaborative Dynamometer Tests (E)**
J. Coultate, C. Halse, Z. Wright, A. Crowther, Romax Technology Ltd, UK
- 17:15 **Discussion**

Poster Exhibition with Authors Present

Room 4: Foyer, Poster Session - 17:30-19:00

The authors will be available for discussion of their posters and answering of questions. A simultaneous translation is not available.

Conference Dinner

Location: Bremer Ratskeller - 20:00

Bremer Ratskeller, Am Markt, 28195 Bremen, Tel: 0421/321676

8.11.2012, Thursday

08:00 **Registration in the Foyer of the Conference Hall**

Session No. 10: Offshore IV - Environment

Room 1: Borgward Saal
Chairpersons: N. N.

- 08:30 **Regional Oceanographic Distinctions in the South-Eastern Part of the North Sea: Results of Two Years of Monitoring at the Research Platforms FINO1 and FINO3**
J.-G. Fischer, C. Senet, O. Outzen, A. Schneehorst, D. Schäfer, K. Herklotz, BSH
- 08:45 **Weather Dependency of Offshore Operations (E)**
H. Lilov, G. Wolken-Möhlmann, B. Lange, Fraunhofer IWES
- 09:00 **Settlement of Sand Under Cyclic Loading: Experiments on Samples from the North Sea**
T. Biryaltseva, J. Hebig, Fraunhofer IWES; S. Kreiter, T. Mörz, Universität Bremen - MARUM
- 09:15 **Underwater Noise Reduction from Measurements and Offshore Tests Using Systems of Hydro Sound Dampers (HSD) (D)**
B. Bruns, TU Braunschweig IGB; K.-H. Elmer, OffNoise-Solutions GmbH
- 09:30 **The German Bight Underwater Soundscape - A Focus on Wind Farm Construction Noise (D)**
A. Lübben, T. Neumann, J. Gabriel, DEWI
- 09:45 **Discussion**
- 10:15 **Coffee Break**

Session No. 11: Wind Resource II

Room 2: Kaisen Saal
Chairpersons: N. N.

- 08:30 **The New European Wind Atlas (E)**
E. L. Petersen, I. Troen, H. E. Jørgensen, DTU Wind Energy, Denmark
- 08:45 **Diagnosing the Key Drivers for Improved German Wind Power Forecasts Over the Last Decade (D)**
L. von Bremen, ForWind
- 09:00 **Forecastability of Wind Farm Power Production (D)**
J. Dobschinski, B. Lange, Fraunhofer IWES
- 09:15 **Ramp Alarms Lose Information About Ramps**
S. Otterson, Fraunhofer IWES; P. Pinson, DTU Informatics, Denmark
- 09:30 **Error Smoothing and Decorrelation: Favourable European Sites for Large-Scale Wind Power Deployment (E)**
N. Stoffels, L. v. Bremen, D. Heinemann, Uni Oldenburg
- 09:45 **Discussion**
- 10:15 **Coffee Break**

Session No. 12: Operational Experiences II

Room 3: Lloyd
Chairpersons: N. N.

- 08:30 **Verification of Wind Turbine Loads Using Measurements: Raw Data and Reality (E)**
U. Smolka, J. Quappen, P. W. Cheng, Universität Stuttgart SWE; D. Kühnel, T. Neumann, DEWI
- 08:45 **Main Bearing Failure Root Cause Analysis and Health Monitoring (E)**
J. Coultate, A. Crowther, T. Eritenel, Romax Technology Ltd., UK
- 09:00 **Multi-Plane Field Balancing of the Wind Turbine Drive Train's Fast Shaft Side (E)**
M. Melsheimer, C. Heilmann, A. Donth, A. Grunwald, BerlinWind GmbH
- 09:15 **Technical Wind Farm Optimization - Experiences with the Implementation of Additional Wind Measurement Sensors on the Wind Turbine Nacelle and Operational Data Analysis (E)**
P. Spengemann, Th. Mischke, wpd windmanager GmbH & Co. KG
- 09:30 **Backward Extrapolation of Short-time Measurement Data for a Remaining Service Life Estimation of Wind Turbines (E)**
R. Kamieth, R. Liebich, TU Berlin
- 09:45 **Discussion**
- 10:15 **Coffee Break**

Session No. 13: Offshore V - Wind Turbine

Room 1: Borgward Saal
Chairpersons: N. N.

- 10:45 **6MW Turbines with 150m+ Rotor Diameter - What is the Impact on Substructures? (D)**
M. Seidel, REpower Systems SE
- 11:00 **Grouted Connections with Large Annulus in Offshore Wind Turbines and Substations (E)**
A. Bechtel, P. Schaumann, S. Lochte-Holtgreven, Leibniz Universität Hannover, Institut für Stahlbau
- 11:15 **Simulation of Unsteady Aerodynamic Effects on Floating Offshore Wind Turbines (E)**
D. Bekiropoulos, Th. Lutz, E. Krämer, University of Stuttgart (IAG); D. Matha, M. Werner, P. W. Cheng, University of Stuttgart (SWE)
- 11:30 **Evaluation of a Pitch Control Strategy for Floating Offshore Wind Turbines by Coupled Aero-elastic, Structural and Hydrodynamic Analysis**
A. Heege, A. Gaull, S. G. Horcas, P. Bonnet, LMS Samtech, Spain; M. Defourny, LMS Samtech, Belgium
- 11:45 **Reduced Nonlinear Model of a Spar-Mounted Floating Wind Turbine (E)**
F. Sandner, D. Schlipf, D. Matha, P. W. Cheng, Universität Stuttgart - SWE; R. Seifried, Universität Stuttgart - ITM
- 12:00 **Discussion**
- 12:30 **Lunch Break**

Session No. 14: Performance Verification

Room 2: Kaisen Saal
Chairpersons: N. N.

- 10:45 **Monitoring, Analyzing and Improving Wind Power Performance. European Experience**
C. López, T. Santonato, F. de la Blanca, EREDA, Spain
- 11:00 **Review of the Real Energy Production Data of Operating Wind Farms in Comparison to Former Predicted Energy Yields (E)**
T. Schorer, DEWI; P. Levée, DEWI France
- 11:15 **Hit the Target - Evaluating the Matching Quote of Long-term Yield Predictions (D)**
H. Krebs, A. Köhl, Ingenieurbüro Kuntzsch GmbH
- 11:30 **Development of Power Curve Measurement Standards**
H. Mellinshoff, DEWI
- 11:45 **Determination of Stationary and Dynamical Power Curves Using a Nacelle-based LiDAR System (D)**
I. Würth, A. Rettenmeier, P. W. Cheng, Universität Stuttgart SWE; M. Wächter, P. Milan, J. Peinke, ForWind
- 12:00 **Discussion**
- 12:30 **Lunch Break**

Session No. 15: Loads

Room 3: Lloyd
Chairpersons: N. N.

- 10:45 **Wind Energy Converters with Advanced Power Electronics for Load Analysis (E)**
M. Beyer, U. Ritschel, Nordex Advanced Development GmbH; C. Mehler, M. Joost, B. Orlik, Uni Bremen, IALB
- 11:00 **Active Damping of Oscillations on the Drive Train of a Wind Power Plant Using Field Oriented Control (E)**
N. Ell, D. Turschner, H. P. Beck, TU Clausthal
- 11:15 **Load Alleviation from an Adaptive 10 MW Wind Turbine Blade (E)**
K. Cox, A. Echtermeyer, NTNU, Norway
- 11:30 **Development of a Flexible Trailing Edge Flap and System Integration Concept for Wind Turbine Blades (E)**
J. Fischer, G. Weinzierl, J. Wagner, Tembra GmbH & Co KG; G. Pechlivanoglou, Smart Blade GmbH
- 11:45 **Increasing Wind Turbine Power by Using Flywheel During the Accelerating Times**
A. Rezaei Rad, MERC, Iran; G. H. Riahy, Amirkabir University of Technology, Iran; K. Abbaspoursani, Islamic Azad University, Iran; A. Naghizadeh Gogdare, Shahed University, Iran
- 12:00 **Discussion**
- 12:30 **Lunch Break**

Session No. 16: Simulation Wind I

Room 1: Borgward Saal
Chairpersons: N. N.

- 13:30 **Accounting for Stability Effects in the Simulation of Large Array Losses (E)**
C. Montavon, I. Jones, ANSYS UK Ltd., UK; C. Sander, ANSYS Germany GmbH
- 13:45 **Assessment of Commonly Used Approaches to Consider the Influence of Thermal Stratification on the Vertical Wind Profile (E)**
P. Haas, A. Krenn, H. Winkelmeier, K. Tiefenbacher, Energiewerkstatt, Austria
- 14:00 **Analysis of Aerodynamic Performance on Wind Farm in Non-neutral Atmosphere**
E. Son, M. Jeon, S. Lee, S. Lee, Seoul National University, Korea
- 14:15 **Mesoscale and CFD Model Coupling Applied to a Thermally-driven Wind Farm Site**
C. Abiven, Natural PowerFrance
- 14:30 **Simulation and Verification of Tall Wind Profiles in Forested Area (E)**
M. Strack, J. Cordes, Deutsche WindGuard Consulting GmbH
- 14:45 **Discussion**
- 15:15 **Coffee Break**

Session No. 17: Measurements

Room 2: Kaisen Saal
Chairpersons: N. N.

- 13:30 **Wind Characteristics Over Complex Forested Terrain: First Month of 200 m Met Mast Measurements (E)**
S. Hagemann, T. Klaas, D. Callies, P. Kühn, B. Lange, Fraunhofer IWES
- 13:45 **The Sphere Anemometer: Characteristics and Results from Field Test**
H. Heißelmann, J. Peinke, M. Hölling, ForWind
- 14:00 **Field Measurement Verification of Effect of Cup Open Face Covering of Cup Anemometer on Prevention of Snow Accumulation**
H. Endo, S. Kimura, Y. Yamagishi, M. Yamamoto, Kanagawa Institute of Technology, Japan; Y. Misu, East Japan Railway Company, Japan; H. Morikawa, T. Kojima, Meteorological Research Institute for Technology, Japan
- 14:15 **Assessment of Turbine-mounted LiDAR for Control Applications (E)**
E. A. Bossanyi, GL Garrad Hassan
- 14:30 **Transience Statistics for Fatigue Calculations (E)**
P. Clive, SgurrEnergy Ltd., UK
- 14:45 **Discussion**
- 15:15 **Coffee Break**

Session No. 18: New Developments

Room 3: Lloyd
Chairpersons: N. N.

- 13:30 **The Modular Slip Permanent Magnet Generator**
J. N. Stander, G. Venter, M. J. Kamper, University of Stellenbosch, South Africa
- 13:45 **Analysis on the Force Density of a New Ring Generator Concept for 10 MW Wind Energy Converters (D)**
K. Messoll, S. Heier, Universität Kassel
- 14:00 **Multi Generator Concept for Wind Turbines (D)**
A. Ezzahraoui, S. Heier, Universität Kassel
- 14:15 **Investigation of Concentrator Effects for a H-Darrieus Turbine Integrated in a Building with OpenFOAM (E)**
M. Schramm, H. Plischka, B. Stoevesandt, Fraunhofer IWES; J. Peinke, ForWind
- 14:30 **High Lattice Towers for Great Wind Turbines (E)**
H. Lange, C. Elberg, P.E.Concepts GmbH
- 14:45 **Discussion**
- 15:15 **Coffee Break**

Session No. 19: Simulation Wind II

Room 1: Borgward Saal
Chairperson: N. N.

- 15:45 **A New Kinematic Model for Improved Modeling of Wakes (E)**
N. Chokani, C. Kress, R. S. Abhari, ETH Zürich, Switzerland; S. Barber, BKW FMB Energie AG, Switzerland
- 16:00 **Can Wind Turbine Production Data be Used for the Verification of Wind Field Simulations? (E)**
H.-Th. Mengelkamp, A. Pätzold, anemos GmbH
- 16:15 **Assessment of Wind Power Related Wind Forecasts and Spatial Error-Smoothing Effects for a Case in South-Western Norway**
P. P. Revheim, H. G. Beyer, University of Agder, Norway
- 16:30 **Modelling the Turbulent Power Output of a Wind Farm (E)**
P. Milan, M. Wächter, J. Peinke, ForWind
- 16:45 **Improved Wake Model Performance Using Industry Standard Tools**
E. Alexakis, TU Delft - DUWIND, Netherlands; R. Donnelly, 3E, Belgium
- 17:00 **Discussion**

Session No. 20: LiDAR

Room 2: Kaisen Saal
Chairpersons: N. N.

- 15:45 **Application of Lidar for Assessment of the Wind Resource in Complex Terrain (E)**
M. Boquet, LEOSPHERE, France; X. Comas, Acciona Energia, Spain; E. Martinez, Barlovento Recursos Naturales S.L, Spain

- 16:00 **LiDAR Equivalent Wind Speed Measurements - A Power Curve Comparison**
T. Blodau, T. Müller, J. Ellis, REpower Systems SE
- 16:15 **LiDAR in Complex Terrain: CFD Approach for Conversion of Standard LiDAR Data Considering Flow Inhomogeneity Validation of Results Against Cup Anemometers (E)**
S. Koller, S. Bourgeois, S. Dierer, Meteotest, Switzerland
- 16:30 **Model Based Wind Vector Field Reconstruction from LiDAR Data (E)**
D. Schlipf, A. Rettenmeier, M. Hofsaß, P. W. Cheng, Universität Stuttgart - SWE; M. Courtney, DTU Wind Energy, Denmark
- 16:45 **Financer's Acceptance of Remote Sensor Data (E)**
A. Albers, Deutsche WindGuard Consulting GmbH; M. Boquet, Leosphere, France
- 17:00 **Discussion**

Session No. 21: Grid Integration II

Room 3: Lloyd
Chairpersons: N. N.

- 15:45 **Large-area Assessment of Transmission Capacity for Wind Power Dispatch (E)**
N. Chokani, A. Singh, R. S. Abhari, ETH Zürich, Switzerland
- 16:00 **Need of Harmonised Generic Model Standards for Flexible Grids in a Smart Future**
T. Gehlhaar, GL Industrial Services
- 16:15 **Evaluation of the New Brazilian Regulation Concerning Low Voltage Distribution Network: An Opportunity for Small Wind Turbines**
R. M. Dutra, V. G. Guedes, Eletrobras CEPTEL, Brazil
- 16:30 **Changing Behaviour of a Wind Power Station to a Steam Power Plant in Detail (D)**
M. Schmidt, F. Fein, B. Orlik, Uni Bremen IALB
- 16:45 **Provision of Control Reserve with Wind Farms (E)**
M. Speckmann, A. Baier, M. Siefert, M. Jansen, Fraunhofer IWES; W. Bohlen, M. Spönnier, ENERCON GmbH; R. Just, N. Netzel, Energiequelle GmbH; M. Stobrawe, Amprion GmbH; W. Christmann, TenneT TSO GmbH
- 17:00 **Discussion**

Closing the Conference

Room 1: Borgward Saal

- 17:15 J. P. Molly, DEWI GmbH

Posters

Room 4: Foyer

1 Performance Verification

- 1.1 **Verification of Measurements in Wind Monitoring Stations**
G. Arivukkudi, C-WET, India
- 1.2 **Calculation of Wind Farm Production Losses via MERRA Data in Consequence of Bat-Based, Temporary Wind Turbine Shut-downs**
J. Raabe, T. Schorer, DEWI
- 1.4 **Evaluation of Turbulence Models Accuracy on Prediction of Horizontal Axis Wind Turbines Performance**
F. Khalafi, M. Jamil, MERC, Iran; M. Javadi, Quchan Institute of Engineering and Technology, Iran

2 New Developments

- 2.1 **How to Optimise Windpower Screwed Connections Larger than M24 Consequently by Using Bolting Methods which are Described in the VDI-2230**
P. Junkers, HYTORC Barbarino & Kilp GmbH
- 2.2 **Optimum Design Analysis of Savonius Rotor Using CFD and Wind Tunnel Approaches**
P. Sabaeifard, Power and Water University of Technology, Iran; M. Jamil, Materials and Energy Research Center, Iran
- 2.3 **High Performance Anti-Erosion Coatings for Wind Turbines**
C. Claus, B. Weber, 3M Deutschland GmbH

- 2.4 Test Results and Further Development of a 3MW Electro-Mechanical Differential Drive**
C. Pilgram, G. Hehenberger, SET Sustainable Energy Technologies GmbH, Austria
- 2.5 MERWind - Multidisciplinary Design of Wind Turbines Using High Fidelity Methods**
M. Imiela, DLR
- 2.6 Development of a Flow Element for the Inner Rotor Blade Area of a Vestas V66 in the Project MOGLI**
F. Kortenstedde, B. Steckemetz, Hochschule Bremen IAT
- 2.7 Use of a Taguchi Method for the Minimization of the Vibrations on a Wind Turbine Generator**
E. Gamboa Medarde, Acciona Windpower, Spain; J. Pintor, Universidad Publica de Navarra, Spain
- 2.8 Metal Curing Toolings as a Key Driver for Rotor Blade Manufacturing**
H. Apmann, P. Koehnke, Premium Aerotec GmbH
- 2.9 Semi and Full Automatic Lay-up End Effector for Rotor Blade Manufacturing**
H. Apmann, Premium Aerotec GmbH
- 2.11 Challenges in the Automated Handling of Textiles for Large Scaled Composites**
M. Rolbiecki, J.-H. Ohlendorf, K. -D. Thoben, D. H. Müller, Universität Bremen - BIK
- 2.12 ATS Setting Standards at Transportation and Logistics**
J. Kop, J. Bietz, ATS Construction GmbH
- 2.13 New Concept for Wind Turbine Gear Box Lubrication to Significantly Increase the Reliability**
M. Jungk, R. Vanecek, G. Lutz, Dow Corning GmbH
- 3 Testing**
- 3.1 Hardware in the Loop Test Bench for Mechanical SWT Pitch Systems**
N. Pieniack, E. Gauterin, N. Harborth, J. Twele, Reiner Lemoine Inst. (RLI)
- 3.2 New Concept for Wind Turbine Testing Rig**
F. Klinger, Z. Chen, INNOWIND Forschungsgesellschaft mbH
- 3.3 Sub-Component Testing of Adhesive Bond Lines for Wind Turbine Blade**
P. Wang, A. Antouniou, F. Sayer, Fraunhofer IWES
- 4 Simulation Wind Turbine**
- 4.1 Providing of Improved Load Assumptions for Wind Turbines Using the Multibody System Method**
B. Schlecht, Th. Rosenlöcher, T. Schulze, TU Dresden
- 4.2 Effect of Spinner Geometry on the Flow in the Blade Root Region of Modern Wind Turbines**
S.-Y. Lin, J. Seume, Leibniz Universität TFD
- 4.4 Managing Thousands of Detailed Simulations**
G. Zellermann, B. Seifert, P.E. Concepts GmbH
- 4.5 Deformation of Bearing Caused by External Loads Using Finite Element Calculation**
L. Meesenburg, J. Hagemann, P.E.Concepts GmbH
- 5 Simulation Wind**
- 5.1 Mesoscale Meteorological Modelling of Wind and Turbulence Fields in Stable Internal Boundary Layers at FINO1**
R. Foreman, S. Emeis, Karlsruhe Institute of Technology (KIT)
- 5.3 Probability Distributions of Increments in 10 min Averages of Wind Speed**
H.-G. Beyer, H. M. Olsson, University of Agder, Norway
- 5.4 Yield Computation of WEC in Semi-complex and Complex Terrain**
R. Wagner vom Berg, K. Breckner, J. Hoppmann, PLANKon; R. Korfmacher, reko GmbH & Co. KG; J. Waterkamp, SOLvent GmbH; C. Albrecht, AL-PRO GmbH & Co. KG
- 5.5 Uncertainty of the Mean Wind Speed Estimation as a Function of the Number of Years of Measured and Reanalysis Data**
V. G. Guedes, R. M. Dutra, A. A. M. Cabrera, Eletrobras CEPEL, Brazil
- 5.6 An Investigation of the Impact of Capturing Stability Effects when Modelling Wind Flow**
U. Horn, GL Garrad Hassan, UK; J. Bleeg, D. Digraskar, GL Garrad Hassan, USA; J. -F. Corbett, GL Garrad Hassan, Denmark
- 5.7 Investigation of the Atmospheric Boundary Layer Characteristics over Different Hills**
A. M. Loredou-Souza, J. M. L. Mattuella, M. G. K. Oliveira, Univ. Fed. Rio Grande do Sul, Brazil
- 5.8 Wind Tunnel and CFD Analysis of Wind Flow Over a Complex Terrain**
A. P. Petry, A. M. Loredou-Souza, J. M. L. Mattuella, M. G. K. Oliveira, D. G. R. de Freitas Filho, Univ. Fed. Rio Grande do Sul, Brazil
- 6 Wind Resource**
- 6.1 Non Neutral Wind Profiles - Capturing Atmospheric and Orographic Influences**
C. Schmitt, juwi GmbH
- 6.2 Wind Profiles Over Forest for Wind Energy in High Hub Heights**
S. Strauß, E. Beyer, R. Friedl, D. Pfab, Wind&Regen
- 6.3 Vertical Wind Profile in the First 100m Height on the Ground Surface on Cuba and its Role in the Decision Making in the Location of Wind Farms**
A. Roque Rodríguez, Y. Niebla Sosa, P. Reyes Martínez, Instituto de Meteorología, Cuba
- 6.4 Wind Data Analysis for Purpose of Utilizing WECS in Hasana-bad Fashfuyeh of Iran**
E. Abouhamzeh, A. A. Tofigh, Material and Energy Research Center (MERC), Iran; K. Abbaspoursani, Islamic Azad University, Iran
- 6.5 Determination of Onshore Wind Potential in Germany**
H. Salecker, H. Lehmann, C. Vollmer, K. Adlunger, I. Lütkehus, Th. Klaus, Umweltbundesamt
- 6.6 Summary of Wind Potential Analysis and Energy Yield Assessments at the SEEWIND Sites in Herzegovina, Croatia and Serbia**
D. Rimpl, K. Mönlich, DEWI; F. Durante, DEWI Italy
- 6.8 Automatic Feature Selection and Architecture Optimization for Neural Network Based Wind Power Forecasting**
M. Felder, F. Sehnke, A. Kaifel, ZSW
- 6.9 A MCP-Method Using Artificial Neural Networks**
A. Strunk, J. Meis, EWC Weather Consult; F. Sehnke, M. Felder, A. Kaifel, ZSW
- 6.10 Estimating Wind Power Potential by Wind Speed Probability Distribution and Extrapolation of Wind Speed Variation to Higher Elevations at Terrain of Nagda Hill, in Central India**
V. Warudkar, S. Ahmed, Maulana Azad National Institute of Technology, India; N. Diwakar, Truba Institute of Engineering and Information Technology, India
- 6.11 Short-term Forecasting During Statistical Model Burn-in**
M. Kurt, S. Otterson, A. Wessel, Fraunhofer IWES
- 6.12 Improving Energy Efficiency of Renewable Plants Using Very-Short-Term Forecasting Method**
L. Matos, A. Carvalho, Universidade do Porto, Portugal; P. Costa, Instituto Politécnico, Portugal
- 7 Measurements**
- 7.1 Measuring Wind Profiles in Complex Terrain Using Doppler Wind Lidar Systems with FCR and CFD Implementations**
L. Wagner, GWU-Umwelttechnik GmbH; C. Schmitt, juwi Wind GmbH
- 7.2 Anemometer Calibration Variability**
T. Blodau, A. Janzen, REpower Systems SE
- 7.3 Different Methods of Wind Velocity Measurement and Comparison**
K. Boopathi, S. Gomathinayagam, C-WET, India
- 7.4 Measurement Matters - The Pitfalls and Tricks of Measuring the Wind**
J. Lange, Ge:Net GmbH; M. Kolbe, Anemos GmbH
- 8 Grid Integration**
- 8.2 Comparison of Power Factory DigSILENT Aggregated and Individual Simulation Model of a PV Plant with Multiple Inverters for Transient Stability Studies**
C. Adrian, J. Dannehl, C. H. Benz, Danfoss Solar Inverters A/S, Denmark

- 8.3 Reduction of Offshore Wind Power Feed-in Fluctuations via Storage Systems**
Y. Bouyraaman, J. Bendfeld, M. Tigges, S. Krauter, Univ. of Paderborn

9 Operational Experiences

- 9.1 The Choice of Climate Impact Loss Factor of Wind Power Generation According to the Outdoor Heating Temperature**
X. Ren, Forestry Design and Research Institute, China
- 9.2 Do the Right Thing - Choices with Wind Park Projects for Utilities**
P. Svoboda, U. Macharey, BET GmbH
- 9.3 Measuring the Risks and Returns of Onshore vs. Offshore**
J. Ritter, Solution Matrix
- 9.4 Analysis and Recommendations of Efficient Trading Strategies for Direct Marketing of Wind Power Developed for the EEG 2012 Rules**
C. Möhrlein, K. Möhrlein, M. Pahlow, WEPROG GmbH; J. Jørgensen, WEPROG ApS, Denmark
- 9.5 The Return of the Edgewise Vibrations**
K. Kaiser, ASDynamics
- 9.6 Model Based Technical Consulting for Wind Turbines and Wind Farms**
D. Ziegert, H. Schulte, HTW Berlin; J. Liersch, D. Stahlbaum, Key Wind Energy GmbH
- 9.7 A Consistent Approach for Collection and Utilization of O&M Data**
S. Faulstich, S. Pfaffel, Fraunhofer IWES; H. Jung, IZP; K. Pfeiffer, ENERTRAG AG; S. Schmidt, WindStrom Betriebs- u. Verwaltungs GmbH; J. Jensen, Geo Gesellschaft für Energie und Oekologie mbH
- 9.8 Regional Contribution to the Wind Energy Development in Germany - Analysis of Selected Administrative Districts Until First Half of 2012**
C. Ender, B. Neddermann, DEWI

10 Offshore Wind Turbine

- 10.1 Development of a Design and Simulation Framework for Offshore Wind Turbine Support Structures**
B. M. Reil, R. Rolfes, Leibniz Universität ISD
- 10.2 Developing Standardized Logistics Processes for the Offshore Wind Energy Industry**
Th. Beinke, A. Schweizer, B. Scholz-Reiter, Bremen Institute for Production and Logistics GmbH
- 10.3 Offshore Turbine Design Optimization for Enhanced Power System Support**
P. Engel, Th. Hartkopf, TU Darmstadt
- 10.4 Improving the Availability of OWF by Risk Analysis and Management Tools**
S. Greiner, H. Albers, Hochschule Bremen
- 10.5 Simulation of Spare Parts Logistics in Offshore Wind Energy**
K. Lange, H.-D. Haasis, Institute of Shipping Economics and Logistics; A. Rinne, Uni Bremen
- 10.6 Degradation of Pile Bearing Capacity due to Axial-Cyclic Loads**
S. Baars, GL Industrial Services GmbH; L. Paustian, Universidad de Las Palmas, Spain
- 10.7 RAVE Underwater Operational Noise Measurements in the Offshore Wind Park alpha ventus - Project Description and Final Results**
H. van Radecke, M. Benesch, FH Flensburg
- 10.8 Collisionfriendly Design? Requirements and Collision Simulations for Offshore Wind Installations**
S. Rüd, GL Renewables Cert.
- 10.9 Interface Management Along the Offshore Wind Supply Chain - From Components to the Successful Realisation of Offshore Wind Power Plants**
T. Lauckner, J. Rosen, RWE Innogy GmbH
- 10.10 Systematic Comparison of Current Operation and Maintenance Concepts for Wind Farms in the German North Sea**
J. Weigell, M. Wiggert, H.-G. Busmann, Fraunhofer IWES
- 10.11 Design and Evaluation Tool for Operations and Maintenance Logistics Concepts of Offshore Wind Farms**
T. Münsterberg, Fraunhofer CML; R. Rauer, Hamburg University of Technology, IML

- 10.12 Wake Induced Wind Turbine Loads - Comparison of Engineering Models with Measurement Data in the Offshore Test Field 'alpha ventus'**
B. Kuhnle, J.-J. Trujillo, M. Kühn, ForWind; P. Baulig, TU Berlin
- 10.13 Online Load Monitoring on AREVA M5000 Wind Turbine at alpha ventus**
D. Kühnel, T. Neumann, DEWI
- 10.14 Experimental and Computational Aeroelastic Damping of an Offshore Wind Turbine on a Monopile Foundation**
R. Shirzadeh, C. Devriendt, M. A. Bidakhvidi, P. Guillaume, Vrije Universiteit Brussel, Belgium

11 Offshore Conditions

- 11.1 The Lance Insertion Retardation Meter (LIRmeter). An Instrument for In-situ Determination of Sea Floor Properties**
S. Stephan, N. Kaul, H. Villinger, Universität Bremen
- 11.2 Numerical Modelling of Wave Induced Stresses in Gravity Base Structures**
O. Göthel, J. Göhlmann, grbv Ing. im Bauwesen GmbH & Co. KG
- 11.3 Analysis of Selected Offshore Fog Occurrences**
J. Bendfeld, S. Balluff, University of Paderborn
- 11.4 Determination of the Meteorological Optical Range in Offshore Conditions**
J. Bendfeld, University of Paderborn
- 11.5 7 Years Meteomast Amrumbank West**
J. Bendfeld, University of Paderborn
- 11.6 Mitigation of Offshore Piling Noise Using Balloons and Foam Elements as Hydro Sound Dampers (HSD)**
K.-H. Elmer, OffNoise-Solutions GmbH; J. Gattermann, C. Kuhn, B. Bruns, IGB TU Braunschweig
- 11.7 Efficient Subsoil Investigation with Shallow Water Multi-channel Seismics**
F. Meier, Fraunhofer IWES; V. Spieß, H. Keil, Universität Bremen
- 11.8 Humidity Flux Influence on Atmospheric Stability. First Results from Eddy Covariance Measurements at FINO1**
B. Cañadillas, F. Kinder, T. Neumann, DEWI; R. Foreman, S. Emeis, Institute for Meteorology and Climate Research
- 11.9 Uncertainty in Offshore Wind and Wind Power Prediction**
J. Jiang, Desert Research Institute, USA; B. Cañadillas, D. Koracin, DEWI
- 11.10 Wind Conditions in North and Baltic Sea: Model Performance at FINO1, FINO² and FINO³**
J. Tambke, M. Schmidt, L. von Bremen, ForWind; J. A. T. Bye, University of Melbourne, Australia; T. Ohsawa, Kobe University, Japan; J. -O. Wolff, Universität Oldenburg, ICBM
- 11.12 HyproWind: Realistic Underwater Sound Scenarios During Wind Farm Construction in the German North Sea**
T. Neumann, B. Neddermann, A. Lübben, J. Gabriel, DEWI; M. Fricke, T. Griebmann, ISD; M. Eickmeier, K. Herklotz, BSH

12 Monitoring

- 12.1 Real-Time Detection of Rotor Blade Damages**
J. Reimers, D. Tilch, Bosch Rexroth Monitoring Systems
- 12.3 Web-based Project and Monitoring Data Management of Wind Farms**
F. Rackwitz, TU Berlin; J. Rickriem, DoMaMoS GmbH
- 12.4 Two Decades of Wind Energy Deployment in Germany**
S. Pfaffel, P. Lyding, S. Faulstich, P. Kühn, Fraunhofer IWES

13 Environmental Impact

- 13.1 Studies on Noise Propagation of Wind Turbines from a Wind Farm in India**
G. Arivukkudi, S. Kanmani, C-WET, India
- 13.2 Expansion of Wind Energy in Brazil: Perceptions of Communities**
N. F. da Silva, M. G. Pereira, M. A. de Vasconcelos Freitas, COPPE/UFRJ, Brazil; E. J. de Azevedo Dantas, R. S. Barbosa de Araújo, IFRN, Brazil
- 13.3 High Frequent Electromagnetic Fields on Wind Turbines**
K. Herrling, GL Garrad Hassan Deutschland GmbH
- 13.4 Shadow Flicker Validation**
W. Schlez, GL Garrad Hassan, UK; A. Neubert, GL Garrad Hassan
- 13.5 Predicting Bat Activity from Atmospheric Conditions**
C. Sutter, Normandeau Associates, USA

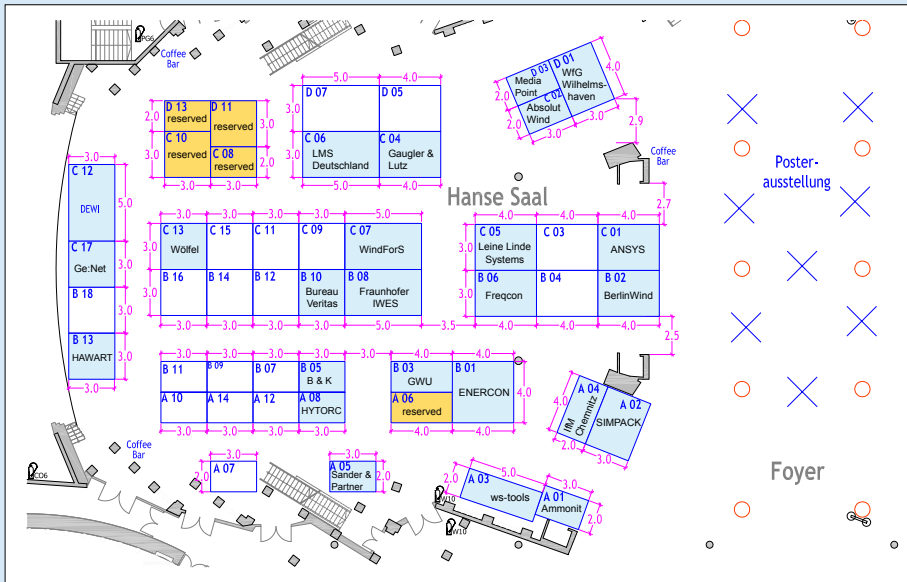


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DEWEK 2012

11th German Wind Energy Conference

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