DEWEK 2004: The International Technical Wind Energy Conference

J. P. Molly, DEWI Wilhelmshaven

Once again Wilhelmshaven, the home city of DEWI, will see the international technical wind energy conference DEWEK, which will be held on 20/21 October 2004. For the 7th time already, this conference will call many engineers and scientists to the north of Germany, the region where the best wind is blowing and most of the German wind turbines have been installed. The special attraction of DEWEK is its concentration on only two days, exclusively reserved for technology and science. With 110 contributions submitted for the conference, of which 64 were selected by the scientific committee as papers this event is the real place where industry meets science. Papers will be presented on the two conference days in 13 sessions with five papers each and sufficient time for discussion and questions. The remaining contributions will be presented as posters and can be discussed in detail during a session in which the authors will be present. The conference language is English with a simultaneous translation to German.

The conference will be accompanied by an exhibition in the entrance hall thus underlining the mixture between industry and science. The companies exhibiting at the DEWEK do not aim primarily to sell wind turbines, but to present their latest technology. As the past conferences have shown, DEWEK brings together the responsible developing engineers from industry and the scientists from universities and research institutes looking for an exchange of ideas and searching for new methods and research results. This time some special highlights will characterise the presentations. Off-shore and optimisation of components, wind turbines and energy production. The off-shore challenge, large size rotors, efficiency and reliability are the drivers of R&D. The high quality of the papers submitted disproves the opinion that wind energy doesn't need any more research, an opinion which can be found very often with the research sponsoring entities, unfortunately caused by the success story of wind energy. The conference will give a wide overview of the whole spectrum of wind energy research and development and the expected 500 conference participants will have an excellent opportunity for discussions, in the world-wide leading wind energy country with the most advanced wind turbine technology.

The condensed and demanding programme of the conference offers also a relaxing festive conference dinner on the evening of the first day, a pleasant opportunity for newcomers as well as old hands of the industry to get to know each other and to talk about other things than business. This time the dinner will take place in the Pumpwerk, a former pumping station and now a place for cultural events in Wilhelmshaven. On the day after the conference, on Friday, 22nd October, we offer an excursion to the DEWI test site and the Enercon E-112, the up to now largest wind turbine of the world. Both locations are near Wilhelmshaven, so that the visit can be made in the morning of the day after the conference giving most of the visitors the chance to reach their home on the same day.

DEWEK 2004 is a well known event to get an overview on new research and development in wind energy. Therefore a large number of delegates are expected and we recommend that you register for the conference early. Wilhelmshaven lies in the heart of the area where wind energy is at home, but its hotel capacity is limited, considering the number of visitors expected for the conference. If you are not travelling by car and want to avoid being booked into a hotel in the surrounding countryside, please register as early as possible and book your accommodation in the city. All further details, including registration form, can be found in the programme or on the conference web site www.dewek.de. We are confident that the papers and posters we have selected for you will meet the standard of quality you may expect of the DEWEK. As always we will do our best to make these two conference days a pleasure for you. The staff at DEWI and I are looking forward to welcoming you and wish you a good journey to Wilhelmshaven.

DEWEK 2004: Vorläufiges Programm

Preliminary Programme

C. Ender, DEWI Wilhelmshaven

Lectures

20.10.2004, Wednesday

Opening Session

Room: 2 - Chairman: J. P. Molly

09:00 **Opening Address**
J. P. Molly, Deutsches Windenergie-Institut
Opening Words, City of Wilhelmshaven
E. Menzel, Lord Mayor
Opening lecture
H. J. M. Beurskens, ECN, The Netherlands
European Perspective
C. Millais, EWEA
10:30 **Coffee Break**

Session No. 1: Monitoring & Quality

Room: 2 - Chairman: N. N.

11:00 **GE Energy 2.x, Focus on Quality**
V. Schellings, GE Energy
11:15 **Automated Testing System for Rotor Blades**
J. Wagner, Idaswind Ingenieurges. mbH; J. Aderhold, Fraunhofer-Institut für Holzforschung (Wilhelm-Klauditz-Institut, WKI)
11:30 **Case Study Load Monitoring on a Main Shaft**
H. Söker, DEWI; R. Royo, CEHN
11:45 **Condition Monitoring in Wind Turbines**
B. Bauer, SKF GmbH Deutschland, Reliability Systems
12:00 **Predictive Condition Monitoring for Offshore Wind Energy Converters with Respect to the IEC 61400-25 Standard**
J. Giebhardt, P. Caselitz, ISET; J. Rouvillain, MITA Teknik, DK; T. Lyrner, Nordic Windpower, Sweden; C. Bussler, Plambeck Neue Energien; S. Gutt, Brüel & Kjaer Vibro; H. Hinrichs, Overspeed; K. Gram-Hansen, Gram&Juhl, DK; N. Wolter, Deutsche Montan Technologie; G. Giebel, Risø, DK
12:15 **Discussion**
12:45 **Lunch Break**

Session No. 2: Simulation of Components

Room: 4 - Chairman: N. N.

11:00 **Vibrations and Dynamic Behaviour of Gearboxes in Drive Trains of Wind Turbines**
F.-D. Krull, R&D Eickhoff Maschinenfabrik GmbH
11:15 **Multibody Simulation of a Three-stage Planetary Gearbox in a Wind Turbine**
J. L. M. Peeters, D. Vandepitte, P. Sas, Katholieke Universiteit Leuven, Department of Mechanical Engineering, Belgium
11:30 **A new Approach for Calculating Turbulence Intensities Inside a Wind Farm**
A. Wessel, B. Lange, Uni Oldenburg ForWind
11:45 **Numerical Optimization of Silent Airfoil Sections**
T. Lutz, W. Würz, A. Herrig, K. Braun, S. Wagner, Uni Stuttgart, Inst. für Aerodynamik und Gasdynamik (IAG)
12:00 **Experimental and Numerical Deduced Performance Properties of a 30%-thick, roughened Profile at High Reynoldsnumbers for use on MultiMegawatt Blades**
A. P. Schaffarczyk, UAS Kiel; B. Stahl, DNW KKK
12:15 **Discussion**
12:45 **Lunch Break**

Session No. 3: Wind Turbine Developments

Room: 2 - Chairman: N. N.

13:45 **Design and Development of a Composite Rotor Hub and Shaft Combination - Evaluation**
R. Schmidt, A. Paul, aerodyn Energiesysteme GmbH; H. C. Stadtfeld, Inst. für Verbundwerkstoffe, Uni Kaiserslautern
14:00 **GE Energy's Offshore Wind Energy Activities: Development, On-Site Experience, and Turbine Enhancements**
T. Fric, G. Auer, J. Leonard, H.-J. Kooijman, GE Energy
14:15 **Innovations on Large MW Wind Energy Converters: Example of the E-70 and E-112**
A. Wobben, ENERCON GmbH
14:30 **A New Age -Multibrid M5000-**
H. Schippmann, N. Erdmann, Multibrid Entwicklungs-ges. mbH
14:45 **Installation and First Operational Results of the Worlds Largest Wind Energy Converter REpower 5M**
P. Quell, J. Goesswein, REpower Systems AG
15:00 **Discussion**
15:30 **Coffee Break**

Session Nr. 4: Simulation & Economics

Room: 4 - Chairman: N. N.

13:45 **Target Design Blade Loads from Complex Terrain Winds**
A. Knauer, Institute for Energy Technology, Norway; N. G. Skomedal, UMOE Ryving AS, Norway
14:00 **Optimisation of Wind Turbine Design for Indian Conditions**
S. Sivakumar, N.S.Prasad, C-WET, India; Erik R.Joergensen, RISØ National Laboratory, Denmark.
14:15 **Validation of Mesoscale Simulations for Offshore Sites**
M. Strack, F. Durante, DEWI
14:30 **Cold Climate Experiences in Europe**
M. Durstewitz, ISET; H. Dobesch, IMG - University Vienna, Austria; G. Kury, ENAIRGY GmbH, Austria; T. Laakso, VTT Processes, Finland; G. Ronsten, Swedish Defence Research Agency, Sweden; K. Säntti, Finnish Met. Institute, Finland
14:45 **Improved Return On Investment due to Larger Wind Turbines**
F.J. Brughuis, Mecal Applied Mechanics BV, The Netherlands
15:00 **Discussion**
15:30 **Coffee Break**

Session Nr. 5: Grid Integration I

Room: 2 - Chairman: N. N.

16:00 **Connection of Wind Turbines to the HV and EHV Grid - New Guidelines of the German Association of Electricity Network Operators**
H. Roth, Verband der Netzbetreiber - VDN - e. V. beim VDEW
16:15 **Wind Farms Participating in the Power System Management of the Transmission System Operator**
K. Burges, K. Ramsel, Ecofys GmbH; E. Kuhnhenne, enervis energy advisors GmbH; B. Krietzsch, Vattenfall Europe Transmission GmbH; T. Leske, Enertrag AG

16:30 **Impact of Hourly Wind Power Variations on the System Operation in the Nordic Countries**
H. Holttinen, VTT Technical Research Centre of Finland
16:45 **Wind Energy with Power Plant Properties?**
J. Möller, WINDTEST Kaiser-Wilhelm-Koog GmbH
17:00 **The new Philosophy for Grid Connection in Some of the European Countries and how to Verify the Behaviour of Wind Farms**
F. Santjer, DEWI
17:15 **Discussion**

Session Nr. 6: Modelling & Wind Index
Room: 4 - Chairman: N. N.

16:00 **A New Wind Index for Risk Preventive Investment**
J. Sander, Sander + Partner GmbH, Switzerland
16:15 **Long Term Variation of Wind Potential: How Long is Long Enough?**
A. Albers, Deutsche WindGuard Consulting GmbH
16:30 **Measuring and Modeling of the Wind Profile in Complex Terrain**
J. Hosek, Institute of Atmospheric Physics, Academy of Sciences of the Czech Republic, Prague
16:45 **NCEP, METRAS, MM5 - A new Generation in Wind Power Meteorology**
H.-T. Mengelkamp, R. Brandt, J. Geyer, J. Sutmöller, anemos, Gesellschaft für Umweltmeteorologie mbH
17:00 **Validation of MM5 With Measured Profiles at Cabauw, The Netherlands and Wilhelmshaven, Germany**
U. Focken, T. de Paus, Uni Oldenburg; F. Durante, M. Strack, DEWI
17:15 **Discussion**

Poster Exhibition
Room 3 - 17:45-19:15

The authors will be available for discussion of their posters and answering of questions.

VDMA Reception
Room 3 - 17:45

During the poster presentation, the VDMA (German Engineering Federation) will hold a reception in Room 3.

Dinner
Location Pumpwerk - 20:00

21.10.2004, Thursday

Session Nr. 7: Wind Modelling
Room: 2 - Chairman: N. N.

08:30 **The Anemos Project - Next Generation Short-term Forecasting of Wind Power**
M. Lange, U. Focken, J. Tambke, UNI Oldenburg; + 30 further authors. Please refer to the Book of Abstracts.
08:45 **Wind Profiles over the North Sea - Measurements Compared to an Air-Sea-Interaction Model**
J. Tambke, M. Lange, U. Focken, ForWind; J. A.T. Bye, School of Earth Sciences, The University of Melbourne, Australia; J.-. Wolff, Uni Oldenburg
09:00 **Development of a Methodology for Wind Resource Assessment**
L. A. J. Procopiak, LACTEC, Instituto de Tecnologia para o Desenvolvimento, Brazil; D. J. Schultz, W. R. Zanin, COPEL, Companhia Paranaense de Energia, Brazil; O. A. C. Amarante, F. J. L. Silva, L. Gonzaga Rios-Filho, CAMARGO SCHUBERT Wind Engineering, Brazil
09:15 **State of the Art in Application of Flow Models for Micrositing**
M. Strack, V. Riedel, DEWI
09:30 **Testing the use of the Mesoscale-Model Eta for Short Term Wind Power Forecasts in Brazil**
J. C. Passos, G. Kuhnen, G. L. Caruso, D. V. Da Silva, Uni Federal S. Catarina, Brazil; S. Chan Chou, Centre for Weather Forecast and Climatic Studies, Brazil; W. Reguse, Centrais Elétricas S. Catarina, Brazil; H. G. Beyer, Uni of Applied Sciences (FH) Magdeburg-Stendal
09:45 **Discussion**
10:15 **Coffee Break**

Session Nr. 8: Fatigue & Life Time
Room: 4 - Chairman: N. N.

08:30 **Damage Increase by Wind Farm Operation: Measurement Versus Model**
M. Damaschke, DEWI; C. Illig, F. Stache, DEWI-OCC; F. Baumjohann, Fachhochschule Bielefeld
08:45 **Introducing Low Cycle Fatigue in IEC Standard Range Pair Spectra**
N. Kaufeld, H. Söker, DEWI; C. Kensche, DLR
09:00 **NEW WISPER - Introducing a new Standard Sequence for Material Testing in Wind Energy Applications**
H. Söker, N. Kaufeld, DEWI; C. Kensche, DLR
09:15 **Fatigue Analysis of Bonded Structures**
R. Kickert, Leichtwerk, Ingenieurbüro Dr. Kickert
09:30 **Lifetime Prediction of Gear Teeth Regarding to Micropitting in Consideration of WEC Operating States**
J.-B. Franke, R. Grzybowski, GL WindEnergie GmbH
09:45 **Discussion**
10:15 **Coffee Break**

Session Nr. 9: Grid Integration II
Room: 2 - Chairman: N. N.

10:45 **Performance and Fire Behaviour of Step-up Transformers in Wind Turbines**
Jan Declercq, Pauwels Int., Mechelen, Belgium; Jean-Claude Duart, Dupont, Geneve, Switzerland; Inma Pena, Dow Corning, Barcelona, Spain
11:00 **Challenges and Potentials of Wind Energy Converters in Power Supply Systems of the Future**
S. Hartge, ENERCON GmbH, Electrical Engineering - R&D
11:15 **The new Role of Wind Energy in the Stability of Electric Networks**
M. Abderrazzaq, Electrical Power Dept. Hijjawi Faculty for Eng. Technology, Yarmouk University, Irbid, Jordan; M. Durstewitz, ISET e.V.
11:30 **Tools and Concepts to Integrate German Offshore Wind Potential into Electrical Energy Supply**
K. Rohrig, M. Hoppe-Kilpper, B. Ernst, ISET e. V.; Y Saßnick, Vattenfall Europe Transmission GmbH; F. Fischer, Enercon GmbH; W. Winter, M. Luther, E.ON Netz GmbH; S. Heier, Uni Kassel; P. Becker, Deutscher Wetterdienst
11:45 **Dynamic Interaction of Large Offshore Wind Farms with the High Voltage Transmission Network**
I. Erlich, Uni Duisburg-Essen; W. Winter, E.ON Netz GmbH; F. Richert, GEO Gesellschaft für Energie und Ökologie mbH
12:00 **Discussion**
12:30 **Lunch Break**

Session Nr. 10: Simulation of Wind Turbine
Room: 4 - Chairman: N. N.

10:45 **aeroSmart5 - The new Generation of Small Wind Energy Systems (WEC)**
S. Siegfriedsen, aerodyn Energiesysteme GmbH
11:00 **Variable Speed Drive Train for Wind Turbines Through Hydrodynamic Gearbox**
A. Basteck, M. Tilscher, Voith Turbo GmbH & Co. KG
11:15 **ADCoS - A Nonlinear Aeroelastic Code for the Complete Dynamic Simulation of Offshore-Structures and Lattice-Towers.**
S. Kleinhansl, M. Mayer, Aero Dynamik Consult GmbH
11:30 **Today's Techniques of the Assessment of Dynamic Loads in Drive Trains of Wind Turbines using Multibody Simulation**
B. Schlecht, T. Schulze, T. Hähnel, IMM - Inst. für Maschinenelemente und Maschinenkonstruktion, TU Dresden
11:45 **Quantification of Wind Turbine Gearbox Loads by Coupled Structural and Mechanisms Analysis**
A. Heege, SAMTECH S.A., Spain
12:00 **Discussion**
12:30 **Lunch Break**

Session Nr. 11: Offshore I
Room: 2 - Chairman: N. N.

13:30 **Multi-Megawatt Wind Turbines for Offshore use: CED as an Aspect of Life Cycle Assessment**
R. Tryfonidou, H.-J. Wagner, Ruhr-University of Bochum / Energy Systems and Energy Economics

13:45 **Comparison of Wind Conditions of Offshore Wind Farm Sites in the Baltic and North Sea**
B. Lange, ForWind

14:00 **Considerations Regarding Grouping of Locations for Monopile Foundations for Offshore Wind Farms**
C. Böker, GE Energy

14:15 **Standards for the Assessment of Acoustical Emissions by Offshore Wind Turbines**
J. Gabriel, T. Neumann, DEWI; W.-J. Gerasch, K.-H. Elmer, CRI; M. Schultz-von Glahn, K. Betke, itap

14:30 **Reduction of Ship Collision Risks for Offshore Wind Farms - SAFESHIP**
H. den Boon, E-Connection Project, Netherlands; H. Just, VESTAS Wind Systems, DK; P. Friis Hansen, E. Sonne Ravn, Technical University of Denmark, DK; K. Frouws, Technical University Delft, Netherlands; S. Otto, Germanischer Lloyd AG; P. Dalhoff, GL WindEnergie; C. van der Tak, Maritime Research Institute Netherlands MARIN, Netherlands

14:45 **Discussion**

15:15 **Coffee Break**

Session Nr. 12: Measurements
Room: 4 - Chairman: N. N.

13:30 **Correction of the Heat and Momentum Flux Measurements with the Ultrasonic Anemometers at the FINO I Offshore Meteorological Mast for Flow Distortion and Mounting Effects**
B. Lange, S. Tautz, D. Heinemann, ForWind

13:45 **How Well Does a Power Law fit to a Diabatic Boundary-Layer Wind Profile?**
S. Emeis, Forschungszentrum Karlsruhe GmbH, Institute for Meteorology and Climate Reseach

14:00 **Efficient Wind Farm Performance Evaluation**
A. Albers, Deutsche WindGuard Consulting GmbH

14:15 **Turbine Spacing in Wind Farms - Theory and Measurements**
K. Kaiser, B. Hillmer, DeWind GmbH; J. Kröning, F. Stache, C. Illig, DEWI-OCC

14:30 **Field Experience of Fibre Optical Strain Sensors used for Providing Real Time Load Information from Wind Turbine Blades During Operation.**
J. Wernicke, J. Shadden, S. Kuhnt, WindForce GmbH; P. Rhead, Insensys Ltd, UK; H. Söker, DEWI

14:45 **Discussion**

15:15 **Coffee Break**

Session Nr. 13: Offshore II
Room: 2 - Chairman: N. N.

15:45 **One Year Operation of the First Offshore Wind Research Platform in the German Bight - FINO1**
T. Neumann, K. Nolopp, M.Strack, DEWI; K. Herklotz, Federal Maritime Angency (BSH); J. Stein, GL Windenergie

16:00 **Evaluation of Pile Diameter Effects on Soil-Pile Stiffness**
J. Wiemann, K. Lesny, W. Richwien, Inst. für Grundbau und Bodenmechanik, Uni Duisburg-Essen

16:15 **Design and Load Calculations for Offshore Foundations of a 5MW Turbine**
M. Seidel, M. von Mutius, D. Steudel, REpower Systems AG

16:30 **Efficient Fatigue Design for Tripod Structures in North and Baltic Seas**
P. Kleineidam, P. Schaumann, Institute for Steel Construction; Uni of Hannover

16:45 **Extreme Wave Loads on the Support Structure of OWECs**
K. Mittendorf, W. Zielke, Inst. for Fluid Mechanics, Uni Hannover

17:00 **Discussion**

17:15 **Closing the Conference**
J. P. Molly, DEWI

Posters
Room: 3

1 Operation & Monitoring

1.1

1.2 **Einblicke in neue qualitätssichernde Montagemethoden bei WEA auch für hochfeste Schraubverbindungen über M36. Sind wartungsfreie Schraubverbindungen für Windenergieanlagen eine Vision ?**
P. Junkers, J. Lindemann, HYTORC-S Barbarino & Kilp GmbH

1.3 **Energy Output Optimisation of Wind Power Stations by Influencing Specifically the Aerodynamic Behaviour of the Rotor Blades**
M. Seidel, T. Rische, cp.max Rotortechnik GmbH & Co. KG

1.4 **Structural Condition Monitoring System (SCMS) for Wind Energy Plants**
H. Lange, P.E.Concepts

1.5 **Schwingungsberuhigung von Windenergieanlagen - Unterscheidung von aerodynamischer und massenbedingter Rotorunwucht**
J. Liersch, M. Melsheimer, Deutsche WindGuard Dynamics GmbH; K. Ohde, TU Berlin

1.6 **Vibration Analysis of Rotor Blades and Balancing of Rotors on Wind Power Devices**
M. Hillmann, T. Rische, cp.max Rotortechnik GmbH & Co. KG

1.7

2 Component Development

2.1 **Initial Experience from Testing of the NewGen - A new Type of Direct-Drive Generator**
S. Engström, Agir Konsult AB, Sweden; S. Waernulf, VG Power AB, Sweden

2.2 **Correct Pre-Tensioning of Large Components**
R. Ploke, P&S Vorspannsysteme AG, Switzerland; F. Crotogino, KBB Schlumberger

2.3 **Ice Sensor for Windmill Blades**
H. Freitag, T. Huth-Fehre, Infralytic GmbH

3 Grid Integration & Systems

3.1 **Compressed Air Energy Storage Plants for Balancing Fluctuating Wind-Power Production**
F. Crotogino, KBB Schlumberger

3.2 **Overload Control by Using Decentralised Energy Management with Access to Adjustable Biogas Generation to Compensate Fluctuating Wind Energy Production**
R. Klosse, ForWind - Center for Wind Energy Research

3.3 **Wind Power and the Grid - Legal Aspects**
C. Corino, REpower Systems AG

3.4 **see Lecture Session 9**

3.5

3.6 **Reactive Power Prediction for Large Wind Farms**
M. Abderrazzaq, Electrical Power Dept. Hijjawi Faculty for Eng. Technology, Yarmouk University, Irbid, Jordan

3.7 **Dimensioning of the Submarine- and Land Cables for the Grid Connection of Offshore Wind Farms**
H. Brakelmann, Uni Duisburg-Essen; F. Richert, GEO mbH

3.8 **Towards HIGH PENETRATION and FIRM POWER from WIND ENERGY (FIRMWIND)**
R. Hunter, Renewable Energy Sys. Ltd (UK); F. Santjer, DEWI

4 Offshore

4.1 **A Conceptual Design for Material and Waste Flow Management at Offshore Wind Energy Farms**
S. Pülschen, H. Albers, Hochschule Bremen, Inst. für technischen Umweltschutz

4.2 **Calculation of Offshore Structures Based on Measured Data from FINO1**
J. Kröning, C. Illig, S. Reiche, DEWI-OCC; T. Fastenau, C. Petri, Plambeck Neue Energien AG

4.3 **Coupling Computation of an Offshore Wind Turbine Simulation**
T. Srisupattarawanit, H. G. Matthies, L. Lehmann, TU Braunschweig

5 Measurements & Testing

5.1 Turbulence Correction of Power Curves
H. van Radecke, FH Flensburg und DEWI Wilhelmshaven

5.2 Strain Gauges- a well Known Tool for Measurements on Wind Mills
T. Kleckers, HBM GmbH

5.3 Measurement of Atmospheric Turbulence with SODAR-System
F. Albers, K. Hanswillemenke, WINDTEST Grevenbroich; G. Warmbier, GWU-Umwelttechnik

5.4 The Influence of Mounting Booms and Towers on Wind Speed Measured by Anemometers
D. Perrin, N. McMahon, L. J. Crane, Inst. for Numerical Computation and Analysis, Ireland; B. Hurley, Airtricity Limited, Ireland

5.5 Vertical Profiles of Wind Data - An Ultimate Factor in Multiple Energy Exploitation
M. R. Pereira de Araujo, L. Su E, M. Boechat de Medeiros, R. Zely Figueiredo de Carvalho, ENERBRASIL - Energias Renováveis do Brasil Ltda, Brazil

5.6 Rotorblatttest - in Zukunft ohne Risiko?
M. Melsheimer, J. Liersch, Deutsche WindGuard Dynamics; R. Stoer, EUROS Entwicklungsgesellschaft für Windkraftanlagen mbH

5.7 Fiber Bragg Grating Sensors to Monitor the Rotor Blades of Wind Turbines - Criteria and Method to put them to the Best Possible use
K. Krebber, W. Habel, Bundesanstalt für Materialforschung und -prüfung, Fachgruppe Mess- und Prüftechnik; Sensorik, Projektgruppe Faseroptische Sensorik; C. Schram, GE Energy

6 Simulation

6.1 Wind Power Forecasts for the North and Baltic Sea
J. Tambke, M. Lange, U. Focken, ForWind

6.2 Integrated Web-based Services for the Wind Energy Sector
S. Bofinger, A. Luig, G. Heilscher, Meteocontrol GmbH; F. Ryll, IFF Fraunhofer Institute for Factory Operation and Automation; D. Bosch, BOSCH Maintenance Technologies GmbH

6.3 Dynamic Response of Wind Turbines to Turbulent Wind
J. Peinke, ForWind; A. Rauh, Inst. für Physik, Uni Oldenburg

6.4 Simulation of the Turbulent Flow Behind a Wind Turbine
T. Hahm, H. Oje und S. Wussow, TÜV-Nord e.V.

6.5

6.6 Stochastic Analysis of the Power Output for a Wind Turbine Generator
E. Anahua, M. Lange, F. Boettcher, St. Barth, J. Peinke, Forwind

6.7 Statistical Methods for the Assessment and Detection of Failures of Wind Turbines within a Wind Plant
C. Sourkounis, Ruhr-Universität Bochum; S. Dragosch, M. Kolonko, TU Clausthal; R. Lutgen, Windwärts Energie GmbH

6.8 A Contribution to Analytical Theory of Wind Turbines
R. Zellermann, Steam Turbine Design at B+V Industrietechnik

6.9 Expanding Range of Rotational Speed of Induction Generator in Wind Energy
P. Costa, A. Carvalho, A. Pina Martins, Instituto Politécnico de Viana do Castelo, Portugal

6.10 Enhanced Reliability of Simulation Models of Welded Wind Turbine Components
N. A. Last, M. van Duijvendijk, Mecal Applied Mechanics BV, the Netherlands

7 Wind & Energy

7.1 What a good Wind Index can be Good for
H. Krebs, J. Sebecker, Ingenieurbüro Kuntzsch GmbH

7.2 Wind Assessment for Pumping Applications for Oil Recovery in Patagonia
A. Kunstmann, M. Mansilla, L. Toledo, Centre for Energy Studies, University of Magallanes, CERE-UMAG, CHILE.

7.3 Validation of a Mesoscale Model In Complex Terrain In Southern Brazil
O. A. C. Amarante, F. J. L. Silva, CAMARGO SCHUBERT Wind Engineering, Brazil; M. Brower, AWS Truewind, USA; L. A. J. Procopiak, LACTEC, Instituto de Tecnologia para o Desenvolvimento; Brazil; D. J. Schultz, W. R. Zanin, COPEL, Companhia Paranaense de Energia; Brazil

7.4 The First Iranian Designed Wind Power Plant KAMI 600
A. Ayvazian, Inst. A.Ayvazian & Associates, Iran

7.5 The Wind Index Story, or: The Challenge to Assess 100%
M. Strack, W. Winkler, DEWI

7.6 Spatial Research of the Regionally Installed WTGs and Prediction of Suitable Wind Farm Sites in Germany - a GIS Based Analysis
P. Spengemann, B. Neddermann, DEWI

7.7 InWEnt's Capacity Building Activities Contributing to the Expansion of Wind Energy in Brazil
D. Jackson Schultz, Companhia Paranaense de Energia, COPEL, Brazil; M. Regina Pereira De Araújo, Univ. Fed. Rio de Janeiro, UFRJ/COPPE, Brazil; J. H. Greco Lima, Centro de Pesquisas de Energia Elétrica, CEPEL, Brazil; P. B. De Carvalho Neto, Cia Hidrelétrica do São Francisco, CHESF, Brazil; A. Rocha Filgueiras, Universidade Federal do Ceará, UFC, Brazil

Inserentenliste