

EPE Newsletter Special Issue March 2008

**Wind Power to the Grid - EPE Wind Energy Chapter – 1st Seminar - 27-28 March 2008, Delft
University of Technology - Delft - The Netherlands
Registration open Provisional Programme released:**

<http://etec.vub.ac.be/EPE/03-EPE-WE-Seminar.htm>

Organisation and venue

The seminar will take place on 27 and 28 March 2008, at Delft University of Technology, Delft, The Netherlands. Plenary sessions, lecture and dialogue sessions will be organized in the best EPE tradition to provide maximum networking opportunities. Worldwide experts in the field are expected to take part in the event to exchange best practice and learn from experience with a special focus on industry and technology.

Provisional Programme

Wednesday 26 March 2008

16h00 – 19h30 : Registration
Upload of presentation and full papers and informal reception

Thursday 27 March 2008

9h00 – 10h00: Registration,
Upload of presentation and full papers

10h00 – 10h20: Opening session

Chair: Prof. Tore Undeland, NTNU, Norway

Co-Chair: Prof. Braham Ferreira, Delft University of Technology, The Netherlands

10h20 – 11h00: Lecture session 1: Keynote 1:

Chair: Prof. Tore Undeland, NTNU, Norway

Large scale integration of wind power - opportunities and challenges, Terje Gjengedal, Vice President, Statkraft, Norway

11h00 – 11h30: Coffee break in dialogue session / exhibition area

11h30 – 12h30: Lecture session 2: Off-Shore wind farm integration

Chair: tbd

Co-Chair: Prof. Marta Molinas, NTNU, Norway

27 - Key Components for Future Offshore DC Grids, Christoph Meyer, R.W. De Doncker, Institute for Power Generation and Storage Systems, E.ON ERC, RWTH Aachen University, Germany

23 - Grid Integration of Wind Energy Converters – Experiences of Measurements and Status Quo of Certification Procedures, Thomas Smolka, Wilhelm Schwardt, Karl-Heinz Weck, Certification Office FGH Mannheim e.V.; Matthias Bartsch, ENERCON GmbH, Germany

12h30 – 13h30: Lunch in dialogue session / exhibition area

13h30 – 15h30: Dialogue session and Exhibition

2 - High Power and Medium Voltage Wind Turbines based on Predictive Direct Control Techniques, Gonzalo Abad, Miguel Rodríguez, Faculty of Engineering, University of Mondragon, Spain

4 - Magnetic Levitation for Weight Reduction in Direct Drive Machine, Ghanshyam Shrestha, Henk Polinder, Deok-Je Bang, J.A. Ferreira, Electrical Power Processing Group, Delft University of Technology, The Netherlands

5 - Multipolar double fed induction generator with overturned rotor, Guntis Dilevs, Leonids Ribickis, Faculty of Power and Electrical Engineering, Riga Technical University; N.Levins, V.Pugachevs, Institute of Physical Power Engineering, Latvia

7 - Pumped storage for balancing wind power fluctuations in an isolated grid, Jon Are Suul, Tore Marvin Undeland, Department of Electrical Power Engineering, Norwegian University of Science and Technology, NTNU; Kjetil Uhlen, SINTEF, Norway

8 - Modeling of battery-charging wind turbines with yaw-axis furling, Justin Reed, Giri Venkataramanan, University of Wisconsin-Madison, USA

9 - Design and control issues for DC based wind farms, Lena Max, Division of Electric Power Engineering, Department of Energy and Environment, Chalmers University of Technology, Sweden

10 - Grid Support Possibilities from Variable Speed Wind Turbines—A Review, Nayeem R. Ullah, Torbjörn Thiringer, Department of Energy and Environment, Chalmers University of Technology, Sweden

13 – Vector control of a doubly fed induction generator for stand alone wind energy application, Sarath B Tennakoon, Hadi El-Helw, Engineering Research Group, Faculty of Computing, Engineering and Technology, Staffordshire University, United Kingdom

14 - New HVDC-Concept for power transmission from offshore wind farms, Thorsten Völker, C. Mehler, H. Raffel, B. Orlik, Institut für elektrische Antriebe, Leistungselektronik und Bauelemente (IALB), Universität Bremen, Germany

15 - Reactive control through interperiodic time varying virtual impedance, Tore Skjellnes, SmartMotor AS; Lars E. Norum, NTNU, Norway

19 – Decoupling observers in diagnosis of wind turbine, Wojciech Jarzyna, Michał Charlak, Electrical Drive Systems Department, Lublin University of Technology, Poland

20 - Dual sequence field oriented controller of DFIG under unbalanced grid voltage condition, Y. Zhou, P. Bauer, J. A. Ferreira, Electrical Power Processing, Delft University of Technology; J. Pierik, Energy Research Center of Netherlands, The Netherlands

21 - Simulation of CMV-minimized Direct Power Control for Doubly Fed Induction Generators, Bastian Rückert, Wilfried Hofmann, Dresden University of Technology, Germany

22 - LCL filter design and comparison of 3 MW wind power multi-level grid converter realized with parallel connection of different inverter topologies, Remus Teodorescu, Stig-Munk Nielsen, Institute of Energy Technology, Aalborg University, Lars Hele, Vestas Wind Systems A/S Denmark

24 - Advanced Power Converter for UNiversal and FLEXible Power Management in Future Electricity Network , Florin Iov, Institute of Energy Technology, Aalborg University, Denmark; Jon Clare, University of Nottingham, United Kingdom

15h30 – 17h00: Lecture session 3: System consideration on wind energy

Chair: Prof. Rik De Doncker, RWTH-ISEA, Aachen, Germany

Co-Chair: Philip Kjaer, Chief Specialist Technology R&D, Electrical Systems, Vestas, Denmark

18 – Energy storage: a condition for feeding the electrical grid from natural sources, Werner Leonhard, Institut für Regelungstechnik, Technical University Braunschweig, Germany

26 – Impedance of DTC controlled grid side converters with LCL filters in the frequency range 100 Hz - 9 kHz, Jouko Niiranen, ABB Oy, Helsinki, Finland

28 – A model for techno-economic optimization of wind power combined with hydrogen production in weak grids, Christopher J. Greiner, NTNU; Magnus Korpaas, SINTEF Energy Research, Trondheim; Terje Gjengedal, Statkraft, Oslo, and NTNU, Trondheim, Norway

17h00 – 18h00: Panel discussion: Where is the future of wind energy

Chair: Prof. Tore Undeland, NTNU, Norway

Panelists:

Prof. Werner Leonhard, Institut für Regelungstechnik, Technical University Braunschweig, Germany

Terje Gjengedal, Vice President, Statkraft, Norway

Philip Kjaer, Chief Specialist Technology R&D, Electrical Systems, Vestas, Denmark

19h30 – : Gala evening, Aula, Delft University of Technology

Friday 28 March 2008

9h00 – 9h40: Lecture session 4: Keynote 2:

Chair: Henk Polinder, Delft University of Technology, The Netherlands

Solid modeling program features to aid in rapid wind turbine design, Prof. Alex Slocum, MIT, USA

9h40 – 10h40: Lecture session 5: Drivetrain systems

Chair: Prof. Alex Slocum, MIT, USA

Co-Chair: Jouko Niiranen, ABB Oy, Helsinki, Finland

12 - Stiffness and load free transmission error for the Multi-Flexible-Body-Dynamics (MFBD) Simulation of a wind turbine gearbox using a FE-based tooth contact analysis, Tobias Röthlingshöfer, C. Brecher, C. Gorgels, Werkzeugmaschinenlabor der RWTH Aachen, Germany

3 - Promising Direct-Drive Generator System for Large Wind Turbines, Deok-Je Bang, Henk Polinder, G. Shrestha and J. A. Ferreira, Electrical Power Processing, DUWIND, Delft University of Technology, The Netherlands

10h40 – 11h10: Coffee break

11h10 – 12h40: Lecture session 6: Power electronics aspects

Chair: Prof. J. A. Ferreira, Delft University of Technology, The Netherlands

Co-Chair: Christoph Meyer, RWTH-ISEA, Aachen, Germany

2 - High Power and Medium Voltage Wind Turbines based on Predictive Direct Control Techniques, Gonzalo Abad, University of Mondragon, Spain

16 – Reliable and easy, Power semiconductors, for multi-MW wind turbines, Udo Littmann, Jürgen Schiele, Michael Slevén, Infineon Technologies AG, Germany

6 - Loss and rating considerations of a wind energy conversion system with reactive compensation by Magnetic Energy Recovery Switch (MERS), Jan Wiik, Takanori Isobe, Kazuhiro Usuki, Ryuichi Shimada, TITECH, Japan; Arkadiusz Kulka, Marta Molinas, Tore Undeland, NTNU, Norway; Taku Takaku, FDT, Japan

12h40 – 13h40: Lunch

13h40 – 15h10: Lecture session 7: Grid control issues

Chair: Terje Gjengedal, Statkraft, Norway

Co-Chair: Benoit Robyns, HEI, Lille, France

1 – Resonance in the AC-Connected Offshore Wind Farms, Juriy Plotkin, Uwe Schaefer, Rolf Hanitsch, Institute of Energy and Automation Technology, Department of Drive Technology, Berlin University of Technology, Germany

17 – Experiment of a wind generator participation to frequency control, Vincent Courtecuisse, M. El Mokadem, C. Saudemont, B. Robyns, Lille, France; Jacques Deuse, Tractebel Belgium

25 - Report from ETG-meeting on Wind energy, Regulation and stability, Guenther Brauner, Institute for Power Systems and Energy Economics, Vienna University of Technology (TU Wien), Austria

15h10 – 15h30: Closing session

Chair: Prof. Tore Undeland, NTNU, Norway

Co-Chair: Prof. Braham Ferreira, Delft University of Technology, The Netherlands

15h30 – 16h30: Visit of EPP Laboratory of Delft University of Technology

Information and Registration

Additional information: <http://etec.vub.ac.be/EPE/03-EPE-WE-Seminar.htm>

Venue

The venue of the seminar is the campus of Delft University of Technology. The city of Delft is located about 50 km from Amsterdam airport. Delft can easily be reached from the airport by train, with a service every half hour.

The city is famous from the painter Johannes Vermeer, from Delft blue pottery and from links with the Dutch Royal Family. It has a nice historical centre with buildings from the 17th century, musea, canals and many small restaurants. The campus is located at walking distance from the city centre (20 min).

EPE Wind Chapter Committees

EPE Wind Chapter Board

- Prof. Tore Undeland, NTNU, Trondheim, Norway
- Prof. Rik De Doncker, Aachen, Germany
- Prof. Braham Ferreira, Delft University of Technology, The Netherlands
- Prof. Torbjörn Thiringer, Chalmers University of Technology, Sweden
- Dr Phillip C. Kjær, Vestas Wind Systems A/S, Denmark
- Prof. Sjoerd de Haan, Delft University of Technology, The Netherlands

EPE Wind Chapter Advisory Council

- Prof. Tore Undeland, NTNU, Trondheim, Norway
- Prof. Marta Molinas, NTNU, Trondheim, Norway
- Dr. Henk Polinder, Delft University of Technology, The Netherlands
- Dr. Jouko Niiranen, ABB, Finland
- Dr. Philip C. Kjær, Vestas Wind Systems A/S, Denmark
- Prof. Torbjörn Thiringer, Chalmers University of Technology, Sweden

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