Into this fourth year, this workshop has developed into one of the premier conferences in its field. The workshop provides an international forum for researchers, engineers, economists and practising engineers in the fields of wind energy technologies, and transmission technologies/ systems, from around the globe to exchange knowledge and discuss their experience.

A major goal of this workshop is to develop a platform for discussing and sharing ideas and knowledge regarding the key issues. An important part of the workshop will be devoted to in-depth discussions and brainstorming.

**Special: Eltra Day on 22, October**

Eltra will hold a special seminar presenting Eltra’s practical experience with large scale integration of wind power. Depending on the interest of attendance and the weather conditions, there will be an opportunity for a sightseeing flight to Horns Rev, the largest offshore wind farm in the world. The Cost of the flight are 900 SEK per person and booking for the flight must be made before August 31, 2003.

### Registration Fee:

- Early bird registration between 21 July and 31 August is 4,000 SEK (~435 Euro) per person. Registration fee after August 31 is 4,500 SEK (~490 Euro). Participation in the ELTRA day on the 22 October is free, but registration is necessary. Also register and pay for the flights to Horns Rev by August 31.

### Preliminary Program

**Monday 20 October 2003**

**Session 1 - The Danish Perspective**
- **Impacts Of Large-Scale Wind Power On The Power Market**, Berit B. Kristoffersen et al. Eltra;
- **Integration Of Wind Power In The Grid In Eastern Denmark**, C. Rasmussen et al. Elkraft;
- **The Active And Reactive Power Control System For The Horns Rev Offshore Wind Farm And The Results Of Its Commissioning**, Peter Christiansen, Jesper R. Kristoffersen, Tech-wise A/S, Denmark;
- **Energy System Analysis of Large-Scale Integration of Wind Power**, H. Lund, Aalborg University, Denmark

**Session 2 - Worldwide Experience**
- **Integration Of 6.000 MW Offshore Wind Energy In Dutch Electrical Grid**, J.W. Cleijne et al. KEMA;
- **Offshore Wind Power In German Transmission Networks**, M. König et al., E.on, Germany;
- **Experience With Large Scale Integration Of Wind Power**, Herman Annendyck, EPRI, USA.

**Session 3a - Energy Management**
- **Simulation Model Including Stochastic Behaviour Of Wind Power**, Jens Pedersen et al. Eltra, Denmark;
- **Analysis Of Large Scale Integration Of Wind Power In Regional HV-Grids Using Probabilistic Power Flow**, Diedrichs et al., Germany;
- **Dimensioning Of Wind Power Plants In Areas With Limited Transmission Capacity**, Julija Matevosyan, Royal Institute of Technology, Stockholm, Sweden;
- **Integration Of Large Offshore Wind Power Into Energy Supply**, B. Ernst et al., ISET, Germany;

### International Advisory Committee:

Göran Andersson - ETH, Switzerland
John Eli Nielsen - ELTRA, Denmark
Paul Gardner - Garrad Hassan, UK
Siegfried Heier - ISET, Germany
Hans Knudsen - DEA, Denmark
Lennart Söder - KTH, Sweden
Lawrence E. Jones - ALSTOM-EAI, USA

**Royal Institute of Technology**
Graduate School of Technology and Management
Stockholm, Sweden

Special this year: ELTRA day on 22 October including a seminar about ELTRA’s experience with the large-scale integration of wind power and the opportunity to visit Horns Rev, the largest offshore wind farm in the world.

**Bring your kids, Legoland will still be open!**
Tuesday 21 October 2003

Session 5 - Wind Turbine Modelling
- Dynamic Phasor Modeling Of The Doubly-Fed Induction Machine In Generator Operation, Emmanuel Delaen et al., Univ. Paris-sud, France;
- Direct Drive Synchronous Machine Models For Stability Assessment Of Wind Farms, Markus Pöller et al., DlgSILENT GmbH, Germany;
- Validation Of DFIG Model Using 1.5 MW Turbine For The Analysis Of Its Behavior During Voltage Dips In The 110 kv Grid, Jens Fortmann, REpower Systems, Germany.

Session 6a - Grid Network Integration I
- Consideration Of System Requirements For Wind Farms During Grid Faults, M.J. Lahtinen et al., Fingrid Oyj, Finland;
- Integration Of A 300 MW Wind Park At Fladen, Kattegatt, Into The Swedish 130 kv Grid, Kjell Jonasson, Göteborg Energi AB, Sweden;
- About Possibilities To Integrate Wind Farms Into Estonian Power System, Olev Liik et al., Tallinn Technical University, Estonia;
- Installation Of A Fault Current Limiter As An Alternative To Upgrade Substation Equipment, Magnus Öhrström et al. Royal Institute of Technology, Stockholm, Sweden;

Session 6b - System Operation
- Scheduling Of Wind Generation Resources And Their Impact On Power Grid Supplemental Energy And Regulation Reserves, Yuri V. Makarov, California Independent System Operator, USA;
- Two Wind Power Prognosis Criteria And Regulating Power Costs, C.S. Nielsen, et al., Technical University of Denmark, Lyngby, Denmark;
- Utility Planning And Operational Security Standards And Their Application To Wind Based Power Sources, D. Bailey, et al., PB Power, UK;
- The Effect Of Large-Scale Wind Power To A Thermal System Operation, Hannele Holttinen, VTT Finland;

Session 7 - Grid Integration Issues II
- Vestas Handles Grid Requirements: Advanced Control Strategy For Wind Turbines, Sigrid Bolik et al., Vestas Wind Systems A/S, Denmark;
- Power System Dynamic Performance Improvements From Advanced Power Control Of Wind Turbine-Generators, Nicholas W. Miller, GE Power Systems, USA;
- Short CircuIt Behaviour Of Wind Energy Converter - Advanced Features Of Enercon Infeed Inverter Concept, S. Hartge, ENERCON, Aurich, Germany.

Wednesday 22 October 2003
Eltra Day and Flight to Hors Rev

Organisers/Contact Details:

Web Page: http://www.ekc.kth.se/ees/workshop/offshore

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