

POSTERS

1. Market potential

Markbygden 1101 - Wind power on a large-scale in the north of Sweden

Kristina Falk and Helena Karlsson, Svevind

2. Mapping and forecasts of icing

Energy production loss estimation method due to atmospheric icing of wind turbines

Tomas Wallenius and Ville Turkia, VTT

Icing surveillance and icing portal

Patrik Jonsson, Combitech AB

Measured power losses in wind power plants due to icing

Rolf Westerlund, HoloOptics

LID3300IP Ice detector, reliability and safety for arctic wind turbines

Pasi Hautamäki and Ole Martola, Labkotec

Modelling of ice induced power losses and comparison with observations

Matthew C. Homola, Muhammad S. Virk, Per J. Nicklasson and Per A. Sundsbø, Narvik University College

Estimating ice loads at exposed masts and towers

Knut Harstveit, Kjeller Vindteknikk

Ice accretion prediction on wind turbines based on a combined LES-LPT method

Robert Szasz (Lund University) and Laszlo Fuchs (Royal Institute of Technology)

Potential considerations with weather forecast modeling of wind-turbine icing

Gregory Thompson and Sue Haupt, NCAR

Numerical modeling of crossed wind and icing site specific characterization

German Delgado (Vortex), Pau Casso (Vortex), Pep Moreno (Vortex), Gil Lizcano (Vortex, University of Oxford), Josep Calbo (University of Girona), Luis Prieto (Iberdrola Renovables), Antonio Angulo (Alstom Power), Rafael Zubiaur (Barlovento Recursos Naturales)

IceWind - a new Nordic R&D project

Clausen, N.-E., G. Giebel, H. Holttinen, K. Jónasson, A.K. Magnusson

3. De-icing and anti-icing technologies

Technical assessment of two blade heating systems in the Austrian Alps

Andreas Krenn, Hans Winkelmeier, Energiewerkstatt

REpower MM92 icing experiences and solutions

Martin von Mutius, REpower

Anti-Icing/de-icing solution developments

Dennis Shymanski, EcoTEMP

IEA Task 19 national overview - Swedish activities in measurements and mapping of icing and de-icing of wind turbines

Göran Ronsten, WindREN

4. Low-temperature adaptations

Innovative solution for assembling joints of a tubular tower for wind turbines

Milan Velkovic and Christine Heistermann, Luleå University of Technology

Field validation of Suzlon 1.5 MW WEC at cold climate conditions

Jan Broekel, Suzlon

5. Standards, certifications and recommended practices

COST Action ES1002 - WIRE: Weather Intelligence for Renewable Energies

R. Cattin, A. Heimo, and B. Calpini

6. Health and safety

None

7. Non-technical considerations

Ex Post Compensation for white-tailed eagle (*Haliaeetus albicilla*) impacts at the Smøla wind farm: An application of equivalency analysis

Scott G. Cole, Centre for Environmental and Resource Economics, Swedish Agricultural University, Sweden and ESPEN LIE DAHL, Norwegian Institute for Nature Research, Trondheim, Norway.

8. Operations and maintenance

Predictive maintenance,

Birgit Bach-Valeur, Siemens Wind Power A/S

Frequency response of magnetically damped wind vane

Eric Bechhoefer, Lawrence Jacobs, NRG Systems

9. Permission requirements

None

10. Other cold climate issues

The EDISON wind power project - Electric vehicles in a distributed and integrated market using sustainable energy and open networks

Anders Quitzau, IBM Denmark Innovation Network

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CONFERENCE PROGRAMME

09.00–10.30 REGISTRATION & EXHIBITION

INTERNATIONAL EXPERIENCES country presentations

Chair: Fredrik Lindahl, Swedish Wind Power Association

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- 10.30–10.40 **Welcome to Umeå** Fredrik Lindahl, Swedish Wind Power Association – Göran Ernstson, Umeå Energi
- 10.40–11.00 **A European perspective on Wind Energy (WE) in Cold Climates (CC)** Jos Beurskens, Chairman WG2, TPWind
- 11.00–11.30 **WE development in China with a focus on CC** Zou Fan, CWEA
- 11.30–12.00 **The latest in US development of WE** Ian Baring-Gould, NREL

12.00–13.30 LUNCH IN RESTAURANT ÄPPLET & EXHIBITION

INTERNATIONAL EXPERIENCES country presentations

Chairs: Timo Laakso, Pöyry and Sven-Erik Thor, Vattenfall

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- 13.30–14.00 **Sweden**
Stefan Lundmark, Ministry of Industry and Trade
- 14.00–14.30 **Norway**
Andreas Thon Aasheim, Norwea
- 14.30–15.00 **Canada**
Antoine Lacroix, NRCan
- 15.00–15.30 **The Alps – windy but also icy**
Andreas Krenn, Energiewerkstatt & René Cattin, Meteotest

PRAKTISK PROBLEMLÖSNING ny teknik

Moderator: Lennart Värmbj, regeringens vindkraftsamordnare

GRIM



- 13.30–14.00 **Anvendelse av høy-oppløste værvarslingsmodeller for energiestimering - utfordringer i kaldt klimaat**
The use of high resolution prediction models for energy assessment - challenges in cold climate
Gard Hauge, StormGeo
- 14.00–14.30 **Från ett bottenfruset läge till ett uppvärmt**
From a bottom frozen state to a heated
Göran Andersson, Wind System
- 14.30–15.00 **Översikt och nulägesanalys över befintlig teknik för av-
isning av turbinblad vid etablering av vindkraft i kallt
klimat med risk för isbildning**
*State of the art and benefit of de-icing and anti icing
technologies for wind turbines operating in areas with
icing conditions*
Hans Gedda, H Gedda Consulting
- 15.00–15.30 **Radarbaserat hindervarsling-system**
Radar based on-demand lighting systems
Shahzad Abid, OCAS A/S

15.30–16.00 EXHIBITION & POSTER SESSION

INTERNATIONAL EXPERIENCES

IDUN



Chairs: Andreas Krenn, Energiewerkstatt and
Lars Tallhaug, Kjeller Vindteknikk

- 16.00–16.30 **Finland and IEA RD&D Wind**
Hannele Holttinen, VTT
- 16.30–17.00 **IEA RD&D Wind, Task 19**
Timo Laakso
- 17.00–17.30 **The new GL-Technical note for cold climate**
Mike Woebbecking, GL
- 17.30–18.00 **Safety issues**
Bengt Göransson, Vattenfall Power Consultants

PRAKTISK PROBLEMLÖSNING goda exempel & visioner

GRIM



Moderator: Lennart Värmbj, regeringens vindkraftsamordnare

- 16.00–16.30 **Vind- och arbetskraft, en studie av Havsnäs Vindkraftpark**
Wind- and manpower, a study of Havsnäs Windfarm
Karin Liinasaari, Strömsunds kommun
- 16.30–17.00 **Skellefteå Krafts vindkraftsatsningar – dåtid, nutid och framtid**
Wind Power at Skellefteå Kraft - Yesterday, Today and Tomorrow
Stefan Skarp, Björn Sundlöf, Daniel Eriksson,
Thomas Mannelqvist, Skellefteå Kraft AB
- 17.00–17.30 **Optimer værdien af din vindkraftproduktion i 25 år**
Maximise the value of your wind the next 25 years
Dirk Kaiser and Jens Tang, Nordjysk Elhandel
- 17.30–18.00 **Framtidens energi**
Energy in the future
Anders Wijkman, Svensk Vindkraftförening
och Stiftelsen Tellberg Foundation

18.00–19.30 DRINKS & REFRESHMENTS IN THE EXHIBITION AREA

19.30–02.00 CONFERENCE DINNER THROUGH THE COURTESY OF UMEÅ ENERGI IN RESTAURANT ÄPPLET



Presentations made in English



Presentations made in Swedish

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CONFERENCE PROGRAMME

PRAKTISK PROBLEMLÖSNING haveriutredningar

Moderator: Göran S Eriksson, Svensk Vindkraftförening



08.30–09.00 Skade- och haveriutredningar. Syfte – Utförande – Nytt
Failure- and Accident analysis. Purpose – Procedure – Benefits
Marcus Claseryd, Exnova

09.09–09.30 Växellådor i kallt klimat
Gearboxes in cold climate
Andreas Horste, Respond

Nyhet!

09.15–09.30 Presentation of Volvo C30 Electric
Volvo Personvagnar AB

LATEST INTERNATIONAL RESEARCH mapping of icing

Chairs: Antoine Lacroix, NRCan and Mira Hulkkonen, Pöyry



08.30–08.50 Windpower in cold climates – Vindforsk project V313
Hans Bergström & Petra Thorsson, Uppsala University - Per
Undén, Esbjörn Olsson & Ulf Andrae, SMHI - Stefan Söderberg,
Weathertech Scandinavia

08.50–09.10 Analysis of the icing conditions for offshore wind power
in Norwegian waters – Øyvind Byrkjedal, Knut Harstveit, Reiar
Kravik, Anne Line Løvholm & Erik Berge, Kjeller Vindteknikk

09.10–09.30 Climatological estimate of icing frequency at the Puijo, Fin-
land meteorological tower – Ben C. Bernstein & Ian Wittmeyer,
Leading Edge Atmospheric - Jarkko Hirvonen & Erik Gregow,
FMI

09.30–10.00 EXHIBITION & POSTER SESSION

PRAKTISK PROBLEMLÖSNING nätutbyggnad i norr

Moderator: Henrik Borgström, ekonomijournalist



10.00–10.30 Planerad utbyggnad i norra Sverige
Grid expansions in northern Sweden
Stefan Lundmark, vindkraftsamordnare region norr

10.30–11.00 Möjligheter för en sjökabel utmed norrlandskusten
*Opportunities for an undersea transmission cable
along the northern coast*
Hans Ohlson, WPD

11.00–11.30 Det unika smarta elnätet
Why Smart Grids are unique
Stig Göthe, ordförande Power Circle

LATEST INTERNATIONAL RESEARCH de-icing needed?

Chairs: Hannele Holttinen, VTT and Tomas Wallenius, VTT



10.00–10.10 TopNano
Kenth Johansson, YKI

10.10–10.30 Wind turbine blade heating – does it pay?
René Cattin, Meteotest

10.30–10.50 Anti-icing: surfaces, technical approaches and status
Nadine Rehfeld, Andreas Stake, Stephan Sell & Volkmar Stenzel,
Fraunhofer IFAM

10.50–11.10 Measuring routines of ice accretion for wind turbine
applications - the correlation of production losses and
detection of ice
Viktor Carlsson, Skellefteå Kraft

11.10–11.30 Wind speed and energy yield analyses at Havnäs wind
Farm
Alan Derrick, RES

11.30–12.30 LUNCH IN RESTAURANT ÄPplet & EXHIBITION

PRAKTISK PROBLEMLÖSNING natur & miljö

Moderator: Henrik Borgström, ekonomijournalist

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- 12.30–12.50 **Klimat i förändring – spelar det någon roll?**
Climate change – does it matter?
Martin Hedberg, klimatanalytiker
- 12.50–13.20 **Vindkraftens påverkan på fåglar och fladdermöss**
The impact of wind power on birds and bats
Martin Green, Vindval
- 13.20–13.50 **Vinterörnar i Forsmark**
Eagles of winter in Forsmark
Jan Pettersson, JP Fågelvind
- 13.50–14.00 **Sveriges ornitologiska förenings vindkraftpolicy**
Daniel Bengtsson, Sveriges Ornitologiska förening

LATEST INTERNATIONAL RESEARCH icing and O&M

Chairs: Ian Baring-Gould, NREL and René Cattin, Meteotest

GRIM



- 12.30–13.00 **Rotor blade icing detection by means of capacitive sensing**
Michael J. Moser & Hubert Zangl, Graz University of Technology
- 13.00–13.30 **On application of systems dependability engineering in design for cold climate compatibility: a case study of wind turbine system**
Idriss El-Thaljijim & Anders Karlsson, Linnaeus University - Egon Leonhardsen, Statoil
- 13.30–14.00 **Simulations vs. observations of supercooled cloud liquid water at ground level; sensitivity to model resolution and cloud microphysics parameterizations**
Bjørn Egil K. Nygaard, Norwegian Meteorological Institute - Jón Egill Kristjánsson, University of Oslo - Lasse Makkonen, VTT-Technical Research Centre of Finland

14.00–14.30 EXHIBITION & POSTER SESSION

DISCUSSION & CONCLUSIONS

Chair: Göran Ronsten, WindREN

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- 14.30–15.45 **Manufacturers and customers, short presentations and panel discussion**
Moderator: Jonas Hållén, formerly reporter at Ny Teknik, now freelance
Christoph Hilling, Enercon – Anders Sjögren, WinWind – Stefan Skarp, Skellefteå Kraft – Michael Henriksson, Nordex – Søren Plagborg, Vestas – Sven-Erik Thor, Vattenfall – Finn Daugaard Madsen, Siemens
- 15.45–16.00 **Conclusions**
Jos Beurskens, Chairman WG2, TPWind



Presentations made in English



Presentations made in Swedish

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