

Providing a clear roadmap for improving and boosting wind farm operational efficiency and economics

Early booking discount until 17 August plus 10% discount for members of The Wind Alliance (see back page for details)

# Optimizing Wind Power Performance

28-29 September 2010, Houston, USA

Advanced strategies for maximizing plant performance, productivity and reliability



Network with leading wind power developers, operators, utilities, OEMs, O&M technical and service providers including:



**Eduardo Perez Jr.**,  
Vice President, Operations,  
**Wind Capital Group**



**Marty Crotty**,  
Chief Executive Officer,  
**Upwind Solutions**



**Gonzalo Stabile**,  
Chief Engineer,  
**enXco**



**John D. White**,  
Managing Director,  
**The Wind Alliance**



**Jean Lemaire**,  
Project Director,  
**Akuo Energy**



**Lawrence D. Willey**,  
Vice President, Operation-Maintenance-  
Service & Warranty,  
**Clipper Windpower**



**Richard Hammill**,  
Vice President, Head of Services, North America,  
**Gamesa**

“Engaged, high profile speakers”

(PV, Sandia National Laboratories, Optimizing Wind Power Performance, Houston, September 2009)

Event Supported By:



“Great job chaps. It was a well-rounded event; wouldn't change a thing. Brilliant!”

(PM, NRG Bluewater Wind, Offshore Wind Power North America, Philadelphia, February 2010)

Plus practical case studies, insight and analysis from:

Harm Toren, Managing Director, Operations Services, **Iberdrola USA**

Will Hayes, Director, O&M, **Acciona Energy North America**

Thomas Siegel, Vice President, Transmission, **First Wind**

Dan Morrison, Vice President Services and Project Management, **Nordex USA**

James Maughan, General Manager, Product Services and Warranty, **GE Wind**

Jacob Norgaard Andersen, Director, Wind Service Americas, **Siemens Energy**

Douglas Adams, Professor, **Purdue University**

Keith Plantier, Program Director, **Texas Wind Energy Institute**

William Mahoney, Program Director, Research Applications Laboratory, **NCAR (National Center for Atmospheric Research)**

Bridget McKenney, Wind Reliability & Analysis Database Lead, Wind & Water Power Technologies, **Sandia National Laboratories**

GPC's Optimizing Wind Power Performance 2010 content-led conference will:

- ✓ Help provide a better understanding of how to maximize wind power project performance, productivity and reliability
- ✓ Address how best to achieve cost-effective operations and O&M strategies
- ✓ Examine advanced concepts and innovative models to improve the performance and reliability of wind turbines
- ✓ Include first hand experiences of business leaders, including 12 CxO/VP presentations

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# Optimizing Wind Power Performance

(JM, Renewable Power Solutions/Great Lakes Offshore Wind Council, Offshore Wind Power North America, Philadelphia, February 2010)

“Excellent”

## Advanced strategies for maximizing plant performance, productivity and reliability

Analysts have suggested that 10% of the annual cost to generate wind power is directly attributable to maintenance and repair. The operation and maintenance of wind turbines is a primary concern for wind plant owners and operators. Towards the end of 2010, more wind turbines in the US will be operating out of warranty than will be covered and this trend will continue through the decade, causing maintenance and repair to become larger issues for project owners.

GPC’s Optimizing Wind Power Performance content-led conference will examine in-depth; end of warranties, service contracts and costs and best practice for maintenance and repair, plus:

- ✓ Discover how best to achieve cost-effective operations and O&M strategies
- ✓ Discuss project operations life cycle costs
- ✓ Explore how to maximize critical grid connection time
- ✓ Understand the importance of advanced condition monitoring, wind forecasting technologies and data analysis for better efficiency
- ✓ Learn how to utilize battery storage to increase wind production
- ✓ Discover how to reduce wind turbine capital costs through technology advancement and improved manufacturing capabilities
- ✓ Discuss advanced concepts and innovative models to improve the performance and reliability of wind turbines



### Who should attend:

- Wind farm owners/operators
- Wind project developers
- Wind power integrators and installers
- Wind technology developers and manufacturers - wind turbine manufacturers, OEMs, wind component manufacturers
- O&M technical and service providers
- Utilities
- Transmission system operators, planners, and reliability authorities
- Finance sector - finance directors and venture capitalists
- Government and regulators - state/provincial and national
- Energy analysts, environmental and engineering consultants and industry press
- Wind power technology research and development companies
- Law firms



### Attendees review our recent Wind Power events

“After seeing the list of confirmed speakers, I immediately knew that this conference would attract the top players in the offshore wind community. And it did!”

(SB, University of Delaware, Offshore Wind Power North America, Philadelphia, February 2010)

“Engaged, high profile speakers”

(PV, Sandia National Laboratories, Optimizing Wind Power Performance, Houston, September 2009)

“Presentations were excellent and relevant”

(LK, OptoAtmospherics, Optimizing Wind Power Performance, Houston, September 2009)

“I got a good picture of the current state of the market, as well as likely future developments”

(LC, Charles River Associates, Wind Power Turkey 2009, Istanbul, December 2009)

## Optimizing Wind Power Performance Conference - Framework of Sessions

Day One	Day Two
<ul style="list-style-type: none"> <li>• Improving Wind Power Project Performance, Reliability and Profitability</li> <li>• Managing Project Operations Life Cycle Costs</li> </ul>	<ul style="list-style-type: none"> <li>• Warranty Costs and Inspection Cycles</li> <li>• Best Practice for Component Maintenance, Parts Management and Inventory Control</li> </ul>
<ul style="list-style-type: none"> <li>• Cost-Effective O&amp;M Strategies - A Strategic Approach to Successful O&amp;M</li> </ul>	<ul style="list-style-type: none"> <li>• Latest Technological Advances in Condition Monitoring, Wind Forecasting and Data Analysis for Better Efficiency</li> </ul>
<ul style="list-style-type: none"> <li>• Maximizing Critical Grid Connection Time</li> <li>• Utilizing Battery Storage to Increase Wind Production</li> </ul>	<ul style="list-style-type: none"> <li>• Improving Reliability and Reducing Maintenance Costs of Wind Turbines</li> <li>• Innovations in Blade Technology, Gearbox Reliability and Advanced Drivetrain Technology</li> </ul>

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Tuesday 28th September 2010 | Conference Day One

08.30 Registration and welcome coffee

09.00 Chair's opening remarks

**John D. White**, *Managing Director*,  
**The Wind Alliance**

09.15 **Keynote Session: Improving Wind Power Project Performance, Reliability and Profitability**

- Evaluating and understanding performance, boosting plant productivity and detecting power losses
- How best to achieve cost-effective operations
- Optimizing wind power generation and increasing profitability
- Maximizing long-term productivity with a higher ROI

**Eduardo Perez Jr.**, *Vice President, Operations*,  
**Wind Capital Group**

**Gonzalo Stabile**, *Chief Engineer*,  
**enXco**

**Marty Crotty**, *Chief Executive Officer*,  
**Upwind Solutions**

**Will Hayes**, *Director, O&M*,  
**Acciona Energy North America**

**Jean Lemaire**, *Project Director*,  
**Akuo Energy**

11.15 Networking refreshment break

11.45 **Managing Project Operations Life Cycle Costs**

- Managing operating costs from start-up to ongoing operations
- The importance of system flexibility and stability, whilst also taking into account LCC (lifecycle costs) performance

**Richard Hammill**, *Vice President, Head of Services, North America*, **Gamesa**

**Douglas Adams**, *Professor*,  
**Purdue University**

12.45 Networking lunch break

## Event Supported By:



The Wind Alliance develops infrastructure, technology and workforce through pre-competitive collaborative projects between industry, academia and government within the U.S. The Wind Alliance is an independent, 501(c)(3) non-profit organization led by John D. White.

## A Strategic Approach to Successful, Cost-Effective O&M Strategies

2.00 **Successful O&M Planning and Scheduling**

- Is a full service contract the best option?
- Advantages and disadvantages of outsourcing vs in-house O&M approach
- Increasing operating efficiency and customising O&M strategies for the long-term to help developers cut total operating costs
- Reducing the cost of O&M

**Dan Morrison**, *Vice President Services and Project Management*, **Nordex USA**

**Lawrence D. Willey**, *Vice President, Operation-Maintenance-Service & Warranty*,  
**Clipper Windpower**

*Further speakers to be announced*

3.15 Networking refreshment break

## Real Time Grid and Generation Management and Wind Variability Issues

3.45 **Maximizing Critical Grid Connection Time**

- Increasing wind plant energy yields and integration into the grid
- Protecting critical integration points to utility's electric systems
- Use of forecasting systems to ensure all potential generated power can be effectively used by operators
- The need for an increase in transmission capacity technology

**Harm Toren**, *Managing Director, Operations Services*,  
**Iberdrola USA**

*Further speakers to be announced*

4.15 **Utilizing Battery Storage to Increase Wind Production**

- The challenges of wind intermittency and variable output
- Delivering predictable power to the grid at a low cost
- Maximizing wind project efficiency by smoothing output and providing energy at off-peak times

**Thomas Siegel**, *Vice President, Transmission*,  
**First Wind**

4.45 Close of day one followed by networking drinks



### Wednesday 29th September 2010 | Conference Day Two

08.30 Welcome coffee and refreshments

09.00 Chair's opening remarks  
**Keith Plantier**, Program Director,  
Texas Wind Energy Institute

#### Best Practice for Component Maintenance, Parts Management and End of Warranty Service

##### 09.15 **Best Practice for Component Maintenance, Parts Management and Inventory Control**

- Best practice for parts management - parts/supply inventory
- Parts procurement and component lifecycle
- Turbine components maintenance vs replacement (new vs repair)
- Costs of parts, labour and repair time
- The need for a component repair strategy and inventory management systems

**James Maughan**, General Manager, Product Services and Warranty,  
GE Wind

##### 09.40 **End of Warranties, Costs and Inspection Cycles**

Towards the end of 2010, more wind turbines will be operating out of warranty than will be covered. This trend will continue through the decade, causing maintenance and repair to become larger issues for project owners.

- Many projects operate with OEM support during the warranty period: what options are there once this is over?
- How are warranties going to change?
- Reducing inspection and repair costs

**Lawrence D. Willey**, Vice President, Operation-Maintenance-Service & Warranty,  
Clipper Windpower

#### Improving Wind Power Performance with Cost-Effective Condition Monitoring and Data Analysis

##### 10.10 **Case Study: Wind Prospecting and Optimization**

- Results of a study of >100 wind parks in the US and China done by the ETH showing underperformance of wind assets
- Explanation of results
- Using risk management tools to solve the key problems

**Eric Achtmann**, LEC - Laboratory for Energy Conversion,  
ETH Swiss Federal Institute of Technology  
Plus leading wind developer

10.35 Networking refreshment break

##### 11.05 **Taking Advantage of Your Data to Increase Reliability**

- Recommended practices in data collection
- How to collect the right data that will provide useful information
- SCADA vs. CMMS: “partners in crime” or providing an integrated story?

- Your role and value-returned in contributing to a national reliability database

**Bridget McKenney**, Wind Reliability & Analysis Database Lead, Wind & Water Power Technologies,  
Sandia National Laboratories

##### 11.30 **Latest Technological Advances in Condition Monitoring, Wind Forecasting and Data Analysis for Better Efficiency**

- Advanced technologies for wind forecasting, measurement and data analysis
- The importance of condition based monitoring to mitigate the costs of design defects
- Latest technological advances in SCADA (Supervisory Control and Data Acquisition) and impact on ROI
- Large-scale challenges and costs of condition monitoring - why should we use it?
- How can you effectively analyse and interpret data when dealing with multiple sites and turbines?

**William Mahoney**, Program Director, Research Applications Laboratory,  
NCAR

*Mr Mahoney will give a case study on how Vaisala, Xcel Energy and NCAR (National Center for Atmospheric Research) joined forces on pioneering projects to take observing and forecasting for wind energy production to the next level*  
Further speakers to be announced

12.30 Networking lunch break

##### 1.30 **Predictive Maintenance Concepts for Turbine Condition Monitoring and Remote Data Analysis**

- Reducing unscheduled service through diagnostics
- Applying predictive maintenance concepts to proactively manage unscheduled maintenance services, to optimize turbine reliability and power generation and increase wind farm profitability
- Detecting deviations in component performance and reducing operating costs

**Jacob Norgaard Andersen**, Director, Wind Service Americas,  
Siemens Energy

#### Advances in Wind Turbine Technology and Optimization Techniques

##### 1.55 **Innovations in Blade Technology, Gearbox Reliability and Advanced Drivetrain Technology**

###### **Gearbox Reliability**

- Monitoring, maintaining and repair to reduce downtime and maximize output

###### **Tracking Rotor Efficiency and Blade Reliability**

- Improving wind turbine blade reliability

###### **Latest Developments in Advanced Drivetrain R&D**

- Ensuring performance, durability and reliability of turbine drivetrain systems

*Speakers to be announced*

3.30 Close of conference

# Optimizing Wind Power Performance

"You had a more diverse set of attendees, many of whom we had not seen at similar conferences"

(JL, Deepwater Wind, Offshore Wind Power North America, Philadelphia, February 2010)



PRE-CONFERENCE - 27 September 2010, Houston, USA

## Wind Power 101

This one-day course brings you up-to-speed with the key, fundamental aspects of wind power. You will learn about the scale, availability and variability of wind energy resources, how wind turbines operate - including their methods and limitations in harnessing the wind's energy - plus the regulatory, planning, construction and operational factors which will decide the commercial success or failure of wind as a power source.

### Who should attend?

No prior knowledge is required, making this course ideal for those in non-engineering roles or new to the industry, plus those from investment, marketing, legal, management and other job functions.

### What will be covered?

#### 1. Wind Power Concepts:

- Key measures and concepts in wind energy and power
- How wind energy varies with speed, height and other factors
- "Average" wind speed measurements and what these really mean
- Wind resources: wind power maps and resources; onshore and offshore

#### 2. Wind Turbines and Farms

- How turbines collect wind energy
- Wind turbine power curves and the basics of operation and control
- Other system components that make up turbines and wind farms
- Challenges in building and operating wind farms, onshore and offshore
- Operational issues: what experience shows about what works and what can go wrong

#### 3. Wind Power Competitiveness

- Wind power variability and solutions to integrate wind into the grid
- Key factors in the commercial viability of wind as a power resource
- Capital and operating cost contributions, including planning and project pitfalls and risks
- The role of policy and regulatory positions on the wind industry

The Green Power Academy exists to provide the quality, impartial, informative and enjoyable training needed to increase and distribute knowledge and skills to green energy industry professionals.

Please visit [www.greenpoweracademy.com](http://www.greenpoweracademy.com) to see all our upcoming courses.

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During the conference, your company can take advantage of various on-site branding and marketing opportunities to increase your global visibility and demonstrate your products to the industry's most influential decision makers.

Early sponsorship of the event will offer extensive brand profiling and exposure in the months leading up to the event with our focused and extensive global visitor and exhibitor marketing campaigns.



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### WindPower Turkey

30 September - 1 October 2010  
Istanbul, Turkey

### WindPower Finance & Investment CONGRESS

November 2010  
New York, USA

### Offshore WindPower

1-2 February 2011  
Boston, USA

Optimizing Wind Power Performance is part of Green Power Conferences' Wind Power Global Series which has been attended by over 700 industry leaders from 28 different countries in the past year.

Previous attendees include: 3E Strategies • AZSEA • ABO Wind • ABS Consulting • Acciona Windpower • AES Corporation • AKER Solutions • Allen & Overy • Alstom Power • Alternative Energy Institute • American Superconductor • Anemos • Apex Offshore Wind • Areva Renewable • Areva T&D • Ataseven • Atmospheric Systems Corporation • AWEA • AWS Truewind • Bayerische Landesbank • Beowulf Energy • Bjerknes Centre for Climate Research • Bluewater Wind • BNP Paribas • Borusan ENBW Enerji • BP Wind • Bureau Veritas • Cape Wind • Catch the Wind • Citizen Campaign for the Environment • Clipper Windpower • Crescent Capital • Customized Energy Solutions • Das Engineering & Energy Investment • Deepwater Wind • Department of Environmental Protection • Department of Natural Resources & Environmental Control • Devonshire Investors • Dexia Credit Local • Dong Energy • Donjon Marine • Dredging International • EESTI ENERGIA • ELC Group • Electrabel • EMEA • EMRA • Endoks Energy • Eneco Wind • Enercon • Energetics Incorporated • Energy Capital Partners • Energy Technologies Institute • Eon Climate & Renewables • Ernst & Young • ESS Group • Eureko • European Commission • European Investment Bank • Eurosolar • Evelop Ontwikkeling • EWEA • Fehily Timoney & Company • Fishermen's Energy • Fortis Bank • Fuji Heavy Industries • Gamesa • Garanti Bank • Garrad Hassan • GDF SUEZ • GE Wind Energy • Global Capital Finance • Global Energy Services • Global Marine Systems • Greenpeace • Gusto MSC • GZAGeoEnvironmental • HATCH Renewable Power • Horizon Wind Energy • Iberdrola Renovables • IBS Research • Invest Northern Ireland • ISI Emerging Markets • ITW Windgroup • Jiangsu JIXIN Wind Energy Technology • Made Tecnologias Renovables • Mainstream Renewable Power • Martifer Energy • Marubeni Power International • Mitsubishi Corporation • Mitsui & Co • Model Enerji • NaiKun Wind Energy • Nass & Wind Offshore • National Renewable Energy Laboratory (NREL) • National Wind Technology Center • Nexans • Normed Shipping • NRG Bluewater Wind • NRG Energy • Office of Offshore Alternative Energy Programs • Offshore Marine Management • Offshore Solutions • Okyanus Energy Production • Platts Renewable Energy • PNE Wind • Polish Wind Energy Association • Power@Sea • PowerWind • Precision Wind • Principle Power • Proserv • Offshore Referans (Hurriyet) • Renewable Energy Systems • Renewable Power Solutions • RenewableUK • Repower Systems • RES Anatolia • RF ENERGY • RMS Energy Wind Farms • RWE nPower • S&C Electric • Sandia National Laboratories • SeaEnergy Renewables • Seaproof Solutions • Second Wind • SENER • Siemens Energy • Skykon • Statoil • Subocean Group • Sun & Wind Energy • Suzlon Wind Energy • TECHNOCEAN • Terna Energy • Tetra Tech • Thomson Reuters • Tidewater Marine • Transmission Capital • Upwind Solutions • Vattenfall • Vestas Offshore • Watson Farley & Williams • WeserWind GmbH • WestLB • Wind Energy Systems Technology • Windcarrier • WindGuard North America • WindLogics • Windtest Kaiser-Wilhelm-Koog • WinPro Energy Group • WinWind • WPD Offshore Solutions

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# Optimizing Wind Power Performance

28-29 September 2010, Houston, USA

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