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CONFERENCE
Chicago

SOLUTIONS

TO BOOM OR NOT TO BUST?

WINDPOWER 2013: Incoming leadership stresses unity and long-term policy to combat looming challenges facing wind energy.

From Staff and Press Reports



COMING OFF A YEAR WHEN WIND ENERGY experienced the highest amount of growth in its history, industry players wasted little time celebrating as they convened in Chicago on May 5-8 for the American Wind Energy Association's annual WINDPOWER Conference and Exhibition.

In 2012, driven largely by the looming December 31 expiration of the Production Tax Credit, wind energy developers installed more than 13GW of new wind energy capacity—exceeding 60GW of total installed wind energy capacity and making wind the leader among all power generation sources in newly installed capacity.

But the driving force behind that rapid growth is now providing uncertainty and instability, as Congress granted only a short-term extension of the PTC as part of the last-minute “fiscal cliff” negotiations early this year.

Overcoming that uncertainty and instability was a central theme throughout the conference, as evidenced by the event's “Solutions for Success” slogan.

American wind power must develop a vision for predictable policies that create a stable business environment and allow the industry to grow to its full potential, industry leaders said during the first day of the conference on May 6.

“That's good news, but it's just another chapter in a story we keep writing every day,” incoming AWEA board chairman and EDP Renewables North America CEO Gabriel Alonso said regarding record installations in 2012 and future growth.

Alonso went on to say that the industry could still be “vibrant and sustainable” if it deployed significantly less than that—to the tune of about 8GW annually. However, a boom-bust cycle brought on by uncertain policies “does not make for a sustainable industry,” he said.

The incoming chairman's comments came during and immediately following the conference's opening session, at which incoming AWEA CEO Tom Kiernan, Iowa Gov. Terry Branstad, Chicago Mayor Rahm Emanuel also spoke.

In spite of the challenges wind energy currently faces, Alonso applauded the industry's recent accomplishments. Aside from the continuous growth, “The technology evolution has been phenomenal over the last few years,” Alonso said, with capacity factors surging right along with the size of blades and towers.

In outlining the association's vision for achieving stability and sustainability within the industry, Alonso described a five-pillar strategy:

First, AWEA must be strengthened so it can better advocate, provide essential data for members' success, develop standards, powerfully convey wind power's compelling message, and do more for the industry.

Second, the industry must strengthen its brand against competitors and unify its message in order for America to truly understand how wind power is good for America.

Third, the industry must develop a long-term plan and strategy that includes clear near-term and mid-term action steps.

Fourth, members of the industry must become united by tapping the power of AWEA, its regional partners, and other vehicles to speak for wind power with one voice.

Finally, “We need YOU,” Alonso said. The number of people speaking to their government representatives, whether in Washington, D.C., or in their communities, must grow manifold, he said. If 100 people today are participating in trips to the nation’s capital to visit with their representatives, that number must become 1,000. “You are powerful,” said Alonso. “You have a message that matters.”

Tom Kiernan, who would officially take on his role as AWEA CEO later in May, was officially introduced to his new industry during the opening session. Kiernan, who was previously president of the National Parks Conservation Association since 1998, and a senior official at the Environmental Protection Agency under President George H.W. Bush, said his passion for wind energy is personal.

“Wind power is clean, affordable, and homegrown,” Kiernan said. “The country needs us to succeed. The natural world needs us to succeed. And frankly, my children and your children need us to succeed.”

Kiernan also echoed Alonso’s call for a new vision. “We need to craft a long-term plan for both the industry and for AWEA,” he said.

Nevertheless, near-term issues will need to be addressed, and Kiernan made that clear. Following the opening session, he made sure that members of the media understood the immediate matter at hand. “To be clear, it is AWEA’s top priority to extend the PTC and ITC.”

Meanwhile, at the afternoon’s Power Session, high-level representatives of AWEA, the National Wildlife Federation, the American Wind Wildlife Institute, and the National Audubon Society joined Jose Zayas, director of the Wind and Water Power Technologies Office at the U.S. Department of Energy (DOE), to launch discussion of a new vision for the wind energy’s future.

According to Zayas, DOE’s new effort will succeed the “20 Percent by 2030” technical report produced by DOE in 2008, and will take into account changes in wind technology, energy markets, and competing forms of energy in the intervening years. “My job,” Zayas said, “is to make sure wind energy is at the table and has a key part to play in the energy mix of the future.”

The process for developing the new strategy, he said, will be a collaborative one much like that employed in developing the 20 Percent report, in which environmental groups, utilities, energy experts and others will be brought together to look at the potential for wind energy in 2020, 2030, and 2050. He said DoE’s goal is to reduce carbon emissions by 80 percent by 2050.

The general session on day two of the conference featured two separate panels of wind industry leaders and prominent wind energy users, who discussed how U.S. wind energy is strongly positioned to build on its growth and status as a mainstream energy source, particularly by capitalizing on its many benefits.

During the panel discussions, industry leaders spoke of how they share the good news that the clean, affordable energy source is a win-win choice for America. The

second panel of corporate purchasers of wind power – including some of the best-known brand names in American business – told how wind energy is saving their businesses money, giving them protection against energy price spikes, and making their communities cleaner.

“The business case for wind is very compelling,” said Paul Gaynor, CEO of First Wind. He satated that wind power is now saving consumers large sums in Massachusetts and Connecticut—to the tune of \$1 billion and \$800 million, respectively.

Oklahoma has embraced wind energy because of the “realization that they have this great wind resource, and the price is very attractive,” said Kevin Walsh, managing director for renewable energy at GE Energy Financial Services.

As the president and CEO of a company in wind energy’s extensive supply chain, Shermco Industries’ Ron Widup offered his own perspective on building political clout for wind power: “We have a three-pronged approach,” he said. “Jobs, jobs, jobs.”

Panelists spoke of the importance of wind, with its long-term power contracts, as fixed-cost insurance against volatile fossil fuel prices. Wind energy, Walsh said, is “a form of hedge because the fuel is free.”

“It’s about long-term stability,” echoed Tim Rosenzweig, CEO of Goldwind USA. “It’s a great way to lock in rates.”

Panelists were bullish on continued improvements in the industry, driving down costs in all facets from technology to finance and improving turbine performance via more output. Turbines are already lasting longer than their 15-20 year expected lifespan, and that durability “will continue to get better and better,” said Widup. That impacts everything from a project owner’s bottom line to the cost of capital for new projects, panelists noted.

The result is that the industry is advancing much more rapidly than anyone might have predicted. Susan Reilly, CEO of RES Americas, highlighted the initiative announced yesterday to expand on the DOE’s 2007 report showing the feasibility of 20 percent wind energy by 2030. “I think that’s incredibly exciting for all of us because we’ve achieved more than what we predicted when the study was first done,” she said.

After industry leaders shared their product’s benefits, corporate purchasers shared their firsthand experience with the product from the user perspective, and provided hard numbers to back up the benefits.

Lee Balin, Sustainability Manager for the Bloomberg’s Global Sustainability Group, reported that his company has saved \$48 million since 2008, thanks to its renewable energy purchases and efficiency programs.

“We believe [in renewable energy] as a hedge against rising fuel prices in the future,” said fellow panelist Greg Butler, Global Supply Chain Stewardship Director in the Office of Global Sustainability at medical technology company BD.

For Walmart, energy is its second greatest controllable expense, said Greg Pool, senior manager for Renewable Energy and Emissions. Saving on renewable energy,

therefore, helps the company's bottom line as well as helping the company in its goal to be a good global citizen, and fostering clean air in communities where it operates—which in itself has economic benefits for the company, he noted. Walmart has set the bold goal of running on 100 percent renewable energy worldwide.

"Walmart is open for business to do wind deals," Pool announced. He said the industry should look beyond utilities to diversify its customer base.

Direct purchases are also in the playbook of fellow panelist Google, which must power its electron-hungry data centers as cost-effectively as possible. The tech giant has entered into PPAs for wind and even invested in projects. It purposely seeks to locate its data centers in close proximity to renewable energy and renewable resources, said Gary Demasi, director of operations for data center location strategy and energy. The company has over 260MW of wind secured through long-term contracts and utility agreements. Available wind power and utilities willing to provide it, he said, "is becoming an increasingly important part of our consideration of where we go and where we grow."

The conference also hosted more than 40 individualized sessions, including specialized technical training courses, presentation sessions, and panel discussions on a wide range of wind energy-related topics. A poster presentation and display drew submissions from more than 200 wind energy personnel.

In total, nearly 600 exhibitors and close to 10,000 attendees filled the WINDPOWER 2013's classrooms and exhibition floor, a sign that despite current challenges, the wind energy industry and its personnel are committed upholding the industry's new pledge toward sustainability, stability, and growth.

Next year's event will mark AWEA's 40th anniversary, and for the first time ever, the site for WINDPOWER 2014 will be in Las Vegas, next May 5-8. Booth reservations are now open and were selling briskly in Chicago. For details, see www.windpowerexpo.org/2014.

NEWS FROM WINDPOWER 2013

AIRGENESIS LLC'S TWIN-ROTOR TURBINE DESIGN SECURES NEW POWER CURVE VALIDATION

Airgenesis LLC, designers of a unique twin-rotor utility-scale wind turbine, has announced that its turbine design has received additional power curve validation and its fourth U.S. patent. Power curve data was created and validated by DARcorp. of Lawrence, Kansas.

Findings show that the double-blade configuration offset at 30 degrees allows the wake of the front rotor miss the aft rotor, producing a 92 percent yield. Increasing rotor speed achieved higher electrical production, at the same time reducing the torque on the drive train.



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DAY 1



DAY 2



DAY 3



WIND SYSTEMS THANKS WINDPOWER GUESTS, CONGRATULATES WINNERS

Wind Systems would like to thank all WINDPOWER 2013 attendees who helped make our conference a success by visiting our show booth in Chicago. Our staff was working diligently to answer your questions and share our vision of becoming your primary source for the latest, most insightful wind energy industry information available.

Each day of the exhibition at 11:30 a.m., *Wind Systems* offered conference attendees a chance to win a DBI-SALA ExoFit NEX harness from Capital Safety (see Product Showcase item on page 51) and a Snap-on toolbox.

Harness winners (top to bottom, above-left): Ben King of Laramie County Community College; Aubrey Friedman of A. Friedman & Associates Inc.; Mark Jones of TenderLand Renewables.

Toolbox winners (top to bottom, above-right): Mark Winward of GE Energy; Travis Johnson, a student at Oklahoma State University-Oklahoma City; and Jenny Jeffrey of Complete Wind Corp.

Congratulations, winners! Thank you for coming by and participating in our drawing. If you came by our booth during the conference, but weren't one of our lucky winners, please visit us next year at WINDPOWER 2014 in Las Vegas!

The Airgenesis double-blade configuration (described at length in the April 2012 issue of Wind Systems; <http://windssystemsmag.com/article/detail/357/>) is capable of producing an unprecedented 11 net MW per tower at 16.5m/s with a 48.8 meter blade length, eliminating any need for government subsidy.

In addition, the structure can begin to produce electrical energy at wind velocities of 3m/s. Designed for maximum efficiency and ease of maintenance, the Airgenesis design results in a lighter and significantly less complicated nacelle.

Once installed, routine maintenance on Airgenesis' towers can be performed at ground level including swapping out generators and clutch systems. The drive system features five 50-foot drive shafts maintaining vibration free operation due to its low rpms, expansion couplers, and thrust bearings. All 12 of the turbine's generators are located at ground level.

The design allows for the relocation of a large portion of the nacelle weight to the base of the tower. A sophisticated mechanical clutch system and integrated ratcheting generator mechanism have nearly tripled the energy production of a single tower.

"This is going to be a game changer for the wind industry," said inventor Danny J. "Skip" Smith of Wheatland, Wyo., who has invested nine years in perfecting Airgenesis' technology. "It may very well make other wind energy turbines obsolete in comparison."

Airgenesis LLC currently has more than 250 patents and patents pending encompassing 144 countries, and final engineering and CAD files are nearing completion. Airgenesis LLC carries no debt and Smith maintains 87 percent ownership.

With engineering development reaching successful conclusion, Airgenesis LLC is currently seeking experienced industry investors/manufacturers to purchase part or all intellectual property including patents, patents pending, engineering drawings, and CAD files for unlimited U.S. and worldwide potentials.

For more information, visit www.airgenesistwind.com.

UPWIND SOLUTIONS AWARDED O&M CONTRACT FOR BP WIND FARMS IN TEXAS AND KANSAS

UpWind Solutions, Inc., a third party provider of asset management operations and maintenance services for the wind energy, announced they have signed O&M agreements for the Trinity Hills, Sherbino 2, and Silver Star 1 wind farms in Texas and the Flat Ridge 1 wind farm in Kansas, representing a combined 485MW of production. The four wind farms are owned by wholly-owned subsidiaries of BP Wind Energy. The contract is for UpWind technicians to perform O&M services on a total of 194 Clipper C-93 and C-96 turbines.

"The geographic location of our regional hub in Sweetwater, Texas and five years of experience working with Clipper technology is what established UpWind Solutions as the strongest independent service provider candidate to take on the operations and maintenance of the four BP Wind Energy sites" UpWind Solutions' CEO Peter Wells said.

The four wind farms provide the equivalent electricity needed to supply over 145,000 average American homes annually.

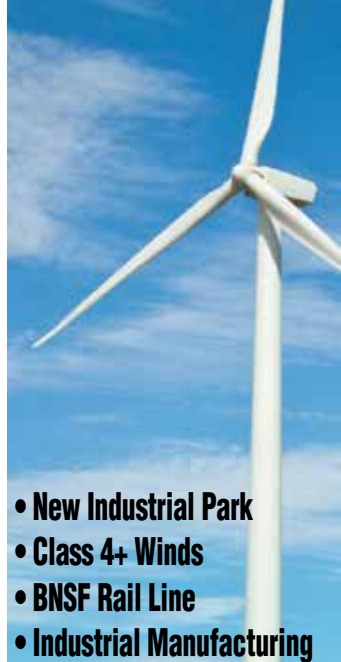
As part of the company's overall approach, UpWind Solutions' technicians not only complete rigorous and comprehensive technical training with a focus on maintaining the highest safety standards in the industry, they are also encouraged to find solutions that optimize wind turbine availability and performance for wind project owners, ensuring the highest return on investment.

For more information, visit www.upwindsolutions.com.

ROMAX LAUNCHES INSIGHT HEALTH MANAGEMENT PLATFORM PREDICTIVE MAINTENANCE SUITE

Recently launched at WINDPOWER 2013, Romax Technology seeks to provide the wind energy industry with a complete health monitoring

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service suite with the InSight Health Management Platform predictive maintenance suite. Following on the heels of its April 2012 software launch, the company now offers comprehensive health monitoring services for a full lifecycle management approach.

InSight leverages Romax's work over the last two decades in drivetrain design, analysis, monitoring and operations and maintenance technical services for onshore and offshore wind farms.

At present, there are many data sources and analytical capabilities, available to monitor different aspects of the drivetrain such as the gearbox and bearings for conditions such as vibration, oil analysis, wind direction and temperature. Romax's world-leading software and services allow a combination of multi-source data to be unified on a single intuitive software platform. When combined with engineering consultancy and turbine maintenance services to ensure optimum turbine reliability and health, Romax provides maximum flexibility and helps mitigate risk.

This launch signifies the continuous development of InSight in response to an increasing industry need to monitor more than just the drivetrain. This means that failures will be detected up to six months in advance, allowing for preventative correction, rather than a costly, complete deterioration of the components.

Based on over two decades of operating in the industry, Romax has recognized a trend in the phases of wind farm health management maturity and has loosely segmented these phases into three groups - "fire-fighting", "managed" and "predictive." The InSight solution enables wind farm owners and operators to evolve from 'fire-fighting' through to managed and ultimately to an optimum state of predictive maintenance. The benefits of this are that operating costs are significantly reduced, maintenance and investment planning improved and revenue and energy generation is increased.

"This latest version of the InSight software combined with our engineering service team will change the way you view your turbine's health" Romax CEO Dr. Peter Poon said. "We are expanding the value and breadth of knowledge we can provide to our customers through an advanced and integrated system approach that works openly with your existing systems. With our expert engineering knowledge and visibility of turbine health, we can recognize warning signs early enough to reduce downtime, and costs to optimize reliability."

For more information, visit www.romaxtech.com.

GL RENEWABLES CERTIFICATION PUBLISHES NEW CMS CERTIFICATION GUIDELINE

GL Renewables Certification has published its new "Guideline for the Certification of Condition Monitoring Systems for Wind Turbines." This guideline was compiled in cooperation with its Wind and Marine Energy Committee. The new guideline, presented at WINDPOWER 2013, covers the most important requirements for the development, installation and operation of condition monitoring systems.

Obtaining economical wind turbine operations is vital in light of initial wind farm development costs. Operators and manufacturers aim to achieve wind turbine availability of more than 97 percent. In order to reduce unplanned downtime, increase availability and to reduce maintenance costs, continuous condition monitoring of wind turbines is indispensable.

The updated guideline reflects the latest developments of condition monitoring systems for wind turbines and future requirements.

"Currently almost all condition monitoring systems are operating independently from the control system and almost exclusively the drive train is monitored," GL RC CMS expert Dr. Karl Steingroever said. "Future condition monitoring systems will be partly or fully integrated into the control system and include the monitoring of the entire wind turbine. In this context the definition of interfaces between the systems is playing a major role."

GL RC's guidelines and technical notes are discussed in its Wind and Marine Energy Committee before publication. The Wind and Marine Energy Committee represents the relevant groups in the field of wind energy. The members of the committee are drawn from public authorities, wind turbine and component manufacturers, engineering consultants, institutes, universities, technical associations and insurance companies.

For more information, visit www.gl-group.com/en/certification/renewables/.

WOMEN OF WIND ENERGY ANNUAL LUNCHEON RECOGNIZES HONOREES

The winners of the Women of Wind Energy (WoWE) Awards were announced May 8 at the annual luncheon held at WINDPOWER 2013. The awards spotlight both prominent industry professionals as well as up-and-coming next generation of leaders.

WoWE continued its tradition of bestowing the "Women of Wind Energy Champion" award on a recipient who has repeatedly gone above and beyond to encourage and support the career development of women in the wind energy sector. All three winners provide examples of achievement, creativity and courage.

"Highlighting and recognizing the stories of incredible women and men like this year's WoWE Annual Award winners is critical not only to recognizing and appreciating their successes but also to help other women in the sector see role models and new career pathways," said Kristen Graf, WoWE Executive Director.

2013 WoWE Award Recipients:

- Champion Award—Ian Baring-Gould, Senior Mechanical Engineer at the National Renewable Energy Laboratory, received WoWE's Champion Award. This newest award seeks to honor an individual who has significantly contributed to the advancement of women in the field of renewable energy through mentoring and professional development that goes beyond expectations as well as advocating for work place practices that

support women in a manner that fosters a path forward. Since the inception of WoWE, Ian has been an active participant in the organization and its membership. Through his involvement with the Wind for Schools program, he has consistently encouraged the involvement of young women. Ian has a deep understanding of the importance of engaging kids at a younger age, particularly girls. Ian is at the forefront of educating the next generation of wind consumers and professionals. As a result of his passion, creativity and commitment, countless women have been inspired and involved in this exciting industry.

- **Woman of the Year**—Lucille Olszewski was honored with the Woman of the Year Award. Each year WoWE seeks out a woman who stands out for her leadership, inspiration, and significant contributions to the expansion and improvement of renewable energy completed at the highest level. Lucille first started in the wind industry in the mid-1980s as a young meteorologist with one of the largest wind manufacturers and developers in the world. During her 30 years in the industry Lucille has developed a keen eye on all fronts having assessed over 9,000MW of planned capacity and sited over 14,000 wind turbines. She has pioneered radio telemetry systems for meteorological data collection and was the first to use cell phone technology for data collection. Lucille is highly respected among her peers and known for her integrity.
- **Rising Star**—Dr. Julie Lundquist, Assistant Professor at the University of Colorado at Boulder with a joint appointment at the National Renewable Energy Laboratory, was honored with the Rising Star Award. This award is given to a woman who is relatively new to wind energy and is already making significant professional contributions by demonstrating unusual talent, dedication and innovation in her renewable energy work. During her time at Lawrence Livermore National Lab (LLNL), Julie's research moved ahead the frontier of wind energy forecasting. She has studied the effects of atmospheric stability and turbulence on wind energy forecasting and wind turbine performance. This research has revealed relationships in the atmospheric boundary layer that affect wind resource assessment and wind energy forecasting. Her work extends beyond traditional academia into how the industry can revolutionize wind resource assessment.

For more information, please visit www.womenofwindenergy.org. ✨



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