

# windy conditions

*integrating this form of power to the grid*

I AM PLEASED TO OFFER THIS ISSUE devoted to the integration of wind-generated power into the electric grid. This is our fourth look at this subject, each coming at two-year intervals. When we last looked, wind power constituted 1.5% of worldwide electricity usage (according to 2008 figures); that number has grown to 2.5% (per 2010 figures). Several countries have achieved relatively high levels of wind power generation, notably Denmark (21%), Portugal (18%), Spain (16%), Ireland (14%), and Germany (9%). During that same period (2008–2010) China has installed approximately 30 GW, a almost four-fold increase in wind generation.

The IEEE Power & Energy Society has been in the forefront of wind-related activities within IEEE, mostly focused in the operations of the Wind Power Coordinating Committee within our Technical Council.

## In This Issue

Our issue contains seven well-written articles that provide background and insight into the issues that pervade this form of generation. The articles emanate from different parts of our world and offer differing insights based on national needs. The overall subject and the articles themselves are described in detail in the guest editorial provided

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by J. Charles Smith and Brian Parsons, but allow me to offer the titles and recognize their authors. In order of appearance, they are:

- ✓ “A Blast of Activity” by Richard Piwko, Mitch Bradt, Ernst Camm, Abraham Ellis, Reigh Walling, and Mark O’Malley
- ✓ “Wind Energy in China” by Liping Jiang, Yongning Chi, Haiyan Qin, Zheyi Pei, Qionghui Li, Mingliang Liu, Jianhua



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- Bai, Weisheng Wang, Shuanglei Feng, Weizheng Kong, and Qiankun Wang
- ✓ “Currents of Change” by Hannele Holttinen, Antje G. Orths, Peter Børre Eriksen, Jorge Hidalgo, Ana Estanqueiro, Frank Groome, Yvonne Coughlan, Hendrik Neumann, Bernhard Lange, Frans van Hulle, and Ivan Dudurych
- ✓ “Driving Forces Behind Wind” by Dale Osborn, Michael I.

Henderson, Bradley M. Nickell, Warren Lasher, Charles Liebold, John Adams, and Jay Caspary

- ✓ “Balancing Act” by Mark G. Lauby, Mark Ahlstrom, Daniel L. Brooks, Steve Beuning, Jay Caspary, William Grant, Brendan Kirby, Michael Milligan, Mark O’Malley, Mahendra Patel, Dick Piwko, Pouyan Pourbeik, Dariush Shirmohammadi, and J. Charles Smith
- ✓ “Models for Change” by Robert Zavadil, Nicholas Miller, Abraham Ellis, Eduard Muljadi, Pouyen Pourbeik, Steve Saylor, Robert Nelson, Garth Irwin, Mandhir S. Sahni, and Dharshana Muthumuni
- ✓ “Atmospheric Pressure” by Mark Ahlstrom, James Blatchford, Matthew Davis, Jacques Duchesne, David Edelson, Ulrich Focken, Debra Lew, Clyde Loutan, David Maggio, Melinda Marquis, Michael McMullen, Keith Parks, Ken Schuyler, Justin Sharp, and David Souder.

## Grid Integration

Our “In My View” column, by Mark O’Malley of the University College in Dublin, Ireland, is titled “Grid Integration.” In that piece Mark offers a comprehensive view of the many parameters that are so integral to the application of renewable forms to the

electric system of today as well as to systems that may evolve in the future. He also offers commentary on the state of the interface between education and industry, which today faces the juxtaposition of renewed student interest in power and energy and limited faculty capacity to support that interest. He calls for attracting researchers into this area, citing as

sources the experience that has been attained from those parts of the world

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and unwavering support. In addition, let me offer thanks to this year's guest

where renewable energy generation is thriving.

### Thank You

In this year's final issue I wish to express my gratitude to the *IEEE Power & Energy Magazine* Editorial Board, to IEEE Power & Energy Society (PES) President Alan Rotz and the PES Governing Board, and to the PES Executive Office for their continuing

editors: Bruce Hamilton, Mohammad Shahidehpour, Hugh Rudnick, Benjamin Kropinski, Robert Margolis, Kevin Lynn, Babak Fahimi, Jianhui Wang, Mani Venkata, Mark McGranaghan, Robert Uluski, Charlie Smith, and Brian Parsons for their yeoman work. I want to offer kudos to Associate Editor Carl Sulzberger, whose history contributions are so vital to the success of this publication. And how could I possibly forget to cite the IEEE professional staff, Geri Krolin-Taylor, Janet Dudar, and Craig Causer who provide guidance and wisdom to an often-beleaguered editor.



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