



CONTACT: Robert Gara  
(206) 239-0111  
[rgara@apcoworldwide.com](mailto:rgara@apcoworldwide.com)

## **3TIER Releases Wind Performance Maps**

*Maps illustrate impact of El Niño in 2009*

**SEATTLE (Feb 4, 2010)** – 3TIER<sup>®</sup> released maps today that plot how average wind speeds in the US differed from their long-term averages in 2009 and illustrate the impact of El Niño, which contributed to a decrease in wind power production in several important wind power regions. El Niño and similar climactic fluctuations are normal, predictable phenomena that can – and should – be accounted for when assessing potential wind power sites or designing a geographically diversified portfolio of sites.

“It is fair to say that only a few areas known for their concentrated wind resources outperformed their average yearly wind speeds,” said Kenneth Westrick, founder and CEO of 3TIER, the global leader in renewable energy information services. “The good news is that we have the scientific expertise and technology to account for these long-term fluctuations, incorporate them into a project’s financials and forecast their occurrence with a considerable degree of certainty.”

3TIER generated the maps using both observational data and numerical weather prediction (NWP) modeling, which illustrate the effect of the El Niño Southern Oscillation on wind speeds. The maps demonstrate that such naturally occurring phenomena have a significant impact on wind power production, and that these impacts are largely predictable and quantifiable using advanced modeling techniques.

“The maps provide an indication of how wind farms should have performed relative to their expected production capacity on a geographic basis, and are consistent with our forecasts throughout the year,” said Dr. Jim McCaa, director of advanced applications at 3TIER. “These modeling techniques can be used proactively to develop more geographically diversified wind portfolios to counter normal climactic fluctuations like El Niño. The long-term climatic variability of individual wind projects can also be predicted to develop more realistic financial models and integration scenarios.”

The maps illustrate departures from the long-term mean that range from -10% to 10% and show a pattern that is indicative of the climate state during the year. In particular, wind speeds on the West Coast are well correlated to the state of El Niño, which started the year with a weak negative index that shifted to a positive one – meaning the onset of El Niño - by fall. A second map for the fourth quarter illustrates the intensifying effects of El Niño.

“The El Niño signal was not particularly strong last year, and its effect on wind energy production will likely weaken as we move from winter to spring. But, depending upon where they are located, even a modest El Niño can have a profound impact on individual

projects,” McCaa said. “Winds for the year were above average in only a few places, notably portions of the Southwest, the southern Great Plains and coastal regions north of the Gulf of Mexico. There were substantially below average winds in the North Central Plains and in the Northeast.”

The map was created by comparing output from 3TIER's continually updated meteorological dataset with wind conditions averaged over the period 1969-2008 from the same dataset. Wind speed values were computed using a NWP model running with a grid spacing of 15 km, and adjusted using available observations.

“There is a tendency to concentrate the development of wind farms in areas that have high average wind speeds and assume that production will be consistent over the long-term,” McCaa said. “However, areas with very good wind resources are not immune from a number of long-term oscillations that have a significant impact on production from year to year.”

It is not only wind, as El Niño also impacts other weather-driven renewables.

“This underscores the importance of understanding wind variability before a project is built, and how that impacts other energy sources,” Westrick said. “El Niño effects are also associated with changes that impact other renewables, such as solar and hydro. Fortunately impacts on these technologies can also be predicted and quantified.”

To learn more about related 3TIER products, please visit: <http://www.3tier.com>.

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## ABOUT 3TIER

Founded in 1999, Seattle-based 3TIER is one of the largest independent providers of wind, solar, and hydro energy assessment and power forecasting worldwide. People around the world turn to 3TIER when they want the best scientific information to make decisions about renewable energy projects — from the prospecting stage to operations. For more information, visit [www.3tier.com](http://www.3tier.com).