

Wind Plant Simulation and Validation

The contribution of wind energy to the electricity supply in the U.S. has rapidly grown to nearly 5% of production at the end of 2014. This growth is due to a number of issues, but the improvement in turbine technology is clearly one contributor that drastically lowered the price of energy generated via wind. Moving forward, new technologies for wind turbines will surely continue to improve their performance, but the impacts in cost will be lower than in the past. To get larger price impacts, the wind energy field must look to other areas for cost reductions including issues such as overall wind plant performance. This talk will first give a brief overview of areas targeted for improvement and will then present some of the ways that these areas are being addressed at the University of Wyoming. In particular, new simulation capability for wind farms will be discussed as will experiments designed to validate this capability.

Jonathan W. Naughton has been a faculty member in the Mechanical Engineering Department at the University of Wyoming since 1997. Dr. Naughton obtained his B.S. from Cornell University in 1986 and his Ph.D. from the Pennsylvania State University in 1993. Dr. Naughton worked for McDonnell-Douglas for two years in the late 1980s and at NASA-Ames Research Center for four years in the mid-1990s. Dr. Naughton's areas of interest include unsteady flows (including turbulence), the instrumentation required to measure such flows, and the analytical techniques critical to interpreting those measurements.

