Advancing Technology in Offshore Wind Energy Systems

Thursday, October 22, 2015
4:00 p.m. | 202 Reed McDonald Building

Abstract

Wind energy is playing a crucial role in providing clean, renewable energy for the expanding needs of the US electricity market. The US Department of Energy’s Wind and Water Power Technologies Office has developed a scenario, as part of the recent Wind Vision study report, for wind energy to provide 10% of the nation’s electricity by 2020, 20% by 2030, and 35% by 2050. And, the conditions are good to reach these ambitious levels: currently 4.5% of US electricity is generated from wind energy and in 2014 the prices offered by wind projects to utilities averaged under 2.5 cents/kWh, an all-time low.

Although significant investments have been made in recent years in offshore wind technology, the US offshore wind market is an untapped opportunity having the benefits of a strong wind resource and close proximity to major population centers along the US coast. However, the primary obstacle has been higher costs for offshore wind energy. Early installations are being planned for shallow water locations where project costs and risks are lower; however, the US has significant potential in deep water locations that require floating systems. Bringing significant offshore wind energy into the mix, of course, requires that the cost of electricity generated from offshore wind turbines be competitive in the marketplace. And, deep-water solutions will be very important for the US.

This seminar will provide an overview of several offshore wind R&D projects at Sandia National Laboratories that have potential to contribute to cost-competitive offshore wind. These project snapshots will cover large blade design studies, novel floating vertical axis wind turbines for deep-water siting, offshore wind farm code development, and structural health monitoring & prognostics management systems.

Dr. D. Todd Griffith is a Principal Member of the Technical Staff in the Wind and Water Power Technologies Department at Sandia National Laboratories. He is the Technical Lead for Sandia’s Offshore Wind Energy Program. Prior to joining Sandia, he completed PhD work at Texas A&M University in Aerospace Engineering. He is an Associate Fellow of AIAA, recipient of an AIAA Distinguished Service award for leadership in wind energy conference development, presenter of over 20 invited seminars (many international), Guest Scholar of the Erasmus Mundus European Wind Energy Masters (EWEM) program at the Delft University of Technology in 2014, advisor to more than 20 students while at Sandia National Laboratories, and organizer & technical program chair of many workshops and conferences in the field of wind energy technology.

Refreshments will be served at 3:45 p.m. | Hosted by Paul Cizmas