



CREW Seminar Series: Spring 2010

Wind Turbine Technology, State of the Art and Future Challenges

Abstract

Wind technology has evolved over the past 30 years. Turbines have sweep out more area than a football field, ingest their own weight in wind every two seconds and produce 23% of Denmark's annual energy needs and 8% in Germany. Spain has reached 40% wind capacity for short periods. It has become the lowest cost renewable energy. It is approaching the cost of coal. Yet with all this progress there are still improvements to needed to make wind energy the lowest cost, most reliable source of energy. Come hear Sandy Butterfield present an overview of wind energy's explosive evolution and what technical challenges remaining for the wind industry.

By Sandy Butterfield from Boulder Wind Power

On Monday, February 22, 2010, at 2:00pm

In Room ECCS 1B28

(CAETE studio, Engineering Center, University of Colorado at Boulder)

Refreshments will be available at 1:45pm



Sandy Butterfield graduated from the University of Massachusetts with a Masters in Mechanical Engineering in 1977 where he studied under Bill Heronemus, famous for his floating offshore wind farm proposals in the early 1970s. He worked at Rocky Flats Small turbine research center as a test engineer, design reviewer and analyst till 1980 when he co-founded ESI, a wind turbine manufacturing company. As Vice President of Engineering he was responsible for the all aspects of design and manufacturing. After selling ESI in 1985 he joined the Solar Energy Research Institute (which later was renamed the National Renewable Energy Laboratory - NREL) as a research engineer. His work at NREL has included

aerodynamics research, testing, design reviews, contract management, manager of the applied research program, leader of the certification / standards program, Chief Engineer and leader of the codes group. Most recently at NREL he was working on offshore wind energy as well as leading NREL's Gearbox Reliability Collaborative.

In December of 2009 Sandy left NREL to lead Boulder Wind Power. As CEO he is leading a talented team in the development of a transformative direct drive turbine technology.

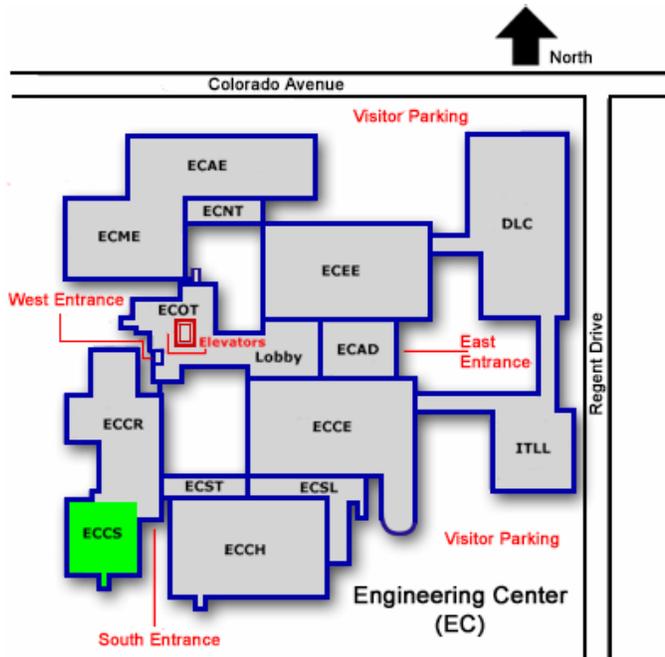
He has authored or co-authored more than 100 papers.



How to get to the CU-Boulder Engineering Center

From 28th Street (Hwy 36), go west on Colorado Ave., which leads into the University. You will see the Engineering Center on the left, one block further along Colorado Ave.

Parking is available at visitor parking lots and nearby meters.



Room **ECCS 1B28** is located in the 1st basement (courtyard level) of the Computer Science Wind (ECCS).

Broadcasting option

While we highly encourage students, faculty and researchers to come attend the seminar in person, the seminar will also be broadcast at the following URL:

URL: <http://dimdim.cs.colorado.edu>

Meeting code: CREW02222010

Unplanned technical problems are always a possibility, so we apologize in advance. Nonetheless, if technical problems are encountered, please feel free to call Mark Dehus at 303-735-6275.

