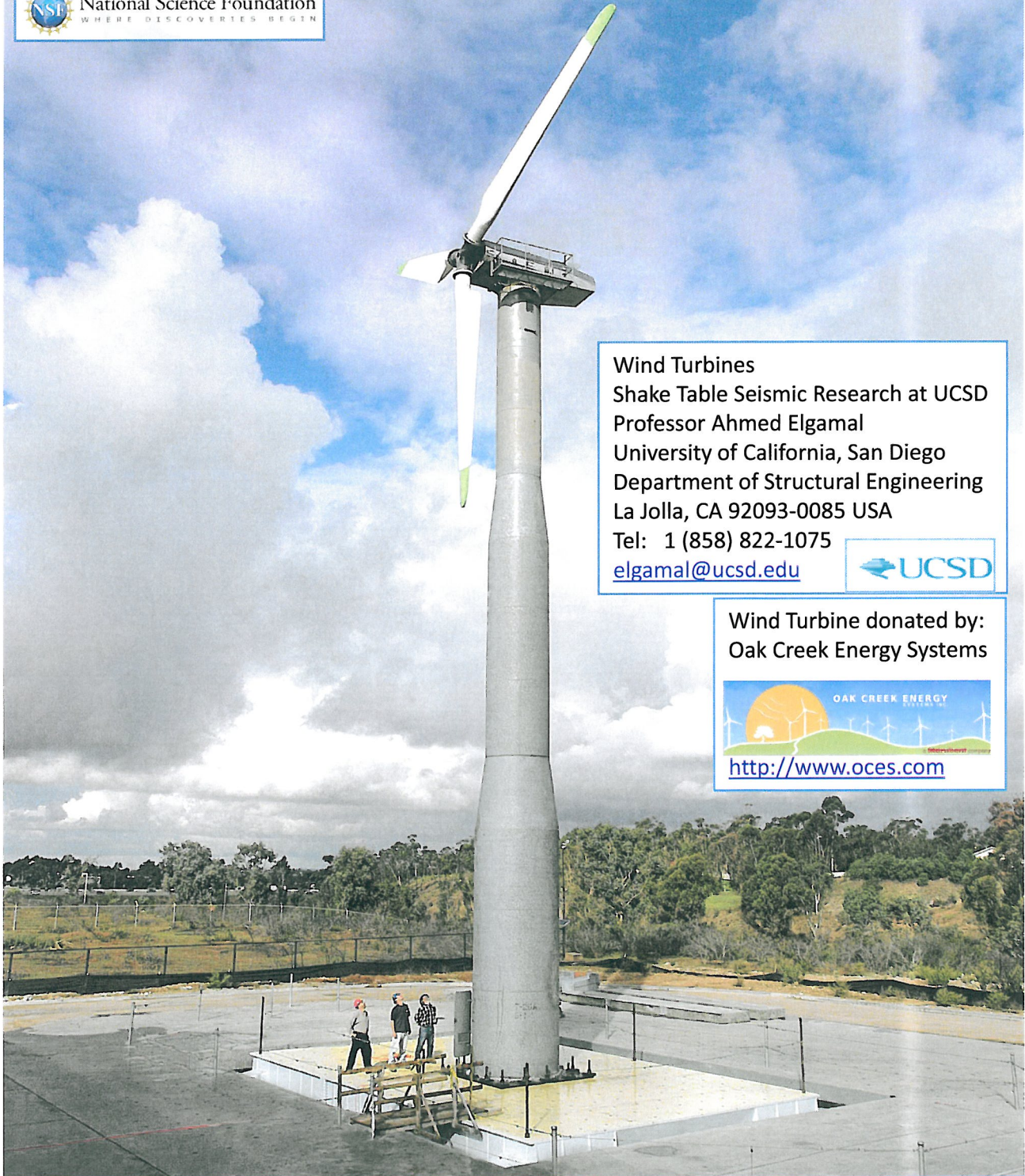



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Wind Turbines
Shake Table Seismic Research at UCSD
Professor Ahmed Elgamal
University of California, San Diego
Department of Structural Engineering
La Jolla, CA 92093-0085 USA
Tel: 1 (858) 822-1075
elgamal@ucsd.edu



Wind Turbine donated by:
Oak Creek Energy Systems

<http://www.oces.com>

Wind turbine Test on the outdoor University of California, San Diego, George E Brown Jr. Network for Earthquake Engineering Research "NEES" Shake-Table (<http://nees.ucsd.edu>)
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The amount of electricity produced from the wind has steadily grown since its introduction in the 1980s and with the introduction of AB 32 is poised to grow substantially in California. Through support from the United States National Science Foundation (NSF, <http://www.nsf.gov>) and specifically via the Network for Earthquake Engineering Simulation (NEES, <http://www.nees.org>) and Oak Creek Energy Systems (OCES, <http://www.oces.com/>), a Gigawatt Wind Energy pioneer, a multiyear investigation into the seismic behavior of wind turbines is underway at the University of California, San Diego (UCSD). This original research started with a forced and ambient vibration monitoring program at Oak Creek Energy Systems (OCES) with the assistance of the University of California, Los Angeles (UCLA) NEES equipment site (<http://nees.ucla.edu>, Dr. Bob Nigbor, Director). Building on the inaugural UCSD NEES shake-table test under the direction of Prof. J. Restrepo, an upcoming expanded second phase of shake-table experimentation will explore the seismic response of an actual 65 kW turbine, standing over 80 feet tall, when subjected to strong earthquake motions. The NEES UCSD outdoor shake-table facility (<http://nees.ucsd.edu>, Prof. J.E. Luco, Director) is the only location in the world that is capable of testing a full scale wind turbine. This research at UCSD is led by Professors A. Elgamal, C.-M. Uang, J.E. Luco, and J.P. Conte. Mr. Ian Prowell, a graduate student researcher at UCSD, is conducting the test program towards his PhD studies. The turbine will be constructed on the shake table at the Englekirk Structural Engineering Center (ESEC, <http://www.jacobsschool.ucsd.edu/Englekirk/>) in mid January 2010, with testing underway through the month of February.

