

# Seminar Series



Join us the second Thursday of every month for a series of "brown bag" seminars, sponsored by the National Renewable Energy Laboratory and the U.S. Department of Energy (DOE). Each seminar is held at NREL's Washington, D.C., office or in Golden, Colorado. Topics focus on new and innovative renewable energy and energy analysis strategies, models, and technologies.



## Web Access and Call-In Information

### Log-In Info

URL for log-in:

<https://www.mymeetings.com/nc/join/>

Conference Number: SA306396

(no passcode is needed)

You also can join the event directly at

<http://www.mymeetings.com/nc/join.php?i=SA306396>

### Call-In Info

To call in: 1-877-989-1543

Passcode: 8864359



# Optimal Design and Financial Analysis of Offshore Wind Systems in Deregulated Power Markets

*A seminar presented by DOE/EERE's Office of Planning, Budget, and Analysis and NREL's Strategic Energy Analysis Center*

**Deniz Ozkan and Michael R. Duffey**  
**George Washington University**

**BONUS - Monday, May 4, 2009**

**10-11 a.m. (Golden, Colo.)**

**Noon-1 p.m. (Washington, D.C.)**

(The seminar is also offered via conference call or Internet conferencing.

See the log-in and call-in information below. **An RSVP is required to ensure that we have enough phone lines and/or seats.** The presenter will be in Washington, D.C.)

This presentation describes the Offshore Wind Integrated Cost Model (OFWIC), a research project now nearing completion at George Washington University (GWU). OFWIC is an open-source model of life-cycle cost that integrates site-specific cost factors not typically included in traditional "cost of energy" modeling. OFWIC first analyzes site data for wind-wave analysis, then determines a site-specific optimal turbine design (and capital cost) using peak and fatigue loads as major design drivers. It then looks at design for the balance-of-station (undersea foundation, farm layout design, etc.), and analyzes factors such as choice of financing structure, project scheduling, and monetized environmental impacts. Finally, the chosen system architecture is integrated into a power market network simulation where there are competing power plants. The value of the wind generation is determined by the current market information, which is a result of load forecasting and bidding within specific time intervals as the units are committed and bids are accepted by the market. An application of the model will be demonstrated for the "Cape Wind" site in Massachusetts.

**Deniz Ozkan** is a doctoral candidate in the Department of Engineering Management and Systems Engineering (EMSE) at George Washington University. She has a master's and bachelor's degree in industrial engineering from Marmara University in Turkey.

**Mike Duffey** is an associate professor in the EMSE Department, where his research and teaching focus is engineering economics and related design methodologies for large engineering systems. He has a doctorate in mechanical engineering from the University of Massachusetts at Amherst.



**Deniz Ozkan**

## Golden, Colo., information

**1617 Cole Blvd., Golden, Colorado**  
**Building 3, Conference Room 170.**

**Please contact Kalia Kehoe at**  
**[kalia\\_kehoe@nrel.gov](mailto:kalia_kehoe@nrel.gov) or 303-384-7439**

## Washington, D.C., information

**901 D Street SW (adjacent to the Forrestal Building)**  
**or 370 L'Enfant Promenade. Ninth Floor.**

**Please contact Wanda Addison, of**  
**Midwest Research Institute (MRI), at**  
**[wanda\\_addison@nrel.gov](mailto:wanda_addison@nrel.gov) or 202-488-2202**

For more information on NREL analysis, please visit  
[www.nrel.gov/analysis](http://www.nrel.gov/analysis)