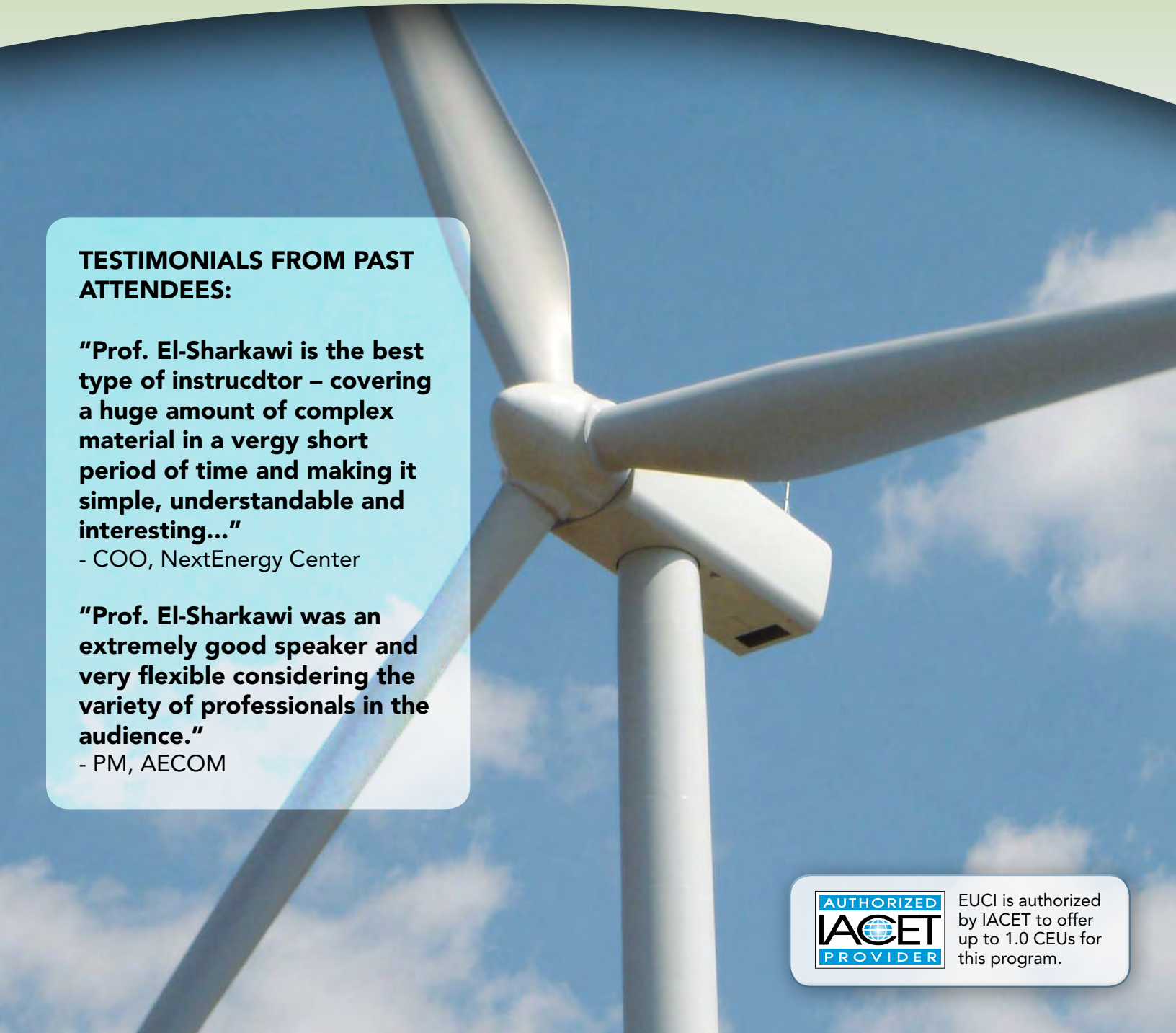
EUCI Presents a Course on:

WIND ENERGY INTEGRATION INTO POWER GRIDS

July 22-23, 2010 • Hyatt Regency Boston • Boston, MA



TESTIMONIALS FROM PAST ATTENDEES:

"Prof. El-Sharkawi is the best type of instrucdtor – covering a huge amount of complex material in a vergy short period of time and making it simple, understandable and interesting..."
- COO, NextEnergy Center

"Prof. El-Sharkawi was an extremely good speaker and very flexible considering the variety of professionals in the audience."
- PM, AECOM

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EUCI is authorized by IACET to offer up to 1.0 CEUs for this program.

WIND ENERGY INTEGRATION INTO POWER GRIDS

July 22-23, 2010

OVERVIEW

Wind energy systems have seen substantial growth in the USA and Europe. This growth has led to a rapid change in the generation landscape because of the increasing penetration of wind energy in utility systems. These fundamental changes require the power grid to become more vibrant and interactive which will demand significant changes in grid operation, protection, and control.

This course covers the operation and modelling of the main types of wind energy systems. Several types of generators and converters used in energy systems are discussed and evaluated. The course also covers the main challenges to wind energy integration from the utility point of view. The impacts of wind energy on the power grid are discussed in detail. Existing and potential solutions are presented. Field data are used to evaluate the current performance of the wind systems and to identify the challenges, opportunities, and solutions in this vibrant field.

WHAT YOU WILL LEARN

Participants will review the basic modeling and operation of wind turbines. In addition, they will identify the challenges and solutions of wind integration into the power grid.

TARGET AUDIENCE

- Utility engineers
- System operators
- Maintenance staff
- Wind power producers
- Consultants and researchers in wind energy

INSTRUCTOR

Mohamed A. El-Sharkawi, Fellow, IEEE
Mohamed A. El-Sharkawi is a Fellow of IEEE. He received his PhD in Electrical Engineering from the University of British Columbia in 1980. In 1980, he joined the University of Washington as a faculty member where he is presently a Professor of Electrical Engineering. He also served as the Associate Chair and the Chairman of Graduate Studies and Research.

During the last 30 years, he has taught courses on power systems, electric safety, transmission lines, electromagnetic transients, electric drives, and power electronics. He organized and chaired numerous conferences, panels, and special sessions in IEEE and other professional organizations. He published over 200 papers and book chapters in his research areas and holds 5 licensed patents. He has authored two textbooks, *Fundamentals of Electric Drives and Electric Energy: An Introduction*. He served as an electric safety consultant and expert witness for OSHA, WISHA, and several other organizations.

IACET

AUTHORIZED IACET PROVIDER

EUCI has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old meadow Road, Suite 500, mcLean, VA 22102. In obtaining this approval, EUCI has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally.

As a result of their Authorized Provider membership status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

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Requirements for Successful Completion of Program
Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

Instructional Methods
PowerPoint Presentations will be used in this course.

PROGRAM AGENDA

THURSDAY, JULY 22, 2010

8:00 – 8:30 a.m. **Registration and Continental Breakfast**
8:30 a.m. – 5:00 p.m. **Course Timing**
12:00 – 1:00 p.m. **Group Luncheon**

- Kinetic Energy of Winds
- Wind Turbines
- Efficiency of Wind Turbines
- Fundamentals of Power Electronic Conversions
- Wind Energy Generator
  - Induction Generator
  - Doubly-Fed Induction Generator
  - Synchronous Generator
- Factors Determining Generation in Wind Farms
- Wind Energy and the Environment
- Definition of Wind Integration
- Impacts of Wind Energy on the Power Grid
  - Reactive Power
  - Voltage Flickers
  - Frequency Deviations
  - Harmonics
  - Flicker
  - Voltage Stability
  - Dynamic Performance During Disturbances and Faults
  - Wind Energy Forecasting
  - Clustered vs. Distributed Wind Systems

FRIDAY, JULY 23, 2010

8:00 – 8:30 a.m. **Continental Breakfast**
8:30 a.m. – 12:00 p.m. **Course Timing**

- Wind Integration Solutions
  - Adaptive VAR Compensator
  - Voltage and Frequency Control
  - System Islanding
  - Ride-Through Faults
  - Load Following
  - Energy Regulation
  - Unit Committment in Stochastic Environment

About EUCI

EUCI is a leading provider of conferences, seminars, workshops and courses designed exclusively for the energy industry. We seek to create a forum for professional communication and exchange knowledge and ideas among energy industry professionals and others interested in the industry.

Join the thousands of others who have attended our events since 1987 and see why they keep coming back.

PROCEEDINGS

The proceedings of the seminar will be published and one copy will be distributed to each registrant at the course.

COURSE LOCATION

A room block has been reserved at the Hyatt Regency Boston, One Avenue de Lafayette, Boston, Massachusetts, USA 02111, for the nights of July 21-22, 2010. Room rates are US $199 single/double, plus applicable tax. Call 617-912-1234 for reservations and mention the EUCI Course to get the group rate. Make your reservations prior to June 23, 2010. There are a limited number of rooms available at the course rate. **Please make your reservations early.**

REGISTRATION INFORMATION

REMEMBER, EVERY 4TH REGISTRANT IS FREE
For instant registration, call (201) 871-0474 or fax the Registration Form to (253) 663-7224.

Register 3, Send 4th Free!!
Any organization wishing to send multiple attendees to these conferences may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

All cancellations received on or before June 18, 2010 will be subject to a US $195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of course cancellation, Electric Utility Consultants' liability is limited to refund of the course registration fee only. For more information regarding administrative policies such as complaints and refunds, please contact our offices at (201) 871-0474.

EUCI reserves the right to alter this program without prior notice.

MAIL DIRECTLY TO:
The Power Marketing Association (PMA)
P.O. Box 2303
Falls Church, VA 22042

FAX TO: (253) 663-72242
PHONE: (201) 871-0474

Click Here to Register Online

PLEASE REGISTER THE FOLLOWING

☐ Wind Energy Integration into Power Grids, July 22-23, 2010
US $1395
Early Bird on or Before July 9, 2010, US $1195

How did you hear about this event?
(Direct email, Colleague, Speaker(s), etc.)

_____

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☐ Check here if you have any dietary or accessibility needs. We will contact you for more details.

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