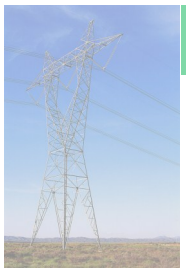
Northeastern University
Graduate School of Engineering



INSIGHTs in ENERGY SYSTEMS

Career-focused Professional Masters Programs at Northeastern University

Volume 1, Issue 1, Fall 2011

GROWING & GOING STRONG

This first newsletter coincides with the third entering class to the Masters of Science in Energy Systems program. The MSES program continues to grow and to follow its mission to educate students in current and future energy systems technologies, to integrate energy-related technologies with the economics and financial considerations required to implement them, and to develop leadership and decision-making skills in either the private or public sectors in the global market.

The first MSES graduates have entered the work force (see article by alumnus Dan Berteletti) as we continue to expand the co-op and industrial base of the program (example NSTAR). The technical electives available to the MSES students continue to grow with the addition of energy public policy courses, as well as electrochemical (battery technology) and photovoltaic material courses. The renewable energy offerings increase as illustrated by Professor Caracoglia's description of the Wind Engineering course that complements the Solar Thermal Engineering course offered by Professor Taslim. These courses provide one leg of the technical side of the MSES program that supports careers in developing implementable, sustainable, integrated energy solutions. Other courses provide paths in the building environmental design and control, electrical power generation and biofuels and combustion career areas.

As the director I am finding that the most valuable resource to this program is the quality, enthusiasm and diverse backgrounds of the MSES students. I have observed the collaborative learning that occurs through the student discussions and through their various study groups that they formed. These observations illustrate that the MSES students are receiving a unique experience by asking them to focus on more than just the technology, to consider the economic and political aspects of implementing energy technology systems. The excitement of the program is contagious.

Gregory J Kowalski

Dr. Gregory Kowalski,
Director of the MS in Energy Systems program

Did you know -

There are continued opportunities for employment within the energy sector due to the need to replace retiring energy professionals with qualified talent. Graduates from the MSES program will stand out amongst competitors with their technical and business knowledge.

Eduventures, Inc.
Market Survey Report

Our government's standpoint is that it is critical to advance the research in energy technologies both for strengthening the American economy and for reducing the dependency on foreign resources. Steps to get there include creating markets for ready to deploy state-of-the-art technologies, and by funding cutting-edge research for the production of the next generation of technologies.

Whitehouse.gov

FACULTY SPOTLIGHT— Dr. LUCA CARACOGLIA: WIND ENERGY

As an Associate Professor with Tenure in the Department of Civil and Environmental Engineering, **Dr. Luca Caracoglia** teaches the course "Wind Engineering" for ENSY and structural engineering students. In his course he addresses issues related to wind-induced response on civil structures (e.g., bridges or buildings) and wind energy principles.

What is your personal interest in this field/program?

My primary research expertise is in the field of wind engineering, which is devoted to the study of wind effects on civil structures, especially those for which wind-induced dynamic vibration may be significant (e.g. long-span bridges, cable structures, tall buildings). The expansion of my research interests towards topics related to wind energy is a natural progression.

Are you actively involved in any research initiatives in renewable energy or wind energy?

I am currently involved in the study and conceptual development of a system, which exploits aeroelastic instability phenomena for energy harvesting. Basically, the dynamic flapping of a slender blade-airfoil can be self-induced under specific wind conditions. This apparatus can be viewed as complementary to horizontal-axis wind turbines, since it is possibly more compact and marginally susceptible to turbulence effects.

What is your perception of the success of your study?

Preliminary results, discussing feasibility of the proposed apparatus and its operational regimes, appeared in a refereed journal publication. I am still at early stages, even though I am confident that this research activity has promising potential for future application.

Dr. Luca Caracoglia

For more information, please visit http://www1.coe.neu.edu/~lucac/default.htm.

For industry professionals, the MS in Energy Systems program offers a part-time evening option and video streaming versions.

Learn more about our admissions process at www.coe.neu.edu/gse/admissions.

Some of our students are currently employed at the following companies:

- NSTAR
- A123 Systems
- Greener U
- Fast Cap System Corp.
- Johnson Controls Inc.
- Reading Municipal Light Department

We want to hear from you!

If you are an industry professional or student who is interested in this program, or if you are an organization that has co-op or career opportunities to offer to our students and graduates—

Email us at energy@coe.neu.edu

Northeastern University
Graduate School of Engineering

130 Snell Engineering Center

360 Huntington Ave.

Boston, MA 02115

(617) 373-2711

INDUSTRY FOCUS—FEATURED EMPLOYER: NSTAR

NSTAR is the largest Massachusetts-based, investor-owned electric and gas utility. The company transmits and delivers electricity and natural gas to 1.4 million customers in Eastern and Central Massachusetts, including more than one million electric customers in 81 communities and 300,000 gas customers in 51 communities. NSTAR employs more than 3,200 employees in its regulated business.

NSTAR consistently achieves top-quartile performance in the areas of customer care and the safe, reliable delivery of electricity and natural gas. Using state-of-the-art equipment and technologically advanced software, NSTAR and its employees are dedicated to courteous service, rapid response and an enhanced customer experience.

For over 25 years, NSTAR has been a leader in providing quality energy efficiency programs to residential, commercial and municipal customers. From single family homes to multi-million-dollar manufacturing facilities, NSTAR's experienced program managers and customer support staff work closely with local service providers to ensure NSTAR customers receive the products and services they need to reduce energy use and lower utility costs.

The core values of honesty and integrity are deeply incorporated into NSTAR's profile. With a focus on energy efficiency programs and the NSTAR's green initiatives, NSTAR's main goal is to reduce their carbon footprint. One of NSTAR's green initiatives is to offer wind-generated electricity to their customers. With NSTAR Green, the company is offering customers the opportunity to have their electricity supplied either 50% or 100% by wind. This green alternative has saved the environment almost 56,000 tons of CO_2 from inception in July 2008 until the publishing of the 2010 Sustainability Report.

In collaboration with governmental and non-governmental associations and organizations NSTAR is continuously working on the improvement of their 'sustainability activities'. Examples of such are the New England Clean Energy Council, ENERGY STAR Partner and the Northeast Energy Efficiency Partnerships, Inc. and the American Council for an Energy Efficient Economy (ACEEE).

NSTAR Employment and Training possibilities

NSTAR shows great commitment to professional development. "On-boarding" and mentoring programs in form of training opportunities, workshops, on-the-job assignments are part of NSTAR's goal of work-place engagement. As an employer NSTAR offers various training opportunities in form of field and classroom teaching and leadership training. NSTAR offers Cooperative Education opportunities to graduate students of the Energy Systems program at Northeastern University, focusing on energy efficiency and engineering as part of their core functions. To be highlighted is NSTAR's engagement and involvement with the co-op student in the form of exploring potential career opportunities, providing opportunities to network and contribute professionally. As part of their key focus, NSTAR is continuously seeking talented employees in the field of engineering and energy efficiency.

For additional information about NSTAR careers (including co-op opportunities) please visit the website at www.nstarcareers.com.

ALUMNI SPEAKING— DAN BERTELETTI, Jan. '11

I had been seeking a career change and was fascinated by the cutting-edge technology and global benefits provided within the field of renewable energy. I recognized the need to return to graduate school to gain the level of training required to break into the field. The offerings of the Northeastern University Energy Systems graduate program proved to be a perfect blend of technological training and real-world implementation.

Shortly after classes began I found my niche in energy efficiency. The flexibility of the program allowed me to sculpt my course work to meet my areas of interest. This included a focus on sustainable building design and analysis. I later enrolled in an independent study to learn more about the energy consumption of complex building systems and the design codes upon which they are installed.

Throughout my class-time I was continuously focused on my job search. I became involved with local chapters of the engineering groups ASHRAE and AEE. By attending monthly meetings, I was able to network with industry professionals, learn more about the local culture of Energy Engineering, and further grasp the concepts that I was learning in the classroom. Through this participation, I had gained a handful of interviews and made valuable contacts that would eventually lead to my gaining employment with an energy efficiency consulting firm, just 3 months after graduation.

As an Energy Efficiency Consultant, I evaluate existing commercial buildings, collecting detailed records of existing building equipment: lighting, HVAC, motors, controls, and other gas and electric equipment. I recommend specific lighting upgrades using the most energy-efficient utility-qualified products. I calculate energy and cost-savings, present reports to customers, manage projects for the installation of specified products, answer contractor questions, and problem solve in the field.

The Energy Systems course work also prepared me to take the Certified Energy Manager (CEM) examination. I was successful in passing the exam and gaining this credential which will prove valuable in my career aspirations. I am grateful to have completed the Energy Systems program at Northeastern, as a means for putting me on the path toward a successful career in Energy Efficiency.

Dan Berteletti, Energy Efficiency Consultant