Strategic Innovations for Energy Efficiency

2.5

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Just refrigerator efficiency saves more energy than all that we're generating from renewables, excluding hydroelectric power... I cannot impress upon you how important energy efficiency is. It doesn't mean you eat lukewarm food and your beers are lukewarm. You can still have it; you just make a better thing.

– Stephen Chu, Secretary, U.S. Department of Energy, Nobel Laureate in Physics

Today few doubt that reliance on fossil fuels is contributing to climate change, environmental disasters, and economic support for regimes that do not serve the interests of their populations and industrialized nations. It is also true that fossil fuels are and will remain critical to the quality of life many people have, or aspire to. How are corporations dealing with the reality of energy use today, with its political, environmental, and financial concerns?

The most important strategic response to energy use that firms can take is energy efficiency. The efficient use of energy is a hedge against price volatility and supply uncertainty, saves money when done well, and offers the fastest and most effective way to reduce greenhouse gas emissions. Over time an effective energy efficiency response by business will have an economic, political and social impact.

This course examines energy efficiency as a strategic solution to corporate financial, competitive, and sustainability goals. The course covers three topics: 1. energy fundamentals for non-experts, 2. corporate strategies for reducing energy consumption, and 3. energy efficiency as a new market opportunity. Although there will be some technical materials this is a strategy course and does not presume expertise in energy nor the intention of entering the energy industry. Rather, we will focus on energy as a critical business input – much like financial inputs – to examine how efficiency strategies can manage this resource wisely to meet corporate goals.

COURSE REQUIREMENTS

READINGS are linked below. We will also host speakers from government and industry.

ASSIGNMENTS: This course is a collective learning class and students will be actively involved in the organization and discussion of topics each week.

GRADING

1. LEADING A CLASS: 25% (may be done with others). Students will be asked to present materials to the class, as well as to lead discussions with guests. When appropriate students should prepare discussion questions, slides that can be made available to the class, demonstration, conduct role play, hold a debate or use some other means for helping the class to understand an issue. I will work with you to define the topics.

2. RESEARCH PAPER: 25% Select a topic related to one of the subjects we will discuss during the quarter and research the issues/controversies/technologies/solutions more narrowly and deeply as we will have time only for a survey of topics. For example if we are talking about carbon markets you might write a paper about how the European market is working, or about how mandatory carbon reporting is influencing Australian financial reports. Alternatively you may be interested in researching novel financial vehicles that support EE, or marketing strategies that promote energy efficient behaviors. Pick something that you would like to learn more about. As a guide plan on 4-7pp*. The research paper is an opportunity to learn about something you find interesting.*

3. WHITE PAPER: 25% Students will write 4-6pp on a topic with instructor approval. The White Paper will be written for possible publication on the EEC website and may include PowerPoint and graphics as well as a written document. White Papers identify a situation or problem, bring data to bear on it, and make a recommendation as to a course of action. White papers were originally government documents but are now used by businesses and think tanks to argue for products and policies. Think of it as a long editorial about an uncertain or controversial topic. *The white paper is a chance to argue for or against a policy or position. Use it to persuade others.*

   Here are two takes on this: http://www.dirjournal.com/business-journal/how-to-write-a-white-paper/

   Examples: http://www.scribd.com/doc/20536588/Calvert-White-Paper-The-Future-for-Alternative-Energy
   http://www.vmware.com/files/pdf/WhitePaper_ReducePowerConsumption.pdf

4. ENERGY EFFICIENCY PROPOSAL GROUP PROJECT: 25%. This can be a solution for corporate application OR a proposal for a new product or service. The proposal should a. Analyze a problem or opportunity. b. Describe the solution and why it has promise for success. c. Examine the barriers (policy, financial, technical, competitive, etc.) your proposal might face. d. Explain how you would overcome these barriers. I recommend doing this assignment in groups of 3-5 people who have a variety of skills and experience. These will be presented to the class at the last class meeting.

5. DISCUSSION BONUS: [+]Students are expected to attend class and to participate in a way that increases learning for everyone. Students who add appreciably to the learning of others through their participation in class will get a "+" added to their grade. For example if your grade tallies equal a B+ but you have been a thoughtful and active member of the class your final grade will be an A- recognizing your contribution to learning.

OVERVIEW OF COURSE

Class 1: 1/18 The Problem and the Opportunity

Low cost energy was a critical input into the industrialization of modern societies. We now know that it has strategic, health, and environmental implications. What is the forecast for businesses given new concerns? What are the opportunities and issues from a business perspective?

http://www.youtube.com/watch?v=QG3HNQiEaTM

Class 2: 1/18 Energy Fundamentals: The Energy Industry

Energy is an industry – actually a number of industries – and it is regulated by a number of governmental organizations. We will discuss California energy policy and regulation and the recent major actions that the state has taken to curb carbon and support an energy efficient economy.

Anthony Eggert, Director and Amber Mace, Associate Director UC Davis Policy Institute for Energy, Transportation and Climate

Class 3: 2/1 Energy Efficiency Costs and Benefits, Incentives and Barriers

If energy efficiency is such a good idea, why doesn't everyone just do it? We will discuss market barriers, social barriers, the role of incentives and other factors that promote and inhibit the efficient use of energy.

Class 4: 2/1 Carbon Markets and EE

On November 14 California sold carbon credits on a new carbon market that is part of a cap and trade strategy for curbing emissions. The state will cap emissions from power generators, oil refineries and other industrial plants to 1990 levels by 2020. The plan is to regulate 85 percent of greenhouse gases emitted in the state. How will this work? Who is effected? What are the business opportunities?

Emillie Mazzacurati, Four Twenty Seven LLC Carbon Consulting

Class 5: 2/15 Corporate Interests in Carbon Markets and Energy Efficiency Sustainability
Bill Mitchel, Sr. Director WW Public Sector, Microsoft Corporation

http://www.greenbiz.com/video/2012/12/14/rob-bernard-microsoft-living-lab-big-data?utm_source=E-News+from+GreenBiz&utm_campaign=984b0854f5-GreenBuzz-2012-12-14&utm_medium=email

Class 6: 2/15 Group Project Workshop

Class 7: 3/1 New Opportunities in Water-Energy Efficiency

Twenty percent of the energy used in California is used to move and clean water; much of the energy in the state is generated by or made possible through the injection of water. Both energy and water are important resourcesbut managed differently. What business opportunities exist for reducing energy use by managing water supplies?

UC Davis Water Energy Efficiency Center Program Manager Ned Spang and Peter Yolles CEO WaterSmart

Class 8: 3/1 Group One: Student Project Presentations

Class 9: 3/15 Energy Efficiency as Business Opportunity: Energy Service Companies

A major business sector is growing up around the opportunity to manage the energy use of businesses and the MUSH (municipalities, universities, schools, and hospitals) market. Chevron is the only major energy company to enter this market but many smaller firms are being established and new software solutions for energy management are being developed.

Jim Davis , CEO, Chevron Energy Solutions

Class 10: 3/15 Group Two Student Projects/Papers/Last Thoughts