
Economics 236

Economics of Energy and Public Policy

Dr. David Loomis
Spring 2017

TR 2 -3:15 p.m.
STV 434

Office: STV 428
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Course Prerequisites: ECO 101/105

REQUIRED RESOURCES: *

William Sprangar Peirce, *Economics of the Energy Industries (EEI)*, 2nd ed., Westport, CT: Praeger, 1996.

Papers referenced in the syllabus will be on e- reserves at the Milner Library website. To access the articles, go to www.mlb.ilstu.edu, Reserve Readings, Enter On-line Catalog, Course Reserves, and choose ECO 236.

I will also post the Powerpoint slides before each class. This will enable you to take notes more quickly in class. If absenteeism becomes a problem, I will, at my discretion, decide to no longer post the Powerpoint slides. Material from the readings that is not directly mentioned in class WILL be on the exams. Likewise, material discussed in class that is not in the readings WILL be on the exams.

A ReggieNet site will be maintained for the course. The chapters for each section will be posted in ReggieNet in PDF format. I will also post lecture notes, assignments, announcements, etc. Please access ReggieNet daily to find announcements, assignments, readings and other information.

COURSE OBJECTIVES:

This course covers the economic and public policy issues related to the energy industry from a historical, present and future perspective. Students will learn the economic, legal and regulatory history of the industry to better understand the current issues confronting the energy marketplace. Without a proper understanding of the past, the analysis of current issues facing the industry is meaningless. Much of the industry's structure, conduct and performance is related to the historical context of its economic and regulatory past.

*Any student needing to arrange a reasonable accommodation for a documented disability should contact Disability Concerns at 350 Fell Hall, 438-5853 (voice), 438-8620 (TDD).

A proper economic framework will be developed to allow students to analyze the complex public policy issues that face the energy industry. In addition, students will gain a better understanding of the managerial decision-making that takes place in the industry. Although the course's focus is on the energy industry, much of the economic analysis is applicable to other industries as well.

Students will also examine the future issues that will confront this rapidly changing industry. Using economic models as a foundation, students will analyze complicated real-world situations. The course will have an emphasis on actual case studies.

Because this course is a required course in the Renewable Energy major, special emphasis will be made on renewable energy technologies and economics. The most rapidly growing renewable technology is wind energy and it will be highlighted as a template for analyzing the other renewable energy technologies.

COURSE REQUIREMENTS

There will be 3 exams and an optional comprehensive final. *No make-up exams will be given unless arrangements have been made prior to the exam and approved by the instructor.* Problem sets and quizzes will be given throughout the semester, usually one per week. *No late problem sets or quizzes will be accepted.* Each problem set/quiz will be graded out of 100 points. The average of all problem sets/quizzes will figure into your final grade. Writing Assignments will be assigned throughout the semester.

The final grade will be based on the following point scheme:

Exam #1	100 points
Exam # 2	100 points
Exam # 3	100 points
Homework	100 points
Class Participation	50 points
<u>Writing Assignments</u>	<u>50 points</u>
TOTAL	500 points
 <u>Final (optional)</u>	 <u>200 points</u>
TOTAL	700 points

The following point scale will be used to evaluate your performance:

Grade	Total Points (without final)	Total Points (with final)
A	450 or above	630 or more
B	400 or above	560 or more
C	350 or above	490 or more
D	300 or above	420 or more
F	less than 300	less than 420

Class Participation grades will be determined at the end of the semester based on the following criteria (I reserve the right to assign points in between these categories):

Points	Characteristics
50	This student always attends class, is always prepared for class and regularly makes positive major contributions to class discussion
40	This student always attends class, is mostly prepared for class and frequently makes positive major contributions to class discussion
35	This student regularly attends class, is sometimes prepared for class and occasionally makes positive major contributions to class discussion
25	This student mostly attends class, is sometimes prepared for class and occasionally makes some contribution to class discussion
10	This student misses class frequently, is sometimes prepared for class and occasionally makes some contribution to class discussion
0	This student misses class frequently, is rarely prepared for class and rarely makes a contribution to class discussion

KEYS TO SUCCESS

This course has a large volume of reading. Some of the reading is technical, focused on economic theory and some of the reading is narrative, focused on historical events. ***It is imperative that you read the assigned material in both areas.*** Because part of the class is discussion oriented, you will not maximize your classroom learning if you have not read the material in advance. In addition, ***participating in classroom discussion will help you clarify your own thinking.*** As you listen to others' economic reasoning and express your own ideas, true learning takes place. The goal of this course is not to memorize a set of facts the night before the exam but to develop economic reasoning in the area of energy economics. This cannot be done by cramming the night before the exam!! Finally, ***do the problem set independently so that you know not only the correct answer but also how to arrive at the correct answer.*** Many exam questions will be similar to problem set questions; so view problem sets as practice exams.

If, after reading the assigned material, participating in class discussion and working independently on problem sets, you are not achieving the level of success that you expect of yourself, please come to see me regularly during office hours. My goal as your professor is to see you succeed. If you are doing your best to learn, I will do my best to help you learn.

Schedule	
Date	Topic
January 17	Review of Economic Theory
January 19	Energy: An Economist's View
January 24	Energy: An Economist's View/ Energy Flows
January 26	Energy Flows / Markets, Prices, and Efficiency
January 31	Energy and Economic Growth
February 2	Energy and Economic Growth
February 7	Economic Theory of the Mine
February 9	Economic Theory of the Mine
February 14	Economic Theory of the Mine
February 16	Exam #1
February 21	Energy Conversion
February 23	Energy Conversion
February 28	Problems and Policies
March 2	Electricity Generation
March 7	Electricity Transmission
March 9	Electricity Transmission
March 14-16	Spring Break
March 21	Electricity Distribution
March 23	IRPS Conference – NO CLASS
March 28	Electricity Distribution
March 30	Electricity Distribution
April 4	Exam #2
April 6	Wind Energy Technology
April 11	Economics of Wind Energy
April 13	Economics of Wind Energy
April 18	Hydro Energy
April 20	Solar Energy
April 25	Renewable Energy Policies
April 27	NO CLASS – IRPS CONFERENCE
May 2	Exam #3
May 4	Review
May 8-12	Final – TBD

COURSE OUTLINE (Readings with a * are required)

I. Review of Economic Theory

- * Brightwell, David A., *Economics Primer*
- Spencer, Milton H., "Perfect Competition," Chapter 8, *Contemporary Microeconomics*, New York: Worth Publishers, 1990.
- Spencer, Milton H., "Monopoly Behavior," Chapter 9, *Contemporary Microeconomics*, New York: Worth Publishers, 1990.

II. Energy: An Economist's View

- * *EEI*, Chapter 1-3.
- * Sweeney, James L., "Economics of Energy," Volume: 4.9 Article: 48
<http://www.stanford.edu/~jsweeney/paper/Energy%20Economics.PDF>
- * United States Energy History, <http://www.eia.doe.gov/aer/eh/eh.html>

III. Energy and Economic Growth

- * *EEI*, Chapter 4-5.
- * Stern, David I, "Energy and Economic Growth," April, 2003,
<http://www.localenergy.org/pdfs/Document%20Library/Stern%20Energy%20and%20Economic%20Growth.pdf>
<http://www.localenergy.org/pdfs/Document%20Library/Stern%20Energy%20and%20Economic%20Growth.pdf>
- * Wolfram, Catherine, Ori Shelef and Paul Gertler, "How Will Energy Demand Develop in the Developing World?" *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 119-138.

IV. Reserves, Resources and the Economic Theory of the Mine

- * *EEI*, Chapter 6-7.

V. Extractive Industries: Coal, Oil and Natural Gas Industries

- * *EEI*, Chapter 8-10
- * Tyner, Wallace E., "Policy Alternatives for the Future Biofuels Industry," *Journal of Agricultural & Food Industrial Organization*, Vol. 5, 2007.
- * Knittel, Christopher R., "Reducing Petroleum Consumption from Transportation," *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 93-118.

EXAM # 1

VI. Energy Conversion: The Electric Utility Industry and Nuclear Power

**EEl*, Chapter 11-13.

*Davis, Lucas, "Prospects for Nuclear Power," *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 49-66.

VIII. Problems and Policies

**EEl*, Chapter 14-15

**WE*, Chapter 6

*Resources for the Future and the National Energy Policy Institute.

Toward a New National Energy Policy: Assessing the Options. Washington, DC: Resources for the Future, 2010.

* Metcalf, Gilbert E., "Federal Tax Policy Towards Energy," *National Bureau of Economic Research, Inc, NBER Working Paper 12568*,

<http://www.nber.org/papers/w12568>

IX. Electricity Generation

*Schmalensee, Richard, "Renewable Electricity Generation in the United States," Center for Energy and Environmental Policy Research, 09-017, November, 2009.

X. Electricity Transmission

*Kaplan, Stan Mark, "Electric Power Transmission: Background and Policy Issues, *Congressional Research Service*, 7-5700, April 7, 2009.

XI. Electricity Distribution

*Joskow, Paul L., "Creating a Smarter U.S. Electricity Grid," *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 29-48.

EXAM # 2

XII. Wind Energy Technology

*Borenstein, Severin, "The Private and Public Economics of Renewable Electricity Generation," *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 67-92.

* Bellemare, Bob, "What is a Megawatt?" Utilipoint IssueAlert, Accessed 7/4/2009.

*http://www.eere.energy.gov/basics/renewable_energy/wind.html

XIII. Economics of Wind Energy

*Beenstock, Michael, "The Stochastic Economics of Wind Power," *Energy Economics* 17:1 (1995), 27-37.

*DeCarolus, and David W. Keith, "The Economics of Large-Scale Wind Power in a Carbon Constrained World," *Energy Policy* 34:4 (2006), 395-410

XIV. Hydro Energy

**E&E*, Chapter 4

*http://www.eere.energy.gov/basics/renewable_energy/hydropower.html

XV. Solar Energy

**E&E*, Chapter 10

*http://www.eere.energy.gov/basics/renewable_energy/solar.html

XVI. Energy Efficiency

*Allcott, Hunt and Michael Greenstone, "Is there an Energy Efficiency Gap?" *Journal of Economic Perspectives*, 26 (1), Winter 2012, pp. 3-28.

XVII. Renewable Energy Policies

**WE*, Chapter 7-8.

*Tester, Jefferson W., Drake, Elisabeth M., Driscoll, Michael J., Golay, Michael W., and Peters, William A. Sustainable Energy; Choosing Among Options. Cambridge: MIT Press, 2005.Chapters 9, 15

**E&E*, Chapter 17

EXAM #3

FINAL