

## **Energy Policy** **NJIT Course # EPS 699**

Energy policy is gaining increasing recognition as a critical component of state and national public policy, especially environmental policy. Issues surrounding the reliability and security of energy supplies directly effect national domestic and foreign policy, as well as state level environmental, economic development and land use concerns. Moreover, the policies, strategies, and programs adopted by both the public and private sectors will directly impact upon our lives as professionals, members of a community, and our families. This graduate course will examine energy policy through a timely, critical and practical approach designed to give students both an insight into the factors that shape energy policy.

Major themes of the course are the linkages of energy policy with environmental policy, the energy policymaking process, and the nature and operation of energy markets. We will examine specific issues confronting environmental policymakers, such as the hydrogen economy, the dependence on oil, global warming, electricity restructuring, renewable resources, and nuclear power, among others.

### Course Basics

Instructor: Frank Felder, PhD  
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Office Hours: Prior to and after class and by appointment

Class Meets on Wednesday evenings from 5:30 to 8:30 pm at the NJ Department of Environmental Protection.

Additional course material, including lecture notes, are available at:  
<http://policy.rutgers.edu/ceep/> (click on the CEEP Courses button)

### Course Requirements

1. Submission of a 2-3 page memo describing the relationship between energy policy and your current job or career goals. DUE AT THE BEGINNING OF CLASS ON FEBRUARY 16, 2005 (Submit a hardcopy) (15%)
2. Midterm, March 23, 2005 (35%)
3. Case study team presentations DUE AS NOTED IN THE SYLLABUS (15%)
4. Submission of a 3-5 page individual write-up of the case study DUE AT THE BEGINNING OF CLASS ON MAY 11, 2005 (Submit a hardcopy) (20%)
5. Class participation and discussions (15%)

## Syllabus

### PART I: ENERGY FUNDAMENTALS

#### *Module I: Introduction to Energy Policy and Energy Basics*

##### Week 1, January 19, 2005

- Introduction to energy policy
- Energy basics

##### Required Reading

1. Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges, The National Commission on Energy Policy, December 2004, pp. ii-xiv and p. 119, <http://www.energycommission.org/ewebeditpro/items/O82F4682.pdf>
2. Chapter 1, Rules of the Game, Energy: Science, Policy, and the Pursuit of Sustainability, eds. Robert Brent, Lloyd Orr, and Randall Baker, Island Press, 2002 (will be distributed as a hardcopy handout the first day of class)

##### Week 2, January 26, 2005

- Federal and state energy policy
- International energy issues
- Energy policy process and politics

##### Required Reading

- Ending the Energy Stalemate, pp. 1-118.
- Energy at the State Level, The Business Council for Sustainable Energy, April 2004, pp. 1-35, (will be distributed as a hardcopy handout the first day of class)

##### Recommended Reading

- National Energy Policy, National Energy Policy Development Group, May 2001, <http://www.whitehouse.gov/energy/>

##### Week 3, February 2, 2005

- Energy resources, technologies, and conservation

##### Required Reading

- Class notes, Power Point presentation
- Energy INFOCard, EIA, <http://www.eia.doe.gov/neic/brochure/infocard01.htm>

#### *Module II: Energy Markets*

#### Week 4, February 9, 2005

- When do markets work and when do they fail?
- Oil and natural gas markets
- Environmental emission markets

#### Required Reading

- Oil Market Basics, EIA,  
[http://www.eia.doe.gov/pub/oil\\_gas/petroleum/analysis\\_publications/oil\\_market\\_basics/default.htm](http://www.eia.doe.gov/pub/oil_gas/petroleum/analysis_publications/oil_market_basics/default.htm)
- Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases, A. Denny Ellerman, Paul L. Joskow, and David Harrison, Jr., May 2003,  
<http://www.pewclimate.org/docUploads/emissions%5Ftrading%2Epdf>

#### Week 5, February 16, 2005

- Electricity markets
- Reliability of the grid

#### Required Reading

- Rethinking Electricity Restructuring, Peter Van Doren and Jerry Taylor, Policy Analysis, No. 530, November 30, 2004,  
<http://www.ksg.harvard.edu/hepg/Papers/va.doren.taylor.rethink.restruct.11-4.pdf>
- Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, U.S.-Canada Power System Outage Task Force, April 2004, Chap. 1-3 & 10, <https://reports.energy.gov/BlackoutFinal-Web.pdf>

#### Recommended Reading

- Markets for Power: An Analysis of Electrical Utility Deregulation, Paul L. Joskow and Richard Schmalensee, MIT Press, 1983.
- See the Harvard Electricity Policy Group webpage, which contains numerous papers, references, and links, <http://www.ksg.harvard.edu/hepg/>

### *Module III: Energy and Transportation*

#### Week 6, February 23, 2005

- Automobiles and trucks
- Public transportation

#### Required Reading

- Automobile and Light Truck Fuel Economy: The CAFE Standards, Congressional Research Service, Updated June 19, 2003,  
<http://www.ncseonline.org/NLE/CRSreports/03Jul/IB90122.pdf>

- Dangerous Addiction 2003: Breaking the Chain of Oil Dependence, Daniel Lashof and Roland Hwang, Natural Resources Defense Council, March 2003, <http://www.nrdc.org/air/transportation/oilsecurity/da2003.pdf>
- Trends Affecting Public Transit's Effectiveness: A Review and Proposed Actions, Brendon Hemily, prepared for the American Public Transportation Association, November 2004, [http://www.apta.com/government\\_affairs/policy/documents/trends\\_affecting.pdf](http://www.apta.com/government_affairs/policy/documents/trends_affecting.pdf)

#### Recommended Reading

- Blue Ribbon Commission Report, Recommendations for Ensuring a Strong Transportation Network for the 21<sup>st</sup> Century, November 2003, [http://policy.rutgers.edu/vtc/documents/TransFin.blue\\_ribbon\\_report.pdf](http://policy.rutgers.edu/vtc/documents/TransFin.blue_ribbon_report.pdf)
- See <http://policy.rutgers.edu/vtc/index.html> for many other reports and links.

#### *Module IV: Energy Security*

##### Week 7, March 2, 2005

- Oil
- Nuclear proliferation

#### Required Reading

- Winning the Oil Endgame, Amory B. Lovins, et al., Chapter 1, Oil Dependence <http://www.oilendgame.org/Contents.html>
- The Future of Nuclear Power: An Interdisciplinary MIT Study, 2003, Chap. 8, <http://web.mit.edu/nuclearpower/>
- Attempts to Reduce the Proliferation Risks of Nuclear Power: An Overview of What's Old and What's New, Marvin Miller, April 9, 2001, <http://www.nci.org/conf/miller/>

#### *Module V: Energy Sustainability*

##### Week 8, March 9, 2005

- Energy and economic growth
- Global warming
- Renewables and the hydrogen economy

#### Required Reading

- Energy Systems as a Catalyst for Sustainability, Julian Ageymann, April 2002, [http://www.ascendantenergy.com/energy\\_for\\_sustainability.htm](http://www.ascendantenergy.com/energy_for_sustainability.htm)
- Economic Growth and Energy, David I. Stern, Encyclopedia of Energy, Vol. 2, 2004, <http://www.rpi.edu/~sternd/Growth.pdf>

- Climate Change 2001: Synthesis Report, Summary for Policymakers, An Assessment of the Intergovernmental Panel on Climate Change, [http://www.grida.no/climate/ipcc\\_tar/vol4/english/pdf/spm.pdf](http://www.grida.no/climate/ipcc_tar/vol4/english/pdf/spm.pdf)
- New Jersey: Opportunities and Options in the Hydrogen Economy, CEEEP, July 2004, [http://policy.rutgers.edu/ceep/images/ceep\\_report7\\_04.pdf](http://policy.rutgers.edu/ceep/images/ceep_report7_04.pdf)
- Clean Energy Blueprint: A Smarter National Energy Policy for Today and the Future, Steve Clemmer, Deborah Donovan, Alan Noguee, and Jeff Deyette, Union of Concerned Scientists, 2001, <http://www.ucsusa.org/publications/report.cfm?publicationID=308#energy>

#### Recommended Reading

- See the New Jersey Sustainable State Institute's webpage and reports, <http://www.njssi.net/>
- Renewable and Efficient Electric Power Systems, Gilbert M. Masters, Wiley, 2004.

(SPRING BREAK – NO CLASS ON MARCH 16)

Week 9, March 23, 2005

- Mid term

## PART II: ENERGY POLICY ANALYSIS AND PROCESS

### *Module VI: Policy Making Under Uncertainty*

Week 10, March 30, 2005

- Review of mid-term
- Introduction to Part II of the Course
- Policymaking Under Uncertainty

#### Required Reading

- Uncertainty: A Guide to Dealing with Uncertainty in Quantitative Risk and Policy Analysis, M. Granger Morgan and Max Henrion with a chapter by Mitchell Small, Cambridge University Press, Chapters 1-4 (provided as a handout)

#### Recommended Reading

- The remainder of Morgan and Henrion's book on Uncertainty.

Week 11, April 6, 2005

- Introduction to Decision Analysis

#### Required Reading

- Class notes, Power Point presentation

#### Recommended Reading

- Tools for Decision Analysis: Analysis of Risky Decisions, Hossein Arsham, <http://home.ubalt.edu/ntsbarsh/opre640a/partIX.htm#rintrodecisionanaly>
- Energy Decisions and the Environment: A Guide to the Use of Multicriteria Methods, Benjamin F. Hobbs and Peter Meier, Kluwer Academic Press, 2000

#### *Module VII: Case Study*

##### Week 12, April 13, 2005

- Presentation of Case Study 1: Should Oyster Creek's Nuclear License be Renewed?
- Designation of case study teams

#### Required Reading

- The Future of Nuclear Power: An Interdisciplinary MIT Study, 2003, <http://web.mit.edu/nuclearpower/>
- U.S. Nuclear Plants in the 21<sup>st</sup> Century: The Risk of a Lifetime, Union of Concerned Scientists, David Lochbaum, May 2004, [http://www.ucsusa.org/clean\\_energy/nuclear\\_safety/page.cfm?pageID=1408](http://www.ucsusa.org/clean_energy/nuclear_safety/page.cfm?pageID=1408)
- A New Vision for Nuclear Waste, Matthew L. Wald, Technology Review, Dec. 2004, handout provided during class.

##### Week 13, April 20, 2005

- Case study team meetings

##### Week 14, April 27, 2005

- Initial team presentations

##### Week 15, May 4, 2005

- Team meetings and inter-team negotiations

##### Week 16, May 11, 2005

- Final team presentations and submissions of written work
- Course wrap-up