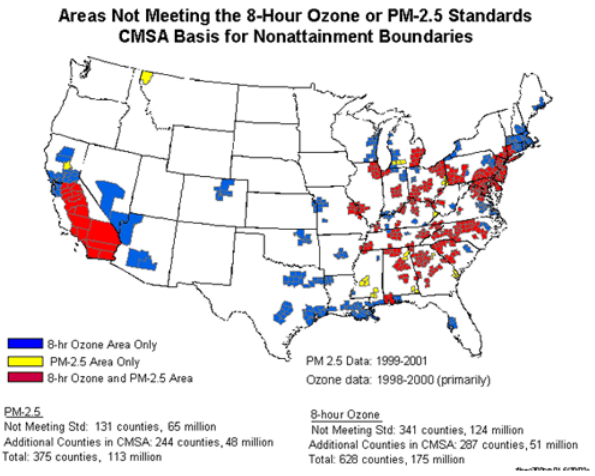

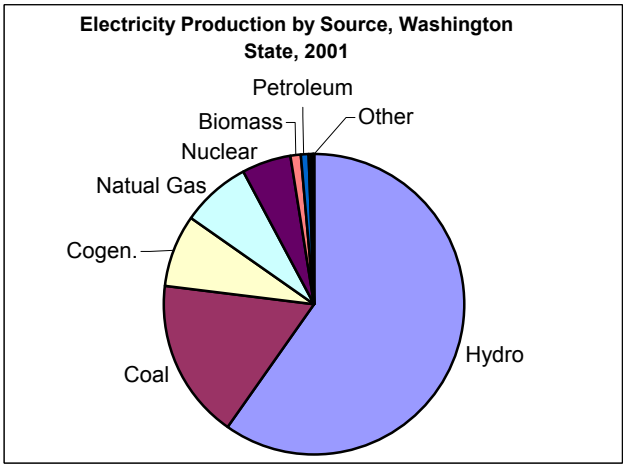

Energy, Environment, and Society

BIS 458

Winter 2006

Instructor: Nives Dolšak
Class Time: Mondays and Wednesdays, 5:45 pm - 7:50 pm
Office hours: Wednesdays, 4:15 PM– 5:15 PM or by appointment
Voice: 425-352-3492
Class Location: UW1-020
Office: UWB2-332
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Course Description

The goal of this course is to understand availability of energy from a variety of sources, environmental consequences of energy supply and consumption, and the ways in which a society can impact those with a variety of instruments. We will draw on knowledge from multiple disciplines to understand environmental, economic, social, and political implications of the choices a society makes to meet its energy needs.

Course objectives:

This course will help students develop skills to:

(1) Evaluate availability of energy sources nationally and globally;
(2) Identify environmental consequences of using various energy sources and understand technologies for addressing these environmental problems;
(3) Understand other negative aspects of reliance on fossil fuels;
(4) Employ analytical methods from a variety of scholarly disciplines to understand factors that impact selection of energy technologies and policy instruments;
(5) Examine characteristics of energy demand across space and time;
(6) Understand, critique, and apply policy instruments to either decrease or increase the use of various energy sources;
(7) Analyze empirical data to understand energy choices made by national, state, and local policy makers;

(8) Write succinctly about technological, economic, social, and political aspects of energy use;
(9) Productively use educational and information technology.

Required Readings available at the University of Washington, Bothell Library:

Readings on electronic reserve:

(1) Anderson, Kai S. 2002. "The Climate Policy Debate in the U.S. Congress." In *Climate Change Policy: A Survey*, Schneider, Stephen H, Armin Rosencranz, and John O. Niles, eds. Island Press, pp. 235-250.

(2) Elliot, David. 2003. Energy, Society, and Environment. Second Edition. Routledge Press, London, UK.

(3) Geller, Howard. 2003. "Barriers". In *Energy Revolution: Policies for Sustainable Future*. Island Press, Washington, D.C. Pp. 33-46.

(4) Geller, Howard. 2003. "The United States: Politics and Scenarios." In *Energy Revolution: Policies for Sustainable Future*. Island Press, Washington, D.C. Pp. 131-164.

(5) Hoffmann, Peter. 2002. Tomorrow's Energy: Hydrogen, Fuel Cells and the Prospects for a Cleaner Planet. The MIT Press, Cambridge, Massachusetts.

(6) Hovi, Jon, Olav Schram Stokke and Geir Ulfstein. "Introduction and Main Findings." In *Implementing the Climate Regime: International Compliance*. Olav Schram Stokke, Jon Hovi, and Geir Ulfstein, eds. Earthscan; Sterling, VA. Pp. 1-7.

(7) Koomey, Jonathan G et al. 2002. "Sorry, Wrong Number: The Use and Misuse of Numerical Facts in Analysis and Media Reporting of Energy Issues." *Annual Review of Environment and Resources*. Vol. 27:119-158.

(8) Kubasek, Nancy K. 2002. ""Energy". In *Environmental Law.* 4th ed., Kubasek, Nancy K. and Gary Silverman, Pp. 261-292. Prentice Hall.

(9) McGranahan, Gordon and David Satterthwaite. 2003. "Urban Centers: An Assessment of Sustainability." *Annual Review of Environment and Resources*. 28: 243-274.

(10) McKinney, Michael L. and Robert M. Schoch. 2003. *Environmental Science: Systems and Solutions*. Web Enhanced Edition. Sadbury, MA; Jones and Bartlett Publishers.

(11) Mitchell, John et al. 2001. The New Economy of Oil: Impact on Business, Geopolitics, and Society. The Royal Institute of International Affairs, London, UK.

(12) Nadel, Steven. 2003. "Appliance and Equipment Efficiency Standards." *Annual Review of Environment and Resources*. Vol. 27:159-192.

(13) Polasky, Stephen. 2004. "Electricity Restructuring and the Environment." In *Painting the White House Green: Rationalizing Environmental Policy Inside the Executive Office of the President*, Randall Lutter and Jason F. Shogren, eds.

(14) Rabe, Barry G. 2004. "The Politics of Climate Change: State Style". In *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*. Brookings Institution Press; Washington, D.C. . PP. 1-37.

(15) Rosencranz, Armin. 2002. "U.S. Climate Change Policy." In *Climate Change Policy: A Survey*, Schneider, Stephen H, Armin Rosencranz, and John O. Niles, eds. Island Press, pp. 2221-234.

(16) Smil, Vaclav. 2003. " Long Term Trends and Achievements." In *Energy at the Crossroads: Global Perspectives and Uncertainties*. Cambridge, MA: The MIT Press. Pp. 1-62

(17) Smil, Vaclav. 2003. "Against Forecasting". In *Energy at the Crossroads: Global Perspectives and Uncertainties*. Cambridge, MA: The MIT Press. Pp. 121-180.

(18) Smith, Eric R.A.N. 2002. *Energy, The Environment, and Public Opinion*. New York; Rowman & Littlefield Publishers, Inc.

(19) Lovins, Emory, 2005. Winning the Oil Endgame: Innovation for Profits, Jobs, and Security http://www.rmi.org/images/other/WtOE/WtOEg_72dpi.pdf
Executive summary, this report, Implications and conclusions.

Assignments, Evaluation, and Grading

Evaluation and Grading

The grade for this course will be based on the following assignments:

Assignment	**Number of assignments**	**Points per assignment**	**Total points**
Memo	8	8	64
State report	1	18	18
City report	1	18	18
TOTAL			**100**

The final grade in this course is calculated by dividing the total number of points by 25.

Memos

You will write 8 one-page single-spaced memos reflecting on readings assigned for one class session a week and a newspaper article addressing current energy issues. You will identify the newspaper article yourself and cite it appropriately in your memo. The memos will give you an opportunity to reflect upon the facts, arguments, and open issues addressed in the readings and newspapers as well as an opportunity to link them to your research projects. The memos will be graded based on the clarity of arguments reflecting the assigned readings and arguments made in the newspaper article. As you will see in the weekly schedule on pages 6 and 7, there are 12 class sessions from which you can choose to submit a memo. This hopefully provides some flexibility for you schedule your class assignments through out the quarter.

To post a memo, use the "digital drop box" option in "tools". Post your memo using the **SEND File** option, NOT the ADD file option. Please post the memo by **1:00 PM** of the day for which you are

writing the memo. To be able to access the bls458 black board site, you will first have to enroll in this class on the UWB black board site. If you have any problems accessing black board site, contact the UWB Information Systems at 425-352-5275 or helpdesk@uwb.edu.

Group Student Research Projects

You will be placed in a group of three students. You will undertake two group research projects, but you will be evaluated for your individual contribution to the group project. These research projects will enable you to examine how the theoretical concepts, arguments, and facts we will study in class impact real-life policies regulating energy use and environment. The first research project will review policies a State (selected by the group) enacted to address energy use and environment from the perspective of global climate change. The second research project will enable you to understand factors that impact City policies regulating emissions of green house gases.

Each group will submit a 10-12 double-spaced page report. Please indicate which group member authored which section of the report. Each group will also present its findings in an oral presentation to the rest of the class. The reports and presentations will be graded on the basis of the following criteria:

(1) Research skills: has the student collected the appropriate data;
(2) Analytical skills: has the student appropriately analyzed the data—have the concepts examined in the text readings and class discussions been addressed;
(3) Presentation skills: is the presentation clear and focused.

State Research Project
Each group will select a state with an explicit Global Climate Change policy from the web page of the List compiled by the Environmental Defense organization
http://www.environmentaldefense.org/article.cfm?contentid=2863.

Groups are encouraged to address the following issues in their studies:
(1) Background information on the size and the geography of the city impacting its environmental problems resulting from energy use;
(2) Energy Mix in the State's supply of energy for the most recent year available;
(3) Stringency of Environmental Laws
(4) Air quality information for the State: violation of standards and major sources of pollution related to the violation of air quality http://www.epa.gov/oar/oaqps/ and/or
http://www.epa.gov/oar/oaqps/greenbk/index.html;
(5) Compliance with the Clean Air Act Amendments regulating SO2 and NOx emissions: Violations filed in court by the EPA;
(6) Global Climate Change Actions taken by the State
http://yosemite.epa.gov/globalwarming/ghg.nsf/StatePolicyOptionsSearch?OpenForm
This is a recommended list and a group may choose to include other important information and use other sources in addition to those provided above.

Due: Please submit your group reports electronically through the Blackboard Digital drop box by **Friday, February 24, 1:00 PM**. Each group will submit only one file including all group members' contributions, graphs, and references.

City Research Project
Each group will select a city with a global climate change program from those listed at the web page of the International Council for Local Environmental Initiatives.

http://www3.iclei.org/us/participants.cfm

Groups are encouraged to address the following issues in their studies:
(1) Background information on the size and the geography of the city impacting its environmental problems resulting from energy use;
(2) Compliance with the Clean Air Act Amendments regulating SO2 and NOx emissions: Violations filed in court by the EPA;
(3) Participation in Clean Cities Program: http://www.ccities.doe.gov/
(4) Participation in Cities For Climate Control Campaign at the city and/or county level http://www.iclei.org/us/ccp/
(5) Global Climate Change Actions taken by the City.
This is a recommended list and a group may choose to include other important information and use other sources in addition to those provided above.

Due: Please submit your group reports electronically through the Blackboard Digital drop box by **Monday, March 6, 1:00 PM.** Each group will submit only one file including all group members' contributions, graphs, and references.

Late Submission Policy

You are expected to submit the assignment by the specified deadlines. Reading in advance and reflecting on the assigned readings is essential for a productive class discussion. Further, the group research assignments are built in two stages where the second stage depends on successful learning at the first stage. For all these reasons, I cannot accept late assignments. However, if you are not able to submit an assignment on time due to medical reasons, please provide documentation from your doctor indicating the duration of the incapacitation.

Academic Honesty

I expect students to uphold the highest standards of academic conduct pursuant to the University of Washington Student Conduct Code, Section WAC 478-120-020-2(a). You are expected to be familiar with and adhere to the rules regulating academic conduct as outlined by the UW Bothell policies on maintaining academic integrity. You are encouraged to read these policies in the University of Washington, Bothell General Catalog 2002-2004, page 15 and 16. In addition, you may find the following three web sites helpful in understanding and avoiding plagiarism:
(1) UW Bothell: http://www.bothell.washington.edu/library/guides/style.html; (2) Northwestern University: http://www.northwestern.edu/uacc/plagiar.html; and (3) University of California, Davis: http://sja.ucdavis.edu/avoid.htm.

The memos and the research project reports are expected to be students' original work. Incorrect or missing citations, use of other people's work, ideas, data, figures, and other published and unpublished material without acknowledging them correctly, copying portions of text from other authors, incorrectly paraphrasing other authors, or copying text from the internet constitute plagiarism. Any such or other activities of plagiarism will initiate formal procedures as outlined in the UW Bothell student book.

Weekly Schedule of topics and Assigned Readings

M		W	
1/02 Week 1	Class does not meet: Holidays	1/04	***Introduction: Energy, Environment and Society*** *Syllabus, Blackboard, Formation of Groups* No readings assigned
1/9 Week 2	***Long term trends and Energy Forecasting*** Smil Chapters 1 and 3 (ERR) **Memo**	1/11	***Coal use nationally and globally*** *http://www.eia.doe.gov/cneaf/coal/page/acr/acr_sum.html* and http://www.eia.doe.gov/oiaf/ieo/pdf/coal.pdf **Memo**
1/16 Week 3	Class does not meet: Holiday	1/18	***Oil supply and gas for oil markets*** Mitchell et al.: Ch. 3 and 5 (ERR) **Memo**
1/23 Week 4	***Nuclear alternative*** Elliot, Ch. 5 and 6 (ERR) **Memo**	1/25	***Local air pollution*** McKinney and Schoch: Ch. 16 (ERR) **Memo**
1/30 Week 5	***Global air pollution*** McKinney and Schoch: Ch. 17 (ERR) **Memo**	2/1	***Renewable and alternative sources, Hydrogen for cars*** McKinney and Schoch: Ch. 8 (ERR) Hoffman Ch. 6 (ERR) **Memo**
2/6 Week 6	***Why are sustainable technologies not implemented?*** Nadel (ERR) Geller, Ch. 2 (ERR) **Memo**	2/8	***Energy Policy at the Federal Level*** Kubasek, Chapter 9 (ERR) Geller Ch. 5 (ERR) **Memo**
2/13 Week 7	***The Role of States and Cities in Energy Policy*** McGranahan (ERR) Rabe (ERR) Polasky (ERR) **Memo**	2/15	***Energy Information and public opinion*** Koomey et al. (ERR) Smith, Ch. 3 and 4 (ERR) **Memo**
2/20 Week 8	Class does not meet: Holiday	2/22	***International Global Climate Change Regime and the U.S. Strategies*** Hovi, Stokke and Ulfstein (ERR) Victor (ERR) Rosencranz (ERR) Andreson (ERR) **Memo**

Continued on the next page.

M		**W**	
2/27 Week 9	***States' Climate Change Policy: In-dept study*** Presentations	3/1	***States' Climate Change Policy: Quantitative study*** Presentation
3/6 Week 10	***Towards a Sustainable Energy Future*** Lovins et al. (http://www.oilendgame.com/)	3/8	***City Climate Change Policy*** *Presentations*

Recommended/Optional Readings

Actors and Stakeholders in Energy and Environmental Policy

(1) Hirsh, Richard F. 1999. *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System*. Cambridge; MIT Press.
(2) Newell, Peter. 2000. *Climate for Change: Non-state actors and the global politics of the greenhouse*. Cambridge; Cambridge University Press.
(3) Swidler, Joseph C. 2002. *Power and the Public Interest: The Memoirs of Joseph C. Swidler*. Edited by A. Scott Henderson. Knoxville; The University of Tennessee Press.
(4) Stagliano, Vito A. 2001. *A Policy of Discontent: The Making of a National Eerngy Strategy*. Tulsa; Penn Well Corporation.
(5) Yergin, Daniel. 1991. *The Prize: The Epic Quest for Oil, Money, and Power*. New York; Simon&Schuster.

Electricity

(1) Brennan, Timothy J., Karen L. Palmer, and Salvador A. Martinez. 2002. *Alternating Currents: Electricity Markets and Public Policy*. Washington D.C.; Resources for the Future.
(2) Hirsh, Richard F. 1999. *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System*. Cambridge; MIT Press.

Energy Conservation

(1) Convery, Frank J. 1998. *A Guide to Policies for Energy Conservation: The European Experience*. Northampton, MA; Edward Elgar.
(2) Inhaber, Herbert. 2002. *Why Energy Conservation Fails*. Westport; Quorum Books.
(3) Owen, Gill. 1999. *Public Purpose or Private Benefit? The Politics of Energy Conservation*. Manchester, UK; Manchester University Press.

Energy Economics and Politics

(1) Carraro, Carlo (ed.). 2000. *Efficiency and Equity of Climate Change Policy*. Boston; Kluwer Academic Publishers.
(2) Davis, David Howard. 1993. *Energy Politics*. Fourth Edition. New York: St. Martin Press.
(3) Hirsh, Richard F. 1999. *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System*. Cambridge; MIT Press.
(4) Kursunoglu, Behram N., Stephan L. Mintz. And Arnold Permutter (eds). 1996. *Economics and Politics of Energy*. New York; Plenum Press.
(4) Mitchell, John. 2001. *The New Economy of Oil: Impacts on Business, Geopolitics, and Society*. London: Earthscan Publications.
(5) Newell, Peter. 2000. *Climate for Change: Non-state actors and the global politics of the greenhouse*. Cambridge; Cambridge University Press.
(6) Stagliano, Vito A. 2001. *A Policy of Discontent: The Making of a National Energy Strategy*. Tulsa; Penn Well Corporation.
(7) Yergin, Daniel. 1991. *The Prize: The Epic Quest for Oil, Money, and Power*. New York; Simon&Schuster.

Energy and Environmental Policy

(1) Dietz, Thomas and Paul C. Stern. (Eds.) 2002. *New Tools for Environmental Protection: Education, Information, and Voluntary Measures*. Washington, D.C.; National Research Council, National Academy of Sciences.

(2) Energy Information Administration. 1996. *Privatization and the Globalization of Energy Markets*. Washington, D.C.; Energy Information Administration, U.S. Department of Energy.
(3) Geller, Howard. 2003. *Energy Revolution: Policies for Sustainable Future*. Washington, D.C.: Island Press.
(4) Hodgson, Peter E. 1999. *Nuclear Power, Energy, and the Environment*. Imperial College Press.
(5) International Energy Agency. 1989. *Energy and the Environment: Policy Overview*. Paris, France; Organization for Economic Cooperation and Development, International Energy Agency.
(6) MacKerron, G. and P. Pearson. (Eds). 2000. *The International Energy Experience: Markets, Regulation, and the Environment*. London, UK; Imperial College Press.
(7) Pratt, Joseph A., William H. Becker, and William M. McClenahan Jr. 2002. *Voice of the Market Place: A History of the National Petroleum Council.*
(8) Stagliano, Vito A. 2001. *A Policy of Discontent: The Making of a National Energy Strategy*. Tulsa; Penn Well Corporation.
(9) Wenner, Lettie McSpadden. 1990. *U.S. Energy and Environmental Interest Groups: Institutional Profiles*. New York; Greenwood Press.

Global Warming Science, Economics, Politics, and Policy
(1) Carraro, Carlo (ed.). 2000. *Efficiency and Equity of Climate Change Policy*. Boston; Kluwer Academic Publishers.
(2) Krause, Florentin, Wilfrid Bach, and Jonathan Koomey. 1992. *Energy Policy in the Greenhouse*. New York; John Wiley & Sons, Inc.
(3) Flavin, Christopher and Seth Dunn. 1997. *Rising Sun, Gathering Winds: Policies to Stabilize the Climate and Strengthen Economies*. Washington, D.C.; Worldwatch Institute.
(4) Michaelowa, Axel and Michael Dutsche (eds). 2000. *Climate Policy and Development: Flexible Instruments and Developing Countries*. Northampton, MA; Edward Elgar.

History of Energy and Environmental Policy
(1) International Energy Agency. 1989. *Energy and the Environment: Policy Overview*. Paris, France; Organization for Economic Cooperation and Development, International Energy Agency.
(2) Marcus, Alfred A. 1992. *Controversial Issues in Energy Policy*. Newbury Park; Sage Publications.
(3) McNeill. J.R. 2000. *Something New Under the Sun: an Environmental History of the Twentieth-Century World*. New York; W.W. Norton & Company, Inc.
(4) Smil, Vaclav. 1994. *Energy in World History*. Boulder; Westview Press.
(5) Stagliano, Vito A. 2001. *A Policy of Discontent: The Making of a National Energy Strategy*. Tulsa; Penn Well Corporation.

International Energy Perspectives
(1) Convery, Frank J. 1998. *A Guide to Policies for Energy Conservation: The European Experience*. Northampton, MA; Edward Elgar.
(2) Energy Information Administration. 1996. *Privatization and the Globalization of Energy Markets*. Washington, D.C.; Energy Information Administration, U.S. Department of Energy.
(3) MacKerron, G. and P. Pearson. (Eds). 2000. *The International Energy Experience: Markets, Regulation, and the Environment*. London, UK; Imperial College Press.
(4) Nakićenović, Nebojša, Arnulf Grübler, and Alan McDonald. (Eds) 1998. *Global Energy Perspectives*. Cambridge; Cambridge University Press.
(5) Owen, Gill. 1999. *Public Purpose or Private Benefit? The Politics of Energy Conservation*. Manchester, UK; Manchester University Press.

Renewable Sources of Energy
(1) Berinstein, Paula. 2001. *Alternative Energy: Facts, Statistics, and Issues*. Westport; Oryx Press.

(2) Cassedy, Edward S. 2000. *Prospects for Sustainable Energy: A Critical Assessment*. Cambridge; Cambridge University Press.
(3) Geller, Howard. 2003. *Energy Revolution: Policies for Sustainable Future*. Washington, D.C.: Island Press.
(4) Hoffmann, Peter. 2001. *Tomorrow's energy: Hydrogen, Fuel Cells, and the Prospects for a Cleaner Planet*. Cambridge, MA: The MIT Press.

Energy Technologies

(1) Borowitz, Sidney. 1998. *Farewell Fossil Fuels: Reviewing America's Energy Policy*. New York; Plenum Trade.
(2) Cassedy, Edward S. and Peter Z. Grossman. 1998. *Introduction to Energy: Resources, Technology, and Society.* Cambridge; Cambridge University Press.
(3) Priest, Joseph. 2000. *Energy: Principles, Problems, Alternatives*. Kendal/Hunt Publishing Company.
(4) Ristinen, Robert A. and Jack J. Kraushaar. 1999. *Energy and the Environment*. New York. John Wiley & Sons.
(5) Wiser, Wendell H. 1999. *Energy Resources: Occurrence, Production, Conversion, Use*. New York; Springer Verlag.