

Political Science 340
Energy Policy
Spring 2007

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Office Hours: M, W, F 10:00 – 11:00; T, Th 11:00 – 12:00 and by appointment

Human history can be divided into three distinct successive phases. The first, comprising all history prior to about 1800, was characterized by a small human population, a low level of energy consumption per capita, and very slow rates of change. The second, based upon the exploitation of fossil fuels and the industrial metals, has been a period of continuous and spectacular exponential growth. However, because of finite resources of the earth's fossil fuels and metallic ores, the second phase can only be transitory. Most of the ores of the industrial metals will have been mined within the next century. The third phase, therefore, must again become one of the low rates of growth, but initially with a large population and a high rate of energy consumption. Perhaps the foremost problem facing mankind at present is that of how to make the transition from the present exponential growth phase to the near steady state of the future by as noncatastrophic a progression as possible.

- - M. King Hubbert

Introduction and Goals of the Course

It has long been recognized that the fundamental human issue concerning energy is how any society uses energy to do work, produce goods and meet the basic needs and demands of its members. The choices that societies make in this regard have profound implications for the patterns of human settlement, the structure of social life, the distribution of income, and the allocation of political power. More recently, people have also begun to recognize that these choices also have implications for the viability of the environment and the conditions of human health. Some individuals with long-term vision have even expressed concerns that choices of energy technologies will affect levels of personal freedom and the possibilities of democratic government.

These issues came into clear relief during the “energy crises” of the 1970s. At that time, significant short-term disruptions of energy supplies prompted serious public debate focused on making rational energy choices for the long term, with considerable attention paid to the social, economic and political implications of those choices. Two decades of market ideology, significant aggregate economic growth, the globalization of the economy, the development of new telecommunications and computing technologies and

the end of the Cold War obscured that debate, however. With the exception of environmental concerns, even a significant war in the Middle East, the spread of global terrorism and escalating military activity around access to oil have not quite thrust these issues back before a relatively complacent American population. Yet, these issues deserve serious attention. This is the most essential purpose of this course. Towards that end, the course objects are as follows:

- To introduce students to the concepts that structure debates about energy use and policy choice, including the development of an understanding of the sources and end-uses of energy both in the United States and globally
- To develop in the students a sense of the interrelationships between the choices of energy technologies and the social, economic and political characteristics of a society.
- To expose students to the physical, economic and political dimensions of the choices that societies have available to them.
- To explore with the students the current position that energy holds on the contemporary public policy agenda including a look at significant domestic and international conflicts connected to the use of energy.
- To have students consider the best path for future energy development and use, including consideration of normative and ethical questions in that regard.

Attendance

Students are expected to attend all classes. Absences due to participation in legitimate Moravian College extracurricular activities; a doctor's excuse or notification by the Dean of Students Office will allow a student to be excused from class. All other excuses are subject to the instructor's discretion.

Texts

Robert Duffy, **Nuclear Politics In America**, (Lawrence, KS: University of Kansas Press, 1997)

David Goodstein, **Out of Gas**, (New York: W.W. Norton, 2004)

Michael Klare, **Blood and Oil**, (New York: Henry Holt and Co., 2004)

Vaclav Smil, **Energy at the Crossroads**, (Cambridge, MA: The MIT Press, 2003)

Evaluations of Students Work

The final grade will be based on a 300 point system. Final grades will be assigned according to the following scoring:

GRADE	POINTS	GRADE	POINTS
A	285	C	225
A-	270	C-	210
B+	265	D+	205
B	255	D	195
B-	240	D-	180
C+	235	F	<180

The scores will be determined through set of out of class writing assignments, an energy journal and the instructor's evaluation. The essay questions and descriptions of other assignments, their point value and the due dates for each are listed below.

Take Home Essay I - (100 points) DUE DATE 2/20

This course is premised on the belief that understanding energy and its role in the social and economic order in the United States is fundamentally important in regard to the normative choices facing American citizens in shaping the quality of life of current and future generations. Imagine that you need to convey this to your friends and family in a systematic and concrete manner using what you have learned about the nature, history and consequences of energy use in the United States. This essay should be 5 to 7 typewritten pages and include the following:

- Identification and explanation of key concepts about how energy is used that are essential for citizens to understand the energy issues before them
- Discussion of significant trends, developments and events that are important in understanding energy use
- Evidence of use of reading and class materials

Book Reviews (40 points each)

Students in this course will write two book reviews. The books to be reviewed and the due dates for each report are:

Michael Klare, **Blood and Oil** – DUE DATE 3/15

Robert Duffy, **Nuclear Politics In America** – DUE DATE 4/10

Each review should be 3 to 5 typewritten pages and include the following:

- A statement of the principal thesis of the book

- A discussion of **at least** three specific elements (e.g. events, statistical evidence, analytical or academic constructs) of the book that are intended to support the author's thesis
- An assessment of the effectiveness of the author in supporting the thesis

Final Essay – (100 points) DUE DATE 4/19

Imagine yourself to be writing a letter to a member of Congress outlining what you believe should be U.S. energy policy for the next decade. That is, in regard to energy what America should seek to do and why. This document should include a discussion of both what our energy priorities ought to be and why the priorities should be as you state. It should also include references to any specific fuels that are part of your priority list and include rationales for positions taken on those fuels. Finally, the discussion should include some reference to the policy tools you would use (e.g. subsidies, regulation, public education campaigns) to pursue the goals you identify. This essay should include evidence of use of reading and class materials. This assignment should be a minimum of 5 typewritten pages.

Energy Journals (10 points) - DUE DATE

Students will submit a typewritten report on how they used energy during the course of a week during this semester. The week in question will be the week of March 29 through April 4. These journals will have eight entries. Seven of these entries will be a record of the ways that the student consumed energy during a given day and an identification of the energy resource that was consumed in that activity. The eighth entry will be a student commentary reflecting on the record established in the journal. This commentary could focus on any of the topics in the course. The commentary could include normative judgments on lifestyle, implications for public policy or government action, lessons learned by the individual about energy use, or a discussion of a particular event or activity that yielded to the student a noteworthy insight about the issues raised by the course.

Instructor Evaluation (10 points)

Ten points towards the final grade will be determined by instructor evaluation. This evaluation will be primarily based on participation in class discussion but also includes attendance, completing assignments on time and other indications of effort and commitment to the course.

Course Outline and Reading Assignments:

Date	Topic	Assignment
1/16	Introduction	<i>Start reading Smil, pp. 1-120</i>
1/18	Technological determinism and technological choice	Nye, "Introduction"
1/23	Energy and Society: Work, Consumption and the economy	Smil, pp.49-80
1/25	Energy and Society: History of use and innovation	Smil, pp. 1-48
1/30	Energy and Society: History of use and consumption	Smil, pp. 81-120
2/1	Thermodynamics, entropy and end use (1/20)	Goodstein, pp. 15-98
2/6	Exponential growth, supply and the Hubbert Curve	
	<p>Read: A. Bartlett, "Forgotten Fundamentals of the Energy Crisis," <u>American Journal of Physics</u>, September 1978, ON RESERVE or available on the internet at http://www.npg.org/specialreports/bartlett_index.htm</p>	
2/8	The End of Suburbia	
2/13- 2/15	Hard vs. Soft Path Energy	Smil, pp. 121-180
2/20	Making Public Policy: Markets and public goods	Stone, Policy Paradox , Ch. 1, "The Market and the Polis," and Reagan, Regulation , Ch. 2, "Why Regulate?" on reserve
2/22	Policy process variables: legislative and administrative policy making	Anderson, Public Policy Making , Ch.3, "Policy Formation: Problems, Agendas and Formulation," on reserve – OPTIONAL
2/27	Policy process variables: legislative and administrative policy making	Duffy, pp. 1-48
3/1	Policy types and policy tools	Birkland, An Introduction to the

		Policy Process , Chs. 6 and 7, “Policies and Policy Types” and “Policy Design and Policy Tools” on reserve – OPTIONAL
3/13	Oil: the political economy of oil, supply, demand and domestic policy towards oil	Smil, pp. 181-213; Klare, pp. 1-25
3/15 - 3/20	Oil and U.S. foreign policy	Klare, pp. 26-212
3/22 – 3/27	Coal, natural gas and environmental issues	Smil, pp. 213-238
3/29	Regulation of electricity	Gellings and Yeager, “Transforming the Electric Infrastructure,” Physics Today , December 2004, pp. 45-51 on reserve ; Brennan, et.al., Alternating Currents: Electricity Markets and Public Policy , Ch. 2, “Understanding the Electric Industry,” on reserve - OPTIONAL
4/3	Restructuring	Brennan, et.al., Alternating Currents: Electricity Markets and Public Policy , Ch. 3, “From Regulation to Competition,” and Ch. 6, “Competition in Energy, Regulation in Wires” on reserve - OPTIONAL
4/5	Nuclear power: technology and regulation	Duffy, pp. 49-151
4/10	Barriers to development and policy	Duffy, pp. 155-212
4/12	Future of Nuclear Power	Duffy, pp. 213-240; Smil, pp. 309-316; Goodstein, pp. 101-115
4/17	Hydrogen	Smil, pp. 296 - 309
4/19 - 4/26	Biomass, wind and solar	Smil, pp. 239-296