

ER290 - Energy and Development

Professor Daniel M. Kammen

Energy and Resources Group & Goldman School of Public Policy

Mondays, 2:00 – 5:00 PM, 50 Barrows Hall (CC #27469)

Course WWW page <http://socrates.berkeley.edu/~kammen/er290/>

Overview

This graduate seminar will examine the relationship between development theory and practices it has shaped decisions about energy resources and technologies over the past 40 years. A focus will be on rural and decentralized energy use, and the issues of technology, culture, and politics that are raised by both current trajectories, and potential alternatives. We will explore the frequently divergent ideas about energy and development that have emerged from civil society, academia, multinational development agencies, and national development plans in order to investigate the differing perspectives currently envisioned for sustainable energy futures.

The seminar will explore the theories of energy infrastructure, the energy driver of development, 'appropriate technology', and cultural and political aspects of energy services, socioeconomic, and environmental impacts. Specific themes in the class will include gender and energy, renewable energy alternatives, risk management and transfer, the emergence of decentralized energy options, and the role of energy and environmental linkages.

What the seminar *will not* do:

- Provide a fully comprehensive introduction to economic or social theories of development. An introductory course in development theory or practice is required.
- ER100 and at least one course in development economics or development theory are required prerequisites.

What the seminar *will* provide:

- A history of ideas about energy and development.
- An opportunity to examine and critique small-scale and decentralized energy planning practices at the household, village, and regional level.
- Consideration of the differences between energy consumption and energy services.

- Examination of energy options in the face of changing views on development, economic and social models, and the environment.
- A comparison of the differential access and uses of energy seen across gender, ethnic, and socioeconomic lines. We will explore energy as a resource for infrastructure development in the context of development theory.
- Exposure to a range of detailed cases to illustrate the theoretical and policy approaches studied.

The class will provide a forum for the development of original written material that problematizes current hypotheses, and, ideally, presents alternative theories. The primary written assignment of the course – the final paper – is intended as an opportunity to make original contributions to the energy, development and society literature or policy debate(s).

Prerequisites:

ER100 “Energy and Society” or equivalent, and *at least* one development course are required. A partial list of qualifying courses includes: Geography 35, 130, 214, 215, or 244; Political Science 226; Agricultural and Resource Economics 101, ESPM 165, 166, or 167.

The course is limited to 15.

The Readings:

This course will require significant weekly reading, an average of one book *per week*. Please be aware that in order to create an environment for in depth class discussion on the weekly themes, these readings are mandatory. *Student will turn in a 1 – 2 page critique or comment/question stemming from the reading the day before class each week. These questions will be circulated to the class prior to the seminar.*

Each week the required readings are listed, as well as a selection of ‘Resource Readings’ that you may want to explore for further information, or as material for possible papers. Resource readings will be available in a file in the ERG reading room (323 Barrows Hall).

Readings available on line are indicated with a URL address.

Readings that will be either emailed to the class, or available on the course URL site are indicated with a [E] or [W], respectively.

A variety of journal articles are available online at Energyinfo.net, URL <http://www.energyinfo.net>.

Some material will be distributed as a photocopy [P].

Assignments:

Each student is required to submit the day *before* class [on Sunday] a comment, issue, or short list of questions based on the reading. These ‘talking points’ will be emailed to the student set to lead the discussion that week for compilation into a single document. That file will be distributed to class participants for the next day’s class. To make this work, *your comments are*

due by 6:00 PM, Sunday evening. Do not send your comments to the whole class – just the weekly group leader.

FINAL PAPER:

This paper (roughly 25 - 30 pages) can be an exploration of a specific policy debate, including an analysis leading to a recommended course of action, or it can focus on a particular issue or failing of sustainable development or resource management. The format of this paper is flexible, and based on the goals of the student could take the form of a research paper or proposal, a policy memo, or a thesis chapter. In any case, the focus is on the connection between issues in energy, environment and development, and the theoretical or practical basis for relevant decision making or management.

SCHEDULE OF CLASSES

<u>WEEK</u>	<u>DATE</u>	<u>TOPIC</u>
1	August 29	Introduction: Energy & Development in Theory and Practice
2	September 5	Labor Day Holiday
3	September 12	Overview of Outcomes: What the Energy & Development Nexus Delivered
4	September 19	The Founding Mentality, Setting the Stage for Five Decades of Development?
5	September 26	The Mindset at Work
6	October 3	Technology Transfer
7	October 10	Technology Transfer Under Siege
8	October 17	Rage Against the Machine
9	October 24	Appropriate Technology Theory and Practice
10	October 31	Theories of Energy and Gender [<i>pending travel</i>]
11	November 7	Households and Communities: Local Resources (Biomass) and Development
12	November 14	Household Energy – the Promise and Politics of PV
13	November 21	<u>No Class</u> . Material: Household Energy – A Reprieve, Of Sorts
14	November 28	New Institutions: National and Multinational
15	December 5	What is Development About, Anyway?

Required Texts:

Bose, Sharmila (1993) *Money, Energy and Welfare* (Oxford University Press: Bombay, India)

Boserup, Esther (1970) *Woman's Role in Economic Development* (Earthscan: London). ISBN 1-8538-3040-2

Goulet, Denis (1989) *The Uncertain Promise: Value Conflicts in Technology Transfer* (New York: New Horizons Press & Apex). ISBN 0-9452-5704-X

Grillo, R. D. and R. L. Stirrat, Editors (1997) *Discourses of Development: Anthropological Perspectives* (Oxford, UK: Berg). ISBN 1-85973-945-8

Head, Bessie (1969, 1996) *When Rain Clouds Gather* (Heinemann African Writers Series: London, UK). ISBN 0-4359-0961-4

Hirshman, Albert O. (1967) *Development Projects Observed* (The Brookings Institution: Washington, DC). ISBN 0-8157-3651-7

Rich, Bruce (1994) *Mortgaging the Earth: The World Bank, Environmental Impoverishment, and the Crisis of Development* (Beacon Press: Boston, MA).

Vernon W. Ruttan (2000) *Technology, Growth, and Development: An Induced Innovation Perspective* (Oxford University Press: New York). ISBN 0-1951-1871-5.

Annabel Rodda (1991) *Women and the Environment* (London, Atlantic Highlands, NJ: Zed Books). ISBN 0-8623-2985-X

Sen, Amartya (1999) *Development as Freedom* (Anchor Books, Random House: New York). ISBN 0-385-72027-0

Turner, Mark M. and Hulme, David (1997) *Governance, Administration, and Development: Making the State Work* (Kumarian Press: London, UK). ISBN 1-5654-9070-3

Willoughby, Kelvin W. (1990) *Technology Choice: A Critique of the Appropriate Technology Movement* (Boulder London: Westview Press). ISBN 0-8133-7806-0.

Week 1 Introduction: Energy & Development in Theory and Practice
August 29

No readings. Be sure to get the books. A few are not available in the campus bookstores, and they have indicated these. We will make arrangements in class to have access to these works.

Week 2 No Class – Labor Day Holiday
September 5

Read materials for Week 3, or – gasp – get ahead on a future week where you will be pressed for time due to other commitments.

Week 3 Overview of Outcomes: What the Energy & Development Nexus Delivered
September 12

You have two weeks, so read these carefully. These readings are illustrative of the prevailing institutional views of energy resources for development.

- Amulya K.N. Reddy, Robert H. Williams and Thomas B. Johansson (1997) *Energy After Rio* (UNDP: New York). Introduction, Chapters 2, 5
[W] <http://www.undp.org/seed/energy/contents.html>

- World Energy Council
[W] <http://www.worldenergy.org/wec-geis/>

- World Energy Council (2000) *Energy for Tomorrow's World – Acting Now Executive Summary*

[W] http://www.worldenergy.org/wec-geis/etwan/open.plx?file=exec_summary/exec_summary.htm

Read All the Items Listed in the 'Contents': The Energy Challenge; Developments Since 1993; The Environmental Agenda; The Three Energy Goals; Ten Policy Actions, and Acting Now.

- Examine at length the ESMAP website:
[W] <http://wbln0018.worldbank.org/esmap/site.nsf>

Week 4 The Founding Mentality, Setting the Stage for Five Decades of Development?
September 19

- Braithwaite, J. and Drahos, P. “Bretton Woods: Birth and Breakdown”, [excerpt from *Global Business Regulation*, Cambridge University Press, 2000],
[W] <http://www.globalpolicy.org/soecon/bwi-wto/2001/braithwa.htm>
- As a reference, not for reading but for skimming, the Bretton Woods Agreements are archived at:

[W] <http://www.yale.edu/lawweb/avalon/decade/decad047.htm>

- Ruttan, *Technology, Growth, and Development*; Part I: Productivity and Economic Growth

Optional Reading:

- Reed, David (1997) “The environmental legacy of Bretton Woods: The World Bank”, in Oran Young, editor, *Global Governance* (MIT Press: Cambridge, MA).

Week 5 The Mindset at Work September 26

- Albert Hirschman, *Development Projects Observed*

Week 6 Technology Transfer October 3
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- Ruttan, *Technology, Growth, and Development*; Part II: Sources of Technical Change, focus on Chapter 5.
- *Methodological and Technological issues in Technology Transfer* (Cambridge University Press, 1999). Read, at minimum: *Technical Summary*; *Chapter 1*; *Chapter 10*; and 2 or more case studies. All material online at:
[W] <http://www.grida.no/climate/ipcc/tectran/>

Week 7 Technology Transfer Under Siege October 10

- Denis Goulet, *The Uncertain Promise*
- Goldsmith, Edward (2004) “Percy Schmeiser: the man that took on Monsanto”, *The Ecologist*
http://www.theecologist.org/archive_detail.asp?content_id=279
- *The Ecologist* (1/5/2003) *Promising the World, or Costing the Earth?*
http://www.theecologist.org/archive_detail.asp?content_id=373

Note: Ecologist articles require free online registration at their website:
http://www.theecologist.org/register_free.asp?tab=11

Optional Reading:

- *Methodological and Technological issues in Technology Transfer* (Cambridge University Press, 1999). Read, chapter 11 'The Agricultural Sector'; and 2 or more agricultural case studies. All material online at:
[W] <http://www.grida.no/climate/ipcc/tectran/>

Week 8	Rage Against the Machine
October 17	

- Bruce Rich, *Mortgaging the Earth*
- [E] Severino reply to Bruce Rich
- Bruce Rich's response to World Bank's critique of *Mortgaging the Earth*, Environmental Defense, May 10, 1994
[W] http://www.environmentaldefense.org/documents/2489_Richcritique.htm
- Allan Rew, 'The donors' discourse: Official Social development knowledge in the 1980s', in Grillo, R. D. and R. L. Stirrat, editors (1997) *Discourses of Development: Anthropological Perspectives* (Oxford, UK: Berg). Pages 81 – 106.

Optional Readings:

A selection of the anti-World Bank literature

- *Planet Dialectics: Explorations in Environment and Development* by Wolfgang Sachs
- *Masters of Illusion the World Bank and the Poverty of Nations* by Catherine Caufield
- *Activists Beyond Borders: Advocacy Networks in International Politics* by Margaret E. Keck, Kathryn Sikkink
- *The Case Against the Global Economy: And for a Turn Toward the Local* by Jerry Mander (Editor), Edward Goldsmith
- *50 Years Is Enough: The Case Against the World Bank and the International Monetary Fund* by Kevin Danaher
- *The Ecologist* (each of you should read at least one issue; they are available in RAEL and extensively on the www)

The readings this week are intended to orient the class to some of the current debates and perceived opportunities for energy systems in the wider context of debates over development and the environment.

- An informative review of *Mortgaging the Earth*, by Vinay Kumar is available at
[W] <http://www.indiatogether.org/reviews/mortgage.htm>

Week 9 Appropriate Technology Theory and Practice October 24
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- Kevin Willoughby, *Technology Choice*

Optional Reading:

Spend some time online reading the material on Schumacher College, the Intermediate Technology Development Center, and ITPower, all of which are outgrowths of the Appropriate Technology movement.

- The portal for much of this material is:
[W] <http://www.itdg.org/>

Week 10 Theories of Energy and Gender October 31
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Note: we may have to move this session pending travel plans.

- Annabel Rodda (1991) *Women and the Environment* (London, Atlantic Highlands, NJ: Zed Books). Read *at least* Chapter 1.
- [W] Jyoti Parikh (1995) "Gender Issues in Energy Policy.," *Energy Policy*, **23**, 745 – 754.

Read one of these:

- Ester Boserup *Woman's Role in Economic Development*
or
- Sharmila Bose, *Money, Energy and Welfare* [everyone must read Chapter 1 of Bose]

Optional Reading:

- Annabel Rodda (1991) *Women and the Environment* (London, Atlantic Highlands, NJ: Zed Books).
- [W] Balakrishnan, L (2000) "Renewable Energy as Income Generation for Women," *Renewable Energy*, **19**, 319 – 324.
- Agarwal, Bina (1985) *Cold Hearths and Barren Slopes: The Woodfuel Crisis in the Third World* (Third World Books: London, UK).

- [W] Barbara C. Farhar (1998) “Gender and renewable energy: policy, analysis, and market implications”, *Renewable Energy*, **15**, 230 – 239.
- [W] Margaret Skutsch (1998) “The gender issue in energy project planning Welfare, empowerment or efficiency?” *Energy Policy*, **26**, 945 – 955.

Week 11 Households and Communities: Local Resources (Biomass) and Development November 7
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- James Fairhead and Melissa Leach, “Web of power and the construction of environmental policy problems: forest loss in Guinea”, in Grillo, R. D. and R. L. Stirrat, editors (1997) *Discourses of Development: Anthropological Perspectives* (Oxford, UK: Berg). Pages 35 - 59

Optional Readings:

- Ricardo Carrere and Larry Lohmann (1996) *Pulping the South: Industrial Tree Plantations and the World Paper Economy* (Zed Books: London, UK).

Week 12 Household Energy – the Promise and Politics of Renewables November 14

- [E] Martinot, E. *Review of the Status of Renewables Globally*, unpublished document
- Cabraal, A., Barnes, D. F., and Agarwal, S. (2005) “Productive Uses of Energy for Rural Development “, *Annual Review of Environment and Resources*, **30** (Planned volume publication date Nov 2005). Available online at: <http://www.annualreviews.org>

Optional Readings:

- Emma Crewe, “The silent traditions of developing cooks”, in Grillo, R. D. and R. L. Stirrat, editors (1997) *Discourses of Development: Anthropological Perspectives* (Oxford, UK: Berg). Pages 59 – 81.
- [W] Miller, Damian and Hope, Chris (2000) “Learning to lend for off-grid solar power: Policy Lessons from World Bank loans to India, Indonesia, and Sri Lank”, *Energy Policy*, **28**, 87 – 105.
- [E] Martinot, E., Ramesh Ramankutty, and Rittner, Frank (2000) *The GEF Solar PV Portfolio: Emerging Experience and Lessons*, Monitoring and Evaluation Working Paper No. 2 (World Bank: Washington, DC).

Week 13 Household Energy – A Reprieve, Of Sorts November 21

Note: class will not meet this day. You still need to send in your comments to the discussion leader for distribution to the class.

- Bessie Head, *When Rainclouds Gather*

Week 14 New Institutions: National and Multinational November 21
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- Mark M. Turner and David Hulme *Governance, Administration, and Development*
- Several articles on new institutions will be distributed by email.

Week 15 What is Development About, Anyway? December 5

- Amartya Sen, *Development as Freedom*

Optional Reading:

- Wolfgang Sachs (1992) *The Development dictionary: A Guide to Knowledge as Power* (London, UK: Zed Books).

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