ENERGY REGULATION AND THE ENVIRONMENT
Law 270.6
Fall 2012

Tuesdays and Thursdays
11:20 am to 12:35 pm
Room 134 (Tuesday)
Room 240 (Thursday)

Lecturer: Steven Weissman
Office: 358 Boalt Hall
Office Hours: Tuesday 2-4 pm
Phone: 510/642-0508
Email: sweissman@law.berkeley.edu

Course Description:

Energy production and use drive the world’s economies and offer hope for growth and prosperity. Yet, the extraction and use of fuels and the development of energy facilities are among the greatest threats to the global environment. This course introduces students to the legal, economic, and structural issues that both shape our energy practices and provide opportunities to overcome these critical problems. The course focuses primarily on the regulation and design of electricity systems and markets, since so many energy choices—the use of oil, natural gas, coal, nuclear, solar, wind, and energy conservation or “demand side management”—relate to the way we generate or deliver electricity, or avoid the need to do so. Next to the use of petroleum for transportation, electric generation is the greatest contributor to air pollution and the greatest source of greenhouse gas emissions. In addition, as urban and suburban development spread across the land, the maintenance and expansion of the electric transmission grid provide increasingly challenging land use problems.

The course examines both the traditional monopoly model of regulation and evolving competitive alternatives. The course exposes students to energy resource planning, pollution management, rate design, green markets, energy efficiency, demand side management, renewable energy portfolios, climate change, and carbon management. The course provides an introduction to administrative law and to practice issues in the field.

The course is for three units.

This syllabus was originally developed in collaboration with the Institute for Energy and the Environment at Vermont Law School.
Course Requirements

- Read the materials
- Participate in class discussion and presentations. Class participation will account for 25% of your grade. Because much of the course is discussion-oriented, it relies on lively participation. You are expected to be prepared when called upon and to voluntarily make high-quality contributions to classroom discussion. You will be responsible for the assigned readings, and your class participation grade will depend upon your engaging fully with the materials and related discussion.
- Complete several short written assignments accounting for 45% of your grade.
- Take an in-class multiple choice exam accounting for 10% of your grade.
- Write the final, take-home exam. This will account for 20% of your grade.

Course Materials

One small book is available in the bookstore. Unless otherwise indicated, all other required materials are available on the web, on or through Westlaw. There is a copy of just about everything posted on the course bSpace. Many of the cases on bSpace are shortened, for your convenience, so it pays to check it out. If there is sufficient demand, we will also offer these materials in a reader. The book is:

Course Syllabus

I. INTRODUCTION TO ENERGY AND ELECTRICITY

Class 1 (August 23): Introduction to the course, including the history of energy, the relationship between energy and development, environmental and environmental justice impacts of energy generation, and an introduction to current energy issues.

- [http://www.epa.gov/cleanenergy/energy-and-you/affect/index.html](http://www.epa.gov/cleanenergy/energy-and-you/affect/index.html). Click and thoroughly read the description of environmental impacts related to each fuel type. (Which fuel sources pose the greatest threat to air quality? Water quality? The climate?)

Class 2 (August 28)

Introduction to Electricity. An introduction to the basics of generation, transmission and distribution, efficiency, reliability, and ancillary services.

- Ferrey, Inverting Choice of Law in the Wired Universe: Thermodynamic, Mass, and Energy, 45 William and Mary Law Review 1842 at pp. 1910-1914, “E=MC²” [summary of physical nature of electricity]. Make sure to read the accompanying footnotes. Note: There will be only a few times during the term when you will need to obtain copyrighted materials such as this. In such instances, please download the document from Westlaw or Lexis, or read it in the Law Library. (What is the physical nature of an electric current? Is it a good or a service?)


II. PUBLIC UTILITIES AND RATE REGULATION

Class 3 (August 30): Introduction to Finance and Regulatory Economics. Basic financial concepts; basic economics of competitive and monopoly markets.

- Energy, Chapter 1, “Energy Economics”. Please read slowly and carefully. Take the time to understand the graphs.
Class 4 (September 4)

Introduction to monopoly, public interest, and regulation. A brief introduction to monopoly, cost of service regulation; historical origins of economic regulation, cases, and commentary; major players.

- *The Proprietors of the Charles River Bridge v. The Proprietors of the Warren Bridge*, 36 U.S. 420 (1837); *Munn v. Illinois*, 94 U.S. 133 (1876). (In each instance, what is the nature of the service provided? Is it a monopoly service? Is it affected with the public interest? What effect do these designations have on the relationship between government and the services provided?)


- American Public Power Association Fact Sheets  
  http://www.appanet.org/aboutpublic/index.cfm?ItemNumber=2676&navItemNumber=20963 (What is a municipal utility? How does it differ from an investor-owned utility? What advantages does it have, in terms of rates and service?)

Class 5 (September 6): Cost of Service Regulation Part 1.

Hand in the first take-home assignment. The role of a PUC, its organization, duties and procedures; how regulation works; rate base, rate of return, operating expenses; judicial review, including the first of the classic cases.

- *Energy* pp.182 bottom (starting with D. The Rate Formula) -192 (top)


Some early cases defining the respective roles of the legislatures, courts, and regulators in overseeing utility service and prices:


- *New State Ice v. Liebmann* (1932) 285 U.S. 362 (abridged) (Why did the majority reject the Oklahoma statute? What was Brandeis’ rationale in dissent?)
Class 6 (September 11): Cost of Service Regulation Part 2. Examples of cases defining the limits of regulatory power, and a rate design exercise that we will discuss in class.

- Orange County Air Pollution Control District v. Public Utilities Commission (1971) 4 Cal 3d 945
- San Diego Gas & Electric Co. v. Superior Court (1996) 13 Cal. 4th 893 (Covalt)

Class 7 (September 13)
Revenue Requirement and Rate Design

- Weston, “An Overview of the Principles and Economics of Utility Pricing”, Regulatory Assistance Project, 2003. (From an environmental perspective, why should we care about rate design? What rate design options hold the promise of improving environmental quality? Why?)


Class 8 (September 18): Performance Based Ratemaking and “Decoupling.”

Under traditional ratemaking, utilities generally make higher profits if they sell more power and lose profits as customers become more efficient. Performance-based ratemaking can address the problem of utility disincentives to promote customer energy efficiency by “decoupling” utility profits from the amount of sales. It also is a mechanism that can encourage beneficial behavior in many areas of utility operation.

- Cavanagh, Testimony before the Idaho Public Utilities Commission in The Matter of the Application of Idaho Power Company for Authority to Increase its Interim and Base
Rates and Charges for Electric Service, February 18, 2004 (excerpts). (What is a decoupling mechanism? What are some of the arguments in favor or adopting one? 12

- Revenue Decoupling Primer – National Consumer Law Center 2008
  (What are some of the arguments against the adoption of a decoupling mechanism? What is your opinion on the issue, and why?) 3


Class 9 (September 20): FERC and the States Struggle for Control (Part 1)

Hand in the Rate Exercise
The debate over market design and the development of key resources has featured a tug-of-war between the Federal Energy Regulatory Commission and the states. We will look at the boundaries of FERC jurisdiction as delineated in federal law, and consider the perspective of the courts.

- National Council on Electric Policy – A Comprehensive Review of Electric Restructuring, p. 8 only (Description of PURPA) – available as a one page document on bSpace. 1


- New England Power Company v. New Hampshire (1981) 455 U.S. 331 (abridged) (Why did New Hampshire think it could restrict the sales of hydroelectric power? What were the two main reasons that the Court disagreed?) 6

- Conn. Dep’t of Pub. Util. Control v. FERC, Nos. 07-1375, et al. (D.C. Cir. June 23, 2009) (abridged) (What are the limits of FERC jurisdiction over the generation of electricity? What was FERC trying to regulate in this instance? What was Connecticut’s concern? How did the court rule?) 5

Class 10 (September 25): FERC and the States Struggle for Control (Part 2)

- Federal Preemption of State Regulation in the Field of Electricity and Natural Gas: A Supreme Court Chronicle, Frank R. Lindh, 10 Energy LJ 277. Read the abridged
version on bSpace, pp.1-6 (top). (How do Congress and the Supreme Court define the boundaries of state and federal jurisdiction over electric and natural gas regulation? Is there a bright line for electric generation and transmission? If so, where is the line drawn? What role does the Commerce Clause have in setting these boundaries?) 6

- New York v. FERC (2002) 535 US 1. (abridged) (How does the court interpret the boundaries of Federal jurisdiction related to transmission lines? How does this differ from Federal jurisdiction over electric generation? How does state-level deregulation of electric service affect the jurisdictional boundaries?) 12

- FERC Order 1000 Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities (2011) (abridged) (In this decision, FERC tests the limits of its jurisdiction related to both transmission planning and transmission line cost allocation. In light of the division of authority between FERC and the states, does FERC’s assertion of jurisdiction in these two areas appear likely to withstand legal challenge? Will the FERC directive for regional planning complement the states’ traditional role in overseeing utility planning? Override that process? Prove ineffectual? What, if anything, does the Connecticut decision that you studied for the last class session suggest about the breadth or limits of potential FERC jurisdiction related to transmission planning and cost allocation?) 9

Class 11 (September 27): 1 Introduction to Deregulation. Wholesale Electricity Markets. We will lay out the fundamentals of deregulation and the circumstances that got us there.


• Some Basic Concepts of Market Power for State Public Utility Commissioners to Consider, National Regulatory Research Institute (2009) http://www.nrrri.org/pubs/multiutility/NRRI_basic_market_power_july09-11.pdf Read this material to understand the general concepts. You will not be asked to remember the formulae. (How do regulators define market power? What are some of the techniques available for detecting it? Does one technique seem more useful than others?) 6
Class 12 (October 2): Deregulation and Retail Competition. Consumer choice, default service, disclosure and green power, the record so far.


- *Decision Regarding Increased Limits for Direct Access Transactions*, California PUC D.10-03-022 March 11, 2010 http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/114976.doc Read pp. 3-5 (to the end of the first paragraph) and Findings of Fact 1-6, 9-10, and 13 on pp.31-32. (Why has the California Commission reopened direct access? How is this reopening limited?) 5

Class 13 (October 4): The California and Western Energy Crisis of 2000-2001, and the Environmental Impacts of Restructuring

- Duane, *Regulation’s Rationale: Learning from the California Energy Crisis*, 19 Yale Journal on Regulation 471 (2002) (abridged). This article does an excellent job of explaining the California debacle, and in the process makes the pro-regulation, anti-restructuring case. 20

III. FUEL CHOICES, RESOURCE PLANNING

Class 14 (October 9): Integrated Resource Planning and Portfolio Planning. Turn in optional paper.

Introduction to Integrated Resource Planning and Portfolio Planning for the right mix of generation types, transmission and conservation. Portfolio Management (“PM”) and Integrated Resource Planning (“IRP”) both constitute planning exercises and present similar issues. PM, a newer term, focuses on a single utility or other load serving entity. IRP can be performed by a state regulator on a system wide, regional or service area basis, or by a utility for its service area.

- Vermont Code Title 20, Sec. 218(c) requiring an IRP. 1

- PacifiCorp, *Integrated Resource Plan 2003*. This is an excellent example of a utility-prepared IRP. Read the Table of Contents, pp. 1-36 (“Executive Summary,” Ch 1 “Marketplace & Fundamentals: The Changing Context of IRP,” and Ch. 2 “Current Position”); and p. 81 first paragraph. Also, skim to become generally
familiar with the portfolios studied and the ranking of the results. On reserve in the library, and on bSpace. 37

- California CPUC Decision 04-01-050 Excerpt. 4

**Class 15 (October 11): Introduction to Traditional Fuels, and Hydroelectric Power.** The choice of fuel for generating electricity has significant implications for the environment, the economy, the reliability of power delivery, and national security. After an overview of the fuel choices, we will discuss oil and hydroelectric power.


- *Confederated Tribes and Bands of the Yakima Indian Nation v. FERC*, 746 F.2d 466 (9th Circuit 1984) (Note which court decided this case. What is the extent of its precedential value? What are FERC’s obligations related to the relicensing of a hydroelectric plant? What had FERC failed to do in this instance, and why was it important?) 10

**Class 16 (October 16): Oil**

In-Class Multiple Choice Text (1st half hour)

- *Energy Law*, Chapter 5 Oil pp.218-268. 50

**Class 17 (October 18): Coal.** Half of the electric energy offered to customers in the United States comes from coal-fired plants, and most observers expect these numbers to stay the same for many years to come. Is coal the fuel of the past or the fuel for the future?

- *Energy Law*, Coal pp.316-345 (Through D. Clean Coal Initiatives) 30

- U.S. EPA Acid Rain Program. Web only at: http://www.epa.gov/airmarket/trading/factsheet.html 4


**Class 18 (October 23): Natural Gas – The resource and its regulation.**

- *Energy Law*, Ch. 6 “Natural Gas”, 269-315. 46
Class 19 (October 25): Natural Gas - The Future, Domestic Supplies and Liquefied Natural Gas.

- *National Petroleum Council, September 2003, Executive Summary, pages 5-7* (What were the experts saying about natural gas supplies in 2003?)

- *Natural Gas Changes the Energy Map*, by David Rotman, in Technology Review November-December 2009 (available at the course bSpace page) pp.45-52

- *The Future of Natural Gas – Executive Summary*, MIT 2011 http://web.mit.edu/mitei/research/studies/documents/natural-gas-2011/NaturalGas_ExecutiveSummary.pdf Read as much as you like. We will discuss pp.3-8 (except for the last 2 paragraphs). (What are the major uncertainties related to reliance on the currently-projected supplies of natural gas? What are the implications of each of these concerns? Please be prepared to discuss.)


Class 20 (October 30): Nuclear Power. While a smaller percentage of our electric energy comes from nuclear power and no new nuclear generating plants have come into service during the last 20 years, some are looking for a nuclear rebirth, and Congress has taken steps to encourage that result. We will discuss the pluses and minuses of a nuclear power resurgence.

Environment”, “III. What Could Derail the Nuclear Renaissance in the U.S.?”). (Read this material to understand the challenges and opportunities related to an increased reliance on nuclear power. Don’t read to memorize names and numbers. The author worked for the federal nuclear regulators. Why are many people once again turning to nuclear power as a serious supply option? What does this author see as the most likely barriers to a nuclear resurgence?)

- **PG&E v. State Energy Resources Conservation and Development Commission et al., 461 U.S. 190 (1983) (abridged)** (What is the federal government’s regulatory jurisdiction over the development of nuclear power plants? What rights are retained within the states? How did the California law in question appear to bridge these two worlds? What were the reasons given by the court for affirming the state’s authority to act as it did? After carefully considering the rationale of the Court in this case, what do you see as being the limits of state authority over the construction and operation of nuclear power plants?)

- **New Jersey Department of Environmental Protection v. US Nuclear Regulatory Commission** (Third Circuit 2009) 561 F.3d 132 (abridged). (What was the court’s response to the concern raised by the appellant? What are the strengths and weaknesses of the court’s rationale? As a matter of public policy, do you agree with the outcome?)

- **NARUC v. DOE, D.C. Circuit 2012 (abridged)** (What is the current status of efforts to establish a permanent repository in the United States for high level nuclear waste?)

- **New York v. Nuclear Regulatory Commission, 681 F.3d 471, DC Cir. 2012 (abridged)** (What are the implications of the failure to site a permanent high-level nuclear waste repository? What are the challenges with long-term on-site storage? What problem did the DC Circuit Court of Appeals find with the Nuclear Regulatory Commission’s assessment of the situation?)

**Class 21 (November 1): Electric Transmission**


- **Piedmont Environmental Council v. FERC** 558 F.3d 304 (4th. Cir. 2009) (abridged). (What are National Interest Electric Transmission Corridors? How are they designated? What is the significance of the designation? What effect do you think this designation would have on the state certification process for transmission lines? Would there be a different effect if the court in Piedmont had reached the opposite conclusion? What is the Chevron doctrine? Did that doctrine control the outcome in this instance?)
• *California Wilderness Coalition v. DOE* 631 F.3d 1072 9th Circuit 2011 (abridged) 3

• *Alabama Municipal Electric Authority v. FERC* 653 F 3d 571 (DC Circuit 2011) (What limits does the DC Circuit court see on the obligation of utilities to provide transmission service at nondiscriminatory rates? How does *New York v. FERC* affect the outcome? What aspects of the way AMEA argued its case may have affected the outcome? In what circumstances might AMEA’s use of different transmission rates for bundled vs. unbundled service have an adverse effect on competition?) 3

**Class 22 (November 6): Energy Storage**


**IV. Renewable Energy, Efficiency, and Demand Response**

**Class 23 (November 8): Renewable Energy – The Technologies.**

Hand in the third paper.

This class will introduce types of renewable energy including wind, biomass, landfill gas, photovoltaics, and solar thermal technologies.


• *Geothermal Power Plant Virtual Tour*

• *Energy Self-Reliant States 2d Edition* 2010

**Class 24 (November 13): Renewable Energy -- The Programs.**

This class will introduce regulatory and legal strategies for encouraging the implementation of renewable energy options. These include PURPA, Feed-in Tariffs, life cycle costs and emissions, Renewable Portfolio Standards, Renewable Energy Credits, net metering, and the California Solar Initiative.
Renewable Portfolio Standard (RPS)

- *The Renewable Portfolio Standard – A Practical Guide* by Nancy Rader and Scott Hempling, Executive Summary. (Although at the time of this publication, there were only a handful of states with Renewable Portfolio Standards, the assigned pages provide a good summary of the key issues involved in program design.) pp. ix-xx.  

- *States with Renewable Portfolio Standards*, Center for Climate and Energy Solutions.  
  http://www.c2es.org/us-states-regions/policy-maps/renewable-energy-standards Click on the interactive map to learn about the RPS programs in various states

Green Tags and tradable Renewable Energy Certificates (RECS)


Feed-in Tariffs and Other Market Strategies

- *System-Side Renewable Distributed Generation Pricing Proposal – Energy Division Staff Proposal, August 26, 2009*, pages 7-12 (top)  
  http://docs.cpuc.ca.gov/efile/RULINGS/106275.pdf  
  (Note: On December 16, 2010, in Decision 10-12-048, the California Public Utilities Commission adopted an auction program consistent with this proposal.)

California Solar Initiative

- *California Solar Initiative Annual Program Assessment* (June 2012)  
  http://www.cpuc.ca.gov/NR/rdonlyres/0C43123F-5924-4DBE-9AD2-8F07710E3850/0/CASolarInitiativeCSIAnnualProgAssessmentJune2012FINAL.pdf  
  pp.9-11 and 14-16)

Net Metering

- *The Statewide Benefits of Net Metering* by Weissman and Johnson 2012  
  pp.1-3 (What is net metering? How
pervasive is its use nationwide? What are some of the current objections to its use in California?) 3

**Class 25 (November 15): Demand Side Management: Energy Efficiency.**


- *Building Vintage and Electricity Use*, Howard Chong 2010 [http://ei.haas.berkeley.edu/pdf/working_papers/WP211.pdf](http://ei.haas.berkeley.edu/pdf/working_papers/WP211.pdf) pp.2-3 (top section), and p. 20 (Conclusion) (Are new residential buildings, constructed in an era of buildings standards designed to improve efficiency, using less energy that older buildings when it gets hot outside? What does this suggest about reliance on design estimates of energy savings from efficiency improvements? What should be the policyresponse?) 3

- *California Energy Efficiency 2004-2005 Program Descriptions* (Read this compilation of program descriptions to get a taste of the ways that utilities spend energy efficiency dollars. The purpose of this exercise is not to know the numbers or memorize the program details – the goal is to be able to describe, in general terms, the kinds of activities that the utilities and their energy efficiency contractors undertake.) 15

- *Southern California Gas Company v. Public Utilities Commission*, (1979) 24 Cal.3d 653 (What did the California Supreme Court conclude about the CPUC’s authority to require utility insulation loan programs? In the absence of specific statutory descriptions, on what basis might the Commission claim jurisdiction to require such a program?) 5

**Class 26 (November 20): Demand Side Management: Demand Response**


- *Southern California Edison Company Demand Response Program* pp.3-5 [http://www.sce.com/NR/rdonlyres/3426D90C-7749-48AD-BA5C-]
V. CLIMATE CHANGE AND CARBON MARKETS

Class 27 (November 27): Climate Change and Carbon Markets.

- *Policy Statement on Greenhouse Gas Performance Standards*, Issued by the California Public Utilities Commission on October 6, 2005. 3

- *Overview of Constitutional Limitations on Out-of-State Procurement Rules*, IEPR Committee Workshop on Clean Coal Technology and Electricity Imports, Jonathan Blees. 9

- Climate Change and the California Public Utilities Commission’s Role – A Discussion Paper. 9


- *Climate Change Proposed Scoping Plan* (Adopted by the California Air Resources Board in 2008), pp.ES-1 to ES4 (top), chart on p. 21, and pp.30-32 (through Table 5). http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf 7 (What aspects of the Scoping Plan complement or rely on energy regulatory programs? What impact will these programs have on carbon reduction targets?)

- *Vulnerability of US and European Electricity Supply to Climate Change*, Nature Climate Change 2012 http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1546.html Read the summary paragraph at the top of the page, and any other portions you might find interesting. 1

VI. RECAP AND CONCLUSION

Class 28 (November 30 or as announced): Recap and conclusion.