

ENERGY REGULATION AND THE ENVIRONMENT
Law 270.6
Spring 2011

Tuesdays and Thursdays
11:20 am to 12:35 pm
Room 134

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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, the green alternatives such as 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 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.
- Complete several short written assignments accounting for 45% of your grade.
- Write the final, take-home exam. This will account for 30% 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. The book is:

- Tomain and Cudahy, *Energy Law in a Nutshell*, West 2004, ISBN 0-314-15058-7

Course Syllabus

I. INTRODUCTION TO ENERGY AND ELECTRICITY

Class 1 (January 11): 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>. 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 (January 13)

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

- Tomaine & Cudahy, *Energy Law* (“*Energy*”), West Group (2004), **pages 256 to the top of 264. 9**
- 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 time 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?) **5**
- National Council on Electricity Policy, *Electricity Transmission, A Primer* (2004) (“*Transmission Primer*”), p. 2 (the first 2 paragraphs under “A Quick History”); Ch. 4, “Physical and Technical Aspects of Transmission”, **pp.29-38; Appendix pp.49-52**. *Note: There is Glossary starting at p.59 that you might find helpful for future reference. 13*
http://www.raponline.org/showpdf.asp?PDF_URL=%22Pubs/ELECTRICITYTRANSMISSION.pdf%22 (What are the major components of the electric grid? How does it work? Can specific current be delivered from Point A to Point B? Is the grid a single machine, or is it many?)

II. PUBLIC UTILITIES AND RATE REGULATION

Class 3 (January 18): Introduction to Finance and Regulatory Economics. Basic financial concepts; basic economics of competitive and monopoly markets; introduction to how regulation addresses natural monopoly.

- *Energy*, Chapter 1, “Energy Economics” **pp.5-29 (top), and Section F, pp.33-36**. *Please read pp.17 through the top of 29 slowly and carefully. Take the time to understand the graphs. 29*

Class 4 (January 20)

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?) **22**
- The "Portland Speech," A Campaign Address on Public Utilities and Development of Hydro-Electric Power, Delivered by Franklin Delano Roosevelt in Portland, Ore. on September 21, 1932. (How does Roosevelt characterize the importance of electric service? What is his opinion of the role of regulation? What is the role of the publicly-owned, municipal utility?) **16**
- *Power Loss* by Richard F. Hirsh, "Creation of the Utility Consensus" MIT Press (1999) **pages 11-31**. This book provides a useful overview of the development of energy regulation. **On course reserve in the Law Library**. (What is the regulatory consensus? By what other name is it known? Why did it happen? What are the fundamentals of the New York and Wisconsin regulatory models?) **20**
- *Energy*, pp. **264-269**, "Regulatory Overview" (through "Regulation: 1935-1965"). **5**
- **American Public Power Association Fact Sheets**
<http://www.appanet.org/files/PDFs/Numelecproviderscust2006.pdf>
<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?) **1**

Class 5 (January 25): 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.130-136 **7**
- Dworkin, *The PSB Process: The Scope, The Players, and the Rules of Practice* **8**

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

- *Bluefield Waterworks & Imp. Company v. Public Service Commission of West Virginia* (1923) 262 U.S. 679 (abridged) **1**
- *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?) **12**
- *Federal Power Commission v. Hope Natural Gas Co.* (1944) 320 U.S. 591 (abridged) **4**
- *Market St. R.R. Co. v. R.R. Comm. of California* (1945) 324 U.S. 548 (abridged) **7**
- *Duquesne Light Company v. Barasch* (1989) 488 US 299 (abridged) **10**

Class 6 (January 27): 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 **6**
- *NAACP v. Federal Power Commission*, (1976) 425 U.S. 662 **6**
- *Cantor dba Selden Drug Company v. Detroit Edison*, (1976) 428 US 579 (abridged) **7**
- *San Diego Gas & Electric Co. v. Superior Court* (1996) 13 Cal. 4th 893 (*Covalt*) (abridged) **16**

- *People ex rel. Orloff v. Pacific Bell* (2003) 31 Cal.4th 1132 (abridged) **9**
- *Decision in Phase 1 on Whether a Corporation or Person That Sells Electric Vehicle Charging Services to the Public is a Public Utility* (CPUC D.10-07-044, July 29, 2010)
http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/121450.htm Read the **Summary on pp.1-2, and then pp.17-22.** (On what basis did the CPUC make its determination about whether a business becomes a public utility by providing electric battery recharging service? Do you agree with this approach? On what other basis could the CPUC have reached the same conclusion?) **8**

Class 7 (February 1)

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?) **8**
- *How to Induce Customers to Consume Energy Efficiently – Rate Design Options and Methods*, NRRI (2010)
http://nrri.org/pubs/seminars/Efficiency_Rates_Manual.pdf **pp.1-26** [NOTE: These pages appear as pp. 17-42 in the PDF version of the document.] **26**

Class 8 (February 3): 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
http://www.nclc.org/images/pdf/energy_utility_telecom/additional_resources/revenue.pdf (What are some of the arguments against the adoption of a decoupling mechanism? What is your opinion on the issue, and why?) **3**
- RAP, *Performance-Based Regulation for Distribution Utilities*,” 2000, **pp. 19-21 and pp. 25-27**. <http://www.raponline.org/Pubs/General/DiscoPBR.pdf> **8**
- *Performance Evaluation and Incentives for the Administration of Energy Efficiency Programs: Can Evaluation Solve the Principal/Agent Problem?* Carl Blumstein (2009). <http://www.ucei.berkeley.edu/PDF/csemwp184.pdf> **9**

Class 9 (February 8): Rate Design Summit

Turn in the rate design exercise, and be prepared to discuss it in class.

Class 10 (February 10)

Introduction to Deregulation. We will lay out the fundamentals of deregulation and the circumstances that got us there.

- *National Council on Electric Policy – A Comprehensive Review of Electric Restructuring*, **pp.8-9** (Description of PURPA) **2**
- *Power Loss* Chapter 7, pages **119-131**. (The impact of PURPA) **Library reserve. 13**
- *Energy*, **pp.275-285** (top) (The 1992 EPAct and subsequent FERC actions) **11**
- *Electricity Restructuring: FERC Could Take Additional Steps...* (2008), General Accounting Office, **pp.8 (bottom) – 17**.
<http://www.hks.harvard.edu/hepg/Papers/d08987gao.pdf> **10**

Class 11 (February 15): Deregulation and Wholesale Electricity Markets.

- ISO New England, Inc., *Standard Market Design*, 2003. These are selections from a series of short briefing papers describing the New England wholesale markets, including bilateral contracts, the day-ahead market, and the spot, or day-of-market. Included in the Reader are: “Wholesale Electricity Trading”;

“Background + Overview”; “Locational Marginal Pricing”; “The Multi-Settlement System”; “Market Monitoring and Mitigation”; and “Demand Response”. **18**

- *Atlantic City Electric v. FERC* (D.C. Cir. 2002) 295 F.3rd 1, and *Atlantic City Electric v. FERC* (D.C. Cir. 2003) 329 F.3rd 856. **10**

What should we do about the potential for using market power to manipulate markets? Are antitrust laws enough?

- *Some Basic Concepts of Market Power for State Public Utility Commissioners to Consider*, National Regulatory Research Institute (2009)
http://www.nrri.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**
- *Westar Energy Inc., et al v. FERC* (DC Circuit, June 12, 2009) (In what circumstances does FERC allow wholesalers to sell power at whatever price the market will bear? What happens if the wholesaler is exercising market power? What is FERC’s approach for dealing with a wholesaler that has market power in one jurisdiction, but no market power in another? What are Westar Energy’s arguments against FERC’ policy? How did the court respond?) **6**
- *NRG Power Marketing, LLC. Et al v. Maine Public Utilities Commission* (U.S. 2010) 130 S.Ct. 693 **8**

Class 12 (February 17): Deregulation and Retail Competition. Consumer choice, default service, disclosure and green power, the record so far.

- Brown and Sedano, *A Comprehensive View of U.S. Electric Restructuring with Policy Options for the Future*, National Council on Electricity Policy (June 2003), “Slow Development of Small Consumer Markets”; and State Approaches **pp. 27-57, on bSpace. 31**
- *Order Granting Petition for Rulemaking and Instituting Rulemaking As to Whether, When, and How Direct Access Should Be Restored* (2007), California PUC Rulemaking 07-05-025, **pp. 2-8 (top), 11-13, 23-28 (top), 31-35 (top)** (What is direct access, and why is the CPUC considering whether to restore it? What are

the underlying policy considerations?)

http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/68516.pdf 21

- *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 *Findings of Fact 1-6, and 9-10 on pp.31-32*. (Why has the California Commission reopened direct access? How is this reopening limited?) 2

Class 13 (February 22)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), pp. 493-540. This article does an excellent job of explaining the California debacle, and in the process makes the pro-regulation, anti-restructuring case. 47

Where to Now?

- *Coalition for Energy Reform – California Energy Policy Recommendations*. 9
- *SB 695, Chapter 337 2009 California*, http://info.sen.ca.gov/pub/09-10/bill/sen/sb_0651-0700/sb_695_bill_20091011_chaptered.pdf Read the portions of Section 2 of the bill that contain Public Utilities Code Section 365.1 (a) and (b). (How does this language change the law in California concerning retail competition for electricity in California?) 2

Class 14 (February 24): FERC and the States – A Long Struggle for Control. 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 historical evolution of the division of responsibilities for regulating generation and transmission.

- *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 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**
- *New York v. FERC* (2002) 535 US 1. (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?) **26**
- *Conn. Dep't of Pub. Util. Control v. FERC, Nos. 07-1375, et al.* (D.C. Cir. June 23, 2009) <http://pacer.cadc.uscourts.gov/common/opinions/200906/07-1375-1186743.pdf> (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?) **15**

III. FUEL CHOICES, RESOURCE PLANNING

Class 15 (March 1): 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**
- *America's Electric Utilities*, pp. 91-98. **Library reserve. 8**
- Synapse Energy Economics, Inc., *Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers*, RAP, October 2003. Read: Executive Summary

pp. ES 1-7.

<http://www.raponline.org/Pubs/PortfolioManagement/SynapsePMpaper.pdf> 7

- 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 Energy Action Plan (The original, as passed in 2003). **8**
- California CPUC Decision 04-01-050 Excerpt. **4**

Class 16 (March 3): 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.

- *America’s Electric Utilities*, **pp. 39-46. Library reserve. 7**
- *Energy Law*, Ch 10, “Hydropower”, **pp. 332-353. 22**
- *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**
- Memorandum of Understanding for Hydropower Among the Department of Energy, the Department of the Interior and the Department of the Army (March 2010 <http://www.vnf.com/assets/attachments/Federal%20Hydro%20MOU.pdf>. (What does this Memorandum suggest about the future of hydroelectric development from the perspective of federal agency leaders at the time? What role do the agencies see for large hydroelectric projects in the context of renewable energy development? How do the agencies intend to balance the interest in hydroelectric development with other environmental concerns?) **12**

Class 17 (March 8): Oil

- *Energy Law*, Chapter 5 Oil **pp.153-188. 36**
- *California v. Norton* (9th Circuit, 2002) 311 F.3d 1162, (abridged) (How does California's experience with offshore drilling affect the law in this area? What are the various federal and state regulatory regimes that apply, here? How does the court resolve federal and state responsibilities and powers under these regimes?) **13**
- "Oil Sands – Burning Energy to Produce It" <http://www.energybulletin.net/node/18624> **1**
- "Oil Shale May Be Fool's Gold" <http://www.energybulletin.net/node/11779> **1**

Class 18 (March 10): 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?

- Humphries, *U.S. Coal: A Primer on Major Issues*, Congressional Research Service 2003
<http://www.legis.state.wi.us/lc/committees/study/2006/NPOWR/files/RL31819.pdf>
Read pp. 1-8, 10, 17, 25, 27-28. 13
- U.S. EPA Acid Rain Program. Web only at:
<http://www.epa.gov/airmarket/trading/factsheet.html> **4**
- *Clean Air Markets Group v. Pataki* (2003) 338 Fed R 3d 82 (2nd Circuit) (What did New York try to do on its own to reduce acid rain? On what basis did the Second Circuit reject New York's law and regulations?) **4**
- *Global Warming and the Future of Coal – The Path to Carbon Capture and Storage* (2007) Ken Berlin and Peter Sussman, The Center for American Progress
http://www.americanprogress.org/issues/2007/05/pdf/coal_report.pdf **pp.6-26 (top) 21**

- *The End of Cheap Coal* (Nature, November 2010
<http://www.nature.com/nature/journal/v468/n7322/pdf/468367a.pdf> (What reasons do the authors give for predicting rising coal prices? What are the potential implications for carbon capture and storage, and for renewable energy development?) **3**
- *Keystone Bituminous Coal Assn. v. DeBenedictis* (1987) 480 U.S. 470 (abridged) **10**

Class 19 (March 15): Coal – Subsidence

- *Bragg v. West Va. Coal Ass’n.* (2001) 248 F.3rd 275 (abridged) **13**

Natural Gas – The resource and its regulation.

- *Energy Law*, Ch. 6 “Natural Gas”, 189-222. **33**

Class 20 (March 17): Natural Gas - The Future, Domestic Supplies and Liquefied Natural Gas.

- *Framework for Evaluating GHG Implications of Natural Gas-Fired Power Plants in California*, California Energy Commission, 2009.
www.energy.ca.gov/2009publications/CEC-700-2009-009/CEC-700-2009-009.PDF, Expected Roles for Gas-Fired Generation. **Pp.93-99.** (What are some of the important features that natural gas-fired generation offers for grid managers? How do some of these features apply to the integrated management of the grid in an era of concern about greenhouse gases? If burning natural gas emits greenhouse gases, how might a new gas plant help reduce greenhouse gas emissions?) **6**
- *National Petroleum Council, September 2003, Executive Summary, pages 5-12* **8**
- *Natural Gas Changes the Energy Map*, by David Rotman, in *Technology Review* November-December 2009 (available at the course bSpace page) **pp.45-52** **6**
- *Pollution Fears Creating a Reaction Against Natural Gas Boom*, by Jad Mouawad and Clifford Kraus, *New York Times*,
http://www.nytimes.com/2009/12/08/business/energy-environment/08fracking.html?_r=1&hp (What is hydraulic fracturing? Why is it important? What potential hazards does the article discuss?) **4**

Class 21 (March 29): 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.

- *The Current “Nuclear Renaissance” in the United States, Its Underlying Reasons, and Its Potential Pitfalls*, by Roland M. Frye (2008) 29 Energy L.J. 279, **pp.288-292** (“Why the Nuclear Renaissance? – A.Global Warming and a New-Found Sensitivity to the Environment”), and **pp.355-379** (“III.What Could Derail the Nuclear Renaissance in the U.S.?”). *Read on Westlaw.* (The author works 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?) **26**
- *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?) **10**
- *Nuclear Energy Institute, Inc. v. Environmental Protection Agency.* 373 F.3d 1251 (D.C. Cir. 2004). (What is the debate about assessing the adequacy of long-term storage facilities for high-level nuclear waste? What does the court determine in this case? How realistic are these standards?) **11**
- *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?) **6**

Class 22 (March 31): Electric Transmission

- National Council on Electricity Policy, *Coordinating Interstate Electric Transmission Siting: An Introduction to the Debate* (2008), **pp.1-19**.
http://www.ncouncil.org/documents/Transmission_Siting_FINAL_41.pdf **19**

- *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?) **12**
- *Memorandum of Understanding [between various Federal agencies]* Oct. 23,2009 <http://whitehouse.gov/files/documents/ceq/Transmission%20Siting%20on%20Federal%20Lands%20MOU.pdf> **Read the first 2 pages** and scan the remainder of the MOU to become familiar with its objectives and the general approach. (Is there a clear sense of what problems the agencies are trying to solve through the MOU? What might the problems be? What is the objective of this MOU? Is it likely to be effective? What are its limitations?) **16**

IV. Renewable Energy, Efficiency, and Demand Response

Class 23 (April 5): Renewable Energy – The Technologies.
Hand in the third paper.

This class will introduce types of renewable energy including wind, biomass, landfill gas, photovoltaics, esoteric sources, and energy storage.

- *American Energy – The Renewable Path to Security* Worldwatch Institute, September 2006 Course Website or <http://images1.americanprogress.org/il80web20037/americanenergynow/AmericanEnergy.pdf> **Read pp. 6-33. 28**
- *Geothermal Power Plant Virtual Tour* <http://www.calenergy.com/aboutus4.aspx>
- *Energy Self-Reliant States 2d Edition* 2010 <http://www.newrules.org/sites/newrules.org/files/ESRS.pdf> **pp.8-20 13**
- *The Power of Energy Storage* July 2010, **pp.5-12** http://www.law.berkeley.edu/files/Power_of_Energy_Storage_July_2010.pdf **8**

Class 24 (April 7): 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 pp. ix-xx.
<http://www.naruc.affiniscap.com/associations/1773/files/rps.pdf> 12
- *States with Renewable Portfolio Standards*, U.S. Department of Energy. Click on the interactive map to learn about the RPS programs in various states.
http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm?print
- *Miller v. Arizona Corporation Commission* Arizona Superior Court Ruling 9/3/2009 (CV 2008-029293) pp.2 (bottom)-8. (What is Miller’s complaint? Can a public utilities commission create a renewable portfolio standard without explicit statutory authority and impose costs on the utilities’ customers? What reasons might the Commission have to justify establishing an RPS without specific statutory authority?) 7

Green Tags and tradable Renewable Energy Certificates (RECS)

- Regulatory Assistance Project [“RAP”], *Renewable Energy Certificates and Generation Attributes* (2003).
http://www.raponline.org/showpdf.asp?PDF_URL=%22Pubs/IssueLtr/RenewableEnergyCertificates.pdf%22 6

Feed-in Tariffs and Other Market Strategies

- *System-Side Renewable Distributed Generation Pricing Proposal – Energy Division Staff Proposal, August 26, 2009*, pages 2-12 (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. 10

- *Solar Industry Learns Lessons in Spanish Sun*
<http://www.nytimes.com/2010/03/09/business/energy-environment/09solar.html?hp> **4**

California Solar Initiative

- *California Solar Initiative Annual Program Assessment* (June 2010) **pp.7-11 (top half) 5**

Net Metering

- *Federal Energy Regulatory Commission order denying request for declaratory order of MidAmerican Energy Company, 94 FERC ¶61,340, Issued March 28, 2001* (What is net metering? What is the basis for MidAmerican's objection to the program? How does FERC resolve the matter?) **7**

Class 25 (April 12): Demand Side Management: Energy Efficiency.

Energy Efficiency

- *The Potential for More Efficient Energy Use in the Western United States*, Western Governor's Association 2005
<http://www.naesco.org/resources/industry/documents/2005-11-18.pdf> **pp.iv-xiii** (Executive Summary) **10**
- *Untapped Potential Of Commercial Buildings: Energy Use and Emissions* July 2010
http://www.next10.org/next10/pdf/NXT10_BuildingEfficiencies_final.pdf **pp.2, and 16-19** (What are the greatest barriers to efficiency improvements in commercial buildings? What role should energy utilities have in addressing these barriers?) **4**
- *Building Vintage and Electricity Use*, Howard Chong 2010
http://ei.haas.berkeley.edu/pdf/working_papers/WP211.pdf **pp.2-3 (top half), and p. 20 (Conclusion)** (Are new residential buildings, constructed in an era of buildings standards designed to improve efficiency, using less energy than older buildings when it gets hot outside? What does this suggest about reliance on

design estimates of energy savings from efficiency improvements? What should policymakers do in response to this finding?) **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 have claimed jurisdiction to require such a program?) **5**

Institutional Options for Delivery of Energy Efficiency

- Hamilton & Dworkin, *Four Years Experience of the Nation's First Energy Efficiency Utility: Balancing Resource Acquisition & Market Transformation under a Performance Contract* (2004). **11**

Class 26 (April 14): Demand Response

- National Council on Electricity Policy, *Demand Response and Smart Metering Policy Action Since the Energy Policy Act of 2005* (Fall 2008) **Appendix B, pp.73-76, then pp.3-7(top)**.
http://www.ncouncil.org/documents/NCEP_Demand_Response_1208.pdf **9**
- *Southern California Edison Company Demand Response Program* pp.3-5
http://www.sce.com/NR/rdonlyres/3426D90C-7749-48AD-BA5C-AB238DF94E93/0/100818_Demand_Response_Program_Guide.pdf **3**
- *NRRI Demand Response and Aggregators of Retail Customers* (2010) pp. 2-11 (What is FERC trying to accomplish with its rules? What are the arguments for and against FERC's assertion of jurisdiction related to demand response?) **10**

V. CLIMATE CHANGE AND CARBON MARKETS

Class 27 (April 19): Climate Change and Carbon Markets.

- *In Brief: The U.S. Greenhouse Gas Inventory*, U.S. EPA pp.1-8.
[http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR5CZKVE/\\$File/ghgbrochure.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR5CZKVE/$File/ghgbrochure.pdf) **8**
- *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**
- Congressional Budget Office, “Issues in the Design of a Cap-and-Trade Program for Carbon Emissions” (November 2003).
<http://www.cbo.gov/showdoc.cfm?index=4861&sequence=0>. **7**
- *Climate Change Proposed Scoping Plan* (Adopted by the California Air Resources Board in 2008), **pp.ES-1 to ES4 (top), chart on p. 21, pp.30-32, and pp.41-46 (top)**. <http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf> (What aspects of the Scoping Plan complement or rely on energy regulatory programs? What impact will these programs have on carbon reduction targets?) **14**

VI. RECAP AND CONCLUSION

Class 28 (April 21):Recap and conclusion.

- *Clean Energy 2030 -- Google's Proposal for reducing U.S. dependence on fossil fuels* <http://knol.google.com/k/jeffery-greenblatt/clean-energy-2030/15x31uzlqeo5n/1#> Read the entire webpage (From Summary through Carbon Dioxide Savings) (How does Google propose to reduce the carbon footprint for the energy sector? How does Google's proposal differ from current trends? Would this approach reduce emissions by 80% below 1990 levels? What is key to the reductions Google would achieve? Does this seem feasible? What are the potential question marks? What would have to change to reach more ambitious goals?) **15**