

ENERGY REGULATION AND THE ENVIRONMENT
Law 270.6
Fall 2014

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, 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. You are asked to refrain from using laptop computers and other electronic devices during class sessions.
- Complete one short written assignments accounting for 5% of your grade.
- Take an in-class multiple choice exam accounting for 10% of your grade.
- Participate in a Mock Oral Argument exercise for 10% of your grade.
- Write the final, take-home exam. This will account for 50% of your grade.

Course Materials

There is no text book. A reader is provided for your convenience. Purchase of the reader is optional, since all materials are otherwise available. Please consider your options carefully, since in the past, some students who chose not to request a reader later wished that they had. Most required materials are available on the web, or through Westlaw. There is a copy of just about everything posted on the course bCourses site. Many of the cases in the reader and on bCourses are shortened, for your convenience, so it pays to check.

Course Syllabus

I. INTRODUCTION TO ENERGY AND ELECTRICITY

Class 1 (August 26): **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 (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
<http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1337&context=wmlr> at pp. 1910-1914, “ $E=MC^2$ ” [summary of physical nature of electricity]. Also available in abridged form on bCourses. Make sure to read the accompanying footnotes. (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 subsection under “A Quick History”, called *Growth of the Transmission System*); Ch. 4, “Physical and Technical Aspects of Transmission”, pp.29-38; Appendix – read just pp.50-53 (top 3 paragraphs). Note: There is Glossary starting at p.59 that you might find helpful for future reference. <http://raponline.org/document/download/id/812> (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?) 13

II. PUBLIC UTILITIES AND RATE REGULATION

Class 3 (September 2): **Introduction to Finance and Regulatory Economics.** Basic financial concepts; basic economics of competitive and monopoly markets.

- *Energy Law Nutshell*, Chapter 1, “Energy Economics”. Please read slowly and carefully. Take the time to understand the graphs. 41

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?) 22
- *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
- 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. **Read the bolded paragraphs** (paragraphs 5, 12-26, 35-39, 55, & 66-70). If you are interested, read the whole thing, but it is not required. (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?) 6
- *American Public Power Association Fact Sheets*
<http://www.appanet.org/files/PDFs/Numelecproviderscust2006.pdf>
(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 (September 9): Cost of Service Regulation Part 1.

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.

In reading today's materials, please keep in mind the basic formula applied through cost of service regulation to determine a utility's revenue requirement: $\text{Rev. Req.} = \text{Expenses} + (\text{Rate of Return}) \times (\text{Rate Base})$, where Rate of Return reflects a reasonable percentage return on capital investment, and Rate Base represents the undepreciated capital investment in utility facilities. This becomes the revenue requirement around which utility rates are designed. We will discuss all of this in much more detail in subsequent classes.

- 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?) **8**
- *Federal Power Commission v. Hope Natural Gas Co.* (1944) 320 U.S. 591 (abridged) **4**

Class 6 (September 11): Cost of Service Regulation Part 2. Examples of cases defining the limits of regulatory power:

- *Duquesne Light Company v. Barasch* (1989) 488 US 299 (abridged) **10**
- *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**

Class 7 (September 16): Cost of Service Regulation Part 3.

- *Pacific Gas and Electric Company v. Public Utilities Commission of California* (1986) 475 U.S. 1 (When a utility mails a bill to a customer, who gets to decide what else is included in the billing envelope? Is there one clear answer that applies in all situations? Who "owns" the space in the billing envelope? What does that mean? Who "owns" the utility's other assets, such as power plants, transmission lines, and office buildings? Who has the right to enjoy the economic value of those assets?) **7**
- *San Diego Gas & Electric Co. v. Superior Court* (1996) 13 Cal. 4th 893 (*Covalt*) (abridged) (Who should bear any financial risk resulting from activities that expose others to higher levels of electromagnetic fields (EMFs)? Would it necessarily be inconsistent with the Public Utilities Commission's policy for a court to award damages related to EMF concerns? Could the PUC award such damages on its own?) **12**
- *SoCalEdison v. PUC* 140Cal.App.4th 1085 2006 *abridged* (Regulatory agencies often create their own procedural rules. Since the agency imposed the rules, is the agency empowered to violate them? Does it matter whether the violation was prejudicial? How did the court assess prejudice in this case?) **3**

Class 8 (September 18): Revenue Requirement and Rate Design, including a rate design exercise that we will discuss in class.

- 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 9 (September 23): Anatomy of a Rulemaking Proceeding

- *What Is a Rulemaking?* – Regulation Room <http://regulationroom.org/learn/what-rulemaking#.Um8MyxAgqAI>. In class, we will be working on a state-level rulemaking proceeding from California. This reading focuses on federal rulemaking. The basic approach in state and federal agency practice is the same. Read this to understand the major steps in a rulemaking and to consider the logic behind them. 1
- *The Reg Map – Informal Rulemaking* <http://www.reginfo.gov/public/reginfo/Regmap/regmap.pdf>. Similarly focused on federal agency practice, this chart will help you to think through the steps of a rulemaking proceeding at any level. 1
- *R.12-06-013 Order Instituting Rulemaking*, California Public Utilities Commission: “Order Instituting Rulemaking on the Commission’s Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities’ Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations” (http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/169782.PDF pp.1-22, and 26-29) 26

Class 10 (September 25): Performance Based Ratemaking and “Decoupling.”
Hand in rate exercise.

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? **8**
- *Revenue Decoupling Primer – National Consumer Law Center* 2008
http://www.s98001.gridserver.com/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/document/download/id/239> **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**

In class, we will have a brief conversation about honesty and following the rules. In preparing for class, please spend a few minutes reflecting on cheating as it might affect your life. Do you always tell the truth? Do you think other people are more or less dishonest than you are? Do you think that just about everyone would break rules in one way or another if given a chance? If so, why do you think people are willing to break rules? If you have the time, go to YouTube and watch an 11 minute video called “RSA Animate – The Truth About Dishonesty”
https://www.youtube.com/watch?v=XBmJay_qdNc. It may help stimulate your thinking on this subject.

Class 11 (September 30): Workshop – Preparation for Oral Argument

Come to class prepared to ask questions the answers to which might help you prepare for the oral argument scheduled for the following week.

Class 12 (October 2): Introduction to Deregulation -- Wholesale Electricity Markets. We will lay out the fundamentals of deregulation and the circumstances that got us there.

- *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**

- 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. Read the following sections, included on bCourses: “Wholesale Electricity Trading”; “Background + Overview”; “Locational Marginal Pricing”; “The Multi-Settlement System”; and “Market Monitoring and Mitigation”. 16
- *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
- *New England Power Generators Association v. FERC*, 707 F.3d 364 DC Cir 2013 abridged (In this decision, has the DC Circuit Court of Appeals changed or expanded the Mobile-Sierra doctrine?) 4

Class 13 (October 7): Oral Argument – Day 1

Class 14 (October 9): Oral Argument – Day 2

Class 15 (October 14): FERC and the States Struggle for Control (Part 1)

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.

- *Federal Power Act of 1935*, Section 201(a) - (f) (on the course webpage) (Read the section carefully and be prepared to explain the boundaries of federal jurisdiction over non-hydroelectric power and transmission as of 1935.) 2
- *National Council on Electric Policy – A Comprehensive Review of Electric Restructuring*, **p.8 only** (Description of PURPA) – available as a one page document on bCourses. 1
- *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 bCourses, 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
- *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
- *Dominion Transmission v. Summers* 723 F.3d 238, DC Cir. July 2013 (abridged) (Does FERC's natural gas transportation siting authority preempt state and local action? How do concepts of cooperative federalism apply to the court's efforts to sort out jurisdictional responsibilities in this situation?) 5

Class 16 (October 16): FERC and the States Struggle for Control (Part 2)

- *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
- *FERC Order 773 Revisions to Electric Reliability Organization Definition of Bulk Electric System* December 20 2012 abridged (How does FERC define the boundary between power lines within the jurisdiction of FERC and those left to the states? Does this boundary constitute a bright line?) 5

Class 17 (October 21): Ratemaking at FERC

The Filed Rate Doctrine

- *Montana-Dakota Utilities Co. v. Northwestern Public Service Co.*, 341 U.S. 246 (1951) abridged (What is the filed-rate doctrine? Does the Court's decision leave the Petitioners with no course of action for relief?) 2
- *Arkansas Louisiana Gas Co. v. Hall*, 453 U.S. 571 (1981) abridged (Does the Filed Rate Doctrine effect court actions in state court as well? What do you think of the arguments set forth by the majority in this case? What portion of the Constitution did the court rely on its reaching its conclusion?) 3
- *Nantahala Power & Light v. Thornburg*, 476 U.S. 953 (1986) abridged (In setting retail rates, can state regulators find unreasonable costs resulting from FERC-approved rates? In what circumstances can a state do so? When can it not? What was the Court's rationale for reaching its conclusion?) 6

The Mobile-/Sierra Doctrine

- *United Gas Pipeline v. Mobile Gas Service Company*, 350 U.S. 332 abridged (What is the doctrine that is introduced in this decision and the *Sierra* decision below? At the Federal Power Commission, do filed rates and filed contracts have the same weight? Why shouldn't the seller of gas in this case be allowed to seek a rate change from the Commission?) 5
- *FPC v. Sierra Pacific Power Co.*, 350 U.S. 348 abridged (In what circumstances would it be reasonable for the Federal Power Commission to approve rates that would alter an existing contractual arrangement? Why is the court willing to uphold reliance on the terms of the contract, even if allows for an unreasonably small return on investment?) 4

Class 18 (October 23): In-Class Multiple Choice Quiz

This quiz tests your knowledge of basic terms and concepts discussed in class up to this point. After taking the quiz, we will review the answers.

Class 19 (October 28): Deregulation: Retail Competition and More on Wholesale

Competition. Consumer choice, default service, disclosure and green power, the record so far.

- *FERC Order 697 on Market Based Rates* 2007 abridged (What are the issues with which FERC is concerned in its effort to guard against the exercise of market power in wholesale electric markets?) 8

- *Black Oak Energy v. FERC*, DC Circ. 725 F.3d 230 (2013) abridged (What is a virtual marketer? How do its interests and responsibilities differ from those of other market participants? What was FERC's rationale for collecting a surplus of revenue in the first place? What do you think of that rationale?) 7
- 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 abridged, on *bCourses*. 8

The California and Western Energy Crisis of 2000-2001

- 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 20 (October 30): Integrated Resource Planning and Fuel Mix.

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
- *A Brief Survey of State Integrated Resource Planning Rules and Requirements*, Synapse Energy Economics 2011, pp.1-16. http://www.cleanskies.org/wp-content/uploads/2011/05/ACSF_IRP-Survey_Final_2011-04-28.pdf Read for a general understanding of the different approaches in the different states. (What is Integrated Resource Planning? Is it important? Why or why not? How have regulatory practices influenced the effectiveness of these plans?) 16
- *Oregon PUC Order No.07-002 Investigation into Integrated Resource Planning*, 2007. Read Appendix A: Adopted IRP Guidelines, beginning on p.28 of the PDF. (What would be required to evaluate all resources on a consistent and comparable basis? What do you think of the overall substantive requirements in Guideline 1? Do you think that the overall guidelines are likely to lead to an acceptable integrated plan? Why or why not?) 7

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

The Fuel Mix. The choice of fuel for generating electricity has significant implications for the environment, the economy, the reliability of power delivery, and national security.

- *Where our domestic energy comes from in five maps*
<http://www.washingtonpost.com/blogs/govbeat/wp/2013/11/14/where-domestic-energy-comes-from-in-5-maps/> (Review the five maps and be prepared to talk about the trends you see in terms of production of oil, natural gas, coal, and electricity in the U.S.)

Class 21 (November 4): Demand Side Management: Energy Efficiency and Demand Response.

- *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/sites/next10.huang.radicaldesigns.org/files/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 section), 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 be the policy response?) 3
- *The \$20 Billion Bonanza – Best Practice Electric Utility Energy Efficiency Programs and Their Benefits for the Southwest* SWEET 2012
http://swenergy.org/publications/20BBonanza/20B_Bonanza-COMplete_Report-Web.pdf. Read the Executive Summary, pp.v-x (top only). (Describe the scope of activities undertaken in utility-sponsored energy efficiency programs.) 5
- *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

- *Southern California Regional Energy Network - Executive Summary* 2012 abridged (What is a Regional Energy Network? What role does it take in administering renewable energy programs in California? How are the state's energy efficiency program typically administered?) 3
- *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
- *The Treatment of Energy Efficiency in Integrated Resource Planning*, Regulatory Assistance Project 2013. Read the introduction, pp.3-4. (How do utilities typically treat energy efficiency for planning purposes? Does it have to be this way?) 2

Class 22 (November 6): 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.
http://www.scotthemplinglaw.com/files/pdf/ppr_renewables_portfolio_standard_0201_0.pdf 12
- *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)

- Regulatory Assistance Project [“RAP”], *Renewable Energy Certificates and Generation Attributes* (2003).
https://www.google.com/url?q=http://www.raonline.org/docs/RAP_Holt_IssuesLetter-RenewableEnergyCertificatesAndAttributes_2003_05.pdf&sa=U&ei=nhB-UtPWNYfX0QXYh4AI&ved=0CAcQFjAA&client=internal-uds-cse&usg=AFQjCNF4wEzfC2DCTyhGE1R_vJU1g9CiIw (What are renewable energy certificates? What role do they play in renewable energy policy? What are some of the challenges relate to their use?) 6

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. 5

California Solar Initiative

- *California Solar Initiative Annual Program Assessment (2013)*
<http://www.cpuc.ca.gov/NR/rdonlyres/7A350E8E-3666-4AA5-98E3-5E9C812D3DE6/0/CASolarInitiativeCSIAAnnualProgAssessmtJune2013FINAL.pdf>
pp.8-10 and 14) 3

Net Metering

- *The Statewide Benefits of Net Metering* by Weissman and Johnson 2012
http://www.law.berkeley.edu/files/The_Statewide_Benefits_of_Net-Metering_in_CA_Weissman_and_Johnson.pdf pp.1-3 (What is net metering? How pervasive is its use nationwide? What are current objections to its use in California?) 3

NOVEMBER 11 IS A HOLIDAY.

Class 23 (November 13): Natural Gas – The resource and its regulation.

- *Regulating Public Utility Performance*, Scott Hempling, Read Section 3.A.2 Gas, pp.76-78 (in bCourses) 3
- *National Petroleum Council, September 2003, Executive Summary, pages 5-7* (What were the experts saying about natural gas supplies in 2003?) 3
- *Natural Gas Changes the Energy Map*, by David Rotman, in Technology Review November-December 2009
<http://www.technologyreview.com/featuredstory/415725/natural-gas-changes-the-energy-map/> (available at the course bCourses page) pp.45-52 6
- *The Future of Natural Gas – Executive Summary*, MIT 2011
http://mitei.mit.edu/system/files/NaturalGas_ExecutiveSummary.pdf Read as much as you like. We will discuss pp.3 (starting with Background) to p.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.) 6

- *Extracting Natural Gas From Rock*
<http://www.nytimes.com/interactive/2011/02/27/us/fracking.html>
- *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 potential hazards related to hydraulic fracturing does the article discuss?) 4
- *Air Sampling Reveals High Emissions from Gas Field* Jeff Tollefson, Nature (2013)
http://www.nature.com/polopoly_fs/1.99821/menu/main/topColumns/topLeftColumn/pdf/482139a.pdf 2
- *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

Class 24 (November 18): 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.

- *Nuclear Energy – Chapter 11* Lincoln Davies (due out in 2014) abridged 30
- *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?) 8

- *In the Matter of Calvert Cliffs, et al NRC Memorandum and Order*, August 2012 (How has the uncertainty related to long-term storage of high-level nuclear waste affected the relicensing of existing plants?) 3

Class 25 (November 20): Electric Transmission

- National Council on Electricity Policy, *Coordinating Interstate Electric Transmission Siting: An Introduction to the Debate* (2008), (abridged on bCourses)
http://www.ncouncil.org/documents/Transmission_Siting_FINAL_41.pdf 15
- 42 U.S.C.A. 17381 (How does Congress define the parameters of a smart grid? What do you think of a definition that includes these items?) 1
- *Smart Regulation and Federalism for the Smart Grid*, Joel B. Eisen 37 Harv. Entl. L. Rev 1 (2013), (abridged) (What is the smart grid? What are its potential advantages? What are barriers to its deployment? What are the merits of the author's arguments related to each suggested barrier?) 7
- *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?) 8
- *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) (abridged) (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

V. CLIMATE CHANGE AND CARBON MARKETS

Class 26 (November 25): 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 Blee. 9
- Climate Change and the California Public Utilities Commission's Role – A Discussion Paper. 9

Class 27 (December 2): Energy and Environmental Justice
To be announced.

VI. CONCLUSION

Class 28 (TBD): The Future of the Utility.

- *Reinventing Fire*, Amory Lovins 2011. Read the Preface, pp.xi-xiv on bCourses 4
- *The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity*, James Williams et al, (article from Scienceexpress, Dec. 14, 2011) (Consider the role of electricity and regulation in addressing climate change.) 5
- *SZ Enterprises v. Iowa Utilities Board*, Iowa Supreme Court (2104) abridged 12
- *Market St. R.R. Co. v. R.R. Comm. of California* (1945) 324 U.S. 548 abridged (Is the result in this case surprising, in light of the Hope decision? Is there a parallel, here to the facts in the Charles River Bridge case? Should this decision be a cause of concern for current-day electric utilities facing changes in the nature of electric service?) 5
- *Does Disruptive Competition Mean a Death Spiral for Electric Utilities?* – Executive Summary, Energy Center of Wisconsin 2014 (How does the author suggest that today's utilities can best prepare themselves for changes that might be on the way? How might utilities strengthen their businesses while improving the physical environment?) 4