

**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:

- Tomain and Cudahy, *Energy Law in a Nutshell*, 2<sup>nd</sup> Edition West 2011

## 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>. 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=MC<sup>2</sup> [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?) **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 (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.* **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**

- **American Public Power Association Fact Sheets**

<http://www.appanet.org/files/PDFs/Numelecproviderscust2006.pdf>

<http://www.appanet.org/aboutpublic/index.cfm?ItemNumber=2676&navItemNumber=20>  
**963** (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 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)* **9**
- 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**
- *Duquesne Light Company v. Barasch* (1989) 488 US 299 (abridged) **10**

**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 **6**
- *NAACP v. Federal Power Commission*, (1976) 425 U.S. 662 **6**
- *Pacific Gas and Electric Company v. Public Utilities Commission of California* (1986) 475 U.S. 1 **7**
- *San Diego Gas & Electric Co. v. Superior Court* (1996) 13 Cal. 4<sup>th</sup> 893 (*Covalt*) (abridged) **12**

**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?) **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](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 (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  
[http://www.virtualcap.org/downloads/CIF/NCLC\\_Revenue\\_Decoupling\\_Primer\\_08.pdf](http://www.virtualcap.org/downloads/CIF/NCLC_Revenue_Decoupling_Primer_08.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**

**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**
- *Energy* pp.373 (starting with Regulation 1935-1965) – 403 (through The 2005 Energy Policy Act) **20**
- *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.

- *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. 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**
- *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](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**

**Class 12 (October 2): 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. 29-44 (first half page)** , on bSpace. **16**
- *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](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.

- *Energy Law*, Ch 10, “Hydropower”, pp. **475-508. 24**
- *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 (1<sup>st</sup> 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**
- *Clean Air Markets Group v. Pataki* (2003) 338 Fed R 3d 82 (2<sup>nd</sup> 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**
- *Bragg v. West Va. Coal Ass’n.* (2001) 248 F.3<sup>rd</sup> 275 (abridged) **8**

**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?) **3**
- *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**
- *The Future of Natural Gas – Executive Summary*, MIT 2011  
[http://web.mit.edu/mitei/research/studies/documents/natural-gas-2011/NaturalGas\\_ExecutiveSummary.pdf](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.) **6**
- *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](http://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**
- *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](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 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.

- *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 (abridged) (“Why the Nuclear Renaissance? – A. Global Warming and a New-Found Sensitivity to the

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?) **15**

- *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**
- *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**
- *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?) **7**
- *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?) **3**

### **Class 21 (November 1): 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](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?) **8**

- *California Wilderness Coalition v. DOE* 631 F.3d 1072 9<sup>th</sup> 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**

- *Sputnik and the Holy Grail*, Morgan Hague 2011 (What is energy storage – generation? Transmission? Distribution? Does it matter, and if so, why? What are some of the major barriers to deploying storage technologies in large quantities?) 34

## **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.

- *American Energy – The Renewable Path to Security* Worldwatch Institute, September 2006 Course Website or <http://images1.americanprogress.org/i180web20037/americanenergynow/AmericanEnergy.pdf> Read pp. 6-7 and 22-33. 14
- *Geothermal Power Plant Virtual Tour* <http://www.calenergy.com/aboutus4.aspx>
- *Energy Self-Reliant States 2d Edition* 2010 <http://www.newrules.org/energy/publications/energy-selfreliant-states-second-and-expanded-edition> pp.8-20 and 30-32 16

### **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.**  
<http://www.naruc.affiniscape.com/associations/1773/files/rps.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).  
[http://www.raponline.org/showpdf.asp?PDF\\_URL=%22Pubs/IssueLtr/RenewableEnergyCertificates.pdf%22](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 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* (June 2012)  
<http://www.cpuc.ca.gov/NR/rdonlyres/0C43123F-5924-4DBE-9AD2-8F07710E3850/0/CASolarInitiativeCSIAnnualProgAssessmtJune2012FINAL.pdf>  
**pp.9-11 and 14-16) 6**

### ***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](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 some of the current objections to its use in California?) **3**

**Class 25 (November 15): Demand Side Management: 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/sites/next10.huang.radicaldesigns.org/files/NXT10\\_BuildingEfficiencies\\_final.pdf](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](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**
- *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**

- 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](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 (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**
- Congressional Budget Office, "Issues in the Design of a Cap-and-Trade Program for Carbon Emissions" (November 2003).  
<http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/48xx/doc4861/11-25-captradebrief.pdf> **4**
- *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> (What aspects of the Scoping Plan complement or rely on energy regulatory programs? What impact will these programs have on carbon reduction targets?) **7**
- *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.**

- *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**