Legal & Regulatory Aspects of Greening the Electric Generation Mix

Prof. David Spence – Spring Quarter, 2018
Bren School of Environmental Science & Management, UCSB

COURSE DESCRIPTION: This course will provide students with a working understanding of electricity markets, the complex and overlapping legal regimes that govern the electricity sector, and how those regimes influence efforts to "green" or "decarbonize" the electricity sector. We will examine how public utility regulation and environmental law have traditionally balanced cost, reliability and environmental performance in the electric generation mix, and how that balance is changing as (i) wholesale electricity markets (and some retail markets) have come to rely more on competition and market pricing of electricity, and (ii) renewable generation replaces more traditional, dispatchable resources. Students will come away from this class with an understanding of how public utility regulation interacts with environmental law to facilitate the efforts of states (like California) to decarbonize the electric grid, and to inhibit those efforts in other ways. This class will complement Bren courses on environmental law and environmental economics by offering a deeper dive into the law and economics of the electricity sector.

CLASS MEETINGS: This class will meet 5 times (3 hours per session), as follows:

- Mon, May 14 at 5-8 pm
- Tues, May 15 at 5-8 pm
- Wed, May 16 at 5-8 pm
- Thurs, May 17 at 5-8 pm
- Fri, May 18 at 8:30 - 11:30 am

Because this is a time-compressed schedule, students may find it helpful to read ahead prior to the first class meeting. I would suggest you do the readings over the two weeks preceding the class, and then review your notes prior to each class.

CLASS STRUCTURE: Classes will involve a mix of large group and small group learning. We will start with large group discussion and lecture, to make sure that everyone has a firm grasp of the important concepts and learning points from the readings. We will then divide into smaller groups to work on hypothetical problems that call for the application of those concepts to real world situations or scenarios. You will find discussion questions and objectives under each day's topic on the syllabus (below). The large group and small group work will be built around those questions, so students should come to class having done the readings and prepared to discuss those questions.

GRADING: Class participation (including preparation) will comprise 30% of your grade. The final project – a short research paper (5 pages single spaced) on the topic of your choice pertaining to the greening of the electricity sector – will comprise the remainder of your grade.

READINGS: Readings will be a mix of articles, excerpts from an energy law casebook, and various other sources. Most of the readings are web-based and available free of charge as hyperlinks (in blue) in the syllabus; the Eisen et al. readings are on Gauchospace.

TOPICS

May 14: Understanding electricity markets and public utility regulation -- Basics

OBJECTIVE: To build a fundamental understanding of (a) the structure of the electricity sector (generation, transmission and distribution), and (b) the legal rules governing electric utilities and electric utility rates, as they have evolved over time. (This will include a review of the 2000-01 California electricity crisis," which has influenced the evolution of regulation since.) To prepare for class, please read the assigned portions of a law review article summarizing the historic evolution of electricity regulation, excerpts from a utility rate-setting from an energy law text, and browse the linked web sites from the EIA and FERC.

READINGS (best if you do the readings in the order listed):

- Energy Information Administration, Electricity web portal. Using this portal, find out how the fuel mix for American electricity generation has changed over the years. What sources have dominated the electric generation mix historically? How has that changed recently? How much of it is renewable power?
- David B. Spence & Robert Prentice, The Transformation of American Energy Markets and the Problem of Market Power, *Boston College Law Review* (2012), pp. 131-48 (focus on electricity regulation), and 154-59 (California energy crisis)
- Eisen et al., *Energy Economics & the Environment* (Foundation Press, 2015), pp. 455-64
- RTO/ISO web page at FERC.gov. (browse)
- Eisen et al., *Energy Economics & the Environment*, pp. 695-99

QUESTIONS:

- From the readings, try to understand (i) Federal Power Act (FPA) regulation of wholesale markets, and (ii) state PUC regulation of retail markets.
- Basic ratemaking principles: What policy goals did/does traditional public utility regulation accomplish?
- Restructuring: unbundling electricity sales from transmission and distribution, introducing competition and market pricing. Why introduce competition into the system? What policy goals did/does restructuring accomplish?

- California electricity crisis and aftermath (market power abuses). What were the causes of the crisis? How does regulation try to address the risk of market manipulation now?
- What exactly are RTOs/ISOs? What is their role in modern competitive wholesale markets?
- Do you understand how least cost dispatch works, and why it governs power plant dispatch decisions? Why is least cost dispatch the governing principle of dispatch? More generally, given this rule, how do electricity markets balance cost, reliability and environmental performance?

May 15: Market Entry: the Licensing Regimes for Power Plants

OBJECTIVE: To understand the federal and state permitting regimes that apply to different types of utility scale electric generation facilities, including (i) how states regulate construction and operation of utility scale generators within their borders, (ii) federal licensing of nuclear and hydroelectric generators, and (iii) Clean Air Act permitting of fossil-fueled generators. To prepare for class, please read the assigned excerpts on licensing energy facilities from a law review article, short excerpts on Clean Air Act regulation from an energy law text, and browse the federal agency web sites linked below.

READINGS & QUESTIONS:

- Go back to Monday's electricity web portal (above): What is the electric generation fuel mix in each of the following states: California, Minnesota, North Carolina and Texas?
- David B. Spence, Federalism, Regulatory Lags & the Political Economy of Energy Regulation, *University of Pennsylvania Law Review* (2013), pp. 460-77.
- Eisen et al., *Energy Economics & the Environment*, pp. 263-68, 283-85.
- Think about the various regulatory barriers to entry for power plants, do some technologies face greater barriers to entry than others (in your opinion)? Which ones, and why?
- *Should* all technologies face comparable barriers to entry? Why or why not? How, and how well, do licensing and environmental laws alter the balance of cost, reliability and environmental performance in the electricity supply market?

May 16: Policies to Promote Renewables

OBJECTIVE: To understand the ways in which state and federal policymakers try to incentivize the construction of *utility scale* renewable generation, and the legal and constitutional issues that those efforts sometimes trigger. Please read the assigned materials on clean energy standards, feed-in tariffs and tax incentives with an eye toward answering the questions posed below.

READINGS & QUESTIONS:

- Using the dsireusa.org web site, browse the components of the RPS for California and one other state (of your choosing). What are renewable portfolio standards and feed-in tariffs? How do they differ? What are the relative advantages of each? How do the two RPSs you looked at compare? Do they apply to the same generation technologies? Who must comply with the relevant mandates? How strict are those mandates? How does compliance work? (For a summary of retail sales percentage targets by state, see the summaries of state RPSs.)
- Clean Energy States Alliance, Case Note: North Dakota v. Heydinger. Why did the court strike down Minnesota's clean electricity standard?
- Felix Mormann, Fading into the Sunset: Solar and Wind Energy Get 5 More Years of Tax Credits, Trends (2016)
- Jody Freeman & David B. Spence, Old Statutes, New Problems, *University of Pennsylvania Law Review* (2014), pp. 50-58. Assuming that central station renewables are often located far from load, why is it so difficult to build transmission lines to bring the renewable power to customers? What are the legal and economic barriers to new transmission?

May 17: Distributed Resources and the "Utility Death Spiral"

OBJECTIVES: To understand how policy influences the development of "behind-the-meter" generation and demand response, and to explore the distributive implications of those developments, including implications for the electric utility of the future. Please review the assigned readings with an eye toward answering the questions below.

READINGS

- David B. Raskin, The Regulatory Challenge of Distributed Generation, *Harvard Business Law Review Online* (2015)
- Shelley Welton, Clean Electrification, *Colorado Law Review*
- Thomas Content, Judge rejects We Energies plan to assess solar panel owners extra fees, *Milwaukee Journal-Sentinel*, October 30, 2015
- Eisen et al., Energy Economics & the Environment, pp. 921-25 (do not read beyond p 925). How will demand response fit into electricity markets? What goals does DR serve? Does it necessarily ensure a cleaner energy mix?
- Excerpt from Supreme Court's 2016 *FERC v. EPSA* decision, found on Gauchospace. On what authority did FERC regulate the participation of DR in wholesale markets? Is that authority limited? If so, how?

QUESTIONS

- What do utilities mean when they complain that rate treatment of distributed energy resources is causing a "utility death spiral"?
- What are the advantages and disadvantages of distributed generation? Does your answer differ depending on whether we are talking about larger generators at an industrial customer site versus smaller generators (e.g., rooftop solar or electric car battery) at a residential customer site?
- What are the relative costs and benefits of microgrids? Community generation?
- If more and more distributed generation is built, what will that mean for the distribution grid? Who should pay for upgrades to the distribution grid caused by an increase in distributed generation?

- How, and how much, should distributed generation owners pay for access to the grid as their power purchases from the grid decline?

May 18: Looking Forward - Incentivizing the clean energy transition?

OBJECTIVES: To integrate lessons of the previous classes and apply them to the question of what the the electricity sector of the future ought to look like. Please think about the questions posted below in light of the assigned readings for today and the discussions of the previous four classes.

READINGS

- Eisen and Mormann, Free Trade in Electricity
- CPUC, Electric Utility Business & Regulatory Models (2015), Section 2, pp. 14-end.
- William Boyd, Public Utility and the Low Carbon Future, UCLA Law Review (2014)(especially parts II and III).
- Lazard's Levelized Cost of Energy Estimates, 11.0 (Nov. 2017)

QUESTIONS

- How should policymakers balance cost, reliability and environmental impact in electricity markets? Which factors should be most heavily weighted, and why?
- What values do different types of plants provide to the electric system (beyond the kwh they provide to the grid). Is a kwh of power from one plant more valuable than a kwh from another?
- In our capitalist system we rely on private investment to build new generating or transmission capacity. How should policymakers provide the level of electricity reliability that people want? Might we let the market price of electricity tell us how much reserve capacity we need? Will "letting the market work" actually work in this instance?
- Should state regulators consider social costs in deciding whether to permit construction of new generating plants? Should they consider social costs in determining dispatch order of plants in electricity daily electricity markets?
- Should policymakers encourage distributed resources or utility scale generation?