

BA 212 – Policies and Strategies in Energy Markets

The University of California at Berkeley

Haas School of Business

Spring 1999

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Syllabus

Course Description: In the past 25 years, energy markets have changed from quiet, often heavily regulated, areas of the business landscape to the some of most dynamic markets in the world economy. Regulation of oil, natural gas, motor fuel, and electricity markets has been reduced dramatically in the U.S. and in many other countries. Electricity deregulation is currently sweeping the developed and developing world. Drawing heavily on the tools of economics and finance, we study the business and public policy issues that these changes have raised. Topics include the development and effect of organized spot, futures, and derivative markets in energy, the political economy of deregulation, motor fuel and congestion taxes, competition in wholesale electricity markets, market power and antitrust, and the transportation of energy commodities. We will examine the economic determinants of industry structure and evolution of competition among firms in these industries; investigate successful-and unsuccessful-strategies for entering new markets and competing in existing markets; and analyze the rationale for and effects of public policies in energy markets.

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Office Hours: Office Hours will be held between the first and second meeting of the course each week, 7:30pm-8:15pm, and by appointment.

Grading: 30% final exam, 30% course project, 30% Electricity Strategy Game (ESG), 10% class participation. The course project, due on the last day of class and described in detail in a separate handout, will address an applied management or regulatory topic: e.g., business plan for a new product; entry strategy for new line of business; or public policy analysis of pending (de)regulatory decision. Group projects are encouraged, but not required. The grading for the (ESG) will be based on the memo teams will write (due around April 10), the performance of the team in the ESG, and the explanations of that performance during the wrap-up on May 4. The final exam will be Tuesday, May 11, 6-9 p.m.

Course Website: <http://haas.berkeley.edu/Courses/Spring1999/BA212>

Course Prerequisites: BA201A or equivalent (MBA-level Microeconomics), BA203 or equivalent (MBA-level Finance).

Readings: There is one required textbook: Viscusi, K., Vernon, J., and J. Harrington, *The Economics of Regulation and Antitrust*, Cambridge, MA: MIT Press, 1995 (hereafter VVH). All other readings are available in one of the two course readers, on the course website, or will be handed out in class. Those labeled [R1] are in the first course reader, which is now available. Those labeled [R2] are in the second course reader, which will be available some time in February. Those labeled [W] are or will be available (or linked to) the course website. Those labeled [H] will be handed out in class.

Course Schedule: Please complete all readings for each meeting before the day on which the material will be covered.

January 19: Introduction and Organization of Course (0.5)

OVERVIEWS OF ENERGY MARKETS

January 19: Overview of Natural Gas Markets (0.5)

A. Tussing and B. Tippee, *The Natural Gas Industry: evolution, structure, and economics*, Tulsa, OK: Pennwell. 1995, pp. 1-23.[R1]

January 19: Overview of Oil and Gasoline Markets (0.5)

Pierce, W. S. *Economics of the Energy Industries*, Westport, CT: Praeger. 1996, Ch 9, pp. 127-158.[R1]

S. Borenstein and R. Gilbert, "Uncle Sam at the Gas Pump," *Regulation*, no. 2, Spring 1993, pp. 63-68.[R1]

January 19: Overview of Electricity Markets (0.5)

R. Gilbert and E. Kahn, *International Comparisons of Electricity Regulation*, Cambridge, UK: Cambridge University Press, 1996, Ch. 5, pp. 179-205.[R1]

REGULATION AND DEREGULATION OF ENERGY MARKETS

January 26: Economic Regulation of Natural Monopoly Markets (2)

VVH, Ch. 11, “Theory of Natural Monopoly,” pp. 351-365.

VVH, Ch. 12, “Natural Monopoly Regulation,” pp. 377-396.

“PUC Staff Says PG&E Should Pay for Diablo,” *San Francisco Chronicle*, 5/15/87.[R1]

“Diablo Canyon Pact Calls for PG&E to Pay Full Cost,” *Los Angeles Times*, 6/28/88.[R1]

February 2: Economic Regulation of Competitive Markets (2)

VVH, Ch.16, “The Regulation of Potentially Competitive Markets,” pp. 519-536.

VVH, Ch. 18, “Economic Regulation of Energy.”

February 9: Economic Deregulation of Markets (1)

P. Joskow, “Does Stranded Cost Recovery Distort Competition?”, *The Electricity Journal*, April 1996, pp. 31-45.[R1]

C. Blumstein and J. Bushnell, “A Guide to the Blue Book,” *The Electricity Journal*, September 1994, pp. 18-29.[R1]

A. Ando and K. Palmer, “On the Way to Retail Competition,” *Resources*. Resources for the Future. Issue 132, Summer 1998. pp. 11-14.[R1]

K. Costello and D. Duann, “Turning Up the Heat in the Natural Gas Industry,” *Regulation*, 1996, No. 1.[W]

MARKETS FOR NATURAL RESOURCES

February 9: Pricing and Extraction of Natural Resources (1)

R. Solow, “The Economics of Resources or the Resources of Economics,” *American Economic Review*, vol. 64, no. 2, May 1974, pp. 1-14.[R1]

Tierney, J., “Betting the Planet,” *The New York Times Magazine*, December 2, 1990, pp 52-81.[H]

February 16: The Role of Storage (1)

Natural Gas 1994: Issues and Trends, Energy Information Administration. DOE/EAI-0560(94). pp. 79-96.[R1]

February 16: Auction Design and Implementation

“Going, going, gone! A Survey of Auction Types,” Agorics, Inc. [W]

February 23: Guest Speaker: George Sladoje, CEO, California Power Exchange

Readings on California Power Exchange and Independent System Operator [W]

February 23-March 2: Commodity Exchanges (1.5)

Natural Gas 1994: Issues and Trends, Energy Information Administration. DOE/EAI-0560(94). pp. 55-77.[R1]

R. Green, “Draining the Pool: The Reform of Electricity Trading in England and Wales.” [W]

K. Kranhold and J. Emshwiller, “Out of Power: How a Small Dealer in Electricity Roiled Midwestern Market,” *Wall Street Journal*, p. A1, September 1, 1998.[R1]

J. Bushnell, E. Kahn, and H. Outhred, “Bulk Power Market Study,” POWER Working Paper, PWP-026, U.C. Energy Institute, February 1995, pp. 11-29.[R1]

March 2: Forward and Derivative Contracts (1.5)

D. Pilipovic, *Energy Risk*, New York: McGraw-Hill, 1998, pp. 1-9.[R1]

S. Bhatnagar and P. Tufano, “Enron Gas Services”, HBS Case 9-294-076.[R2]

INDUSTRIAL ORGANIZATION AND COMPETITION IN ENERGY INDUSTRIES

March 9: Peak-Load Pricing (1)

VVH, Ch. 12, “Natural Monopoly Regulation,” pp. 396-403

S. Borenstein, “Understand Competitive Pricing and Market Power in Wholesale Electricity Markets.” [W]

March 9: Electricity Strategy Game: Introduction and Description (1)

S. Borenstein and J. Bushnell, “Instructions for the Electricity Strategy Game”. [W]

March 16: Electricity Strategy Game: Auction of Generating Companies (0.5)

March 16 : Horizontal Market Power (1.5)

VVH, Ch. 6, “Market Structure and Strategic Competition,” pp. 145-166.

P. Joskow, “Restructuring Electric Utilities: BG&E and PEPCO Propose to Merge,” Case 4 in J. Kwoka and L. White, eds, *The Antitrust Revolution*, pp. 89-115.[R2]

Borenstein, Bushnell and Knittel, “Beyond Concentration Measures,” [W]

R. Reich, “Perspective on the Exxon-Mobil Merger,” *Los Angeles Times*, December 4, 1998, pp. B-4.[R2]

M. Weinstein, “A combination of Exxon and Mobil would not be as fearsome for consumers as critics contend”, *The New York Times*, December 10, 1998, pp. 2.[R2]

March 23: SPRING BREAK

March 30: Vertical Integration (1)

S. Borenstein and R. Gilbert, “Uncle Sam at the Gas Pump,” *Regulation*, no. 2, Spring 1993, pp. 68-75.[R1]

VVH, Ch. 8, “Vertical Mergers and Restrictions,” pp. 225-238.

March 30/April 6: The Role of Transportation/Transmission (2)

P. Joskow, “Restructuring, Competition, and Regulatory Reform in the U.S. Electricity Sector,” *Journal of Economic Perspectives*, Vol. 11, No. 3, Summer 1997, 119-138.[R1]

Natural Gas 1994: Issues and Trends, Energy Information Administration. DOE/EAI-0560(94). pp. 37-54.[R2]

W. Hogan, “A Wholesale Pool Spot Market Must Be Administered by the Independent System Operator: Avoiding the Separation Fallacy,” *The Electricity Journal*, December, 1995. pp 26-37.[R2]

April 6: Transmission in the Electricity Strategy Game (1)

S. Borenstein and J. Bushnell, “Transmission in the Electricity Strategy Game”. [W]

April 13: Guest Speaker from Enron on Retail Competition (1)

April 13: Wholesale versus Retail Competition (1)

- R. Kerber and B.A. Holden, "Power Struggle: Deregulation Sparks Marketing Free-for-All in New Hampshire," *The Wall Street Journal*, May 13, 1996, pp B1.[R2]
- K. Kranhold, "Montana Power Gains Foothold in California," *The Wall Street Journal*, November 3, 1997, pp A4.[R2]
- R. Wiser, W. Golove, S. Pickle, "California's Electric Market: What's in it for the consumer?", *Public Utilities Fortnightly*, August 1998, pp. 38-45.[R2]
- A. Mulkern, "What Price Gas?" *The Orange County Register*, March 10, 1998. pp C1.[R2]

ENERGY AND THE ENVIRONMENT

April 20: Environmental Regulation and Markets (2)

- VVH, CH. 21, "Environmental Regulation."
- G. Johnson, "Green Energy Firms' Tactics Mark Change in a Sleepy Industry," *Los Angeles Times*, November 20, 1997, pp D-4.[R2]
- L. Boulton, "Pollution Trading: It has Curbed U.S. Sulphur Dioxide Emissions. Can it Work Elsewhere?" *The Financial Post*, May 7, 1996, pp 14.[R2]
- J. Cushman, "Industries Press Plan for Credits in Emissions Pact," *The New York Times*, January 3, 1999, pp C1.[R2]

April 27: Energy Efficiency Regulation and Markets (2)

- R. Blumenstein, "Shifting Gears: Auto Industry Reaches Surprising Consensus: It Needs New Engines," *The Wall Street Journal*, January 5, 1998, pp. A1. [R2]
- P. Moreton, "GM and the Problem of Fuel Economy," HBS Case 39-792-063.[R2]

May 4: Electricity Strategy Game: Wrap-up