

Economics 438 Energy Economics Draft December 21 , 2016

INSTRUCTOR Levis A. Kochin

CLASS Savery 138 Monday and Wednesday 1:30PM to 3:20PM

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OFFICE HOURS: Monday and Wednesday 3:30PM to 4PM , Tuesday 3PM to 5PM and by appointment

Learning Goals

- 1) **To provide an opportunity for students to see how the economic theories that they have learned in theoretical economics courses are applied to explain the operation of the energy industries.**

This will deepen students understanding of the theories they have already learned in price theory and help students to see how these theories can be applied to other parts of the economy.

- 2) **To learn the fundamentals of the operation of forward, futures and option markets in energy commodities.**

The crude oil and natural gas futures and option markets are the largest commodity futures and options markets in the world. They have become over the last 35 years central to the finance and operation of the the exploration and production companies which produce most of America's oil and natural gas. Smaller forward and futures markets in electricity have become more important as much of electricity supply of the US is provided by competitive electricity producers generating electricity from coal, natural gas , wind and solar without regulated prices.

- 3) **To understand the history of the energy industries in economic and general history.**

The emergence of the coal and then the oil industry was a central part of the industrial revolution. Since 1900 struggles over sources of oil were important to international politics and were important determinants of the victory of the Allied Nations in both World War I and World War II.

- 4) **Understanding the historic and current role of governments in regulating the energy industries;**

Governments including our own have been important generators and controllers of monopoly rents in the energy industry as well as Subsidies and taxes on energy commodities are important parts of many governmental budgets. Governments set the property rights rules on natural resources. The US is almost alone in the world in making mineral deposits private property. Rents on oil and gas are important sources of revenue for many governments .The energy commodities are the most principal sources of local and worldwide pollution in the world. Governments have taken measures *said* to be aimed at controlling these pollutants.

Grades will be based on Quizzes, a Midterm and a Final Examination

Quizzes 25%

Three take home quizzes with a short in class part , The grade on a short (3 to 5 page) research paper can be substituted for the lowest grade on a take home quiz/

Midterm 25 %
February 22

Final Examination 50%
Monday March 13 2:30PM-4:20PM in classroom

Texts

REQUIRED

- 1) Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 ISBN 978-1-5937
- 2) Daniel Yergin *The Prize: The Epic Quest for Oil, Money and Power* be sure to get the Paperback Edition of 2008 with new Epilogue ISBN 10-143911012-3
- 3) RBN Private Tutor Program Students Purchase E. Russell Brazier *The Domino Effect: How the Shale Revolution in Transforming Energy Markets, Industries and Economics* (ISBN 06925030013) on Amazon and send their Amazon receipts to PrivateTutor@RBNenergy.com to enroll in the Private Tutor program which gives access to a set of blogs on the current energy industry in the US starting several years ago

NOT REQUIRED

*[Betty Simkins](#) , [Russell Simkins](#) *Energy Finance and Economics: Analysis and Valuation, Risk Management, and the Future of Energy* Wiley 2013

Readings Marked * Are NOT Required Suggested sources for those writing the short (3-5 page paper)

ASSIGNMENTS

Wednesday January 4 and Monday January 6

Supply and Demand For Fuels Under Perfect Competition

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 Chapter 3 "Perfect Competition and the Coal Industry" and Chapter 4 "Energy Price Controls, Taxes, Subsidies and Social Welfare" "Chapter 15 "Supply and Cost Curves", Chapter 16 "Energy Balances and Energy Demand"

Wednesday January 11 and Wednesday January 18 Local and Global Externalities of Energy Production and Consumption

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 Chapter 11 "Externalities and Energy Pollution" Chapter 12 "Public Goods and Global Climate Change"

Thomas Covert, Michael Greenstone, and Christopher R. Knittel "Will We Ever Stop Using Fossil Fuels?" *Journal of Economic Perspectives* Vol. 30 No. 1 pp. 117-134

Monday January 23 Allocating Fossil Fuel Production over Time

* Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd 2015 Chapter 14

Krautkraemer J., and M. Toman. "Fundamental Economics of Depletable Energy Supply." Resources for the Future, Discussion Paper 03-01 (2003).

* Anderson, Soren T., Ryan Kellogg, and Stephen W. Salant, "[Hotelling Under Pressure](#)," NBER working paper #20280, Energy Institute at Haas working paper #250 (2014)

Wednesday January 25 Monday January 30 and Wednesday February 1

Derivative Markets for Energy futures and options

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 Chapters 18 "Energy Futures Markets for Managing Risk" and Chapter 19 "Energy Options Market for Managing Risk"

*Kellogg, Ryan, "[The Effect of Uncertainty on Investment: Evidence from Texas Oil Drilling](#)," *American Economic Review* 104 (June, 2014), 1698-1734.

*Fillebeen, Thomas "High Stakes Investing Under Uncertainty: Evidence from Texas Shale-Oil Producing Firms" University of Washington 2016

Monopoly, Oligopoly and Cartels in the Oil Industry

Monday February 6

The Standard Oil Monopoly

Daniel L. Yergin *The Prize* Ch. 2 “Our Plan: John D. Rockefeller and the Combination of American Oil” Simon and Shuster New York 1991

Elizabeth Granitz and Benjamin Klein “Monopolization by ‘Raising Rivals Costs’: The Standard Oil Case” *Journal of Law and Economics* 1996

*Benjamin Klein “The ‘Hub and Spoke’ Conspiracy that Created the Standard Oil Monopoly” *Southern California Law Review* 2012 Volume 85 pp. 459-496

Wednesday February 8 Monday February 13

The Tragedy of the Commons, Cartelization and Oil Import Quotas 1933 to 1972

Daniel L. Yergin *The Prize* Ch. 13 “The Flood.” Simon and Shuster New York 1991

Gary D. Liebcap “The Political Economy of Crude Oil Cartelization in the United States” *Journal of Economic History* December 1989

*Gary D. Liebcap and James L. Smith “The Economic Evolution of Petroleum Property Rights in the United States” *Journal of Legal Studies* 2002 Vol. 31 pp. 589-607

* Yoram Barzel and Christopher D Hall *The Political Economy of the Oil Import Quota* Chapters 1-3 Hoover Institution Press 1977

Wednesday February 15 Monday

Natural Gas

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 Chapters 8

. Russell Braziel *The Domino Effect: How the Shale Revolution in Transforming Energy Markets, Industries and Economics* ISBN 06925030013 Chapters on Shale Gas

The Future of Natural Gas: An Interdisciplinary MIT Study 2011 Chapter 1 “Overview and Conclusions” Available Online

President’s Day

Monday February 20 NO Class

Wednesday February 22

Midterm 1 Hour

Wednesday February 22 and Monday February 27 OPEC Shale, and the Ups and Downs of Oil Prices 1973-2017

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 “Monopoly Dominant Firm and OPEC” Chapter 7

E. Russell Brazier *The Domino Effect: How the Shale Revolution in Transforming Energy Markets, Industries and Economics* ISBN 06925030013 Chapters on Shale Oil

***OPEC vs US shale: Analyzing the Shift to a Market-share Strategy**

Alberto Behar and Robert A. Ritz, March 2016 CEEPR MIT

Wednesday March 1 and Monday March 6 Electricity

Carol A. Dahl, *International Energy Markets: Understanding Pricing, Policies, and Profits*, Tulsa: Pennwell, 2nd Edition 2015 “Electricity” Chapters 3, 4, 5, 6 and 20

Wednesday March 8 Nuclear Power

The Future of the Nuclear Fuel Cycle An Interdisciplinary MIT Study 2003 Executive Summary and Chapter 5 “nuclear Power Economics” Available Online

Final Examination Monday March 13 2:30PM-4:20PM