

Energy Economics and Policy

Harris School of Public Policy
University of Chicago
PPHA 36921 – Fall Quarter, 2022

Instructor: Dr. Donnan Steele (hds1@uchicago.edu)
TA: Luke Nicholson (nicholson@uchicago.edu)
Time slot: Thursday 5:00-7:50
Location: Keller 2112

Course Description

This course introduces the economic, technological, and political forces that shape the global energy industry, the concepts and methods used by regulators to guide the industry, and the private sector business models that emerge. The course begins by framing the industry in its microeconomic context and proceeds to explore the role of technology and innovation, global markets and geopolitics, and the regulation of externalities including acid rain and climate change. The readings and coursework will use specific examples from the power, renewables, oil & gas, and environmental sectors from the United States and other select geographies to illustrate these forces in context. Students can tailor their final policy memo towards their areas of interest.

Prerequisites

Intermediate Microeconomics

Exposure to concepts from finance including discounted cash flow valuation

Course Logistics

The course will be in person with accommodation for those quarantining from COVID.

Interactions with the Instructors

The Instructor will hold office hours by arrangement which should be schedule in advance and can be organized as an in person meeting, phone call, or Zoom meeting. Please email him directly to arrange a meeting.

The Teaching Assistant will lead office hours by arrangement and scheduled review sessions during the week before problem sets are due. These sessions will also be organized to be in person or by phone, conference call, or Zoom meeting as appropriate. Please email him directly to arrange a meeting.

COVID

Students and instructors are expected to follow University COVID protocols, as presented in this website and elsewhere:

<https://goforward.uchicago.edu/>

ADA Student Accommodations

Any student who believes they may need assistance should inform the Harris Dean of Students office by the end of the first week of class. The Dean of Students office will coordinate any student accommodations directly with the instructor.

Student Responsibilities

- *Attendance.* Please contact the instructor directly if you expect to miss, arrive late to, or leave early from any session.
- *Class preparation.* You are expected to complete the readings ahead of class and to be prepared for discussions.
- *Meeting deadlines.* Completion of all assignments by the indicated dates; no exceptions.
- *Individual work.* You should complete graded assignments on your own unless the assignment is explicitly assigned as a group project; work developed for other classes will not be accepted.
- *Academic integrity.* Adherence to the University's Academic Dishonesty Statement, included below.

Academic Dishonesty Statement

All University of Chicago students are expected to uphold the highest standards of academic Integrity and honesty. Among other things, this means that students shall not represent another's work as their own, use un-allowed materials during exams, or otherwise gain unfair academic advantage. All students suspected of academic dishonesty will be reported to the Harris Dean of Students for investigation and adjudication. The disciplinary process can result in sanctions up to and including suspension or expulsion from the University. In addition to disciplinary sanctions, I will impose a grade penalty for students who have committed academic dishonesty. The Harris policy and procedures related to academic integrity can be found at <https://harris.uchicago.edu/gateways/current-students/policies/>.

The University of Chicago Policy on Academic Honesty & Plagiarism can be found at <https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>.

Readings

Required Textbooks

Kneese, A.V., and J.B. Sweeney, 1993. *Handbook of Natural Resource and Energy Economics, Volume 3.* Elsevier. (KS) – chapters can be purchased individually online.

Viscusi, W. K., J.E. Harrington, and D.E.M. Sappington, 2018. *Economics of Regulation and Antitrust, 5th Edition.* MIT Press. (VHV)

Case Studies (available as a course packet at hbsp.harvard.edu)

Abdelal, R., G. Goldstein, and P. Apostolicas, 2019. *The United States and Russia: Gas Rivals in Europe?* Harvard Business School Press.

Fermeth, A., and M. Loudermilk, 2017. *Environmental Defense Fund and the Leveraged Buyout of TXU.* Ivey Publishing.

Roberts, M. J., J. B. Lassiter, and R. Nanda, 2010. *U.S. Department of Energy & Recovery Act Funding: Bridging the "Valley of Death"* Harvard Business School Press.

Assignments

Assignment	Weighting	Due
Problem Set #1	20%	October 13 th , 5:00 pm
Cases Studies	10%	October 20 th and 27 th , November 17 th
Problem Set #2	20%	November 3 rd , 5:00 pm
Final Policy Memo proposal	–	October 27 th , 5:00 pm
Policy Memo	15%	November 10 th , 5:00 pm
Final Project	25%	December 8 th , 5:00 pm
Class participation	10%	–

The *Problem Sets* will be distributed in class and will reinforce key elements of energy economics discussed in the first half of the course. If you work on these in groups, please indicate the names of the students you collaborated with at the top of the assignment; however, you should write your own solutions and perform calculations independently. All problem sets should be submitted electronically through Canvas (including scanned handwritten versions).

The *Policy Memo* should be no more than 2 pages and should recommend to the German Chancellor how he should change Germany's energy policy in light of the Russian war in Ukraine. Please consider and weigh the key economic, environmental, and political issues. You should work on this alone. For reference, see "[Tips on Writing a Policy Memo](#)" by Peter J. Wilcoxon.

Most classes will include a mix of discussion and lecture, including three *Case Studies*. Each of you should read the case carefully and be prepared for active in class discussion including being able to summarize various aspects of the case and to work through any calculations out loud. You should also submit a 1 page write up of the case before class begins that addresses questions circulated the week prior. Your grade for the *Case Studies* will reflect both your participation and writeup. And your grade for Class participation will reflect your preparation and participation in the weekly discussions.

The *Final Project* on a topic of your choosing is due at the end of the course and should be no longer than 5 pages. We ask that you submit a brief (1 page or less) overview of the topic, outline of the key issues you plan to address, and data sources for feedback from the TA and Instructor. The Instructors will provide approval of the topic and any feedback on the structure of the project. The project should demonstrate mastery of the themes and material developed through the course.

There will be no final exam.

Course Agenda, Assignments, and Readings

I. Course Introduction & The Economics of Natural Monopolies

September 29th, 5:00-7:50

* VHV, Chapter 10

* Lazard's Levelized Cost of Energy Analysis – Version 15, October 2021

II. The Power Sector as Natural Monopoly: Regulation and Deregulation

October 6th, 5:00-7:50

Assignments: Problem Set #1 distributed

* VHV, Chapter 12, and 17 (pp. 669-683)

Griffin J. and S. Puller, "A Primer on Electricity and the Economics of Deregulation," in Electricity Deregulation: Choices and Challenges, Griffin and Puller eds., Chicago: University of Chicago Press, 2005.

III. The Economics of Depleting Resources & The Oil Sector Example

October 13th, 5:00-7:50

Assignments: Problem Set #1 due (5:00 pm)

* KS, Chapter 17 (pp. 759-771 and 779-789)

* VHV, Chapter 17 (pp. 683-698)

Hotelling, Harold, "The Economics of Exhaustible Resources," Journal of Political Economy, Vol. 39, No. 2 (April 1931), pp. 137-175

IV. Unregulated Markets and Technological Change: The Natural Gas Story

October 20th, 5:00-7:50

Discussion Topic: Gas Rivals Case Study

Assignments: 1-page write-up on the Case Study (5:00 pm)

* Abdelal et al. (Gas Rivals Case Study)

* KS, Chapter 17 (pp. 834-847)

* VHV, Chapter 5

RBN Energy, 2016. "Born in the U.S.A. – The Potential for Duplicating America's Shale Success Overseas"

V. Capital Decisions: TXU and Beyond

October 27th, 5:00-7:50

Discussion Topic: 1st TXU Case Study

Assignments: Final Project proposal due (5:00 pm); Problem Set #2 distributed

* Fermeth and Loudermilk (1st TXU Case Study)

VI. Externalities & The Clean Energy Marketplace

November 3rd, 5:00-7:50

Assignments: Problem Set #2 due (5:00 pm)

Pinner, D. and M. Rogers, “Solar Power Comes of Age: How Harnessing the Sun Got Cheap and Practical. *Foreign Affairs*, March/April 2015 Issue.

VII. Regulating Environmental Externalities: Acid Rain, CO₂, and Climate

November 10th, 5:00-7:50

Assignments: Policy Memo due (5:00 pm)

* VHV, Chapter 21

* McKinsey & Company, 2007. *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?*

VIII. The Government’s Role in Innovation: the U.S. Stimulus Program

November 17th, 5:00-7:50

Discussion Topic: Recovery Act Case Study

Assignments: 1-page write-up on the Case Study (5:00 pm)

* Roberts et al. (Recovery Act case study)

[November 24th – Thanksgiving Week – No Class]

IX. The State of Play in U.S. Climate Regulation: The Inflation Reduction Act

December 1st, 5:00-7:50

Discussion Topic: The Inflation Reduction Act

Lazard’s Levelized Cost of Hydrogen Analysis, June 2021

(Additional readings to be distributed)

Final Project due December 8th (5:00pm)