

5M129Z03 - Empirical modeling of gas and electricity markets

Professor: Anna CRETI
Contact information:
anna.creti@dauphine.fr
Department: MSO
Semester: 1

Course level: Graduate (M2)
Domain: Economics
Teaching language: English
Number of in-class hours: 36
Number of course sessions: 9 + Exam
ECTS: 6

Course description and objectives

The course focuses on how the main characteristics of day-ahead electricity markets and gas markets are modeled, in terms of empirical industrial organization and econometrics. Concrete cases and examples will be presented. Each lecture closely follows the most recent empirical literature on the topic presented.

Objectives:

Learning how to model the main characteristics of electricity and gas markets. Students will learn to apply the most recent theories to analyze the performance of these markets, as well as to understand empirical and simulation analysis that are frequently used by both regulators and firms to assess the effects of changes in market design or market structure.

Prerequisites

Industrial Organization, Basic Econometrics

Registration in **2nd year Master classes** is restricted to graduate students and subject to the approval of the academic advisor for international students and MSO departments.

Assignments and grading

- Written exam (3 hours)

The numerical grade distribution will dictate the final grade. The passing grade for a course is 10/20.

Class participation: Active class participation – this is what makes classes lively and instructive. Come on time and prepared. Class participation is based on quality of comments, not quantity.

Exam policy: In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

MyCourse

This course is on MyCourse: **Yes**

Course structure

| Session | Topic |
|---------|--|
| 1 | Course Introduction: why empirical modeling of electricity and gas markets is important? Examples: the enquiries of the European Competition Commission |
| 2 | Day-Ahead Electricity Markets: measuring imperfect competition using indicators |
| 3 | Day-Ahead Electricity Markets: measuring imperfect competition using empirical industrial organization models |
| 4 | Day-Ahead Electricity Markets: measuring imperfect competition in the Californian Market (case study) |
| 5 | Day-Ahead Electricity Markets: forward contracts and competition |
| 6 | Retail Markets: the NOME Law |
| 7 | Gas markets: empirical modeling of long-term contracts and efficiency |
| 8 | Gas markets: long-term contract and spot markets |
| 9 | Gas markets: security of supply; the case of strategic storage |
| 10 | Final Exam |

Bibliography (optional)

- Bushnell J., Mansur E. , Saravia C. “Vertical Arrangements, Market Structure, and Competition: An Analysis of Restructured U.S. Electricity Markets”, American Economic Review, Volume 98, Issue 1, March 2008, pages 237-266.
- Chaton C. Creti A and B. Villeneuve (2009) “Storage and Security of Supply in the Medium Run”, Resource and Energy Economics, Vol 31, pp 24-38
- Creti A.(2004) "Long-term Contracts and Take-or-pay Clauses in Natural Gas Markets", (with B. Villeveuve), Energy Studies Review, Vol 13, pp 75-94
- Cremer H., Laffont J-J. (2002), Competition in gas markets, European Economic Review 46, 928–935
- Mansur E. “Measuring Welfare in Restructured Electricity Markets ”Review of Economics and Statistics, Volume 90, Issue 2, May 2008, pages 369-386
- Newbery, D. et al. “A Review of the Monitoring of Market Power” Working Papers 0502, Massachusetts Institute of Technology, Center for Energy and Environmental Policy Research

Complementary references will be given during the lectures.

Academic integrity

Be aware of the rules in Université Paris Dauphine about plagiarism and cheating during exams. All work turned in for this course must be your own work, or that of your own group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group.

Academic calendar

The pedagogical assistant will give you directly the schedule at the begin of the semester