

12C013

3 ECTS

## Competition and Regulation in Energy

### Overview and Objectives

During the last two decades, the energy sectors have experienced radical regulatory changes. Drawing on economic analysis, we will study specific regulatory experiences, and will discuss the business and public policy issues that they have raised. Topics include the development and organization of spot and futures markets in energy; the determinants of industry structure, investment and entry in these industries; competition in wholesale electricity markets; or the economics of renewable energy. 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. This course will be useful to those that aim at working in energy regulatory institutions, energy firms, consultancy companies, or to anyone interested in putting economic theory to work.

### Course Outline

#### Electricity (Prof. Natalia Fabra; 12 hours)

- An overview of the electricity industry
- Economic theory and competition issues in the electricity industry
  - Theoretical analyses of competition
  - Market design issues
  - Identification and diagnosis of market power
- Investment Incentives in the electricity industry
- Environmental Issues
  - Federico, G, Vives, X. and Fabra, N. (2009) "Competition and Regulation in the Spanish Gas and Electricity Markets", IESE SP-SP.
  - Griffin, J. and Puller, S. (2005) "A Primer on Electricity and the Economics of Deregulation" Electricity Deregulation: Choices and Challenges, Griffin and Puller, eds. Chicago: University of Chicago Press.
  - Heal, G. (2009), "The Economics of Renewable Energy", NBER Working Paper 15081.
  - 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.

(The slides contain additional references on specific topics)

#### Gas (Prof. Anna Creti; 8 hours)

- The main characteristics of the gas industry: case study. Gazprom, the European Community and the Ukrainian crisis
- Economic theory and competition issues in the natural gas industry
  - Long Term Contracts
  - Security of Gas Supply
  - Access to physical infrastructure and entry-exit tariffs
  - International Competition and Liquefied Natural Gas
  - Storage

12C013

3 ECTS

## Competition and Regulation in Energy

### Suggested readings:

- 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.
- Clingendael Institute (2010), CIEP Gas Day 2010: The role of the EU in gas infrastructure development, the Hague
- Cremer H., Laffont J-J. (2002), Competition in gas markets, European Economic Review 46, 928–935.
- Dorigoni S and S Portatadino (2008) LNG development across Europe: Infrastructural and regulatory analysis, Energy Policy 36, 3366– 3373.
- Polo M. Scarpa C. (2013) Liberalizing the gas industry: Take-or-pay contracts, retail competition and wholesale trade, International Journal of Industrial Organization, 31, 64–82.

(The slides contain additional references on specific topics)

### Suggested readings:

- Borenstein, S. (2000) "Understanding Competitive Pricing and Market Power in Wholesale Electricity Markets," Electricity Journal.
- Borenstein, S. (2011) "The Private and Public Economics of Renewable Electricity Generation", Working paper 221, Energy Institute at Haas.
- Fabra, N., von der Fehr and Harbord (2006) "Designing Electricity Auctions," Rand Journal of Economic, Vol 37 (1).

### Required Activities

Reading and active participation in class.

### Evaluation

Grading will depend on the student's performance in the final exam (80%) and his/her participation in class (20%).

### Materials

There is no textbook that covers all materials of the course. Instead, we will be using journal articles and reports specific to each of the topics (listed above as well in the class material); some of these will be available at the course's website