

Market power in restructured electricity markets : The case of the United States

Sophie MERITET

sophie.meritet@dauphine.fr

Assistant Professor
CGEMP
Université Paris Dauphine

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Introduction

- Why the case of the United States ?
 - degree of competition
 - 20-year experience
- Influence of the US experience

The shift to reliance on competitive market prices instead of regulated rates, raises the possibility that some firms could manipulate prices by exercising market power (MP).

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Introduction

- The study of MP in electricity markets is not an easy task...

The presentation is divided in 3 sections :

Section 1 : The concept of MP and its application in electricity markets

Section 2 : The point of view of American authorities

Section 3 : The case of Texas

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1/ *Concept of MP*

➤ Definition in Economics

“ A firm is said to have market power when it acts in a manner that is intended to change market prices and can maintain prices at a non-competitive level for a significant time period” .

➤ **First Problem** : Definition of the Relevant Market ?

It is specially problematic in the electricity industry :

- 1/ Electricity markets are dynamic and can change in just a few minutes
- 2/ A lot of markets have been created ...
- 3/ There is also very little opportunity for real-time demand response in electricity markets.

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- Wholesale companies with generation capacities
- Several American companies are accused of using MP in wholesale markets

In generation, market power could be due to (Patrick, 2001) :

- One seller having a disproportionate amount of generation in the relevant market,
- Transmission constraints
- Running certain generating units to maintain reliability

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➡ Generators may manipulate market price and increase their profitability through their choices of capacity available, **and** /or prices at which they will make capacity available.

How can we know that a generator has a market power ?

The fundamental measure :
Lerner Index $(P - MC) / P$

Authorities concerned with market power have long relied on projected changes in **concentration measures** as a significant part of their analyses of the impact of structural changes in market.

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- Schmalensee & Golub (1984)

calculated HHI values for 170 generation markets (serving nearly 3/4 of the total population).

- Cardell, Hitt and Hogan (1997)

using 1994's year data, they calculate HHI values for 112 regions.

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2/ American Authorities Point-of-view

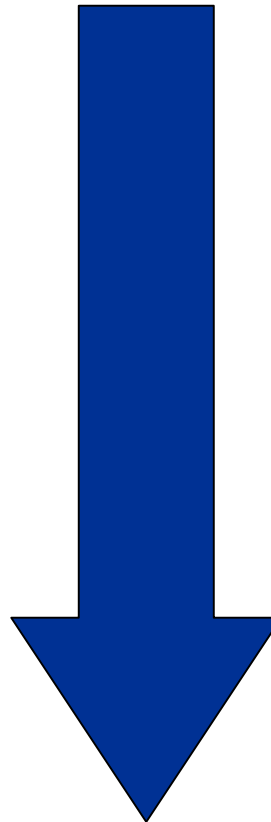
Generation activity

PURPA Act - 1978
EPACT - 1992

Transmission grid

Orders 888 & 889- 1996
Order 2000

Retail activities



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Several studies have found evidence of market power in deregulated electricity markets or have analyzed the potential for market power in wholesale market in the United States.

➡ Before summer 2000 in California

- Borenstein, Bushnell and Wolak (1999)
- Wolak (2000)
- Wolfram (1998)
- Borenstein, Bushnell and Wolak (1999, 2001)

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➡ Studies on electricity markets in other states

New Jersey

Borenstein, Bushnell & Knittel (1997)

Colorado

Sweester (1998)

Several State public utility commissions have undertaken studies

DOE (March 200) focused on the interrelationship between concentration & MP

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➡ Dec. 2001, new market power test based on supply margin assessments

This new test examines a company's importance in serving **peak electricity loads**.

- => *Columbus, Ohio-based American Electric Power,*
- => *Atlanta-based Southern Company*
- => *and New Orleans-based Entergy Corp.*

Since 2001, the debates in the United States on manipulation of prices and the evolution in the FERC's ruling **avored several inquiries** on wholesale companies accused of market power.

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ERCOT

- serves approximately 85 % of the state's electric load and
- oversees the operation of approximately 70,000 MW of generation and over 37,000 miles of transmission lines.

Texas is restructuring its \$16 Billion electricity industry.

As of January 1, 2002, both individuals and corporations in most cities in Texas are now able to choose their power supplier

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The case is about **market manipulation** that may have occurred during the pilot phase of Texas' deregulation program in 2001.

Six companies are accused : *American Electric Power, Constellation Power Source, Mirant Corp., Reliant Energy Inc., and TXU Corp. and ?*.

➡ "Regulatory Quirk"

Qualified Scheduling Entities (QSEs) must project a day ahead how much electricity their clients expect to acquire or generate on a given day.

ERCOT pays money to QSE
that consume less energy than they project
and assesses charges against QSE
that produce less energy than they project

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- ➔ Authorities analyzed the forecasting behavior of 45 QSEs during a 15-day period in August 2001.

RESULTS ???

one company consistently missed its forecasts by 5 % to 45 %,
another by 150 % to 300 %,
and a third by 75,000 % to 400,000 %.

Was the overscheduling intentional ?

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Conclusion

1/ Complete elimination of market power seems to be **unreachable**.

The possession of market power will continue to be a fact in the electric industry simply because of transmission constraints and the necessity to run units in certain areas to maintain reliability.

2/ The possession of market power is not the problem.

The problem is **the exercise of market power** to raise prices beyond what they would otherwise be in a competitive market.