

La restructuration de mercados energéticos en América del Norte

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Overview

- Introduction: the four restructurings
- Restructuring gas markets in the US and Canada
- Restructuring electricity markets in the US and Canada
- Lessons learned

The four restructurings

■ The first restructuring: regulatory commissions

- > reaction to monopolistic abuse in the 1920s
- > supported by the utilities
 - alternative to nationalization
- > popular mandate
 - consumer protection
 - not imposed from outside
 - no problem of legitimacy

... four restructurings

- **The 2nd restructuring (1930) : the federal role**
 - > creation of the Federal Power Commission
 - > wholesale markets, interstate commerce
 - state commissions kept control over retail service
- **The 3rd restructuring : demonopolization of generation (1970s)**
 - > driven by high oil and electricity prices
 - > opening to independent generators (IPPs)
 - > emphasis on energy efficiency
 - > development of integrated resource planning (IRP)

... four restructurings

■ The 4th restructuring (the 1990s): substitute competition for regulation as the motor of efficiency

- > open access to transmission grids
 - separation between generation and transmission
- > in some cases, open access to distribution grids (*retail access*)

Gas markets (US)

■ Milestones

- > 1938: Federal Power Commission given power to set rates for gas sold interstate
- > 1954: gas produced for interstate sale subject to federal regulation
- > 1960: wellhead prices set by FERC, on a regional basis
 - for interstate sales only
- > 1974: national price ceilings
 - based on average (low) price of existing wells
 - mandatory for interstate sales only
 - result: in gas-producing states, prices high and supplies plentiful; elsewhere, prices low and supplies scarce

Gas markets (US)

- Open access imposed by FERC
 - > Order 436 (Open Access Order, 1985)
 - > Order 636 (Final Restructuring Rule, 1992)
- Creation of a competitive wholesale market
 - > pipeline companies limited to selling transport services; no bundled services
 - > no merchant activities; arm's length affiliates
 - > non-discriminatory access to transport, storage, etc.

US electricity markets

- The 3rd restructuring
 - > PURPA (1978): obligation to buy from IPPs at avoided cost
 - > beginning of the end of generation monopolies
- 1980s
 - > big rate increases, due largely to cost overruns for nuclear plants
 - > natural gas CCGT \Rightarrow falling marginal costs
- The 4th restructuring
 - > Energy Policy Act (1992) mandated FERC to favour competitive markets

Transmission access

- FERC Order 888 (1995)
 - > prevent integrated utilities from favoring their own sales
 - open access to transmission system
 - functional separation (function unbundling) allowed
 - preference for Independent System Operators (ISO) (not obligatory)
 - > minimum standard Open Access Transmission Tariff
- Order 889 (1995)
 - > Transmission providers required to maintain OASIS (Open Access Same-Time Information System) website
 - > post all available capacity
 - > post all transactions

Transmission access (2)

- FERC Order 2000 (2000)
 - > acknowledged that 888 not successful
 - > integrated utilities still presented barriers to fully competitive markets
- Order 890 (2007): repair flaws in 888
 - > mandatory procedures for calculating ATC
 - > open planning process
 - > facilitate intermittent resources (wind)
 - > strengthen compliance (penalties)
 - > continues to allow functional separation
 - divestiture not required

Wholesale markets

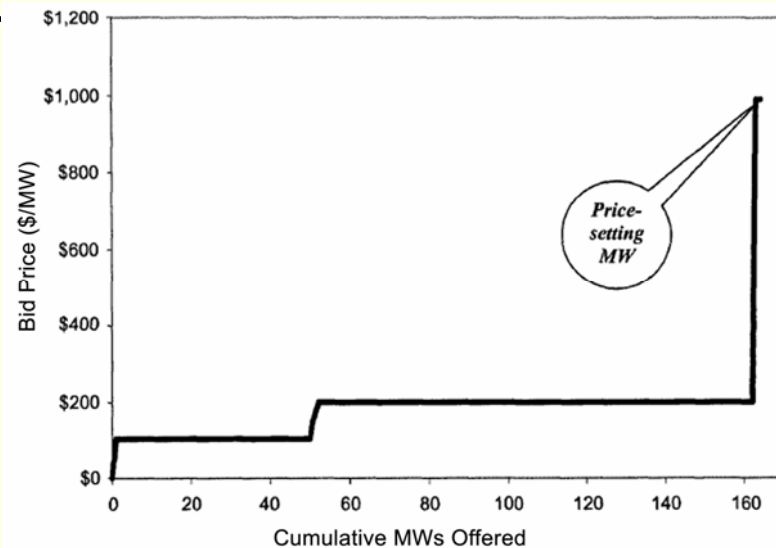
- Spot markets of central importance
 - > bilateral transactions permitted in most areas
 - > hourly clearing price paid to all providers
 - meant to avoid gaming
 - gives rise to new types of gaming
- Mechanisms to prevent market power
 - > market-based rate authority granted if no evidence of market power (FERC)
 - > presumption that competitive market will produce rates that are just and reasonable

Market power abuse

- California (summer 2000)
 - > drastic increase in wholesale price
 - delayed and limited increases to rates
 - > rolling brownouts and blackouts
- Causes
 - > market design careful to avoid distributor market power, failed to worry about generators
 - > serious market manipulation
 - Enron and others
 - sophisticated gaming
- Effects
 - > bankruptcy of major utilities
 - > a major blow to restructuring in US

Price spikes

- Common in other regions (Texas, New England, ...)
 - > short-term spikes, even at moderate loads
 - > offer bidding



bidding

Managing market power

- **Overlapping jurisdiction**
 - > energy regulator (FERC)
 - > state regulators
 - > commodity markets regulator (Commodity Futures Trading Commission)
- **Ever-changing methodologies**
 - > hub-and-spoke
 - > Supply Margin Assessment test
- **Market monitors (ISO)**
 - > limited information made public
 - > work well, most of the time

Boom-and-bust cycle

■ 2001-2005: Bust

- > prices collapsed after 2000, due to
 - California debacle
 - stock market collapse (high tech bubble)
 - accounting and corporate management scandals
 - decline in demand (recession)
 - over-supply, due to previous « boom » period
- > loss of \$100 billion of market capitalization for generators
- > many bankruptcies

■ 2006- : Boom

- > prices rising with oil prices
- > fear of capacity shortages

Renewables and efficiency

- In > 20 states, funding through “system benefits charge”
 - > avg of \$1/MWh
 - > not related to markets per se, but to effective negotiations by environmental advocates in restructuring settlements
- Price-responsive demand
 - > in theory, demand varies with price
 - > a key goal of competition
 - > elusive in practice
 - > some progress
 - time-of-use pricing (smart meters)
 - demand auctions

... restructuring in US

- Unintended consequences
 - > dramatic price increases
 - increasing demand
 - increasing % of time where gas on the margin
 - > windfall profits to coal and nuclear producers
- renewed interest in
 - > planning
 - portfolio management
 - long-term contracts
 - environmental criteria as well as price
 - > returning to regulation

Electricity markets in Canada

- Federal jurisdiction limited (National Energy Board)
 - > interprovincial gas pipelines
 - > international (but **not** interprovincial) transmission lines
- Electricity: provincial jurisdiction paramount
- Crown corporations predominate in regions that are predominantly hydro and nuclear

Alberta

- First jurisdiction in North America to restructure
 - > exclusively fossil generation
 - > major producer of oil and gas
 - > mandatory power exchange (1996)
 - > free-market ideology
 - > complex mechanisms to ensure consumers retain benefit of existing low-cost generation
- Outcome
 - > partially successful
 - > price spikes ⇒ govt intervention (rebates)
 - > difficulty attracting new generators
 - > improving in recent years
 - > significant wind power development

Ontario

- Canada's largest province
 - > fossil, nuclear and hydro
 - > restructuring driven by free-market ideology
 - > gradual divestiture of Crown corporation
 - govt retains debt obligations
 - > simultaneous opening of wholesale and retail markets
- Outcome
 - > price spikes \Rightarrow govt intervention (rate caps)
 - > uncertainty \Rightarrow reluctance to build
 - > new govt: new power authority to oversee procurement for Ontario consumers

Québec

- 95% hydropower, major exporter to US
- Industry structure
 - > since 1963, vertically integrated state-owned monopoly
 - > since 1997, subject to regulation
 - > since 2000
 - functional separation
 - regulation of transmission and distribution
 - no regulation of generation
- Main driver for restructuring: facilitate exports to US
 - > objective not to reduce costs or rates,
 - > but rather to raise them in order to increase profits for government
- Outcome
 - > financial objectives met
 - > absence of any public forum for debating generation choices has created political problems

Restructuring in Canada

- Ideologically-driven in two provinces
 - > Alberta fairly successful
 - > Ontario caught in no-man's-land
- Elsewhere driven by proximity to US markets
 - > Quebec: Active desire to develop export markets
 - > BC: Closely integrated with Western grid
 - > Atlantic Provinces: fear of consequences of not going along
- Virtually no role for federal govt.

The public voice

- Public participation has many benefits
 - > improves quality of regulatory decisions
 - > reduces risk of capture by regulated industries
 - > promotes legitimacy, because all interests represented
- Effective public involvement requires
 - > availability of information
 - > reasoned decisions
 - > public advocates
 - > financial means to participate
- In US, « collaboratives » played a key role
 - > buy-in from key actors that could have derailed project
 - > collateral benefits (funding for energy efficiency, renewables)

Conclusions

- Difficult experience in US and Canada
- Danger of gaming
- Importance of price stability
- Demonopolization of generation a clear success
- Positive (but accidental) impact on energy efficiency and renewables
- Retail access experiments failing

Lessons learned

- no single model
- competition in generation has real benefits
- govt action still needed for environment, universal service, energy efficiency
- capable regulators
- sharing of jurisdiction central-local
- competition policy vs. regulatory policy
- effective public involvement at all stages