Wholesale Market Models: Integrated vs. decentralized markets; Role of the system operator; Ancillary services

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Structure of Presentation

- General discussion
  - Markets and the banking crisis
  - General observation about markets
- Energy-specific discussion
  - Different energy markets from exchanges to ancillary services
- Conclusions
  - Likely trends
General ideas about markets

- Markets was THE buzz word of the neo-liberal school
  - Friedrich von Hayek;
  - The Institute for Humane Studies (www.theihs.org)

- But the implementation of the neo-liberal ideas was not straightforward in the so-called natural monopoly sectors
  - Telecom, electricity, gas and water
General ideas about markets – cont’d

- The UK took the lead in the liberalization of the ‘network utilities’ in Europe:
  - Telecom (1984), gas (1986), water (1990) and finally electricity (1991 – 92) were declared ‘unnatural monopolies’ in the UK and were privatized.

- First experiences with liberalization were mixed (at best):
  - Artificial competition = profit went up, level of services down.
General ideas about markets – cont’d

Nevertheless, the UK privatization/regulation model was replicated in Central Europe in the mid 1990s

- Privatization of the Hungarian gas distribution companies

The theoretical question today is whether it was a good idea to push through the above liberalization programmes
General problems with the markets

- Markets tend be unpredictable
  - Nassim Nicholas Taleb: The Black Swan (2007)
- Markets do fail and such market-failures are beyond all proportions
  - Banking crisis of 2009
- Markets do not work under scare-resources scenarios
  - Accelerated electrification of the USSR in the 1920s;
  - And today: new-built programme in Lithuania
Electricity markets

- A wide range of electricity markets operate today
  - Some are obviously markets (like, electricity exchanges), while others are ‘hidden’ markets (like, primary/secondary reserves)
- We will discuss markets in pairs below, on a black-and-white basis
  - This approach over-simplifies reality, but makes it easier to take lecture notes
Electricity markets - 1

**Physical**
- Electricity is actually delivered, just like any other physical commodity
  - Party A schedules against Party B;
  - Party B schedules against Party A; and
  - The grid company confirms such schedules

**Financial**
- Electricity sold/bought, but not delivered
  - Positions closed out before delivery (90%)
  - Positions cashed-out (9%)
  - Electricity not delivered due to Vis Major or Force Majeure (1%)
- Extra complication: risk management products (hedges) are also financial instruments
  - Special regulatory regime applies in some countries
Electricity markets - 2

Spot

Electricity for today or tomorrow
- Today: within day or intra-day
  - Still rare in Central Europe
- Tomorrow: day-ahead (DA)
  - THE most active and THE most volatile markets

Forward

Anything beyond DA
- Month-ahead (MA)
- Quarter-ahead (QA)
- Balance of year (BoY)
- Year-ahead (YA)
- Medium-term (up to five years)
- Longer term (beyond five years)
Electricity markets - 3

Bilateral

- A contract between two parties
- The contract tends to be standard (EFET)
  - Home-made EFETs
- Extremely difficult (if not impossible) for regulators to supervise what is going on
  - Reporting obligations in Poland and Hungary

Organised

- Electricity exchanges
  - More about this in the other presentation
Electricity markets - 4

**Commodity**
- Electricity, as commodity is traded;
- The most interesting commodity transactions are the auctions organised by dominant EU incumbents
  - Virtual power station
  - Capacity release programme

**Capacity**
- The right to cross a border point in one direction is auctioned off;
- One of THE most hotly disputed issues:
  - How NTC is calculated?
  - Why different directions are not netted-off?
  - The future: flow-based auctions?
Hidden markets

- One of the main achievements of liberalisation was the separation of grids from generators and distributors;

- But there is a practical problem here: grid companies must secure access to ancillary services, otherwise they cannot fulfill their ultimate statutory duty

- Review definitions to put the above in context
Quick definitions

Grid companies
- Responsible for the smooth and reliable running of the national grid;
- Independently owned, but could be privatized;
- Also electricity and gas grids could merge.

Ancillary services
- Flexibility and other services the grid companies provide to guarantee smooth and reliable running of the grid;
- Examples
  - Primary and secondary reserve
  - Black start
  - Frequency support, etc
Where is the market here?

- In an ideal world, the grid companies would issue tenders and buy ancillary services from the most competitive bidder(s)
  - MAVIR reserve capacity auctions
- What is the reality? The price of ancillary services is going up and up;
  - The grid companies pass on this charge to traders and distributors (Use of System Charges); and
  - Traders and distributors pass on the UoSC to final customers . . .
How to make the ancillary markets work?

- List domestic and cross-border generators who can provide ancillary services
  - Croatia have one of the highest percentage of hydro generation; yet neighboring Hungary has one of the highest reserve capacity charges in Central Europe

- Local regulators to force
  - (i) all grid companies to buy all ancillary services via standardized auctions; and
  - (ii) all domestic generators above a certain size (50 MW) to participate at such auctions or pay a penalty
How to make the ancillary market work?

The above are necessary, but not sufficient steps:
- Regulators must also make sure that the generators have access to flexible gas supply and their CO₂ costs are sufficiently covered;
- Regulators to create a regional reserve capacity markets
  - Special cross-border capacity allocation and special gate-closure rules to apply to generators that win reserve capacity auctions in a neighboring grid.
Conclusion

➤ You are entitled in 2010 to be skeptical about markets . . .
➤ Yet, the shift from ‘central command grids’ to ‘liberalized markets’ is the likely trend for the future;
➤ Please use this lecture as a check-list to evaluate your own domestic electricity arrangements:
Conclusion – 2

For example,
- Do you have the various markets, as discussed above?
- If yes, do they work?
- If not, what could be done to introduce such markets?
- Do you have NTC-based cross-border auctions?
- How your grid company is securing ancillary services?