## Electricity market reform and regional integration:

### Consequence for consumers in the European single market

Sylvie D'Apote
International Energy Agency

XXXIV Reunión de Altos Ejecutivos CIER
"La regulación en mercados integrados"
Asunción, Paraguay
22-23 November 1999

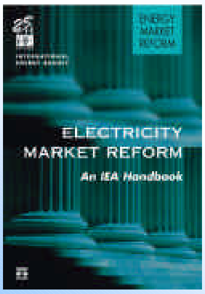


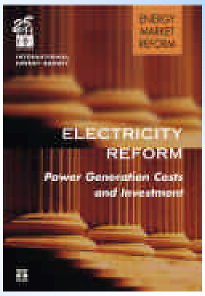
## Outline

- What is the IEA
- Electricity market reform in IEA countries
- Status of the EU electricity market
- Benefits of integration
- Benefits to the consumer
- Obstacles
- Conclusions



## IEA Analyses






## IEA Analyses

Soon to be published:

"Competition in Electricity Markets"



## What's the IEA?

- Goals & membership (OECD)
- Work on
  - Oil stocks and oil markets
  - Policy analysis:
    - Country reviews of energy policies
    - World Energy Outlook
    - Regulatory reform
  - Environment
  - Technology

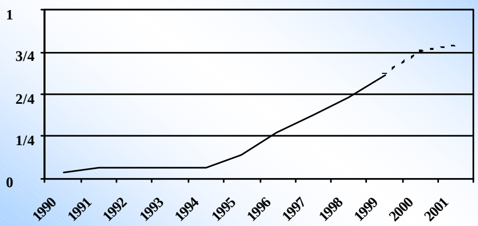


## If you want to know more...

- www.iea.org
- also links to other sites
  - regulators
  - system operators
  - electricity companies
  - international organisations dealing with energy

## Electricity Market Reform

### Fraction of OECD Countries with Wholesale Market Competition




INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

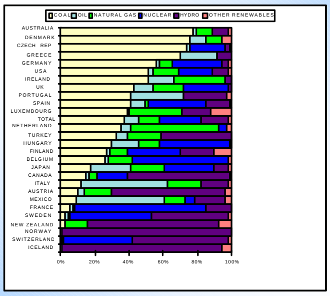
## Models of Competition

- Portfolio manager (single buyer)
  - early US (1978), Japan, Korea
- Wholesale competition
  - mandatory pool (UK, Australia) OR
  - open market allowing bilateral dispatch (NordPool, New Zealand, new UK, Germany, Spain)
- Retail competition

consumer power

INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

## Experience of IEA countries: Very diverse starting points




OECD NATIONAL FUEL SHARES IN ELECTRICITY PRODUCTION (1995)

INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

## Experience of early IEA reformers

### (UK, Norway, Sweden, Australia, NZ)

DIFFERENT CHOICES AND COMMON ELEMENTS

- Differences in terms of:
  - Ownership of utilities
  - Allowing vertical integration of Gen./Dis.
  - Market arrangements (pool)
  - Institutional framework (regulator)
- Common elements:
  - Full consumer choice (target)
  - Unbundling of Gen. fromTransm.
  - Regulated TPA

INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

## Experience of early IEA reformers (2): some good surprises

- Initial concerns that
  - competition ® low price ® insufficient investment
  - unbundling of system operation from power exchange transaction not practically feasible

have been dismissed by experience

INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

## Experience of early IEA reformers (3): emerging challenges

- Crucial challenges now:
  - Developing workable competition
  - Developing market oriented policy tools and institutions
  - Getting consumers to share the benefits of liberalisation

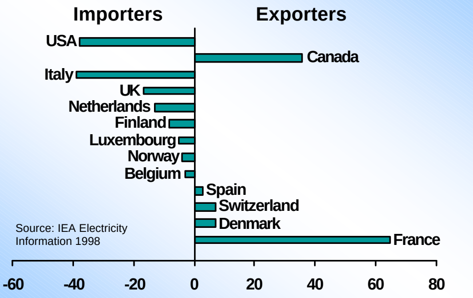
INTERNATIONAL ENERGY AGENCY | AGENCE INTERNATIONALE DE L'ENERGIE

## Recent reforms
### (EU, US and Japan)

- Other IEA countries embarking in reform:
  - EU, US, Japan
- The international dimension
  - in the US, Canada and EU
- Regional trade can boost competition in national (state-provincial) markets



## OECD Electricity Trade (TWh)






## The EU electricity market reform

- EU: liberalisation by integration
- The 1996 EU Directive
- February 1999
- Staged market opening

| Date* | % of the national market open to competition | Minimum size of Eligible Consumers (EU Average) GWh per year |
|---|---|---|
| February 1999 | 26.8 | 40 |
| February 2000 | 28 | 20 |
| February 2003 | 33 | 9 |



## EU Electricity Reform
### (as of September 1999)

| Country | Demand (TWh) | Max opening | Trans-mission | Indepen-dent TSO? | Genera-tion |
|---|---|---|---|---|---|
| Germany | 483 | 100% (1998) | nTPA + transitional SB | no | private/ länder + municipal |
| France | 382 | 35% (2003) | reg TPA | no | public |
| UK | 317 | 100% (1999) | reg TPA | yes | priv-atized |
| NordPool (w/o DK) | 303 | 100% (1996) | reg TPA | yes | mixed |
| Italy | 254 | 40% (2002) | SB + reg TPA | no | public/ divest |
| Spain | 157 | 100% (2007) | reg TPA | yes | priv-atized |

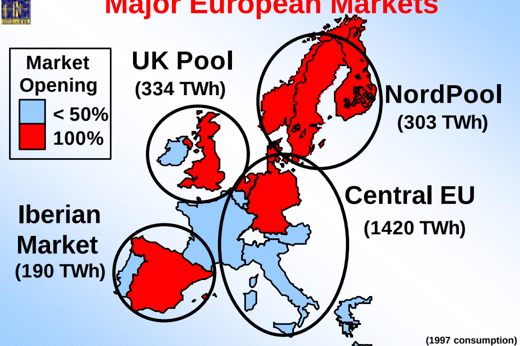


## EU Electricity Reform (2)
### (as of September 1999)

| Country | Demand (TWh) | Max opening | Trans-mission | Indepen-dent TSO? | Genera-tion |
|---|---|---|---|---|---|
| Nether-lands | 92 | 100% (2007) | reg TPA | yes | municip./ privatiz. |
| Belgium | 73 | 40% (2006) | reg TPA + nTPA | no | priv-atized |
| Austria | 50 | 50% (2003) | reg TPA | no | mixed |
| Greece | 38 | 35% (2005) | nTPA | no | public |
| Denmark | 32 | 100% (2003) | reg TPA | no | municip./ coops |
| Portugal | 32 | 35% (2003) | SB + reg TPA | no | mixed |



## Major European Markets

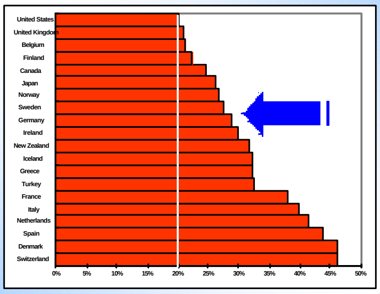


## What are the benefits of regional integration?

- Technical benefits
  - Flattening the load curve
  - Reduced need for reserve capacity
  - Reduce overall operation costs
- Economic benefits
  - Wider market ® larger number of agents
    ® stimulate competition
  - Better investments decisions
  - More economic efficiency
  - Lower margin ® lower prices?

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Better investment decisions...




GENERATING CAPACITY RESERVE MARGINS IN OECD COUNTRIES (1995)

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## More efficient use of manpower, higher productivity...

| Country | Form of Liberalisation | Decrease in employment | Time Period |
|---|---|---|---|
| Victoria, Australia | Privatisation, Competition | 47% | 1989-96 |
| Hungary | Privatisation | 8% | 1995-97 |
| New Zealand | Corporatisation | 34% | 1987-92 |
| United Kingdom | Privatisation, Competition | 50% | 1988-95 |
| United States | Impending competition | ‡14% | 1990-96 |

Note: ‡ major investor-owned utilities

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

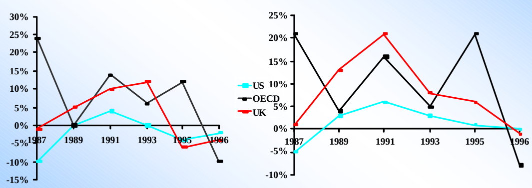
## Lower margins ® lower prices

But lower than what:
- Before?
- Consumer Price Index?
- Whould have been without competition?

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Lower Prices

%change in electricity prices (bi-annual exc.96)



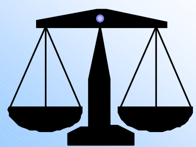

Industry

Residential

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## More transparency, better pricing...

Tariff Re-balancing
(No Cross-subsidies)



Time-of-use Pricing

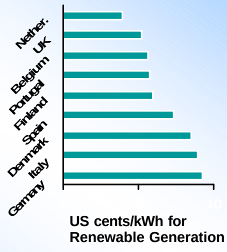
INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## The benefits of regional integration? (2)

- **HARMONISATION**

  e.g. Environmental regulations

  International competition ...
  - shows differences in environmental policies
  - creates pressure to harmonise policies




Source: European Commission

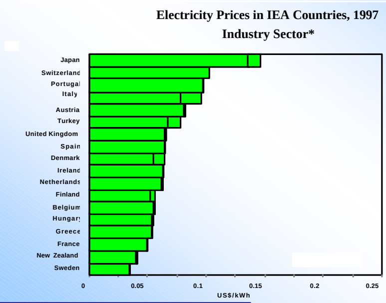
INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Consequences for the consumers

- Not yet a single market
  - Preliminary observation based on evidence in the UK and North Pool
- Lower prices?
  - Too short tome series to say
  - Lower costs
  - Lower margins
  - Lower price differentials
- Choice ⊗ choosing your type of service, pricing your reliability needs...
- The choice of not to choose!

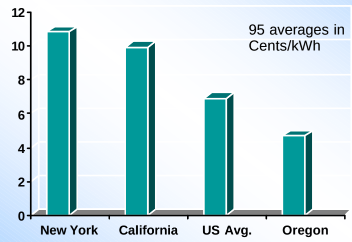
INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Smaller Price Differentials




INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Smaller Price Differentials




Source: US Energy Information Administration, 95

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Consequences for the consumers (2)

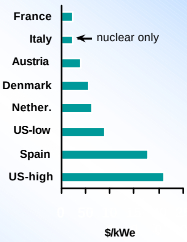
- Benefits may not be evident in the transitional period
- Who pays for the stranded assets
- Problems of partial reforms
  - uncertainty
  - regulatory risk

INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

## Key EU issue: stranded costs

- Common sources
  - nuclear plants
  - PPAs
  - energy policy
- How to evaluate?
- Fairness to companies vs. negatives to:
  - consumers
  - competition

**Selected Estimates**




INTERNATIONAL ENERGY AGENCY AGENCE INTERNATIONALE DE L'ENERGIE

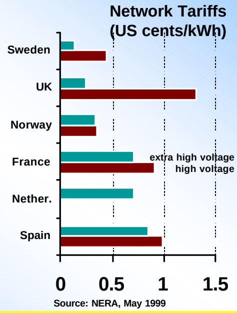
## Obstacles to integration

- Interconnectors' capacity
- Different degree of opening in national markets ⊗ issue of reciprocity
- Transmission regulation, pricing
- Other regulatory barriers
  - fiscal regimes
  - environment requirements
  - foreign ownership issues...
- Political issues
- Trade unions



## Key EU issue: transmission

- no 'harmony'
  - available capacity
  - grid expansion
- tariffs
  - national & border
  - transactions or not
  - congestion or not
  - no pancaking
- Commission: more legislation needed






## Key EU issues: Summary

- Network access and pricing
- Regulation
  - national differences
  - international authority
- Competition issues
  - stranded assets
  - market power
  - reciprocity

Turning on EU competition



## "Lesson learned"

- Establish priorities
- Introduce consumer choice as soon as possible
- Efficient (and harmonised) regulation of electricity networks
- Use of market-based mechanisms to address environmental and social goals
- Beware of piecemeal reforms - transition arrangements are crucial to the success of reform



## Future of market reforms?

- Full competition (consumer empowerment)
- Voluntary pools without capacity payments
- Truly independent system operators
- Network pricing
  - regulated third-party access
  - international harmonisation
- Regulator is specialised, independent competition authority
- Reliance on market mechanisms to advance other policy objectives



## Muchas gracias por su atencion.

✉ : sylvie.dapote@iea.org

✆ : www.iea.org