

# INTERNAL ENERGY MARKET

Filip Černoch

FSS MU

# Traditional vs liberal paradigm

- ❑ Is energy a „special“ commodity?
  - ❑ A crucial input to the economy
  - ❑ A limited number of suppliers
  - ❑ A highly capital intensive
  - ❑ Dependency on fixed networks
  - ❑ Tendency to monopolisation – substantial economies of scale, benefits of co-ordination of production, transmission and distribution.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Traditional vs liberal paradigm

- ❑ **Traditional paradigm** emphasizes stability, reliability of supply, and public service, it is a model of technical organization involving the central control over a synchronized network.
- ❑ = the certain way of organizing government relations with electricity and gas industries, a set of ideas about the scope of competition and the appropriate legal and institutional methods to achieve public policy aims.
- ❑ = role of a consumer is limited

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Traditional vs liberal paradigm

- **Liberal paradigm** stresses a greater reliance on markets. It sought to introduce competition whenever possible, encouraging openness, decentralized production with network access, and profit based on the market prices, not costs. (regulation for competition).
- **Some basic characteristic:**
  - Separation of activities to facilitate the competition (unbundling)
  - Freedom of entry and investment into competitive activities, instead of a centrally-planned approach
  - Freedom of contract and competitive formation of prices
  - Access to the network and infrastructure
  - Supervision of the model by an independent regulator

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Internal energy market

- **IEM**: trade area with common policies on product regulation and free movement of energy, where the maximum competition between suppliers and providers of different types of energy is essential. The barriers among the MS are, therefore, removed to maximum.
- 
- 1) Market liberalisation + common management of the market
- 2) Interconnections

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Liberalization

- ❑ **Economic liberalization:** refers to fewer govt. regulations and restrictions in the economy in exchange for greater participation of private entities. Arguments for economic liberalization include greater efficiency and effectiveness that would provide greater profit for everybody. Thus, liberalization in short refers to the removal of controls, to encourage economic development.
- ❑ **Advantages of liberalized (= competitive) market:**
  - ❑ Allocative efficiency – the resources invested in direction preferred by consumers. To reduce the risk of low or non-existent demand.
  - ❑ Innovation - adjustment to changes of consumer preferences.
  - ❑ Cost reduction – to keep the costs and prices down.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Liberalisation – pros and cons in en. sector

- Prices are set by the market and competition drives prices lower **vs** market pricing (manipulations with prices)
- Prices are 'real', reflects the costs, demand and supply **vs.** inability of some customers to buy them (public service obligation)
- Stress on profit (effective allocation of sources) may weaken the incentives to some investments **vs.** long-term stability, reliability and security of supply
- Sources are not wasted on non-profitable projects **vs.** private utilities don't reflect the interests (social, environmental) of state.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Specific features of gas and electricity industry

- ❑ Network (grid) = natural monopoly
- ❑ Some specific characteristic of electricity:
  - ❑ Lack of storage potential
  - ❑ High cost of outages
  - ❑ Fluctuation
  - ❑ Lack of import dependence (in the EU) – but interconnectors are poor and missing
- ❑ Some specific characteristic of gas:
  - ❑ Geopolitics
  - ❑ Gas chain
  - ❑ Storage and timing of actions

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ



# Conditions of internal energy market

- Liberalisation and competition – withdrawal of the state from the energy sector
- But also regulation – to limit the power of (natural) monopolies and to remove the legacy of tradition (pre-liberal) paradigm – **regulation to competition** (to enforce competition)

## Specifics of energy

- A crucial input to the economy
- A limited number of suppliers
- A highly capital intensive
- Dependency on fixed networks
- Tendency to monopolisation

# Building of the internal energy market

- ❑ European economic downturn in the 80s, free market atmosphere of the UK under Mrs Thatcher.
- ❑ Fall in energy prices of commodities in the mid-80s not followed by prices of energy (electricity) – local or national obligations. Questioning of the realisation of political goals via state-controlled industry.
- ❑ Overinvestment in production capacities due to the expected demand. High costs of new plants = the performance of the (state-runned) industry was suffering.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# First initiatives

- 1988 Working Document on the Internal Energy Market
  - „...the greatest possible transparency with regard to potential obstacles“.
- First activities of the Commission date from 1989.
  - Communication from the Commission: Transparency of consumer energy prices. COM (89)123, 1989
  - Towards completion of the internal market for natural gas. Communication from the Commission. Proposal for a Council Directive on the transit of natural gas through the major systems. COM (89) 334, 1989
  - Increased intra-Community electricity exchanges: a fundamental step towards completing the internal energy market. Proposal for a Council Directive on the transit of electricity through transmission grids. COM (89) 336, 1989.
  - And the others ...

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# First initiatives for IEM

- Since 1988, the Commission focused on:
  - Harmonization of indirect taxation
  - Price and investment transparency
  - Competition for public procurement
  - TPA
  - Integration of electricity and gas grids
  - Application of competition legislation to the upstream part of oil and gas exploration and production.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# First liberalization package

- Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity
- Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas

|                           | Unbundling of networks           | Access to networks                      | Market opening                                   | National regulation      |
|---------------------------|----------------------------------|---|--|--------------------------|
| First legislative package | Separate management and accounts | Negotiated or regulated terms of access | Power: 35% open by 2003<br>Gas: 33% open by 2018 | Mechanism for regulation |

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# EU regulatory framework: a summary

- Differentiation between competitive parts of the industry (= supply) and non-competitive parts (= operation of the networks).
- Obligation on operators of the non-competitive parts of the industry to allow third parties to have access to the infrastructure.
- Free up the supply side of the market – removing barriers preventing alternative suppliers from importing or producing energy.
- Free choice of consumers to choose their supplier and removal of restrictions on customers from changing their supplier.
- Creation of independent regulators to monitor the sector and enforce TPA.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Increased role of the EC in the energy policy

- ❑ TPA implied that EC will supervise and define the conditions and tariffs for such access
- ❑ EC controls the financing of energy projects – TEN - E
- ❑ Application of the rules on competition by countering the existence monopoly companies
- ❑ More power regarding the interventions in the subsidizing of energy (coal) production
- ❑ EC is perceived by lobbyists as one of the main energy policy-maker in the EU

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Second liberalization package

- Unsatisfactory pace as well as targets, new legislation introduced in 2003.
- *„European national gas markets are characterized by high prices and tariff differentials, a high degree of market concentration, insufficient unbundling, a lack of market based balancing regimes, and ex ante regulation to name just a few. The prices of gas and electricity are especially of concern. In some European countries, natural gas increases its share in electricity generation. During the 1990's the European industry was paying 40% more for its electricity than its American competitors“.*

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ



# Second liberalization package

- Directive 2003/54/EC concerning common rules for the internal market in electricity
- Directive 2003/55/EC concerning common rules for the internal market in natural gas

|                            | Unbundling of networks           | Access to networks                      | Market opening                                   | National regulation           |
|----------------------------|----------------------------------|---|--|-------------------------------|
| First legislative package  | Separate management and accounts | Negotiated or regulated terms of access | Power: 35% open by 2003<br>Gas: 33% open by 2018 | Mechanism for regulation      |
| Second legislative package | Separate subsidiary              | Regulated terms of access (TOP in gas)  | Power and gas markets 100% open by July 2007     | Specific regulator for energy |

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



# Unbundling in the Second package

- **Legal Unbundling:** the transmission and distribution activities have to be done by a separate “network” company; the network company must not necessarily own the network assets but must have “effective decision making rights” in line with the requirements of functional unbundling (no change of ownership!)

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Unbundling in the Second package

- **Functional Unbundling:** where the network operator is part of a vertically integrated undertaking, it shall be independent in terms of its organisation (management separation) and decision making rights from the other activities not related to that network
- **Accounting Unbundling:** relevance for DSOs which are not legally unbundled (given the new requirement of legal unbundling); no derogation is possible from accounting unbundling for smaller DSOs.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# The following steps of the European Commission

- EC sector inquiry (2005 - 2007) highlighted some serious shortages.
  - The persistence of great market concentration (Vertical foreclosure, just a few interconnection)
  - Too little integration between MS markets
  - Absence of transparent market information
  - Unsatisfactory level of unbundling
  
- **Solution** = market transparency and caps on incumbents' market shares, closing the gaps between the responsibilities and competences of national regulators, structural (ownership) unbundling.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Non-functioning market: Incumbents' reactions

- **Vertical foreclosure** - the process where incumbent wittingly or unwittingly foreclose, or close in advance, the availability of crucial inputs or assets to potential rivals. Long-term upstream, capacity and downstream contracts.
  - 2/2008 E.ON to sell-off its grid (€1bn/y) to settle EU antitrust inquiries. (Deputy Economy Minister P. Hintze: *"The timing coincidence of these events, at a moment when the Commission is trying to force through a very sharp position against a minority, it's a very questionable game"*)
  - 6/2008 RWE to sell off its gas grid to avoid anti-trust actions by Commission. („RWE may have abused its dominant position...by raising rivals' costs and preventing new entrants from getting access to capacity on gas transport infrastructure in Germany“ – „The intended agreement is not an acknowledgement of guilt“)
  - <https://www.youtube.com/watch?v=w5y5QuT7ye8>

# European Commission vs. companies

- Unexpected inspections of 25 companies in Austria, Belgium, France, Germany, Hungary, Italy.
- Just in 2006 EC court proceedings against 17 states for inadequate transposition of the 2003 directives.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Non-functioning market: Governments' reactions

- Championing national companies – preventing foreign companies to buy domestic ones.
  - Hungary (Moll) vs OMV, Great Britain (Centrica) vs Gazprom....
- Regulating the regulators

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Non-functioning market: Governments' reactions

- Retail market - regulated vs. free pricing in case of energy
  - EK objected in case of **Slovakia**, where PM Fico threatened to renationalize Slovenske Elektrarne, if they did not stop raising the prices.
  - In 2006, EK went after **Spain, France, Estonia and Latvia** for regulating tariffs.
  - Then EK went after **Italy and Ireland** for granting on discriminatory basis the right to an incumbent to supply power at regulated price.
  - And again it went after **Germany, Czech Republic, Poland, Slovakia, Lithuania and Italy** for failing to provide sufficient information on regulator tariffs. The same situation repeated in 2007, in case of Commission against **Spain and France**.
  
- When the regulation of prices is legitimate?

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ



# Ownership unbundling

- „This would be the greatest expropriation since the Bolshevik revolution“ – Bruno Wllnofer, Chief executive of Tiwag, an Austrian utility.

## Hours with congestion as a percentage of all hours

| Border       | 2005 |
|--------------|------|
| SK to HU     | 100  |
| FR to CH     | 100  |
| DE to DK     | 100  |
| NL to BE     | 100  |
| FR to UK     | 94   |
| DE to NL (x) | 90,1 |
| FR to ES     | 81,1 |
| CZ to DE     | 68   |
| NL to DE (x) | 63,9 |
| BE to NL     | 63,1 |
| DE to FR (x) | 41,3 |
| CZ to AT     | 37   |
| DE to CZ (x) | 35,7 |

|              |      |
|--------------|------|
| UK to FR     | 35   |
| FR to DE     | 33,3 |
| ES to FR (x) | 32,8 |
| PL to CZ     | 16,1 |
| PR to ES     | 11,7 |
| FR to BE     | 11   |
| CZ to PL     | 10,1 |
| SK to CZ     | 6,6  |
| CZ to SK     | 1,1  |
| DE to CH (x) | 1    |
| FR to IT     | 0,8  |
| AT to CZ     | 0,3  |
| CH to FR     | 0    |
| IT to FR     | 0    |
| BE to FR     | 0    |
| DE to AT     | 0    |

Es, to je projekt je financován ovár Evropským sociálním fondem a státním rozpočtem České republiky.



# Third liberalization package

|                              | Unbundling of networks           | Access to networks                      | Market opening                                   | National regulation   |
|------------------------------|----------------------------------|---|--|---|
| First legislative package    | Separate management and accounts | Negotiated or regulated terms of access | Power: 35% open by 2003<br>Gas: 33% open by 2018 | Mechanism for regulation                                      |
| Second legislative package   | Separate subsidiary              | Regulated terms of access               | Power and gas markets 100% open by July 2007     | Specific regulator for energy                                 |
| Third liberalisation package | Ownership unbundling, ISO, ITO.  | Regulated terms of access               | Already achieved                                 | Ungraded and harmonized powers for national energy regulators |

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Third liberalization package - unbundling

- Separating networks from generation, production and supply interests
- **Ownership unbundling** - OU means separating the ownership or the operation of gas and power networks from other parts of the energy business.
- **ISO** - companies involved in energy production and supply would be allowed to retain their network assets, but would lose control over how they are managed. Crucially, commercial and investment decisions would be left to an independent company (ISO), to be designated by national governments with the Commission's prior approval, to ensure a sufficient level of independence.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Third liberalization package - unbundling

- **ITO model** allows integrated companies to retain ownership of their gas and electricity grids. However, they would have to give up daily management of the grids to an independent transmission operator.
- Crucially, companies can retain commercial and investment decisions, but will have to set up a framework for ensuring the independent operation of the transmission network by:
  - Setting up a supervisory body made up of company representatives, third-party shareholders and representatives of the transmission system;
  - agreeing a compliance programme setting out measures that prevent the ITO from discriminating against suppliers using the grid;
  - appointing a compliance officer with powers to ensure non-discrimination, and;
  - introducing a mandatory cooling-off period for management staff who move between the supply and generation company and the transmission operator.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Third liberalization package

- Promotion of an internal energy market and the removal of restrictions to trade between MS
- Agency for Cooperation of Energy Regulators (ACER) + European Networks for Transmission System Operators
- The protection of the consumers have to be strengthened

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Electricity market

- Electricity markets still strongly impacted by national energy and climate policy decisions (RES, capacity mechanisms, retail market regulation, carbon prices...).
- Gap between household (EU-28 average of €140MWh) and industry (€90/ MWh) – different levels of taxation and RES surcharges
- Since 2008 the wholesale prices have been falling by 1/3, retail prices have increased by 4%/y.
  - Due to the persistence of regulated prices and market concentration, the higher level of levies, taxes and network cost and low responsiveness of consumers to switch suppliers to better offer.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Actual situation

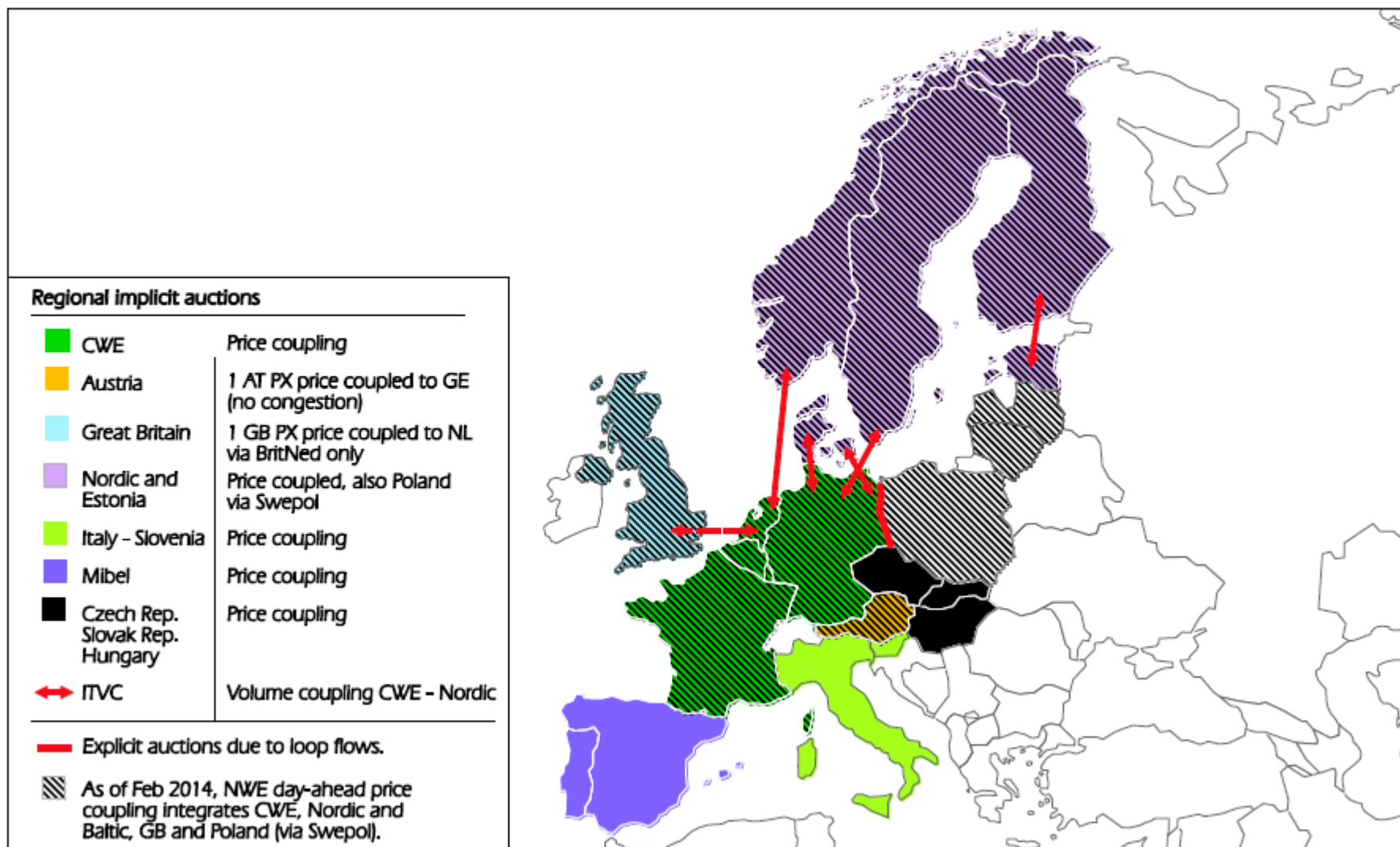
- Wholesale (sale for re-sale) market – price coupling (implicit auctioning of 2 and more exchanges) of CE to NWE, Nordpool and SE Europe = day-ahead market.
- Retail markets fragmented, regulated, supplier switching at low levels, consumer awareness and activeness limited.
- New regulatory framework by the end of 2014
- Connect all 'energy islands' by 2015 (Iberian Peninsula, Baltic states)
- EU generation market still concentrated. In 8 MS more than 70 % of power generation controlled by historic incumbent.
- Europe is set to retire a substantial share of its power generation capacity (coal, nuclear) in coming decade.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Overview of market coupling towards a European day-ahead market



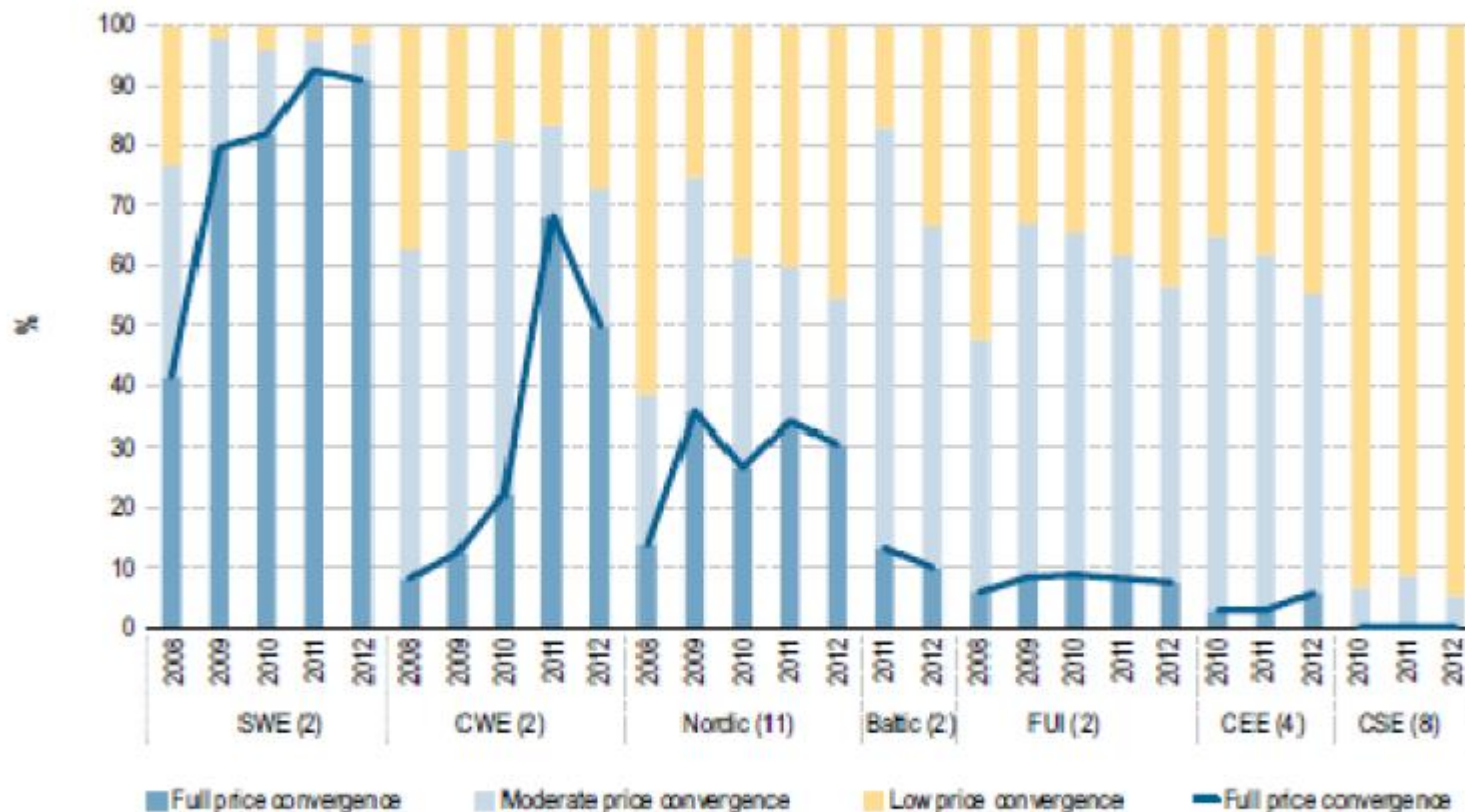
This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of International frontiers and boundaries and to the name of any territory, city or area.

Source: APX, 2013.



# Price convergence in Europe by region, 2008-2012 (%)

## Price convergence in Europe by region (ranked) – 2008 to 2012 (%)



Source: Platts, PXs and data provided by NRAs through the Electricity Regional Initiatives (ERI) (2013) and ACER calculations

Note: The numbers in brackets, e.g. SWE(2), refer to the number of bidding zones per region included in the calculations.

Source: ACER/CEER 2013.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

# Gas market

- More liquid, with increased trading at hubs and short-term flexibility of gas contracts, lowering the link to oil prices and moving towards more hub-indexed pricing.
- P2P system being replaced by EE system (mainly central and western European gas markets) – but still in the transition phase.
- Despite wholesale market opening and integration, retail markets show a lack of effective entry and exit of market players and remain national in scope.
- Prices for household vary from around €30 MWh to €95 MWh. Industrial prices more homogenous around €48 per MWh.
  - ▣ Regulated retail prices in 15 MS.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ