



European Commission DG Energy and Transport



Cross-border electricity transmission

Visit of South Asian Delegation

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Summary



- **History of EU energy policy**
- **Market liberalisation**
- **Cross-border issues**
- **Conclusions**



History of EU Energy policy



Energy is closely linked with the history of European integration.

At the very beginning of European integration, with the **ECSC** and **Euratom** Treaties, energy issues had a position of special importance which was never to be regained.

Attempts to bring energy within EU jurisdiction have not been successful.





An Energy Policy for the EU



The two oil crises (1973 and 1979) prompted concerns to **secure the energy supply** and led to EU energy policy being considerably extended.

Increasing **environmental concerns** and the establishment of the **internal market** for energy have been a source of fresh impetus in recent years.

EU energy policy seeks to find a balance between:

- security of supply
- competitiveness
- environmental protection





Energy Policy Goals



- **Security of Supply**
 - ◆ International dialogue
 - ◆ European stock management
- **Competitiveness**
 - ◆ Internal market
 - ◆ Competition
 - ◆ Interconnection
 - ◆ European electricity grid
 - ◆ Research & innovation
- **Environment**
 - ◆ Renewable energy
 - ◆ Energy efficiency
 - ◆ Emission trading





The gas and electricity Directives

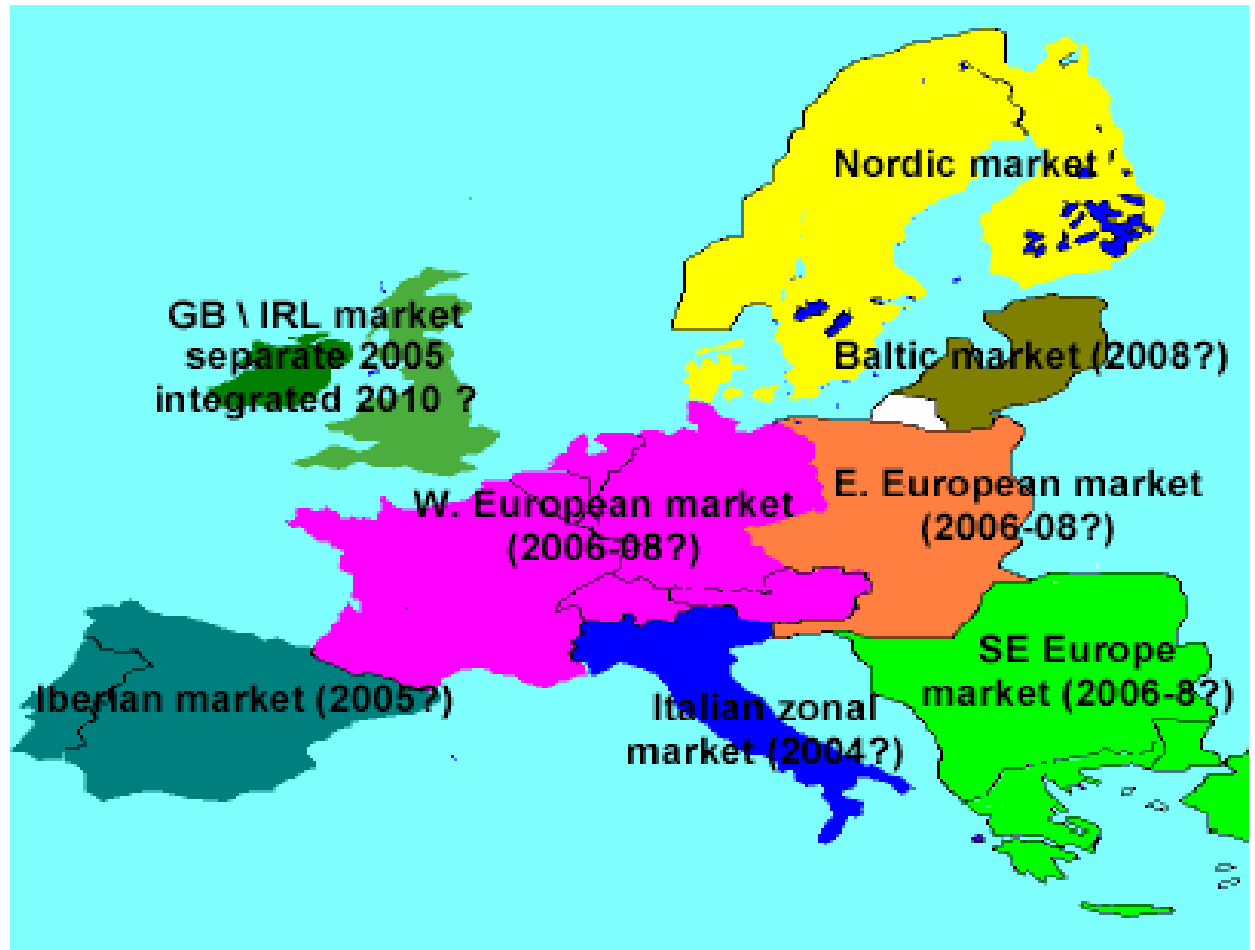


- **1st package (1996)**
 - ◆ Market opening for big industry (30% opening)
 - ◆ Account unbundling of transmission and distribution
- **2nd package (2003)**
 - ◆ Full market opening July 2007
 - ◆ Legal and functional unbundling of transmission and distribution
 - ◆ regulator in each country
- **3rd package (2009?)**
 - ◆ Ownership unbundling of TSOs
 - ◆ European regulatory agency
 - ◆ European TSO organisation, ENTSO

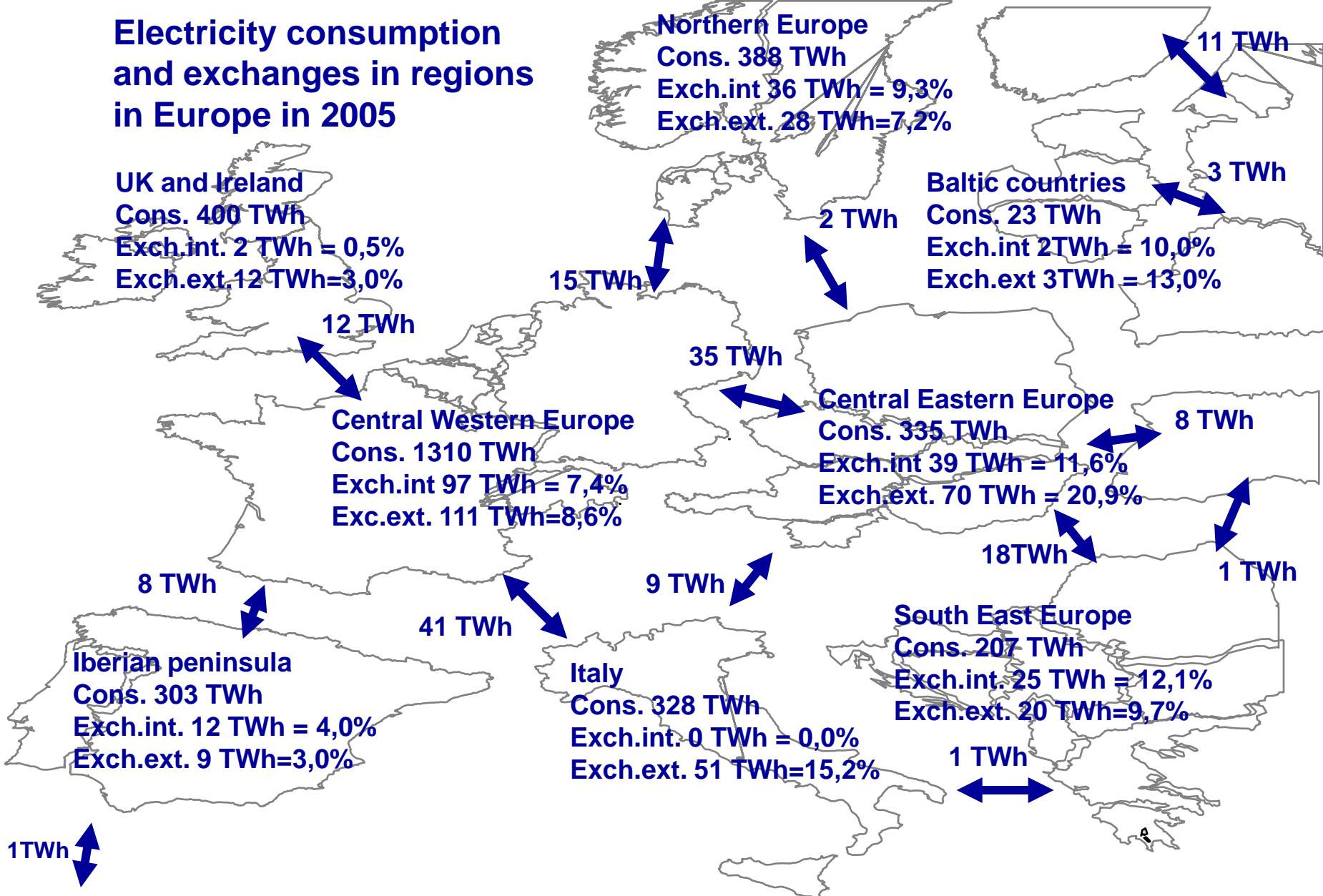




Regional energy markets in the EU



Electricity consumption and exchanges in regions in Europe in 2005



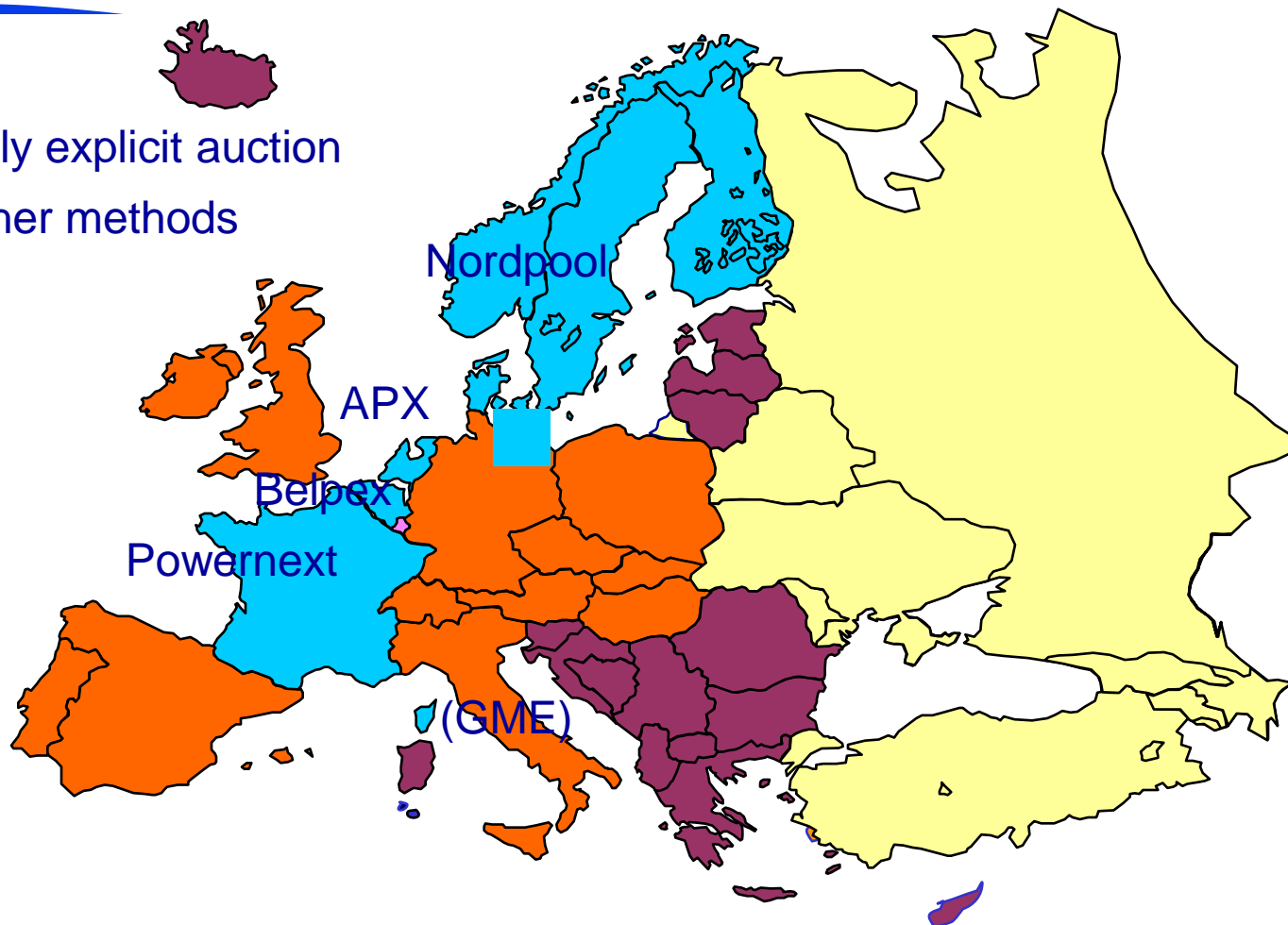
Cons. = Consumption
Exch.int. = Cross-border electricity inside region
Exch.ext. = Cross-border electricity between regions

Congestion management methods in 2006

Implicit auction in use

Only explicit auction

Other methods

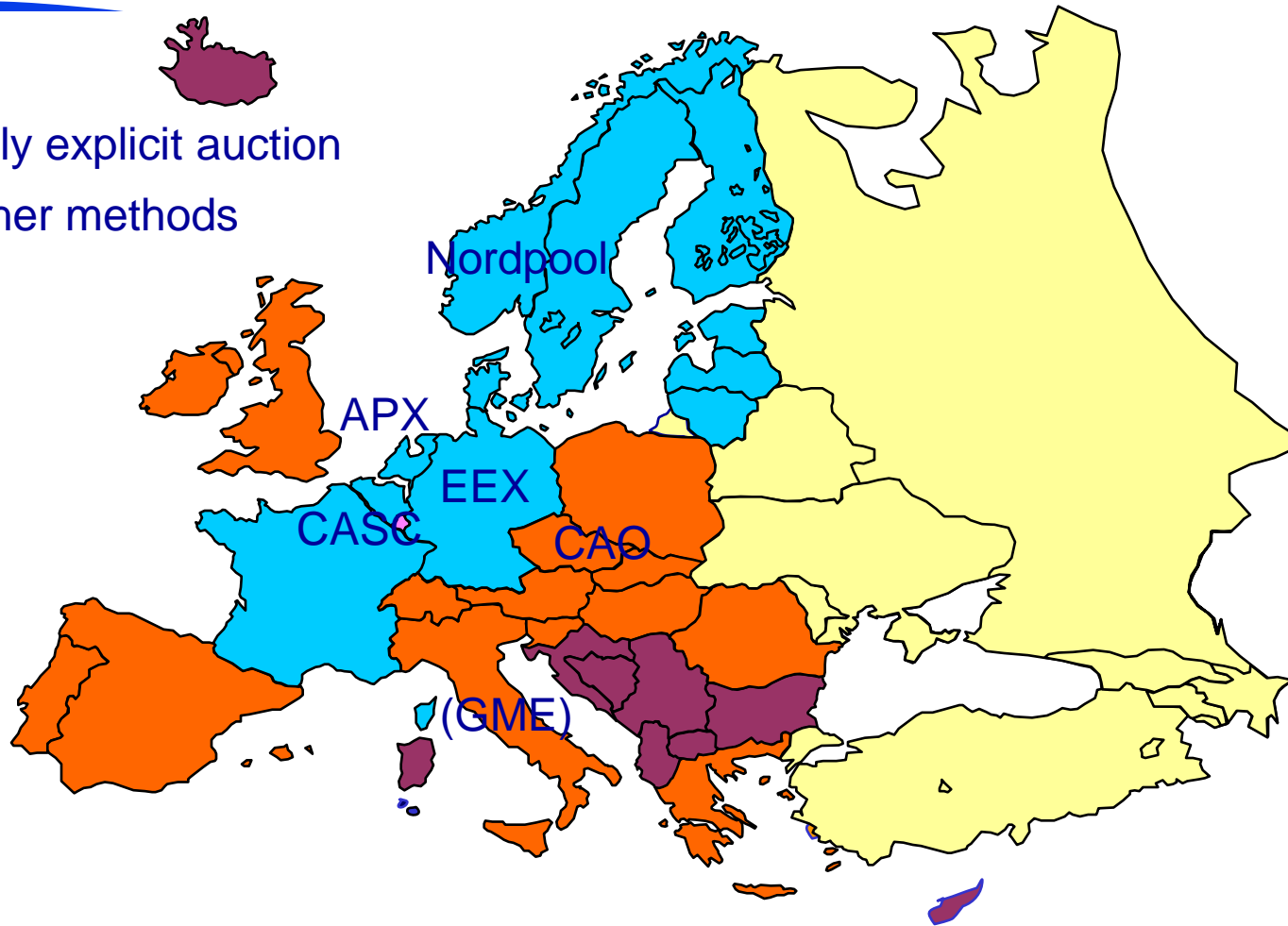


Congestion management methods in 2010

Implicit auction in use

Only explicit auction

Other methods

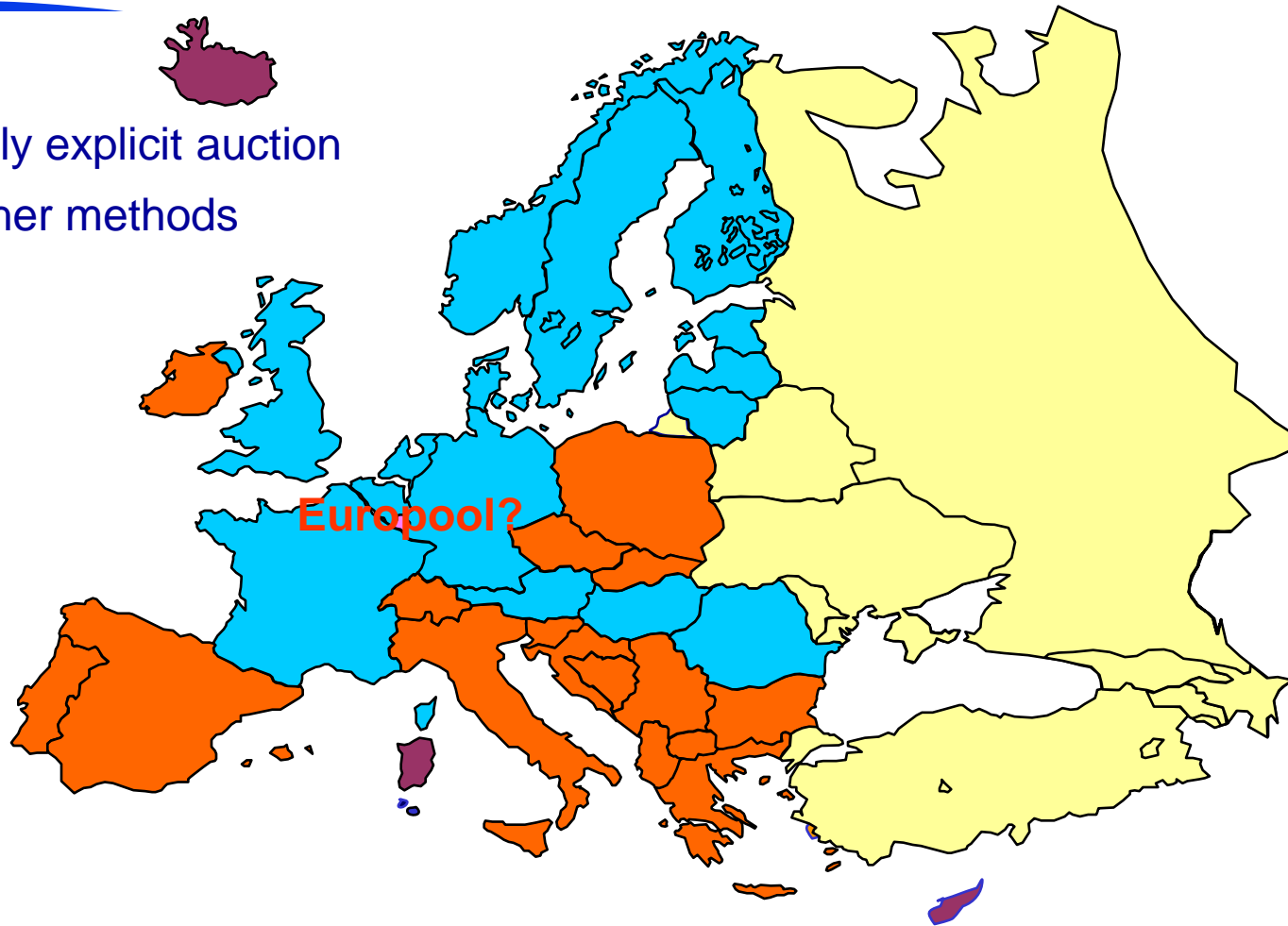


Congestion management methods in 2015

Implicit auction in use

Only explicit auction

Other methods





Key objectives

Avoiding blackouts





Electricity supply shortages



- **Natural disasters**
 - ◆ France 1999, storm
 - ◆ Southern-Europe summer 2003, heat-wave
- **Technical failures**
 - ◆ London, August 2003
 - ◆ Southern-Sweden and Denmark, September 2003
- **Operational failures**
 - ◆ N-E U.S.A and Canada, August 2003 (5 G€)
 - ◆ Italy, September 2003 (0,5G€)
 - ◆ Germany, November 2006 (?G€)
- **Market failures**
 - ◆ California 2000, 2001 (100G€)





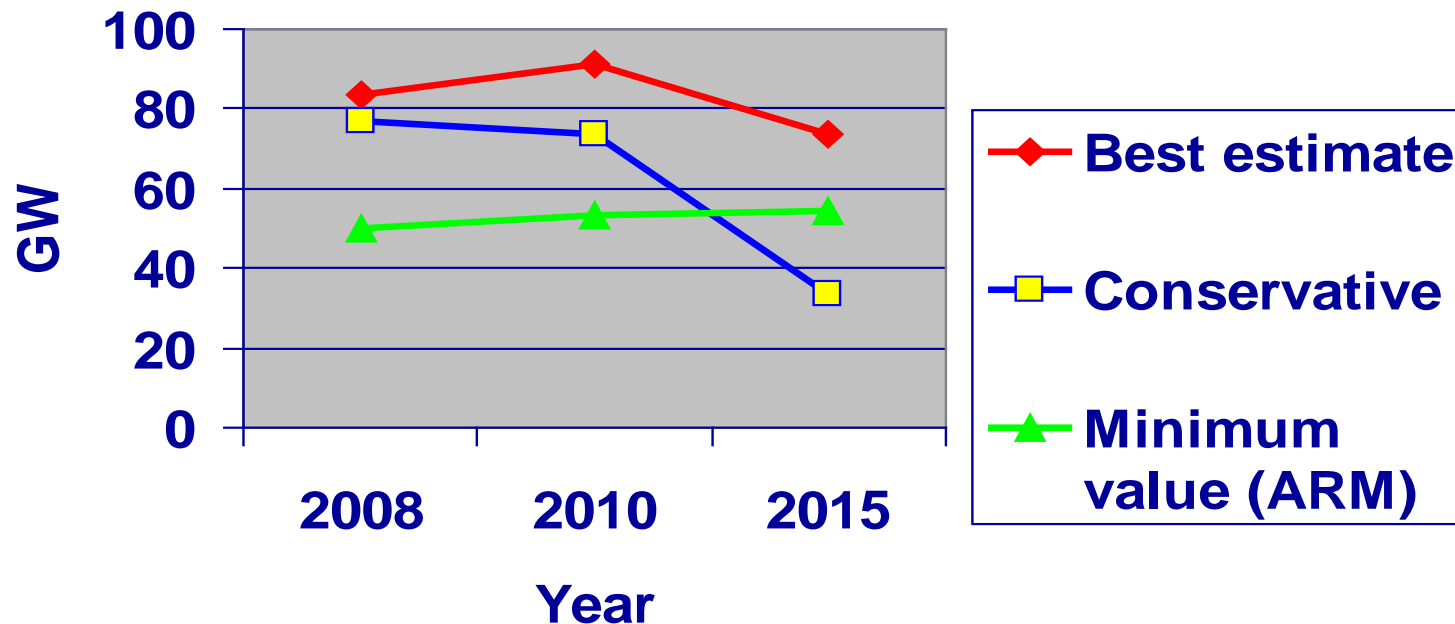
Lukmanier-line close to the place of the earth fault





ETSO Generation adequacy forecast (UCTE, Nordel, UK, Ireland)

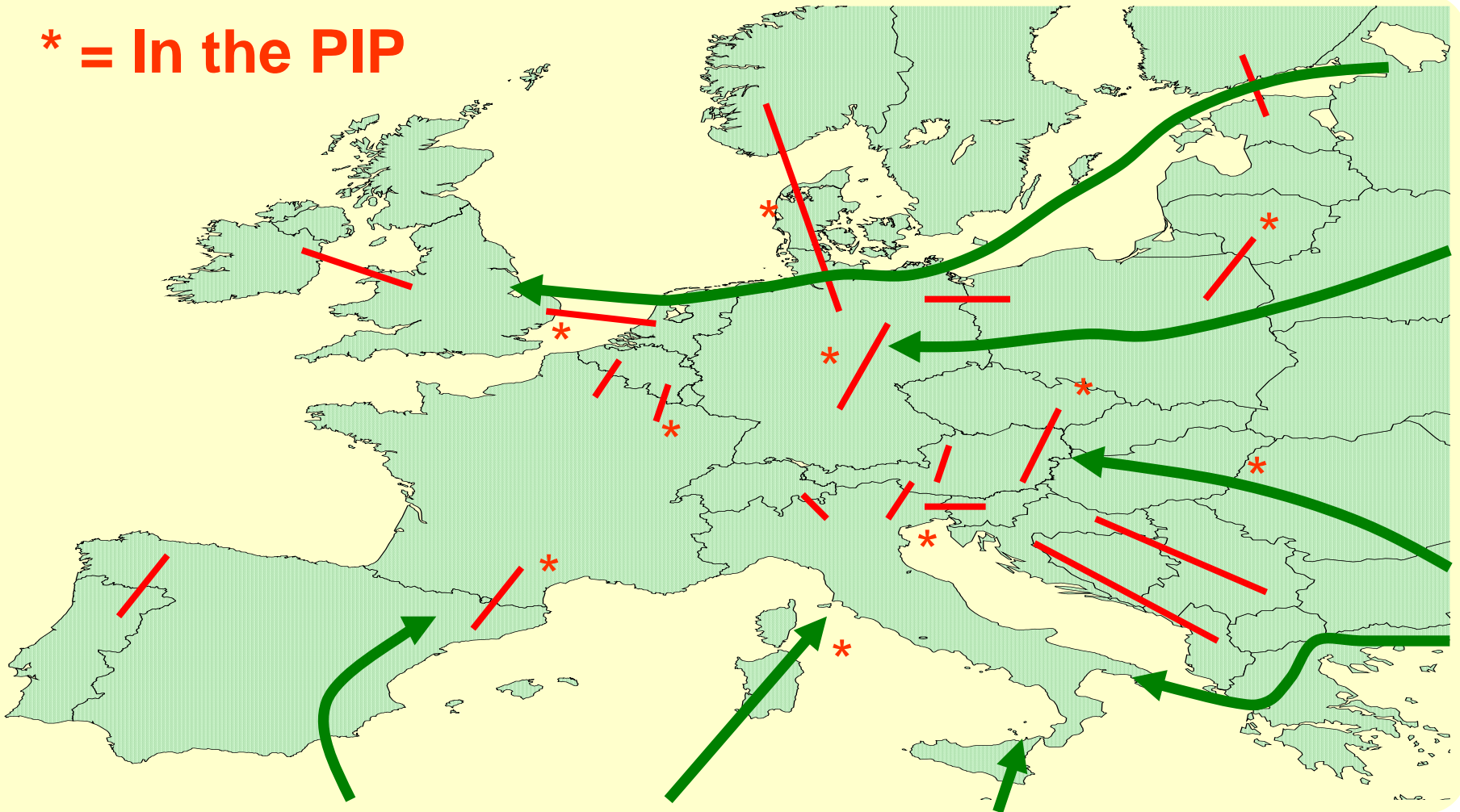
Remaining capacity at peak load





Priority Interconnection Plan

*** = In the PIP**





Conclusions and Way Forward



- **EU is the biggest liberalised electricity market in the world**
- **Market design is based on price areas with spot markets defining more and more cross border trade**
- **Challenges are enormous:**
 - ◆ **Generation capacity to be renewed and added with severe CO2 emission constraints**
 - ◆ **Ambitious renewable energy expansion plan**
 - ◆ **Strong dependence on outside EU energy sources**
 - ◆ **Building new overhead lines has become almost impossible**



The end

Thank you for your attention

