

# European Electricity Markets in Crisis – Which Direction for Reform?

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# FTI Consulting is an established advisory firm with an existing presence in the energy sector

## Heritage & structure

- Established in 1982
- c.4,000 staff across 24 countries
- Five divisions:
  1. Economic & Financial Consulting
  2. Corporate Finance
  3. Forensic & Litigation Support
  4. Strategic Communications
  5. Technology
- We're about deploying senior experts to help clients navigate critical decisions

## Energy capability

1. Electricity , gas, and carbon markets modelling
2. Regulation and market design
3. Competition and disputes
4. Strategy

## Example offerings

- Policy, regulation and market design
- Scenario planning & corporate strategy formulation
- Business case development & investment decisions support
- Energy and carbon market modelling
- Renewables investment & international supply chain
- Economic support to large commercial disputes

## Live projects

- **Due diligence:** valuation of power and gas assets for various utilities
- **Association:** advising on improvements to the EU ETS
- **Big 6 retail division:** enabling Board to agree smart metering funding
- **European utilities:** range of gas market & renewables disputes
- **European regulator:** review of European Gas Target model



## Agenda

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- Thermal plants in Europe: the “perfect storm”
- Electricity market reforms: will capacity mechanisms come to the rescue?
- Renewables: can we afford them?
- Conclusion: which way forward for market reform?

## Thermal plants in Europe: the “perfect storm”

# Thermal plants: The perfect storm

## Drop in power demand

- Weak economy
- Energy efficiency

## Growth of renewables

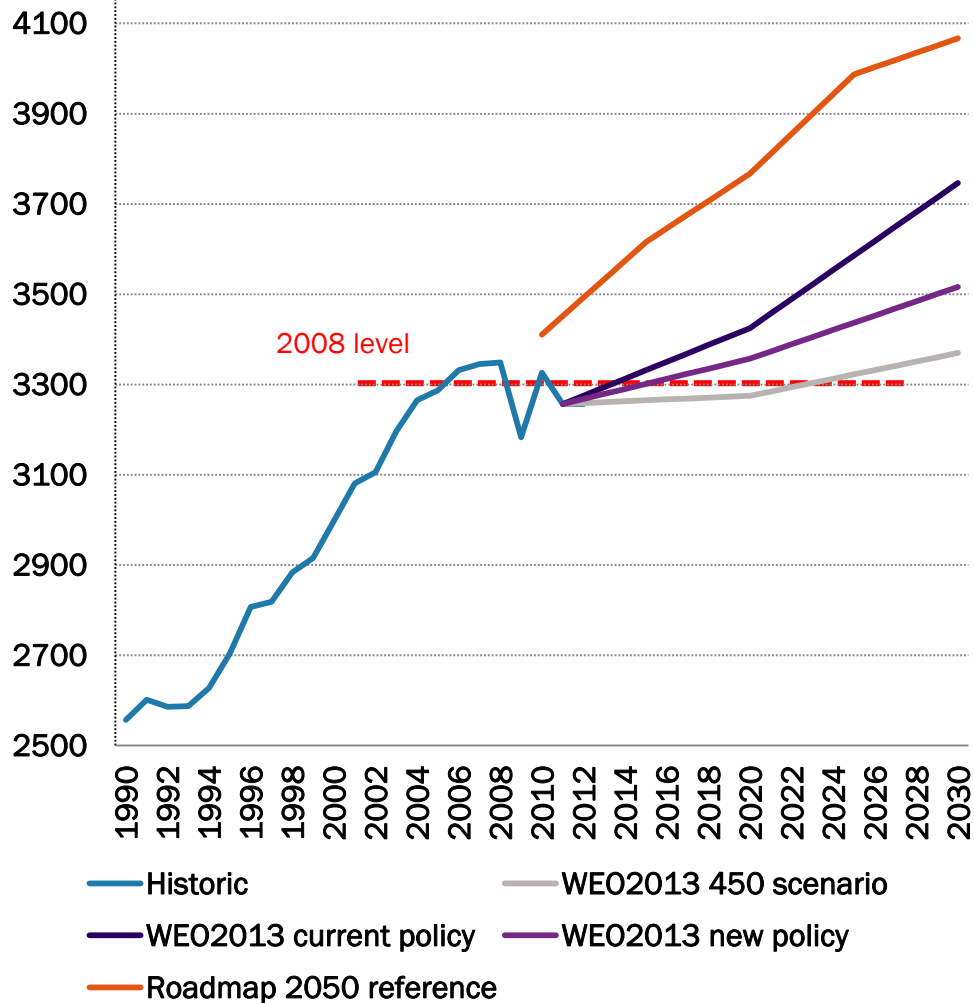
- RES displace thermal generation as low variable costs
- RES support schemes introduce distortions in electricity markets

## Weak carbon and coal prices

- Collapse of ETS carbon price
- Drop in international steam coal price as US shale gas revolution triggered coal-gas switching and freed up coal production for export

# Electricity demand: A lost decade

EU Gross Electricity Consumption (TWh)

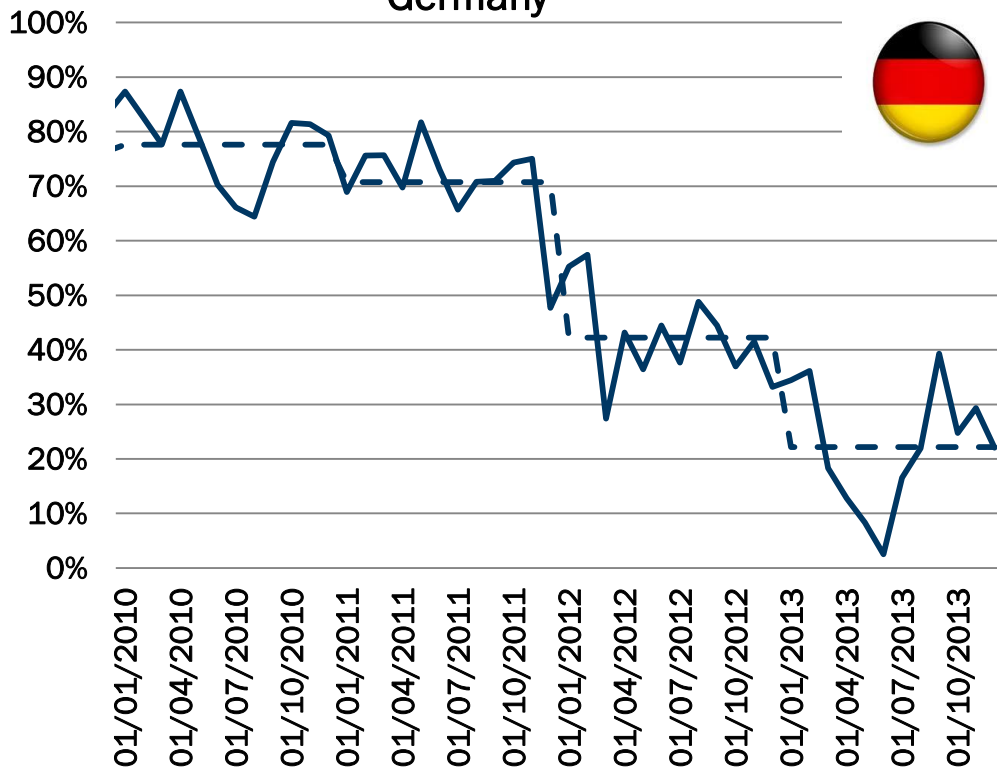


- The 2008 economic crisis represents a structural break for power demand.
- Compared to pre crisis forecasts such as the EC Roadmap 2050 developed in 2009, the demand outlook is lower due to :
  - Some permanent destruction of industrial demand
  - Slow rebound of residential demand
  - Policies to improve energy efficiency

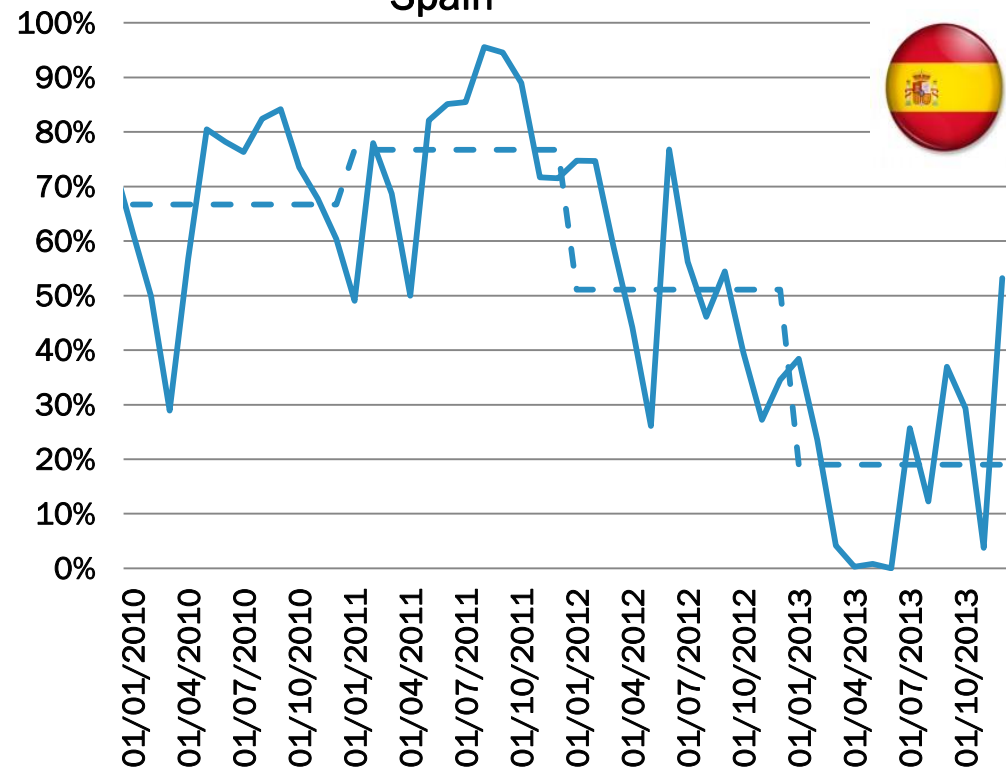
# Residual demand (net of renewables production) has fallen dramatically

Theoretical utilization rate of a 56% efficiency CCGT

Germany



Spain

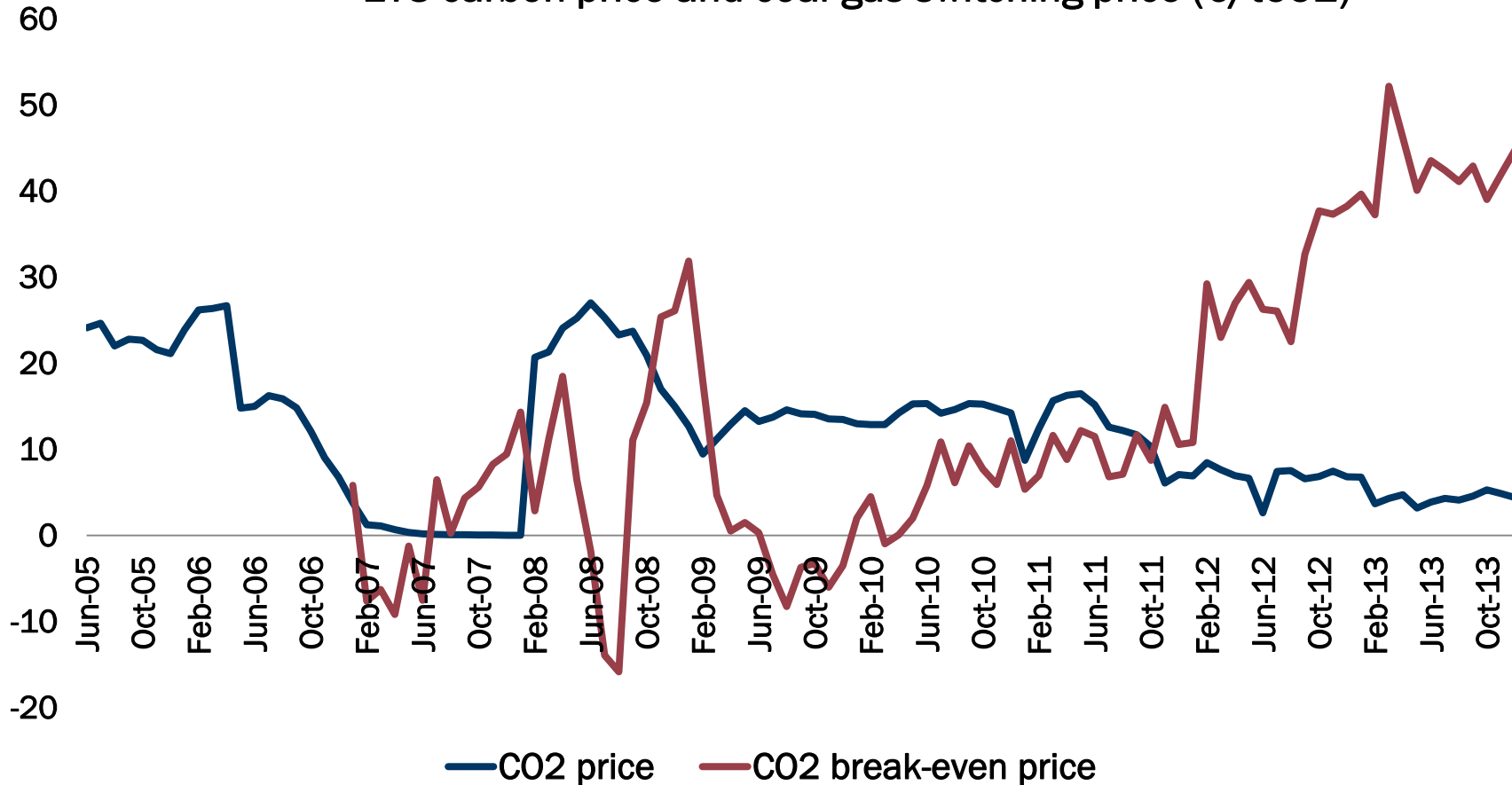


- Monthly percentage of hours for which the spot price is superior to the CCGT SRMC
- - Yearly percentage of hours for which the spot price is superior to the CCGT SRMC

# The CO2 EU ETS price has collapsed and has no effect on the merit order

€/ton CO2

ETS carbon price and coal-gas switching price (€/tCO2)

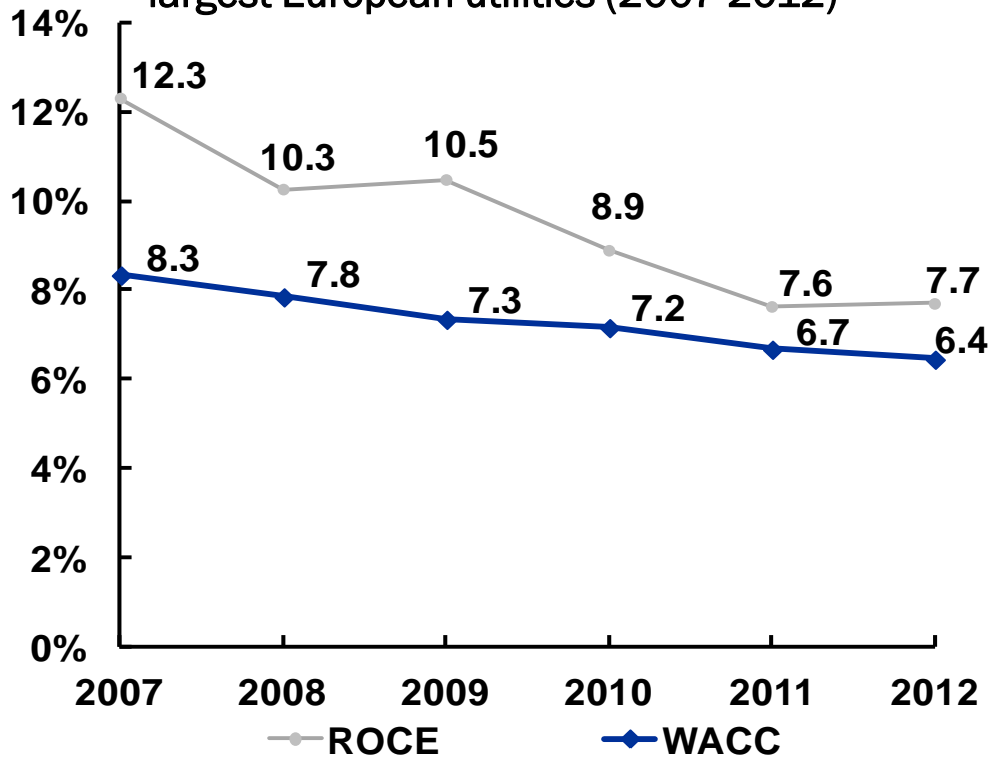


■ A carbon price of 40€/tCO2 would be necessary today to make a CCGT more profitable than coal-fired plant

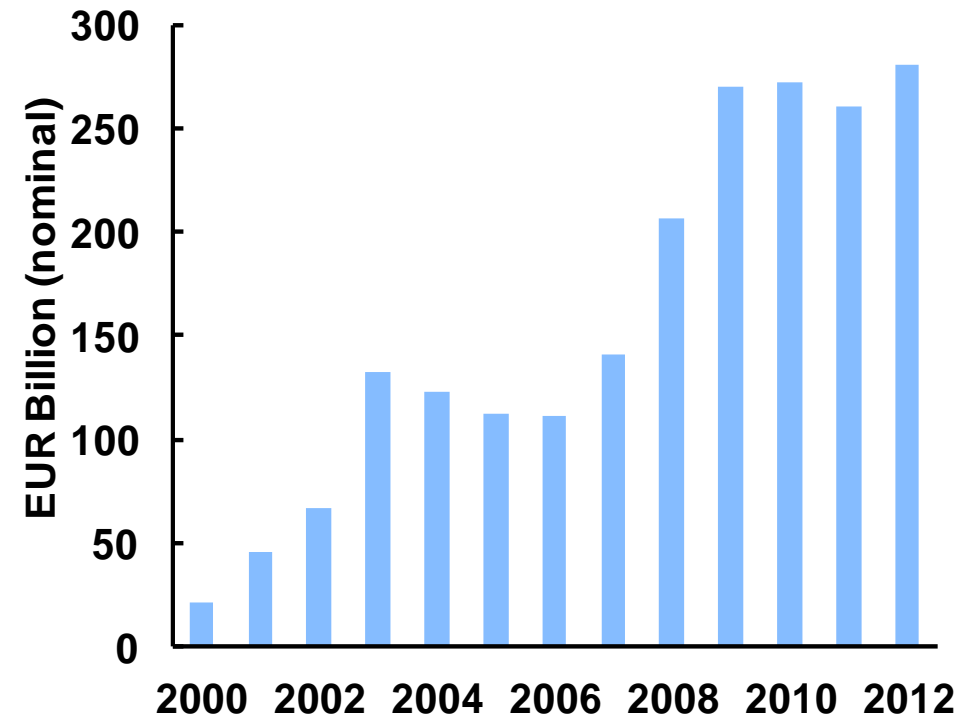


# European utilities fight for survival as their profitability has fallen and debt has increased

Return on capital employed (ROCE) and weighted average cost of capital (WACC) for 10 largest European utilities (2007-2012)



Net debt of 10 largest European utilities (billion Euros)



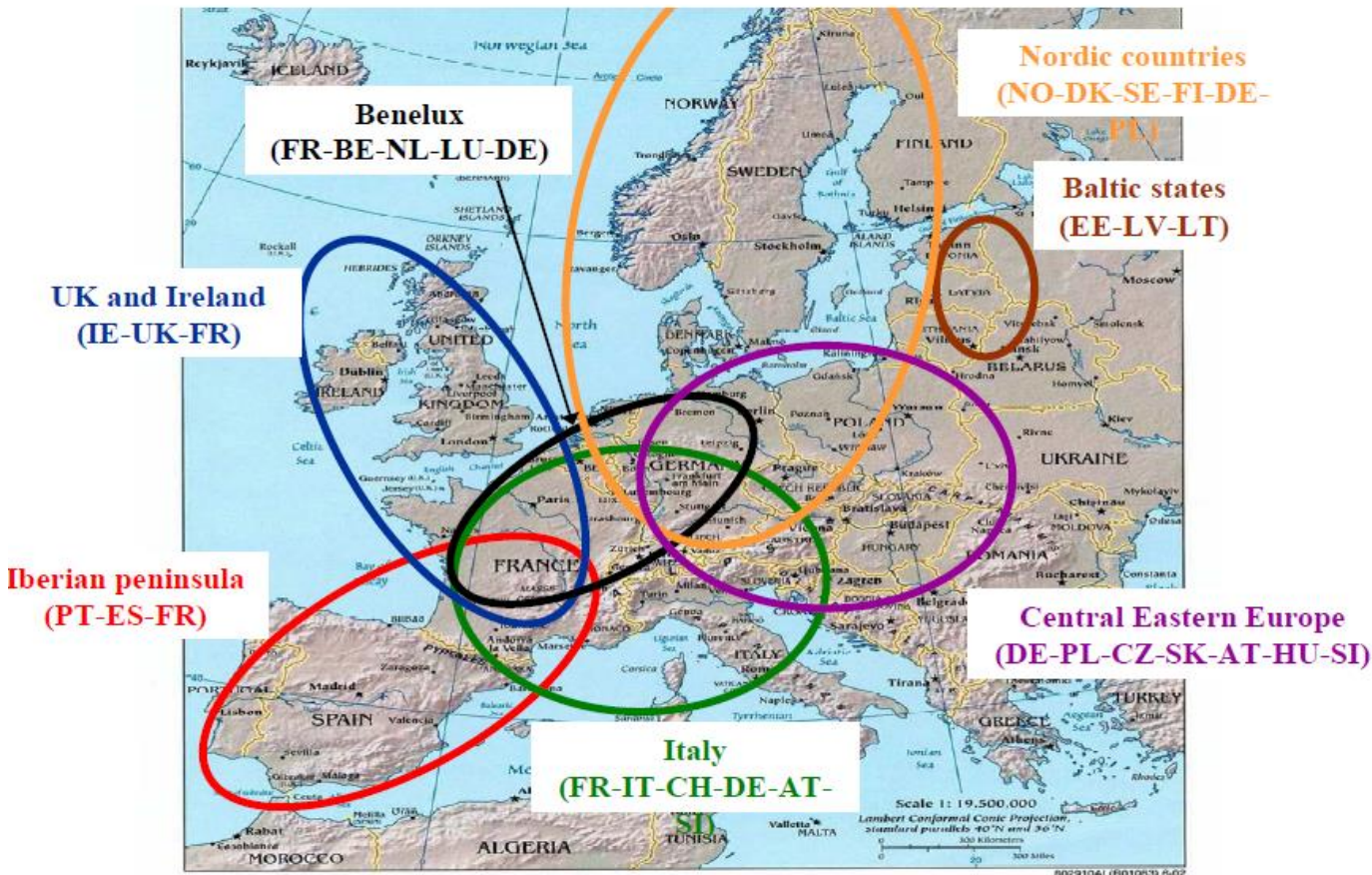
Source: IHS CERA 2012 European Policy Dialogue final report

■ A rethink of the regulatory framework is needed to reduce risks for historical investors, but also to attract different sources of investors.

# Electricity market reforms: will capacity mechanisms come to the rescue?

# Some successes: Regional initiatives and market coupling

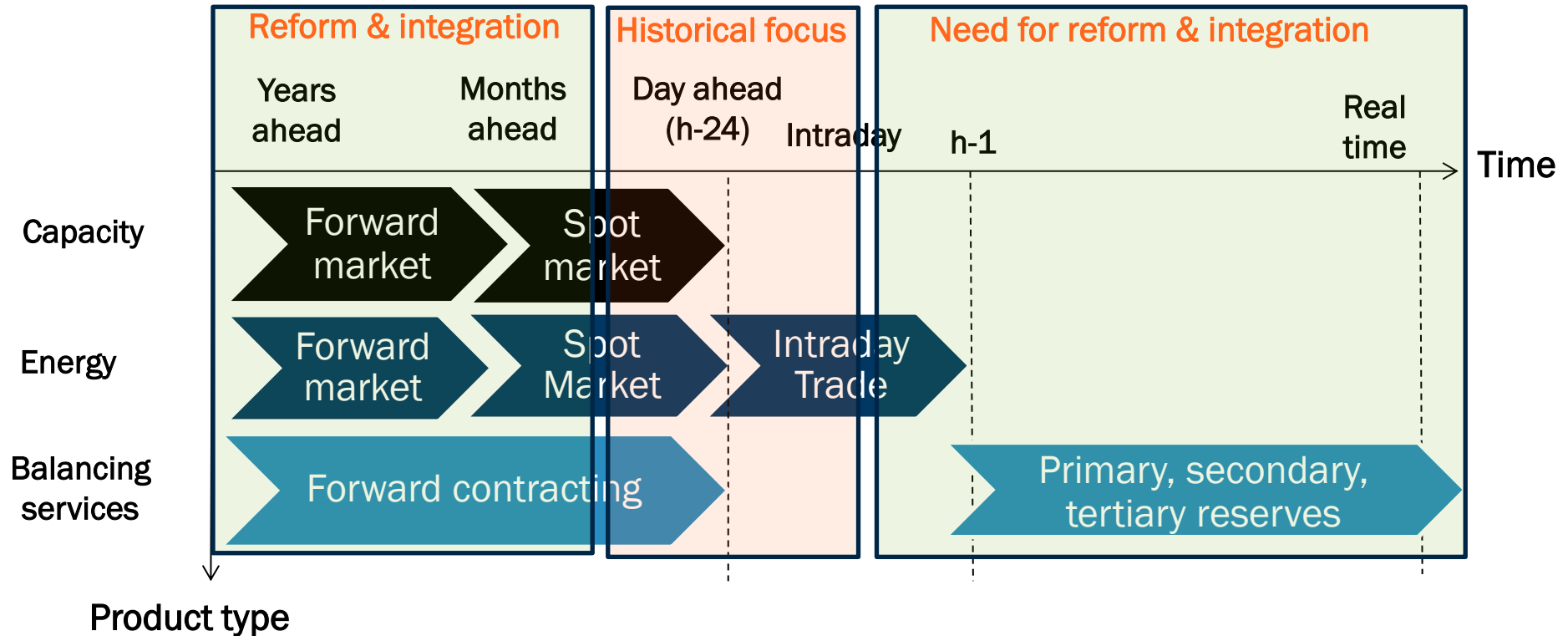
## The Seven Regional Initiatives



- Third Energy package adopted in July 2009 marked a significant change in approach
  - pro-active role in creating harmonized rules
  - Framework guidelines and network codes
- The 7 Regional Initiatives have made some strong progress in integrating power markets, e.g. market coupling

Source: From Regional Markets to a Single European Market, Everis and Mercados (2010).

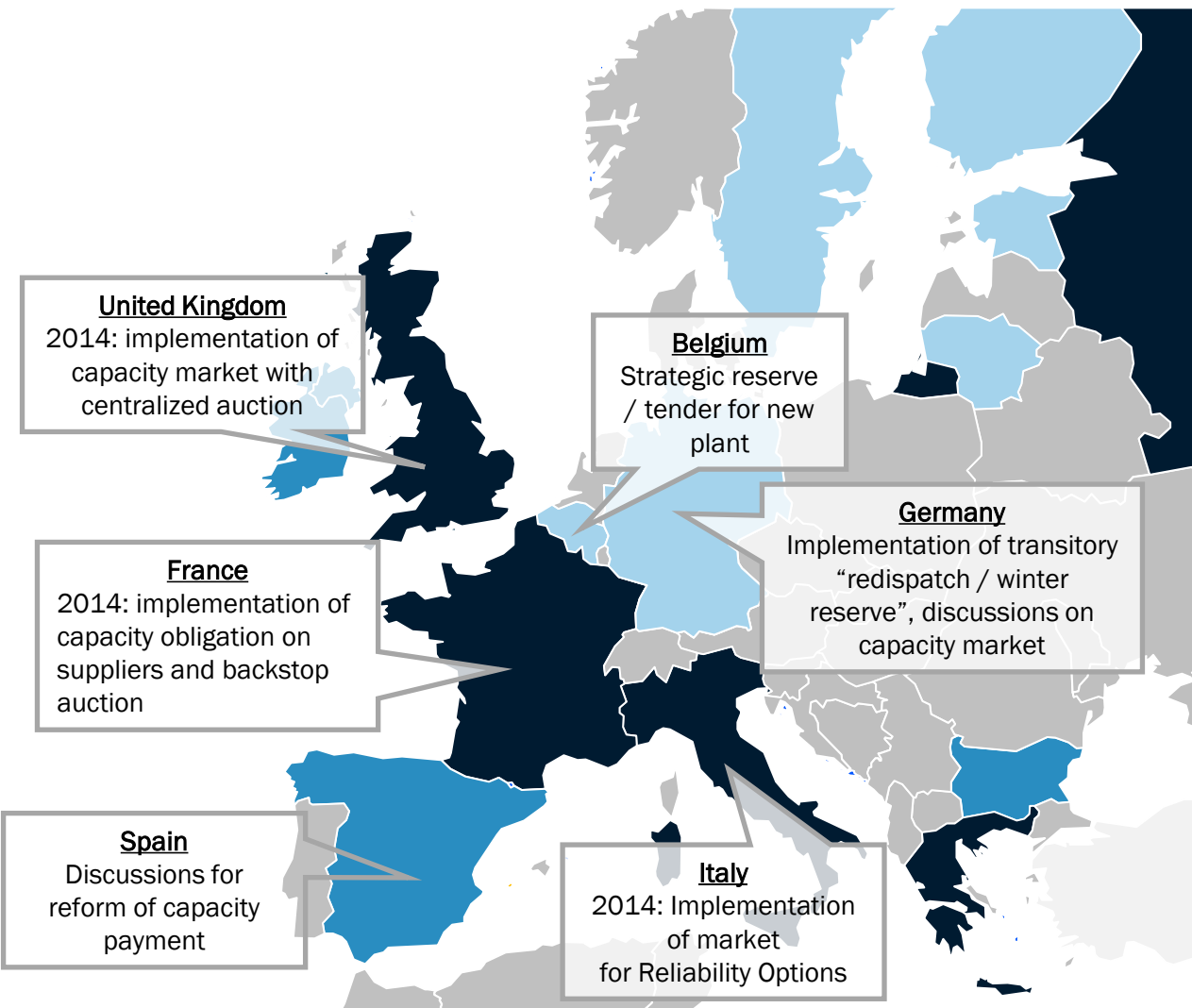
# Filling the gaps in European electricity markets



- Electricity is a multi dimensional product
- Reform needs to focus on the short term markets and on the long term investment incentives

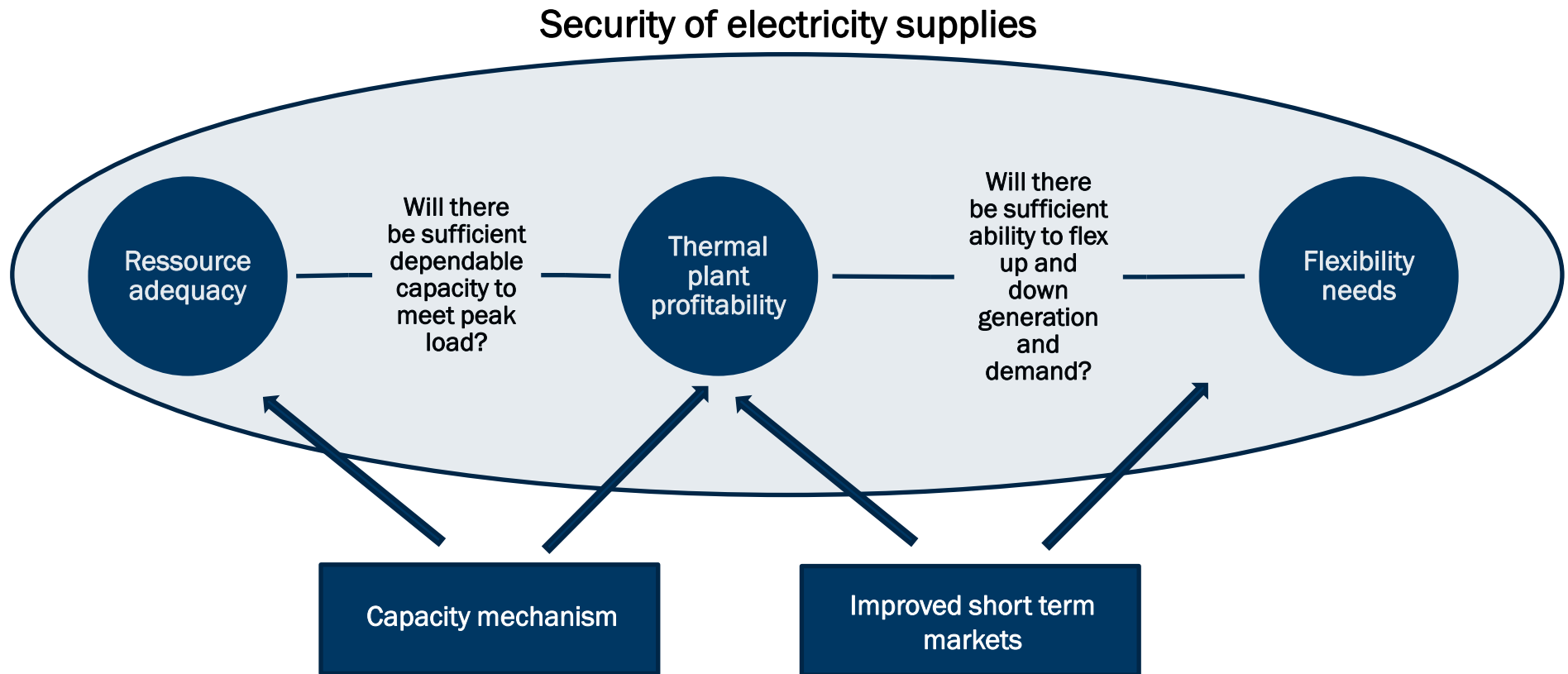
# Ongoing discussions / reforms for capacity mechanisms in Europe

Capacity market   Capacity payment   Strategic reserve



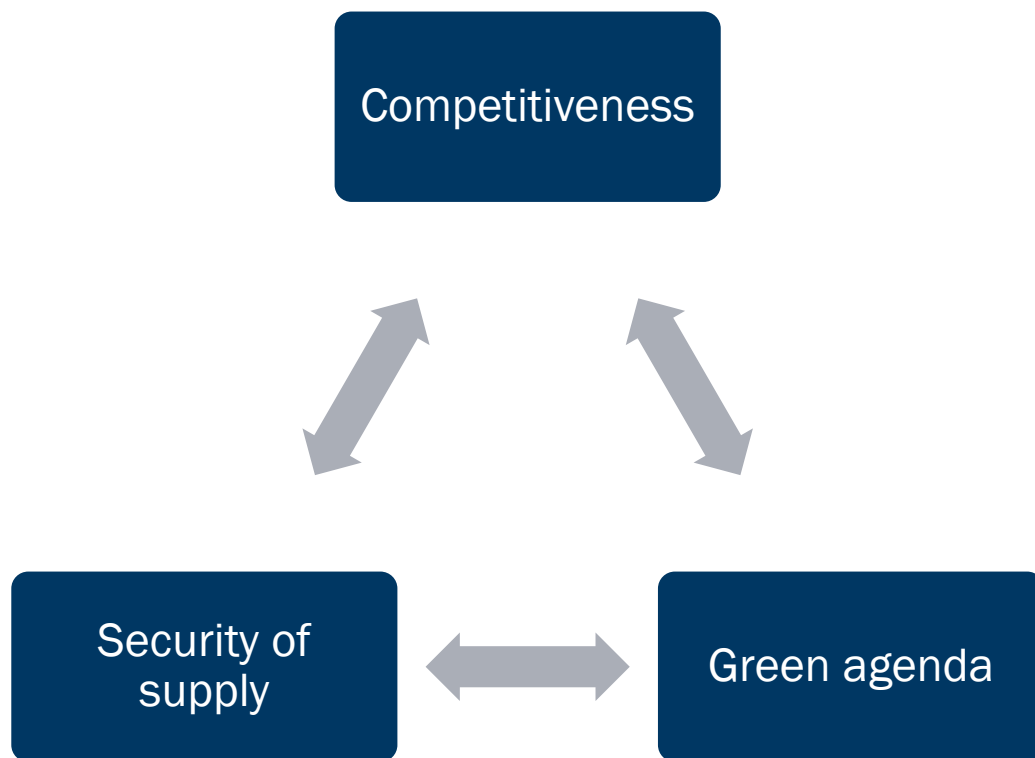
- Ongoing reforms / discussions mark a shift toward market based capacity mechanisms
- Significant differences remain in the design of the different capacity markets reflecting different system needs
- France, Italian, and United Kingdom reforms rely on similar capacity market approach

# Reforms of short term markets and capacity mechanisms are complimentary



## Renewables: can we afford them?

# European energy policy: a change in priorities?



- **1996 & 2003:** 1st and 2<sup>nd</sup> Directives concentrate on creating integrated competitive power & gas markets
- **2008:** Green legislative package sets 2020 targets
- **2012-2013:** Debate on 2030 targets highlights change in priorities:
  - European Commission Green Paper (COM(2013) 169 final) - “A 2030 framework for climate and energy policies”
  - *“One of the fundamental objectives of EU energy policy is to ensure .... competitive domestic and international energy markets and prices which are internationally competitive and represent affordable energy for final consumers“*



# Current national reforms of renewables support schemes focus on cost control

## Continuum of renewables support measures reforms

Support level cuts

Accelerated tariff depression

Surcharge caps and limitations

Cost volume caps

Capacity caps and targets

Removal of optional incentives

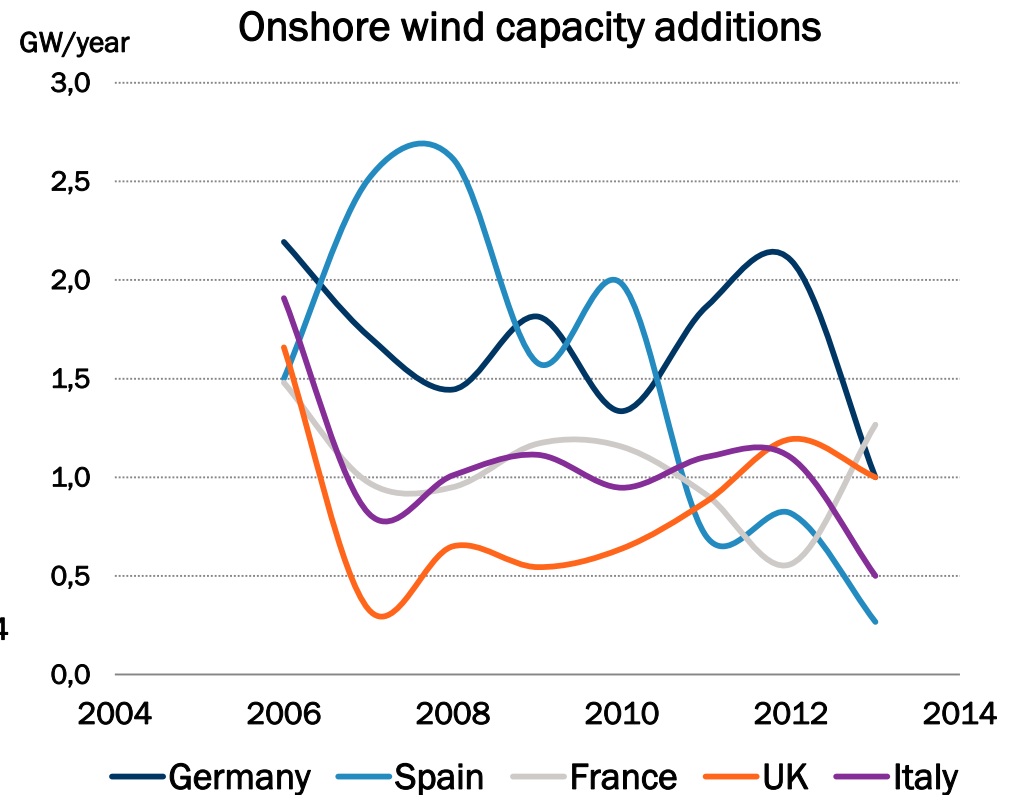
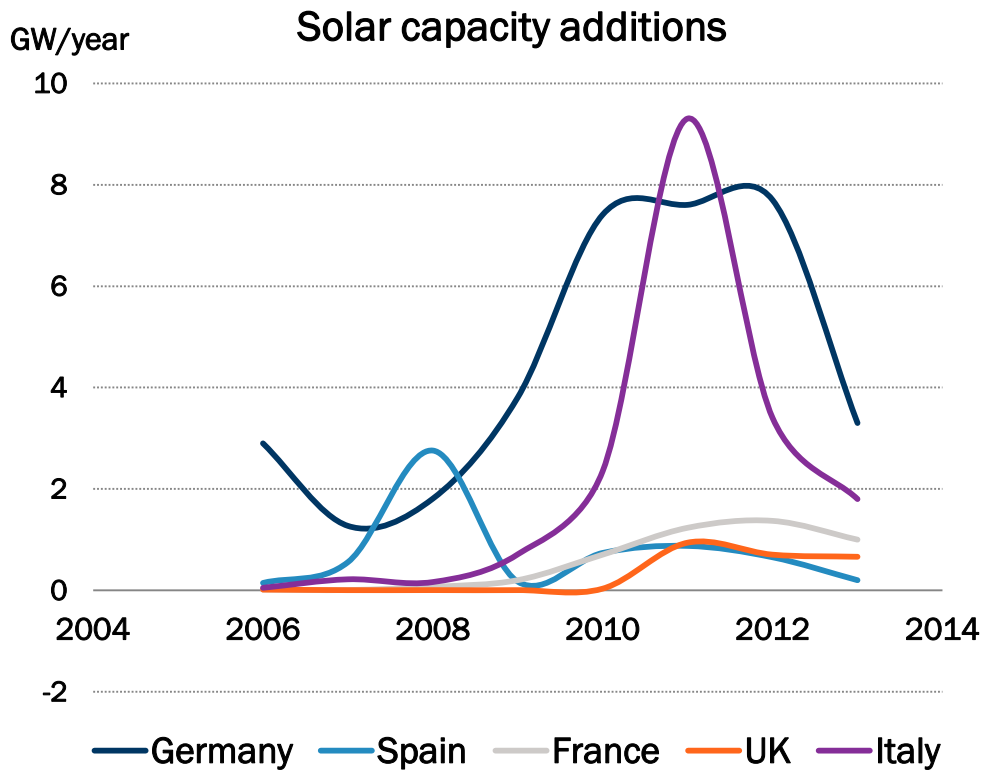
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Generator taxes

Retroactive measures

Type	Country	Comments
Directly retroactive	Czech Rep.	26% tax on solar PV generators to recover windfall profits
	Greece	25 to 30% tax on solar generator remuneration in Q4 2012
	Spain	2010: Retroactive cap on eligible solar PV hours.
		2012: 7% electricity tax on power generators. 2013: annual tariff adjustment decoupled from food and fuel price rises ; removal of optional premium and repowering bonus
Implicitly retroactive	Austria	FiT reductions approved in Q3 2012 ; apply to projects online in H2 2012
	Germany	Retroactive solar PV FiT cuts announced in Q1 2012 for Q2 projects - confirmed in Q2 2012
	Ireland	Curtailement compensation retracted from 2018 onward
	Portugal	Existing wind generators invited to accept lower FiT exchange for non-financial incentives in Q2 2012
Under discussion	Belgium	Retroactive support cuts for solar PV GCs in Wallonian legislative proposal
	Bulgaria	Discussion to disconnect existing generators said to have provided false generation data
	Estonia	Retroactive FiT cuts under discussion in Q1 2013
	Germany	Retroactive measures discussed in price brake proposals but dismissed

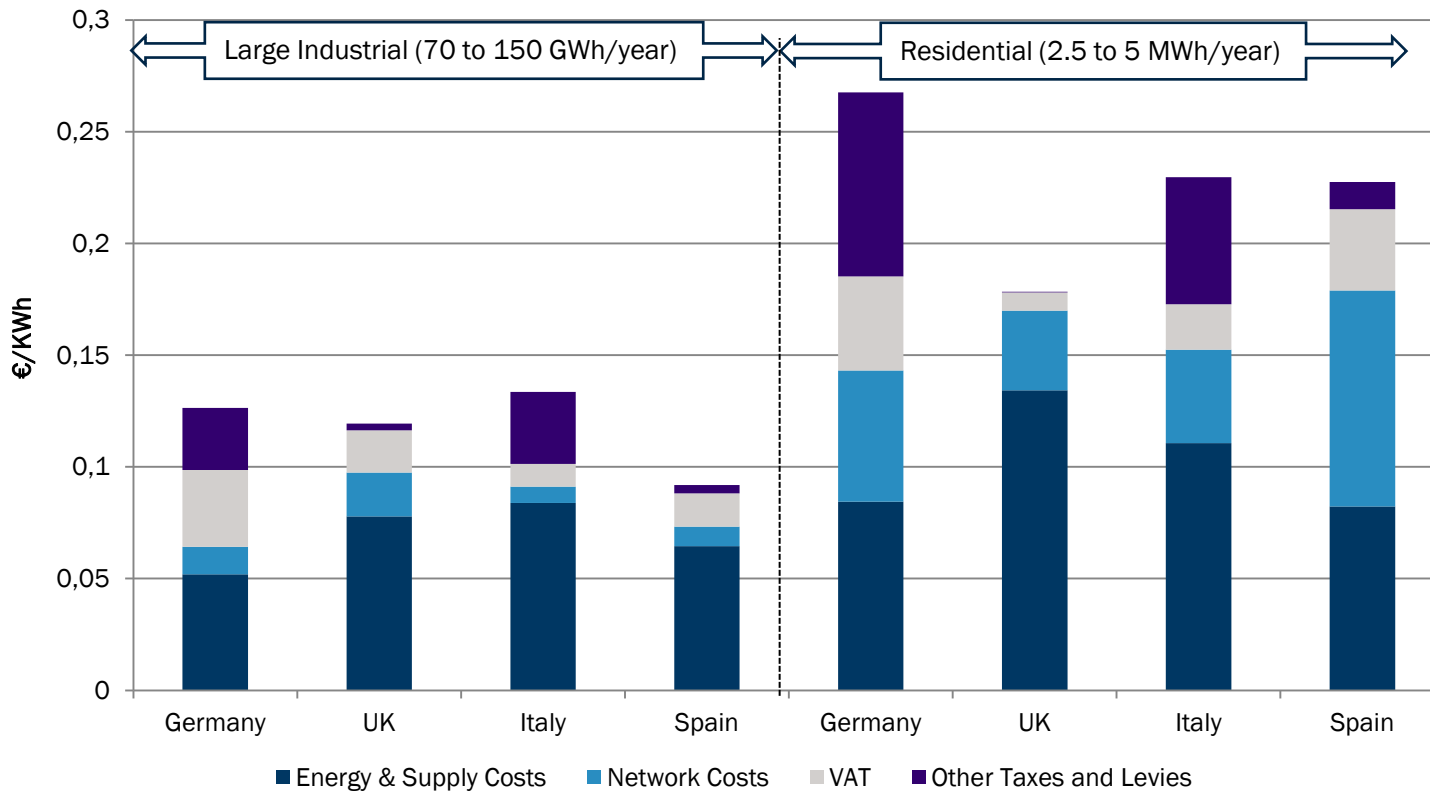
# Solar and wind capacity additions are slowing down



- The “PV bubble” burst in 2012 in Germany and Italy but additions remain significant.
- Onshore wind additions are slowing in most markets as a result of support schemes reforms.

# End user prices and European competitiveness

## Breakdown of EU residential and industrial electricity prices (2012)



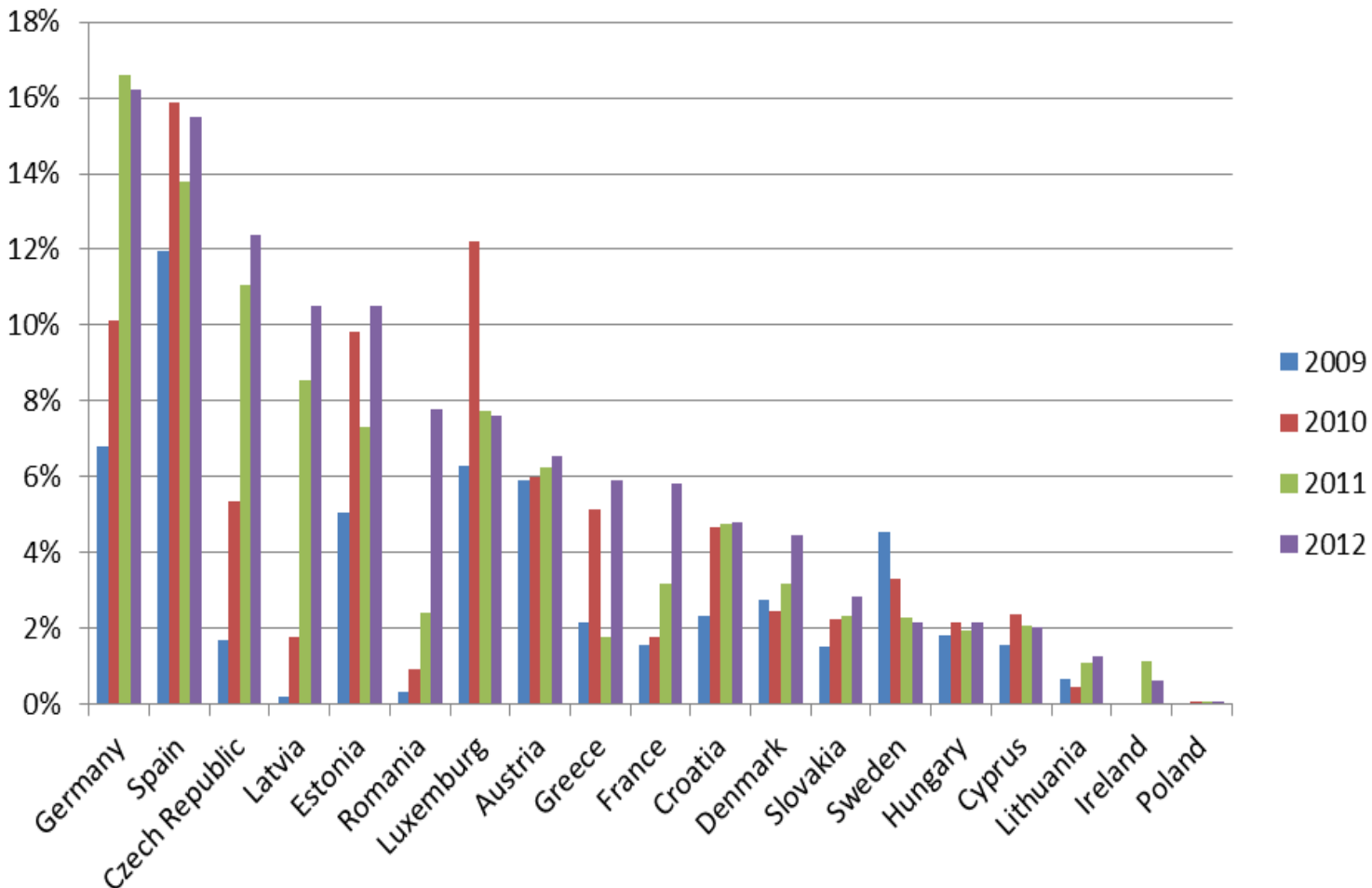
Electricity and gas prices in Europe come at a significant premium to the prices in other OECD countries, to the exception of Japan.

This is raising concerns about the competitiveness of the European economy

Source: Eurostat

# Renewables represent a rising share of consumers' electricity bills

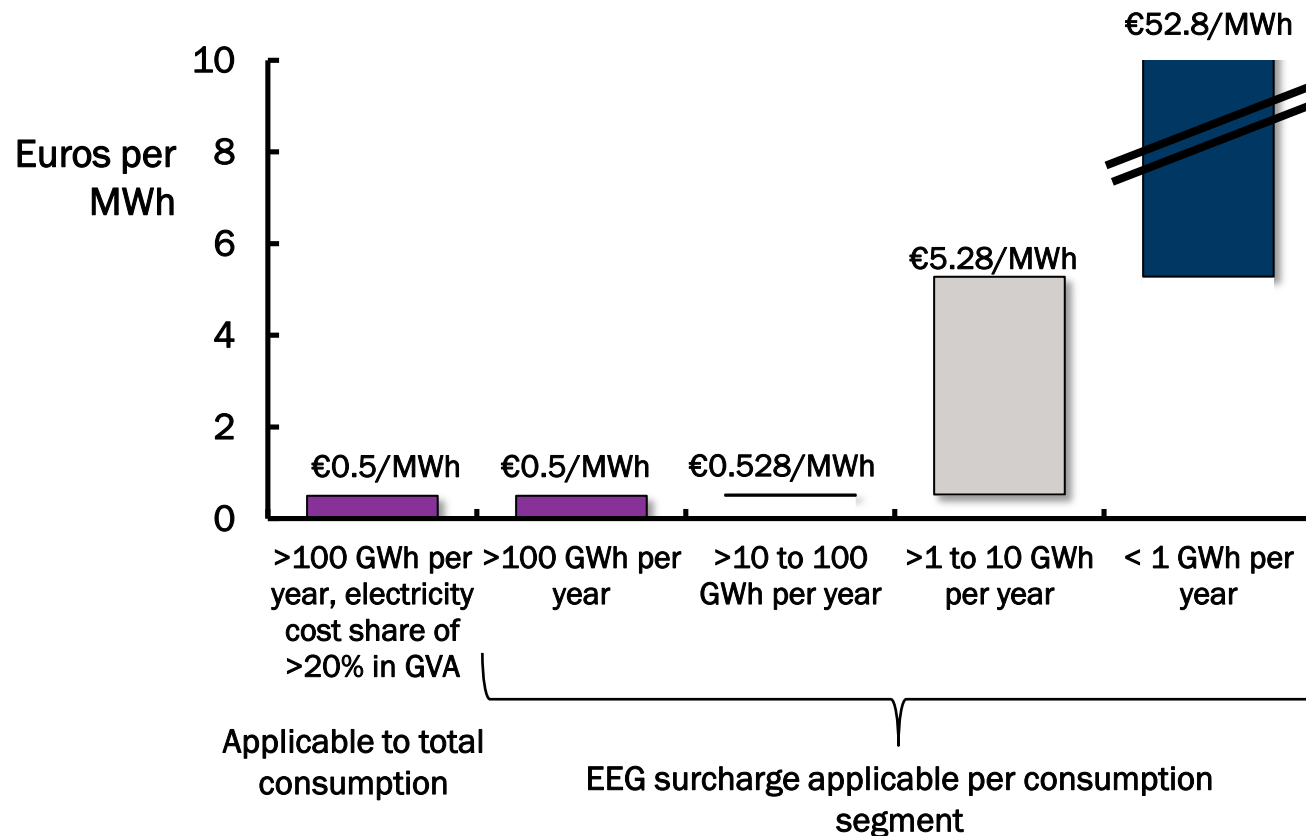
Evolution of the share of renewables support schemes share in domestic consumer retail prices (2009-2012)



Source: European Commission "Energy prices and costs report", *Accompanying the Communication from the EC Energy prices and costs in Europe*

# Who pays for renewables? German renewables surcharge concentrates on SMEs and residential users

## Stacked EEG renewables surcharge in 2013



Source: eeg-kwk.net. Note: MWh = megawatt-hours; GWh = gigawatt-hours; GVA = gross value added

Germany's election debate called into question renewables support costs primarily financed by residential users and SMEs.

Options for reforms include:

- broadening the base – with the issue of industry competitiveness?
- cross subsidies from other fuel levies?
- calling on taxpayers to finance part of the transition?

Conclusion: which way forward for market reform?

# Conclusion: challenging times...



- **A perfect storm is hitting gas plants in Europe**
  - Recovery of power demand and spreads underway but with limited upside potential
  - Effect of renewables will be long lived even if rate of renewables additions reduces and calls for structural reform
  
- **Capacity mechanisms will come to the rescue of (some) gas plants**
  - Support for existing and / or new plants
  - But could have unintended consequences, e.g. depressive effect on power prices
  
- **European Energy policy is rebalancing toward competitiveness**
  - Cost control of renewables a key objective of on-going reforms
  - 2030 objectives unlikely to comprise a binding renewables target at the country level
  
- **ETS market oversupplied and backloading unlikely to materially increase prices**
  - Debate on structural reform will be key to rebuild ETS credibility
  - But politically acceptable price range likely to be too low to support coal gas switching...

# Conclusion: beyond short term market reforms, we need to start thinking about the long term...

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- In parallel to the ongoing reforms, a discussion needs to be initiated on the possible alternative market models for the medium to long term given:
  - The evolution of the generation mix toward capital intensive technologies,
  - combined with the intermittent nature of some renewables,
  - imply that electricity markets rooted in the principle of short term marginal cost pricing will need to evolve in the long term.
- Alternative models of competition in the electricity sector will likely comprise a greater role for long term contracts:
  - To facilitate investment and financing of low carbon as well as thermal technologies;
  - Long term contracts can be tendered to encourage *competition “for the market”* and create a level playing field for low carbon and thermal plants;
  - Whilst liquid spot and intraday markets would ensure *competition “in the market”*.
- Experience on other continents (Latin America, Ontario, etc.) demonstrates how the functioning of competitive and well developed electricity markets can be enhanced through the judicious use of long term contracts.





# Thank you for your attention

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