



# The opening up of the EU and the French power sector to competition

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# Outline

- The building of the internal energy market in the EU up to now
  - A long and half-successful process
- The case of France
  - a pseudo-liberalization
- The threats on the future of the internal electricity market
  - The chocs of the economic crisis, renewables, and capacity mechanisms

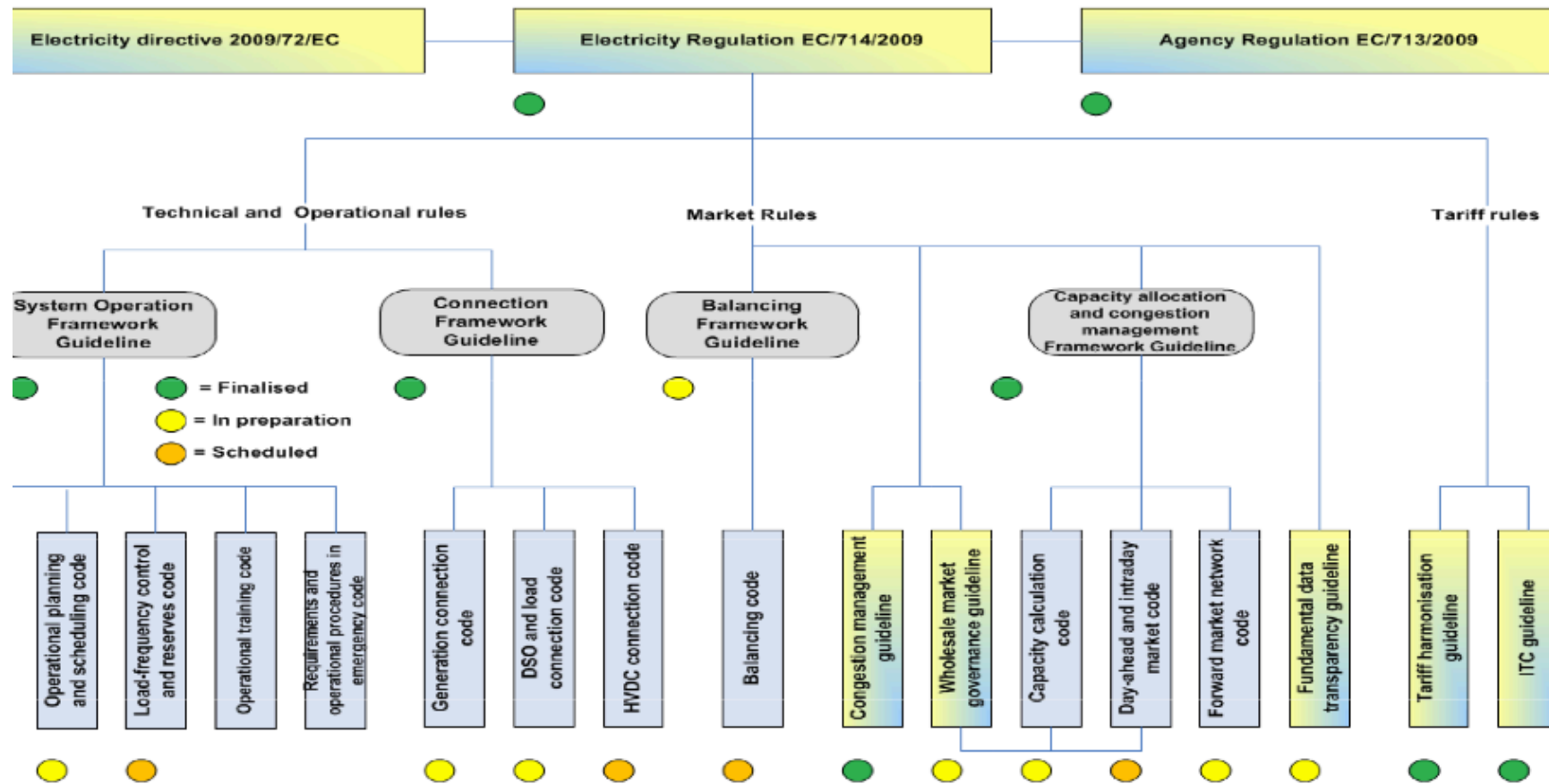
# The building of the internal energy market in the EU

- Competition + Integration
  - Electricity and gas deregulation (or restructuring, or liberalization) as in other network industries (e.g., telecom, airlines)
  - Creating a single market in eliminating trade barriers between EU countries as for any other goods
- A long process
  - From the 1994 initial vision of Jacques Delors to the 2014 expected achievement
  - Through new of EU laws (Regulations and Directives) adopted in different packages (first, second and third package)

# The building blocks

- Setting independent regulatory authorities
- Separating networks (natural monopolies of transmission and distribution) from competitive activities (generation and supply)
- Designing wholesale markets and creating power exchanges
- Introducing retail competition
- Developing interconnections and their efficient use (transmission lines between EU member states)
- Harmonizing rules (e.g., grid code)

# Some European rules



# The missing building blocks

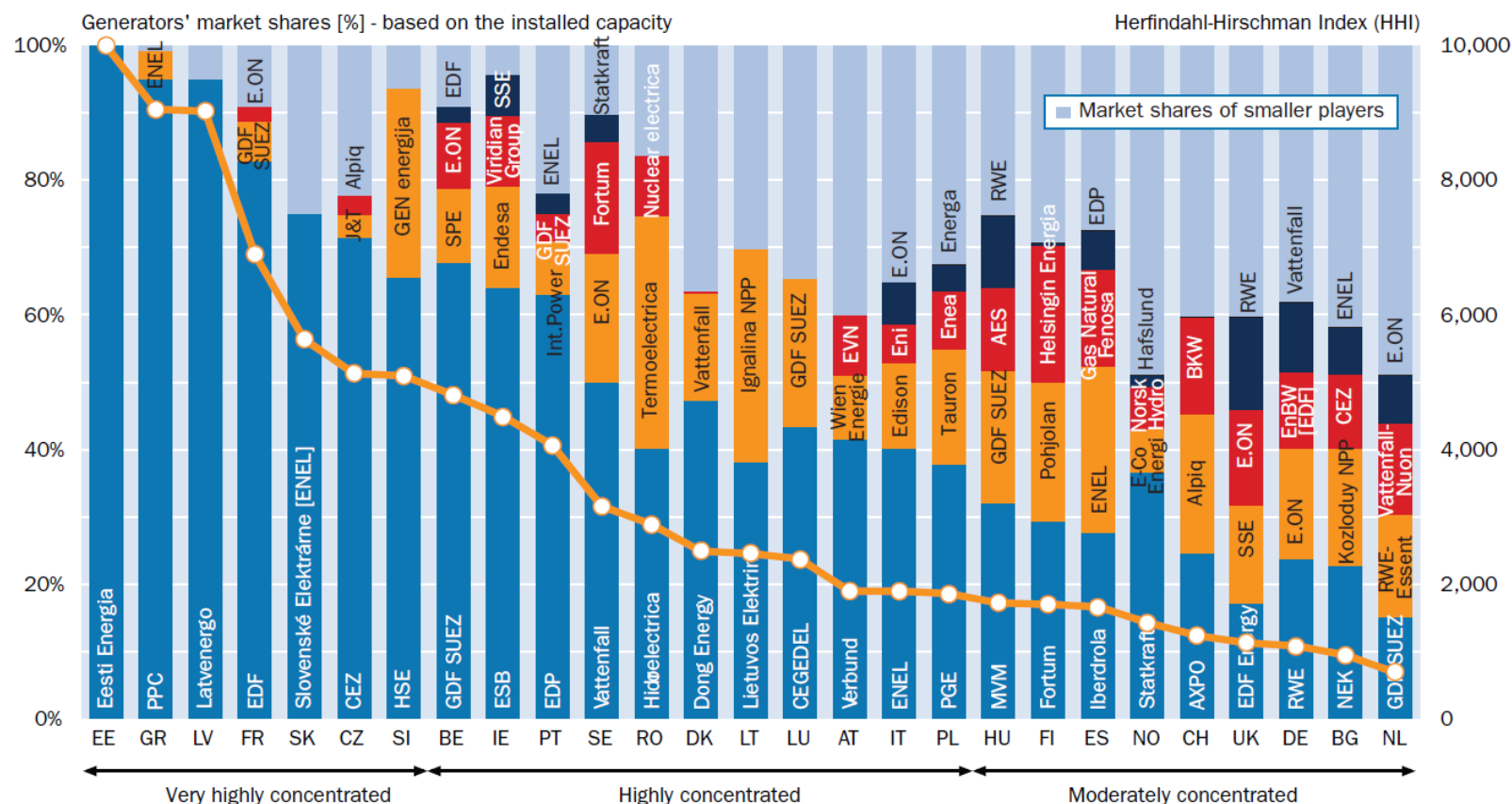
- No obligation to privatize state-owned companies
  - A limit to the trade of assets and to the europeanization of utilities
- No obligation to dismantle monopolistic incumbents through divestiture
  - Dominance position of incumbents could remain
- No true EU energy regulator (but a strong EU competition regulator, i.e., DG Comp)
- No sovereignty transfer from member states to EU institutions regarding the energy mix

# The changes in market structure

- Mechanisms
  - Divestures of the incumbent (e.g., UK, Italy)
  - M&As
- Outcomes
  - Increase in concentration in countries historically featured with local vertically integrated companies (e.g., Germany, Scandinavia)
  - Decrease in concentration in countries which privatized and divided into several pieces their large utilities
  - Stability in concentration in countries with a state-owned vertically integrated monopoly (e.g., France, Belgium)
  - Europeanization of largest companies (e.g., Eon, EDF, Vattenfall)

# Current concentration in generation by country

## Generation market concentration (2009)

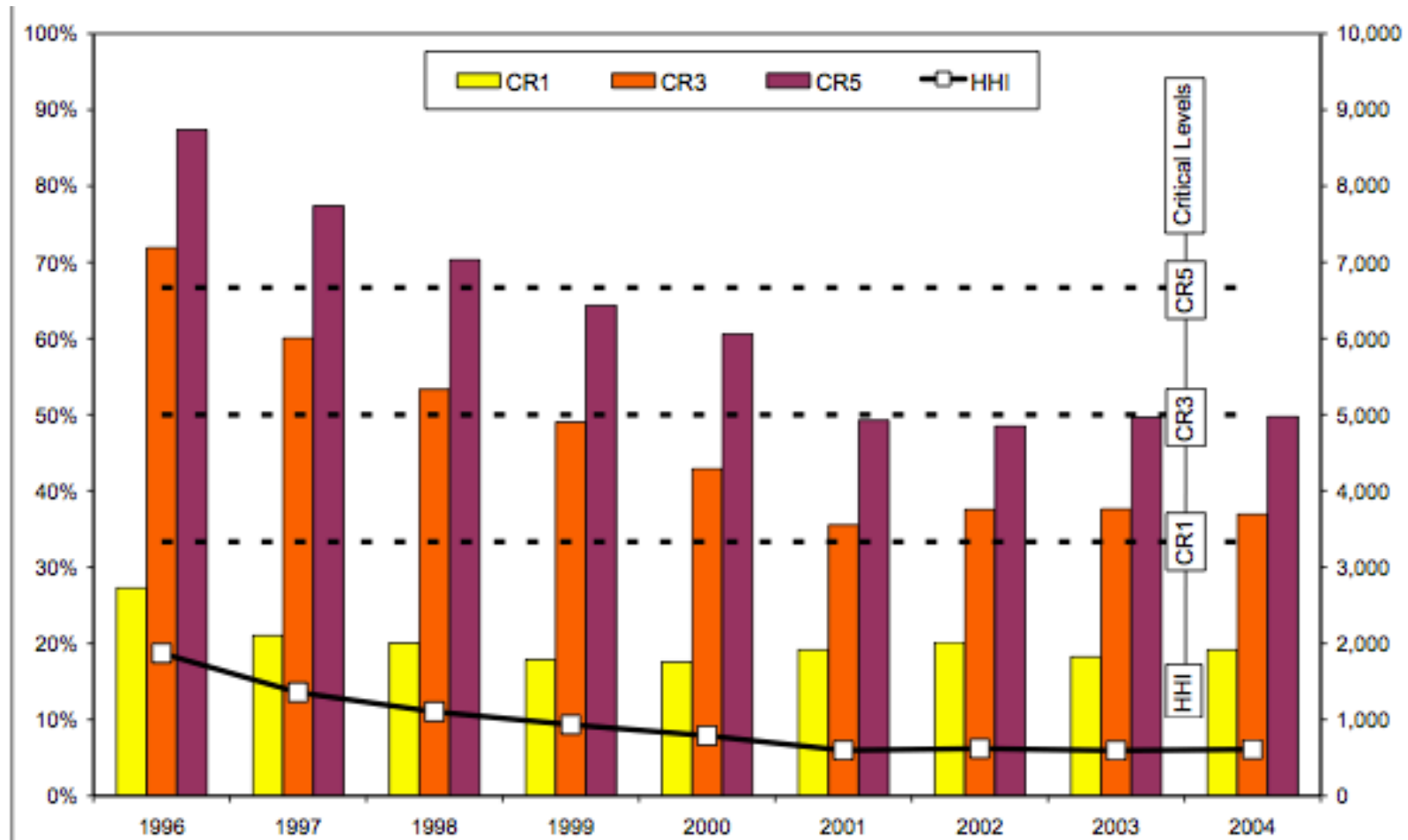


Note: HHI is a commonly accepted measure of market concentration.  
It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers.

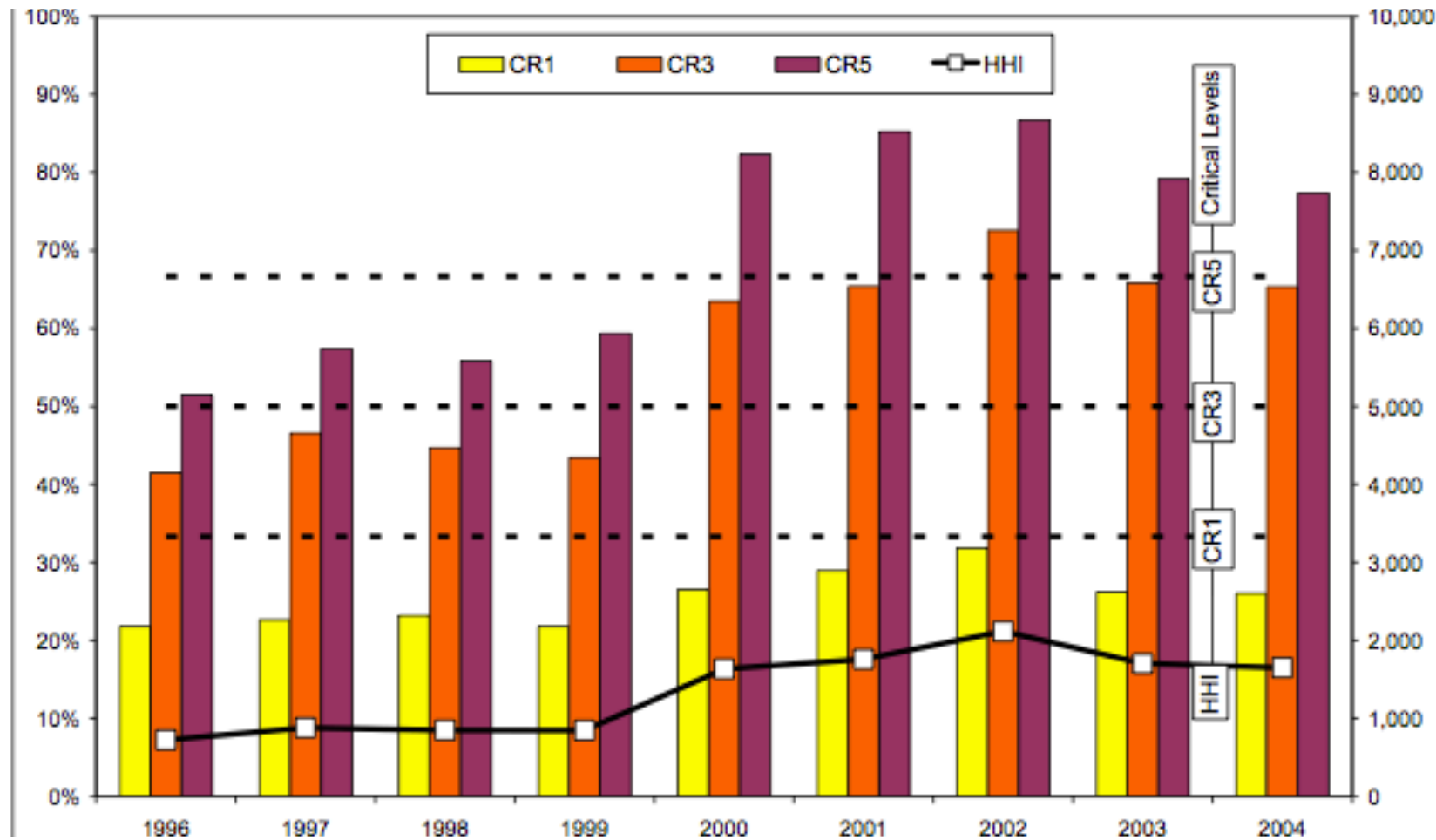
Source: Companies' annual reports – Capgemini analysis, EEM012



# Power generation market concentration in the UK (Source: Okö Institute)

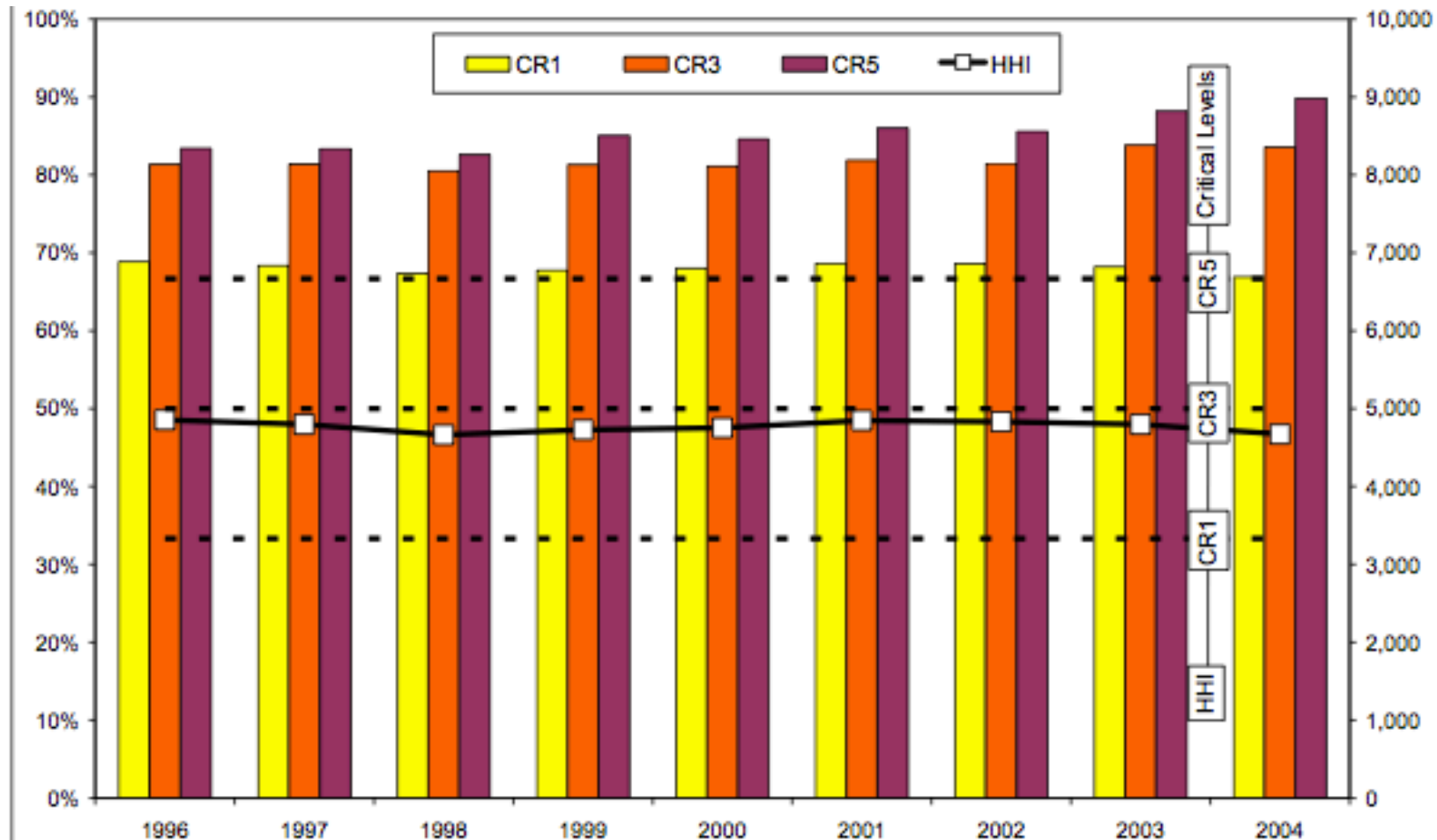


# Power generation market concentration in Germany (Source: Okö Institute)

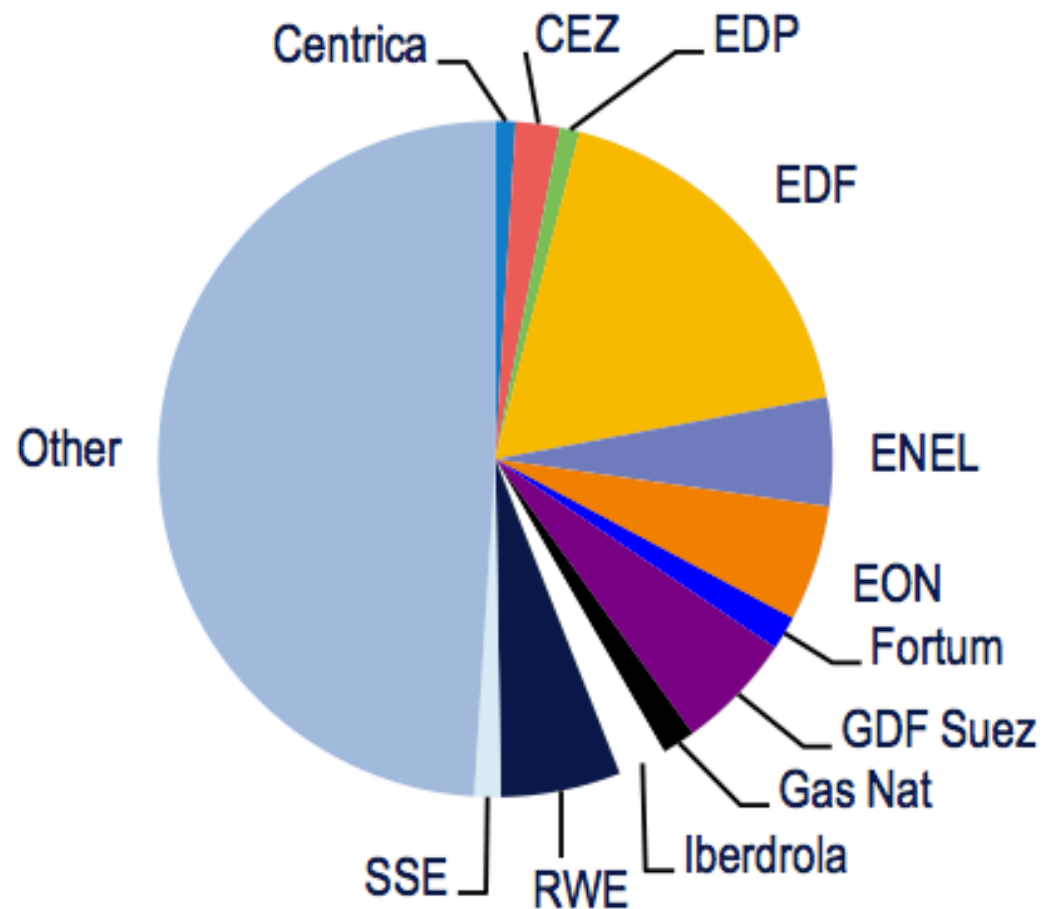


# Power generation market concentration in France, Belgium, The Netherlands and Luxembourg

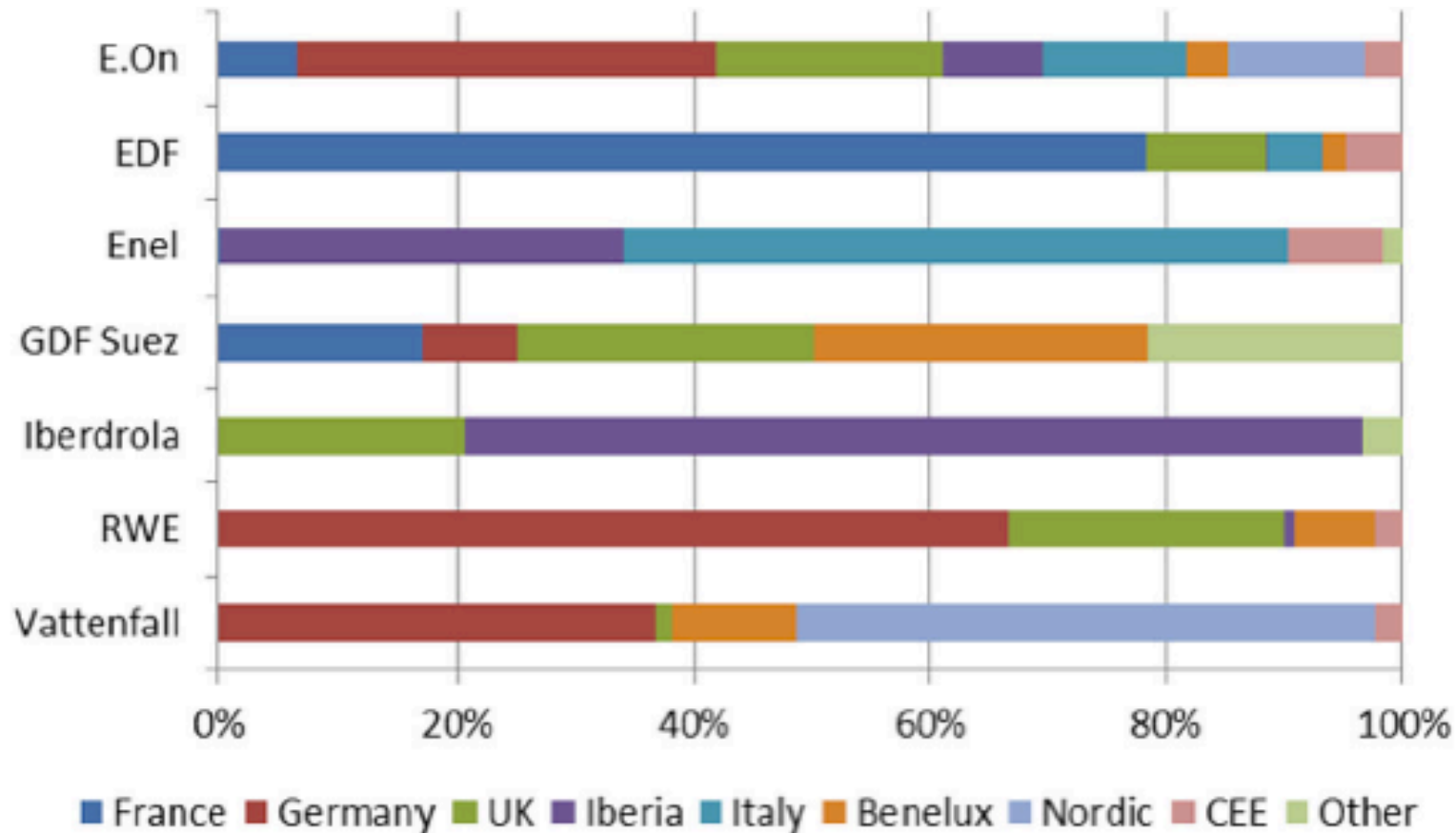
(Source: Okö Institute)



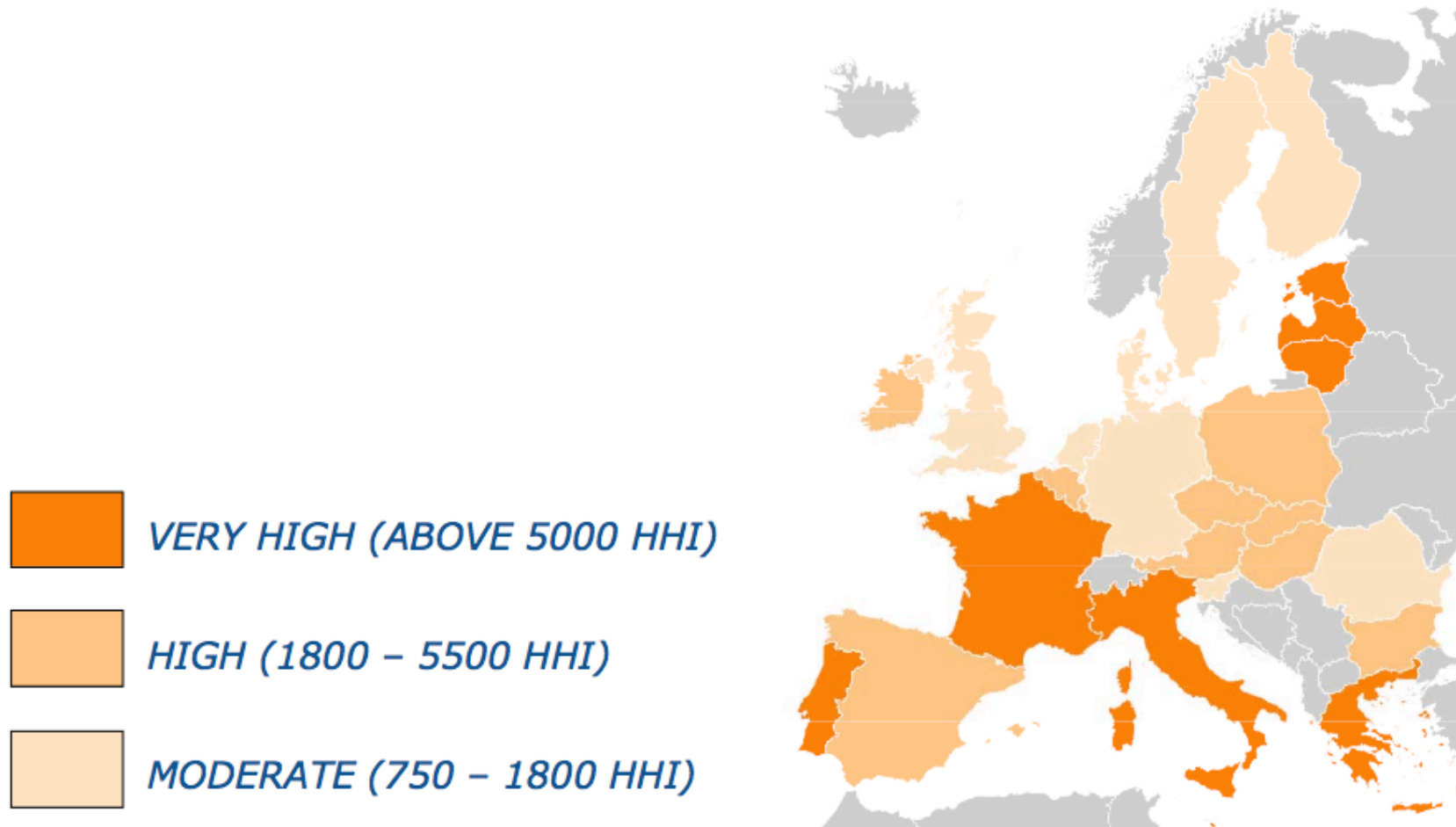
# Market share of EU electricity production



# Major power utilities' installed capacity mix in the EU (Source: K. Groot, 2013)



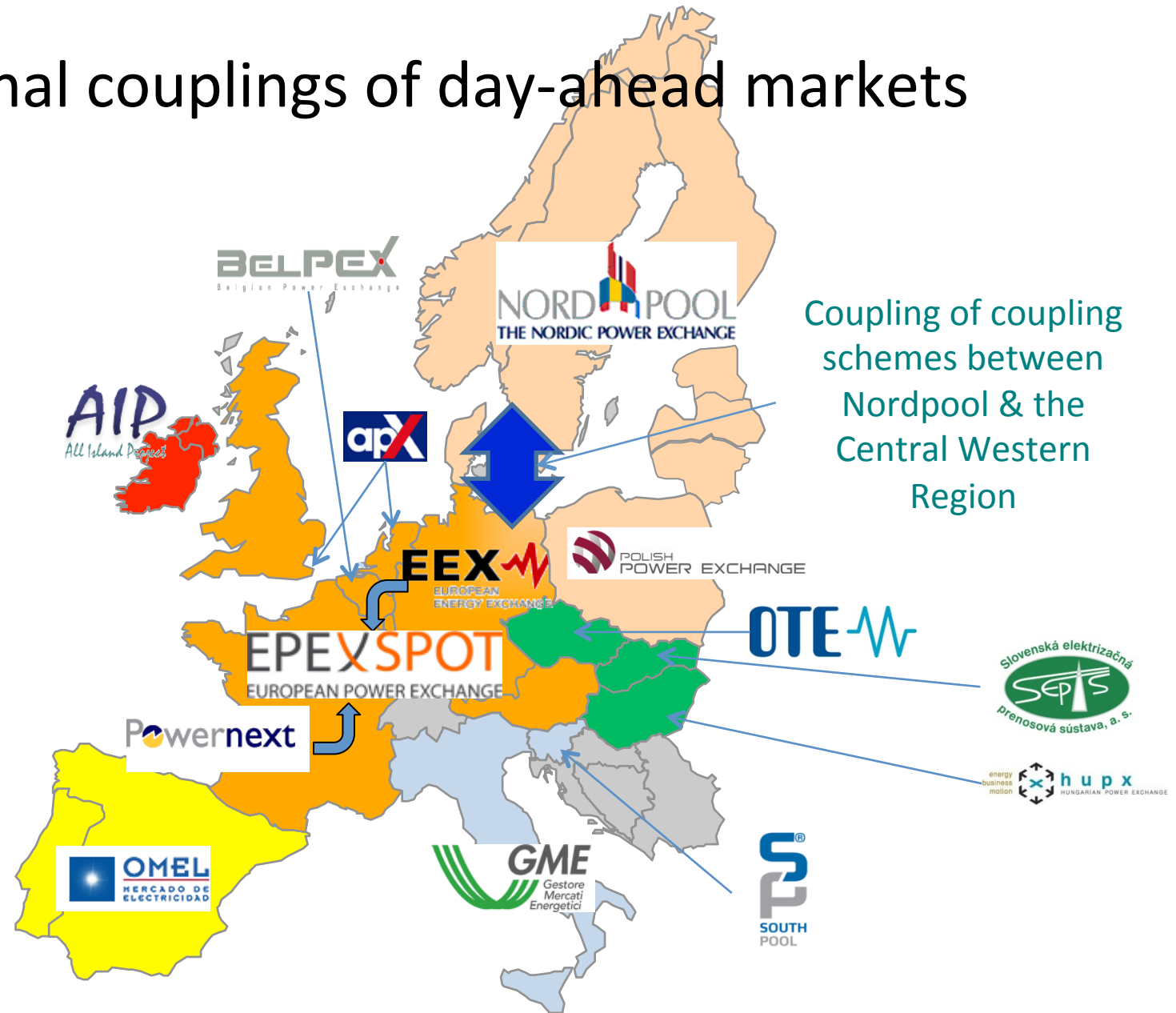
# Concentration in retail electricity market



# The internal electricity market, today

- More competition and more integration regarding wholesale markets
  - An interconnected network from Portugal to Finland
  - Regional markets
  - Price convergence
- However little progress on investments in cross-border transmission lines and on competition in retail markets

# Regional couplings of day-ahead markets





# Electricity regional initiatives

Baltic



Central-East



Central-South



France UK Ireland



Central-West



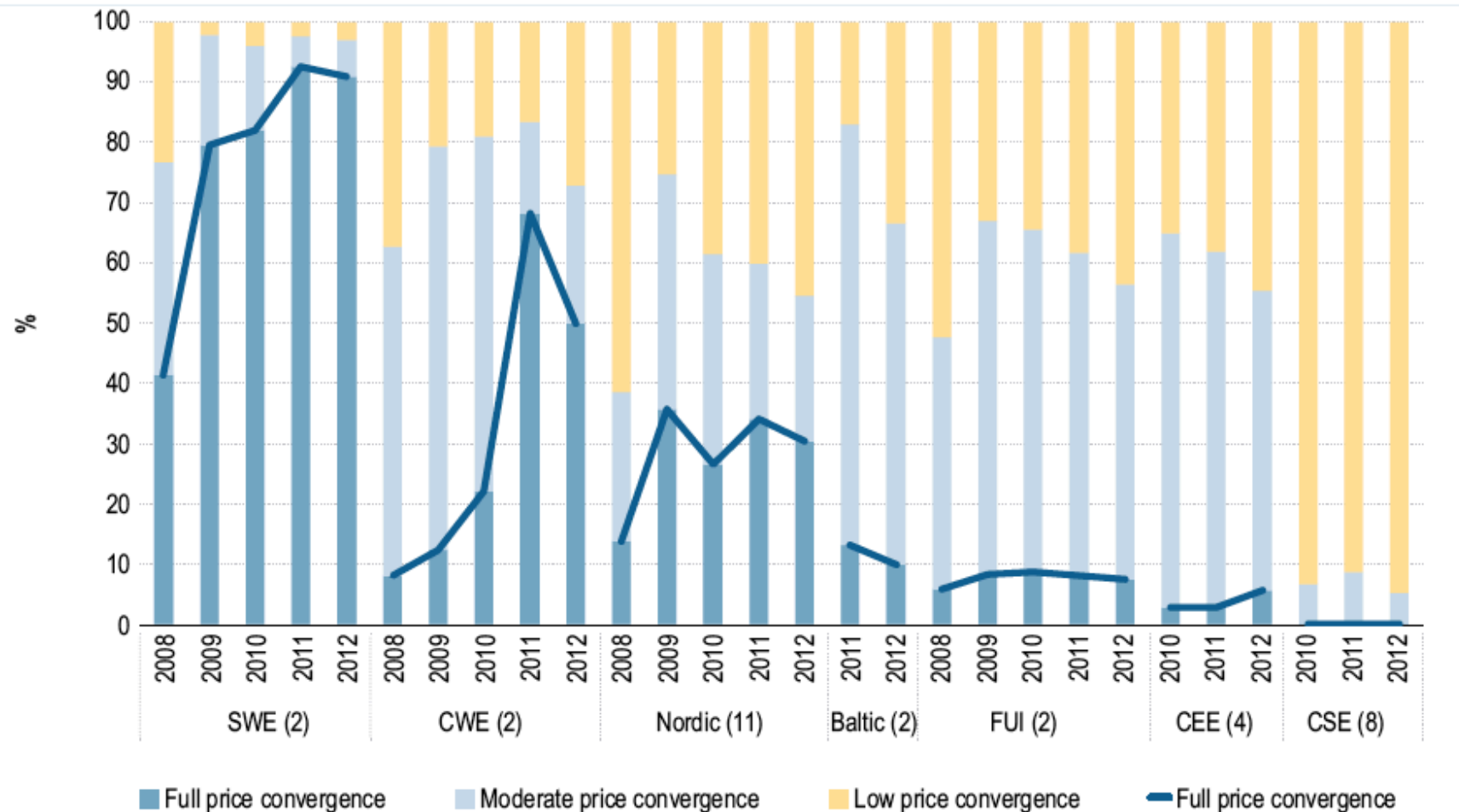
Northern



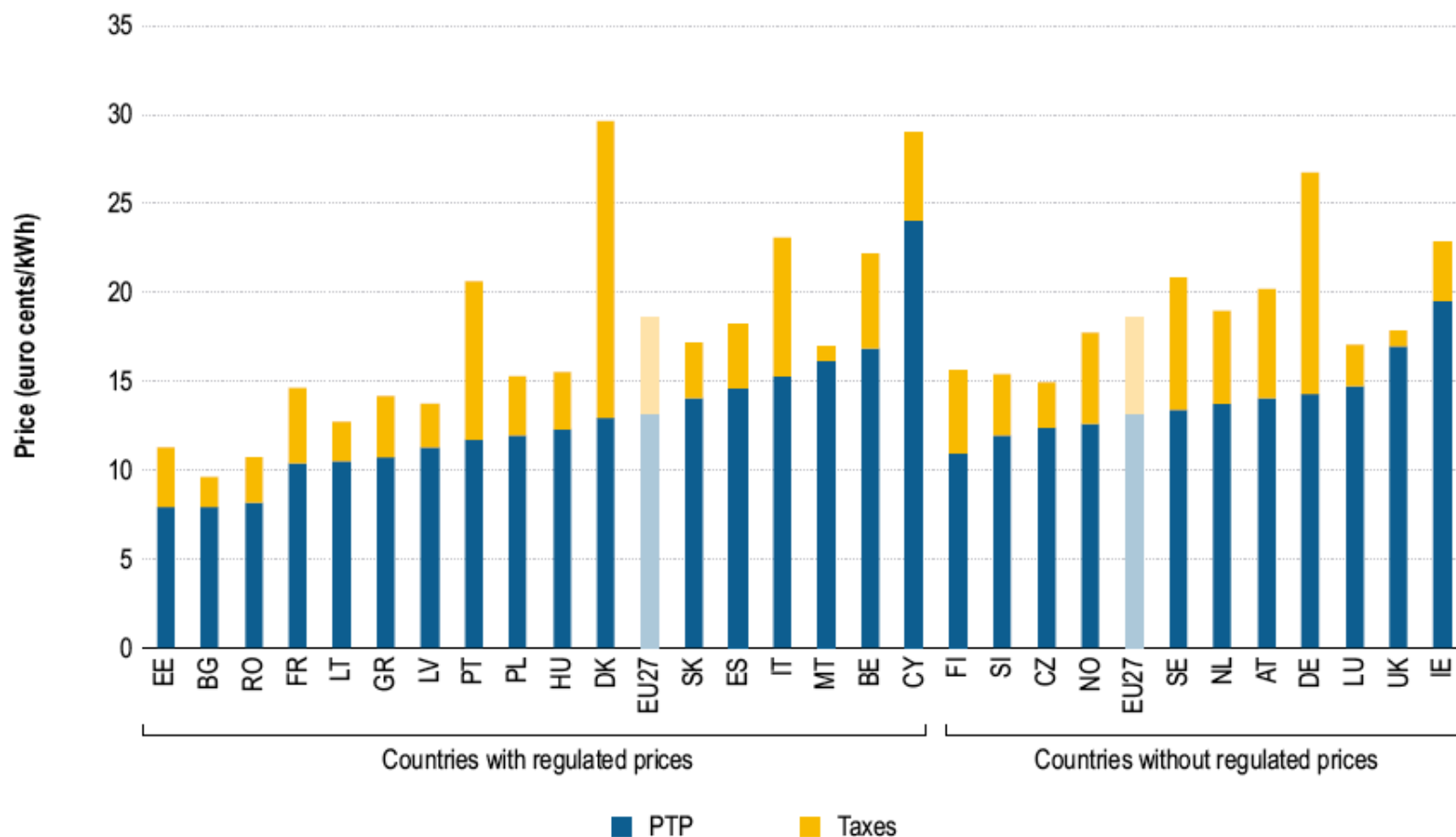
South-West



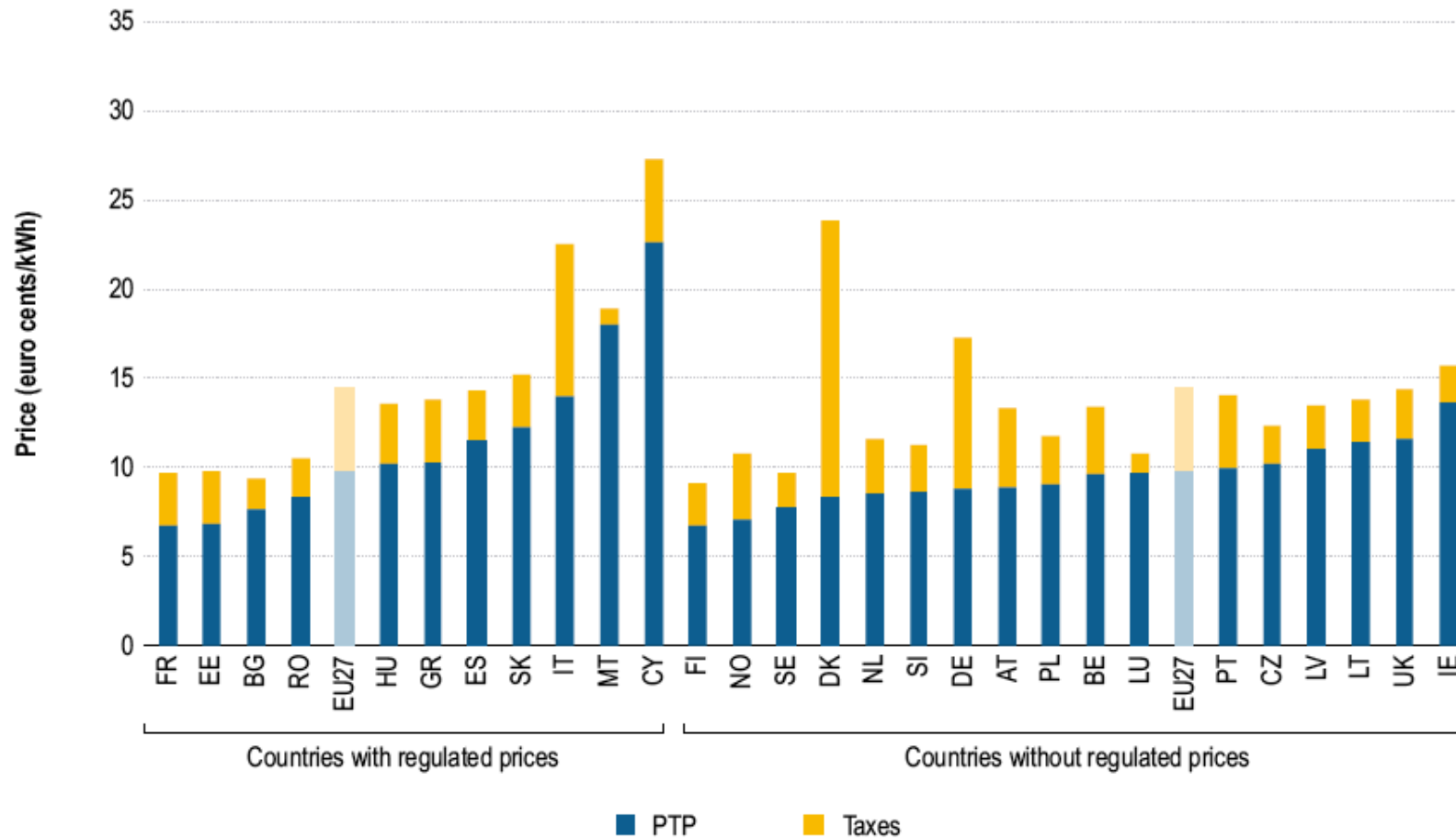
# Hourly price convergence by region (source: ACER, 2013)



# No convergence at retail level for households (source: ACER, 2013)



# Same for industrial consumers



# Incumbents' and foreign players' presence in retail (source: ACER, 2013)

		Estimated incumbent market share in the household market – December 2012 (capitals)		
		>90%	Between 50 and 90%	Less than 50%
Presence of foreign players (capital city)	>50%	BG (1/1); HU (1/2); RO (1/1)		
	Between 20 and 50%		CZ (5/24); ES (4/16); NL (6/18); PT (2/4); BE (2/6)	GB (4/14)
	Between 0 and 20%	NI (1/4); SK (6/16)	DE (1/14); FI (2/37); IE (1/4); IT (2/7)	SE (4/41)
	0%	CY (0/1); MT (0/1); GR (0/1); LT (0/1); LU (0/6); LV (0/1); EE (0/1); PL (2/7); FR (1/9)	AT (0/18); DK (0/19); SI (0/8)	NO (0/11)

# Switching rates of households (source: ACER, 2013)

Greece	4.0	1.8	2.2
Slovenia	5.9	4.0	1.9
Denmark	3.7	1.8	1.9
Norway	13.0	11.3	1.7
Spain	11.6	10.0	1.6
Hungary	1.6	0.3	1.3
Sweden	9.9	8.9	1.0
Italy	6.4	5.8	0.6
Czech Republic	7.6	7.4	0.2
Bulgaria*	0.0	0.0	0.0
Cyprus	0.0	0.0	0.0
Estonia	0.0	0.0	0.0
Germany	7.8	7.8	0.0
Latvia*	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0
Northern Ireland*	2.0	3.0	0.0
Romania	0.0	0.0	0.0
Luxembourg	0.1	0.2	-0.1
France	3.6	3.9	-0.3

# General assessment of the Internal Electricity Market

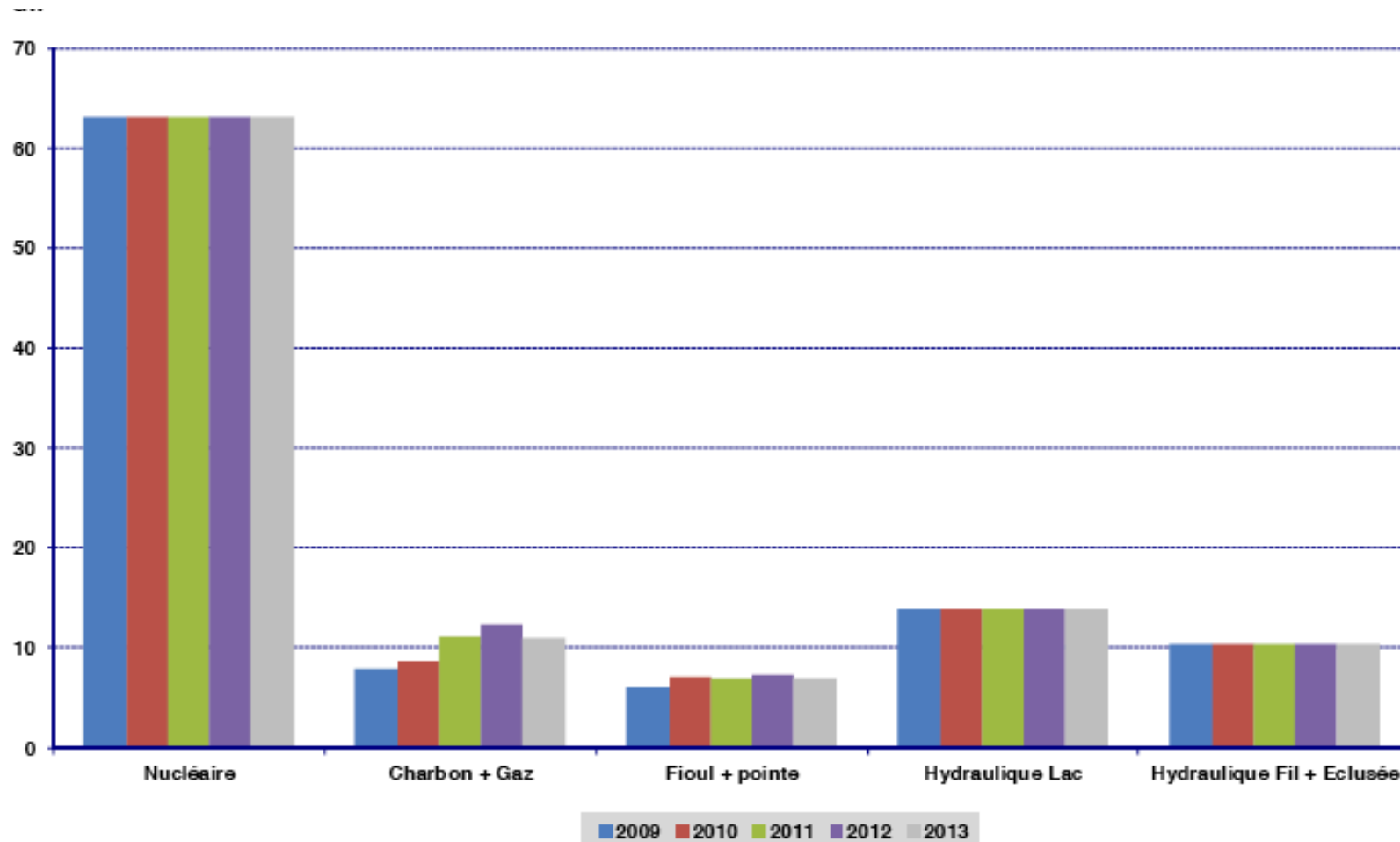
- A long process that has not been achieved yet
  - The European Council agreed in 2011 to complete the internal market by 2014
  - The deadline will not be respected because some progress has still to be made
  - Above all there is a risk of regression (see part 3)
- But a unique case in the world
  - « *No other 'federal-style' government of a major country has achieved an internal market for electricity. The US, Canada, Brazil, Russia, India or China have none of them succeed in opening up a continent-wide electricity market* » (J.-M. Glachant, 2013)

# The French case

- Yesterday
  - two state-owned monopolies (EDF in power and GDF in gas)
  - A large dominance of nuclear power generation in the energy mix (58 reactors; 19 NPPs: 75% of TWh)
  - No market, only planning (only administrative tariffs proposed by EDF and authorized by the government)
- Today
  - Two competing incumbents, listed on Paris Stock Exchange, with the French state as the major stockholder (EDF, 82,5%; GDFSuez, 36,7%)
  - A small competitive fringe in supply
  - A small increase in renewables, same nuclear fleet
  - A competitive wholesale day-ahead market
  - A dominance of administrative tariffs (proposed by the regulator, authorized by the government)

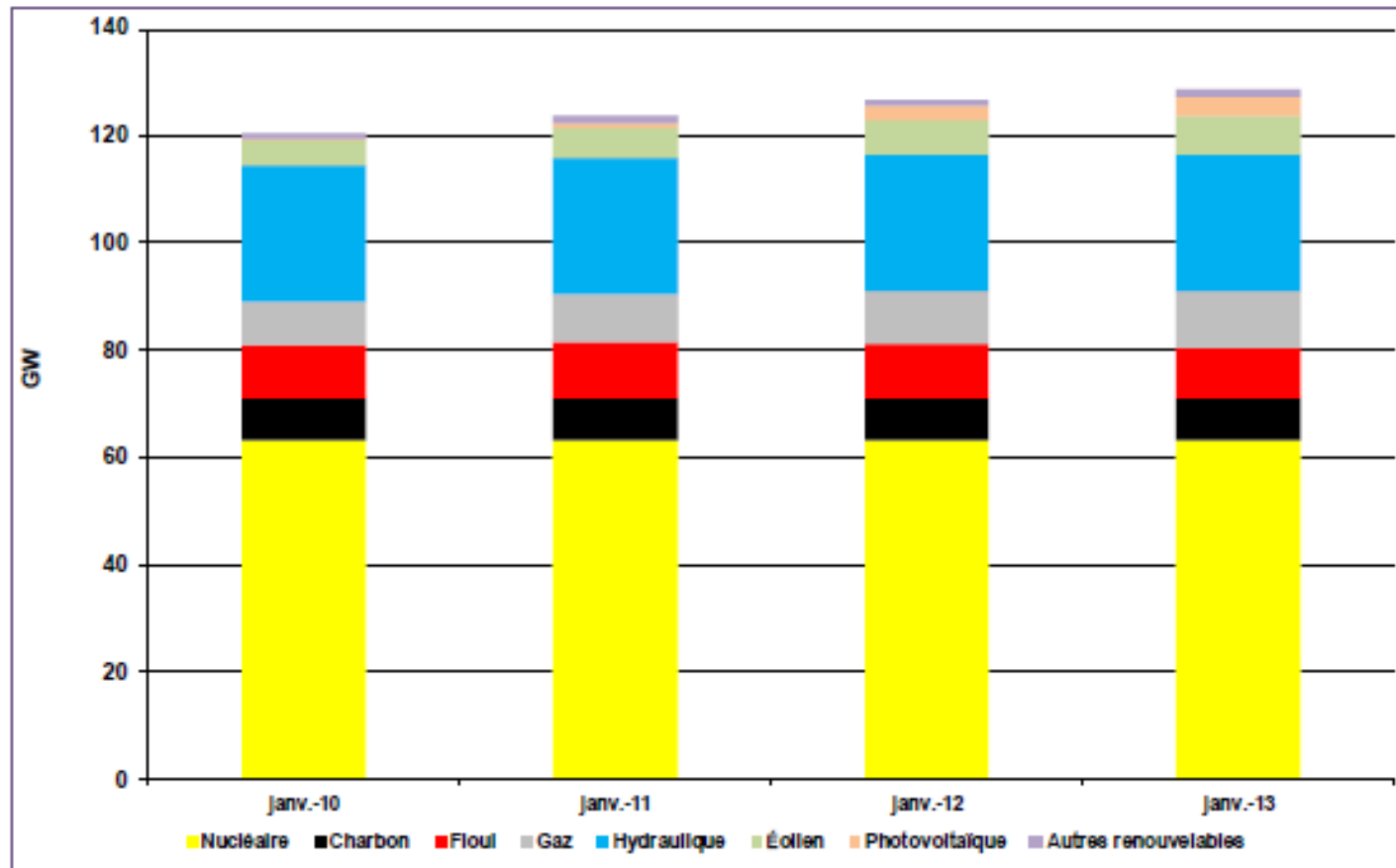


# Installed capacity (GW)



# Tiny increase in renewables

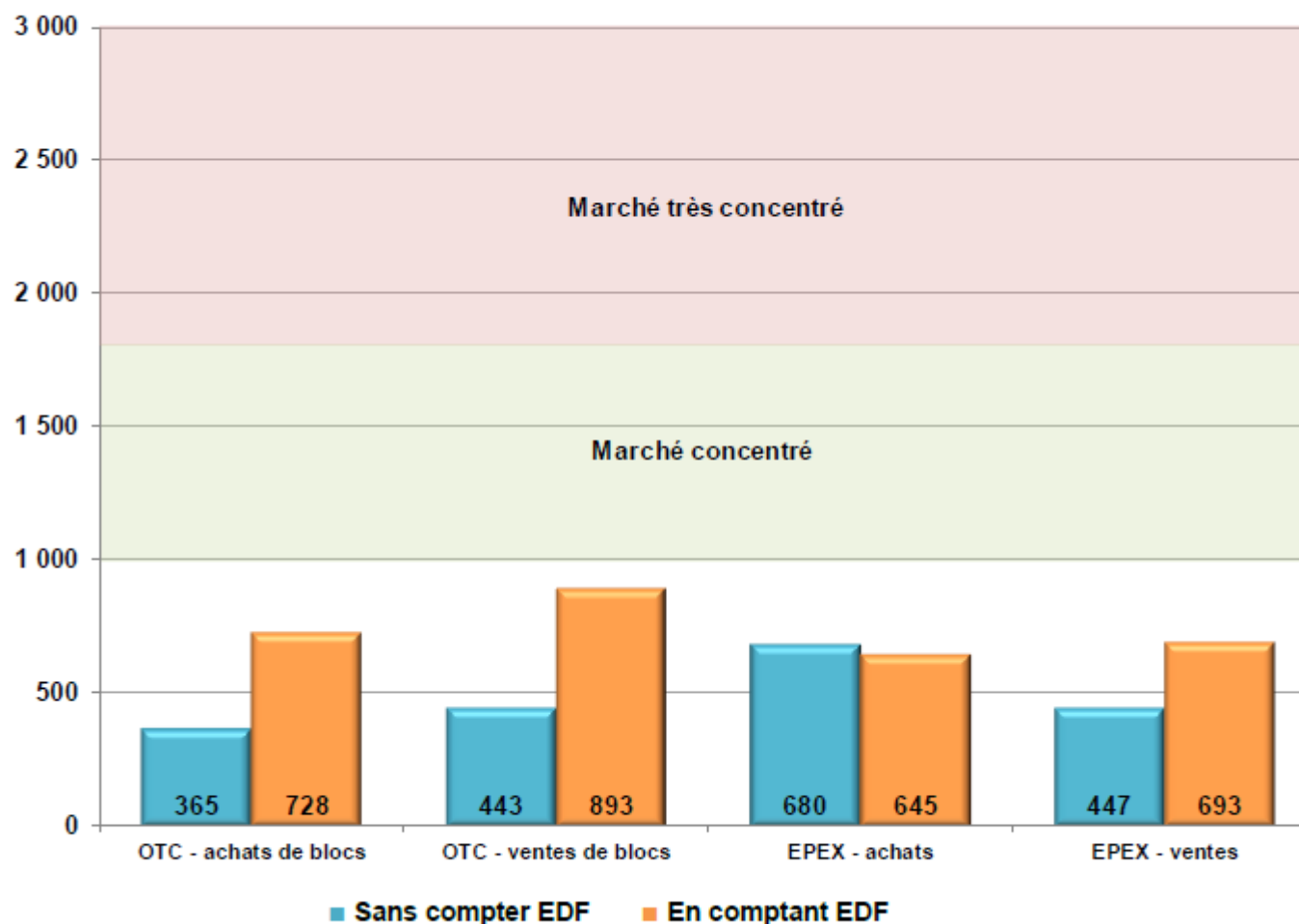
Graphique 31 : Parc de production électrique français (niveaux des différents parcs)



Source : RTE – Analyse : CRE

# HHI wholesale market (by type of delivery)

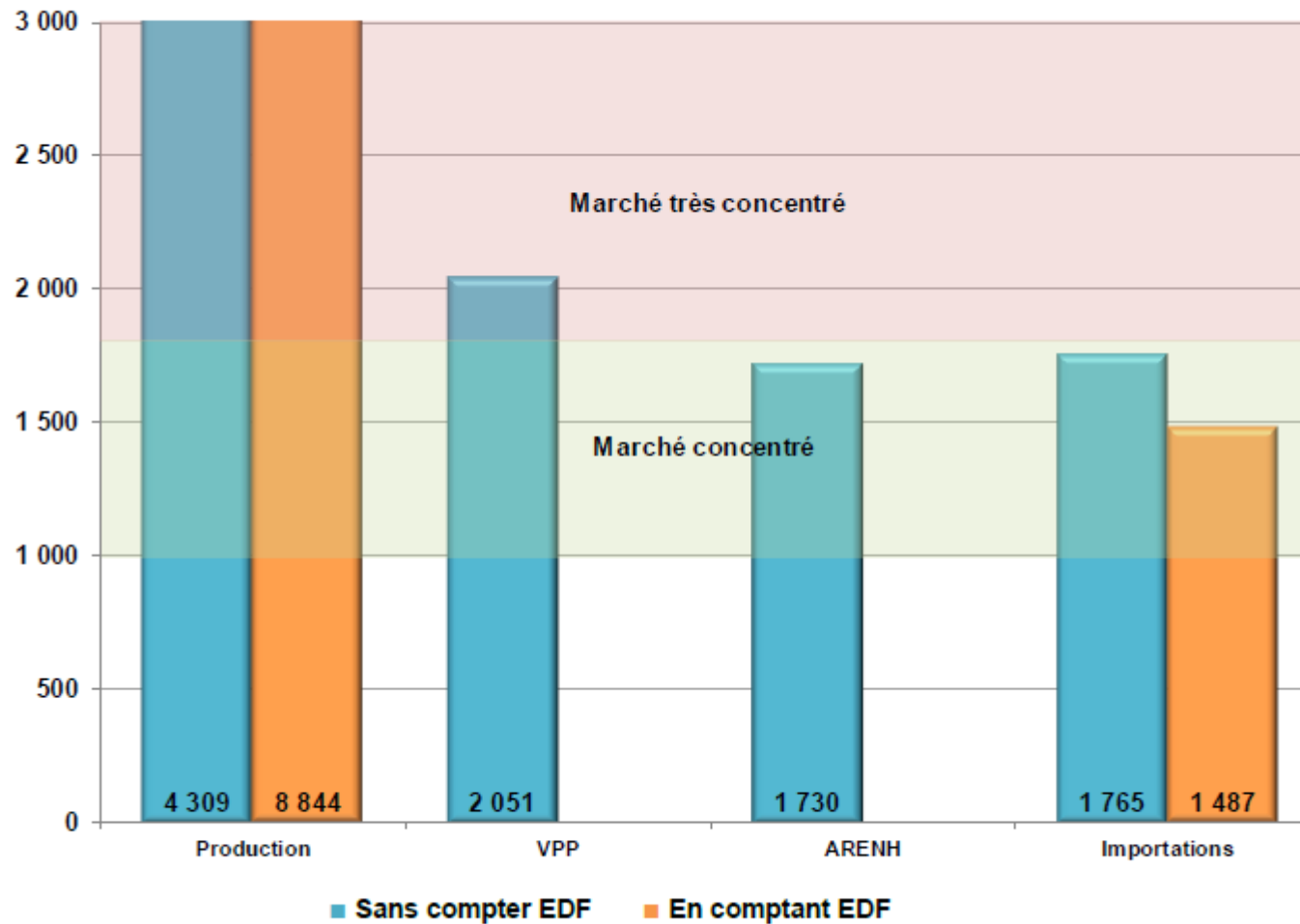
Figure 20 Indice de concentration HHI - livraisons sur le marché de gros en T3 2013 –



Source : RTE, Analyse CRE

# HHI wholesale market (injection)

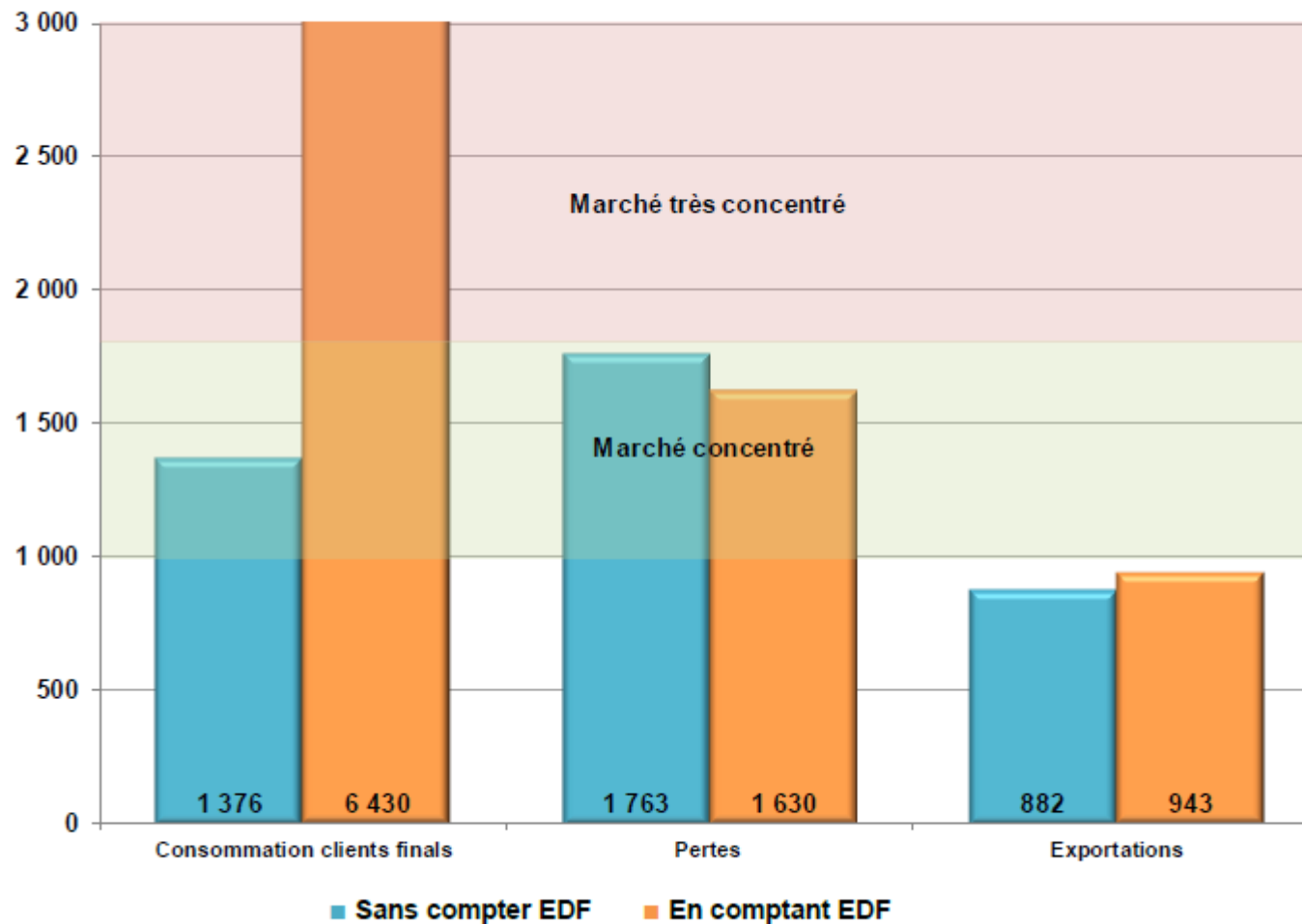
Figure 21 Indice de concentration HHI – injections en T3 2013 –



Source : RTE, Analyse CRE

# HHI wholesale market (withdrawal)

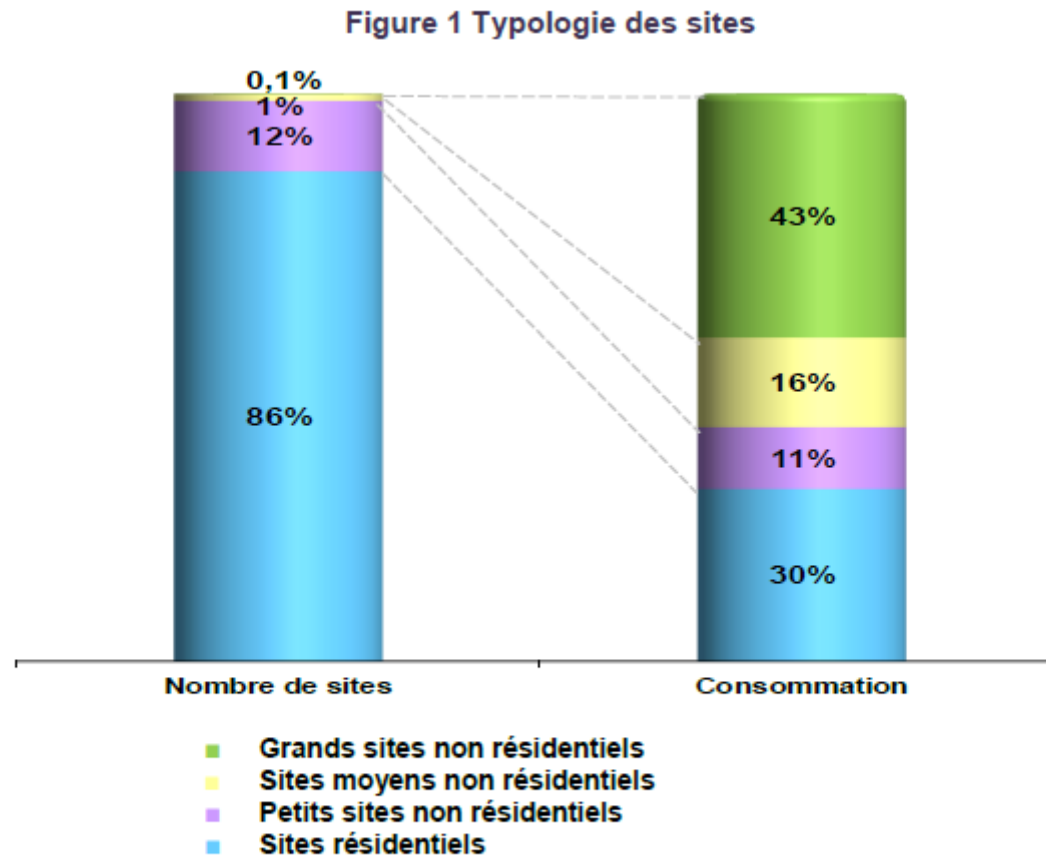
Figure 22 Indice de concentration HHI – soutirages en T3 2013 -



Source : RTE, Analyse CRE

# Retail market in France

## Market segments

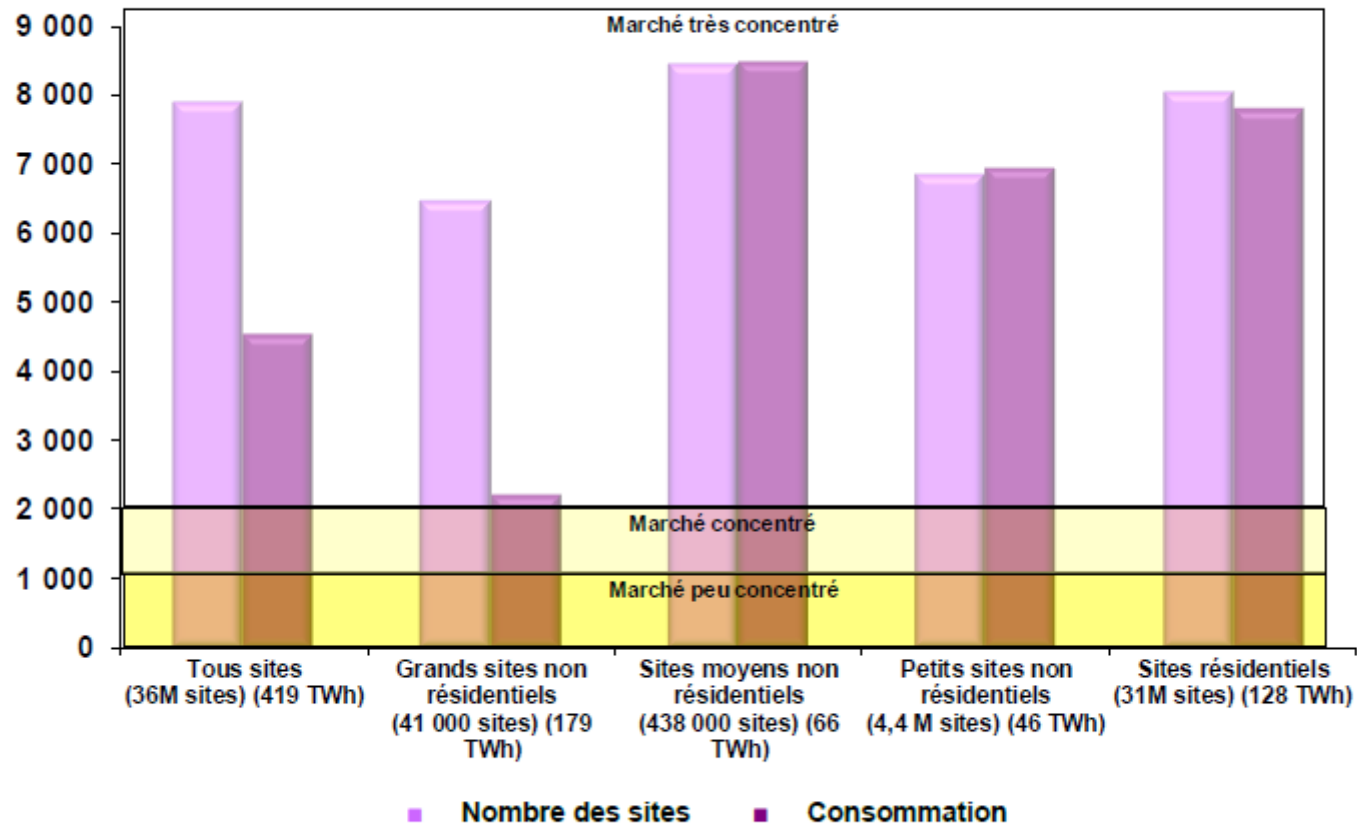


Source : données GRD, RTE, fournisseurs – Analyse : CRE

# Retail market

## HHI by market segment

Figure 6 Indice HHI par segment de marché

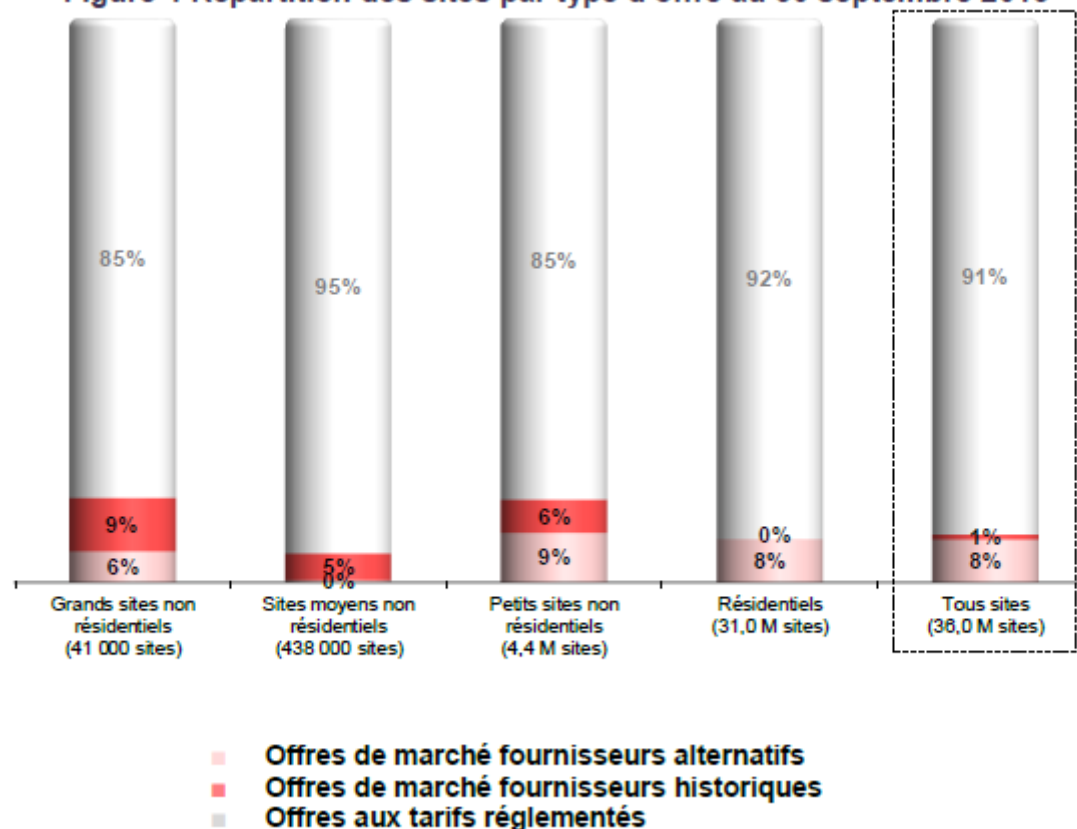


Source : GRD, RTE – Analyse : CRE

# Retail market in France

## Market share by market segments (number of customers)

Figure 4 Répartition des sites par type d'offre au 30 septembre 2013



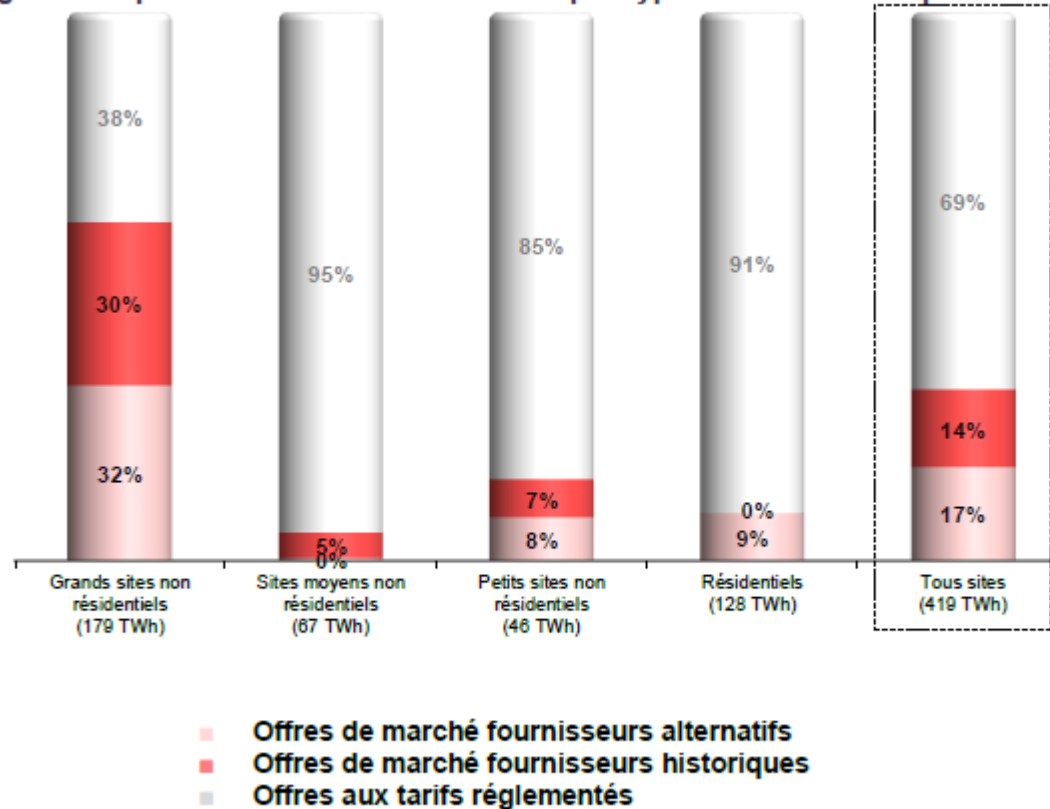
Sources : GRD, RTE, Fournisseurs historiques – Analyse : CRE



# Retail market in France

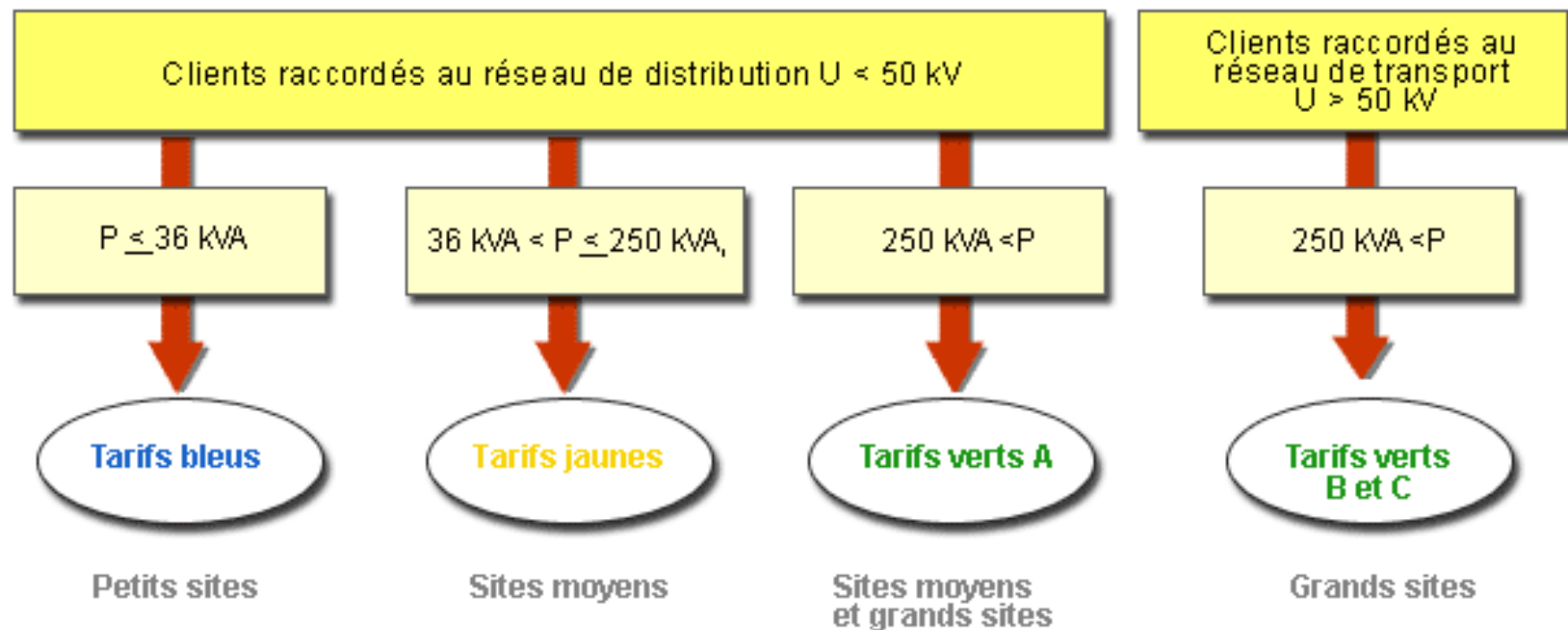
## Market share by market segments (energy volume)

Figure 5 Répartition des consommations par type d'offre au 30 septembre 2013



Sources : GRD, RTE, Fournisseurs historiques – Analyse : CRE

# Regulated retail tariffs

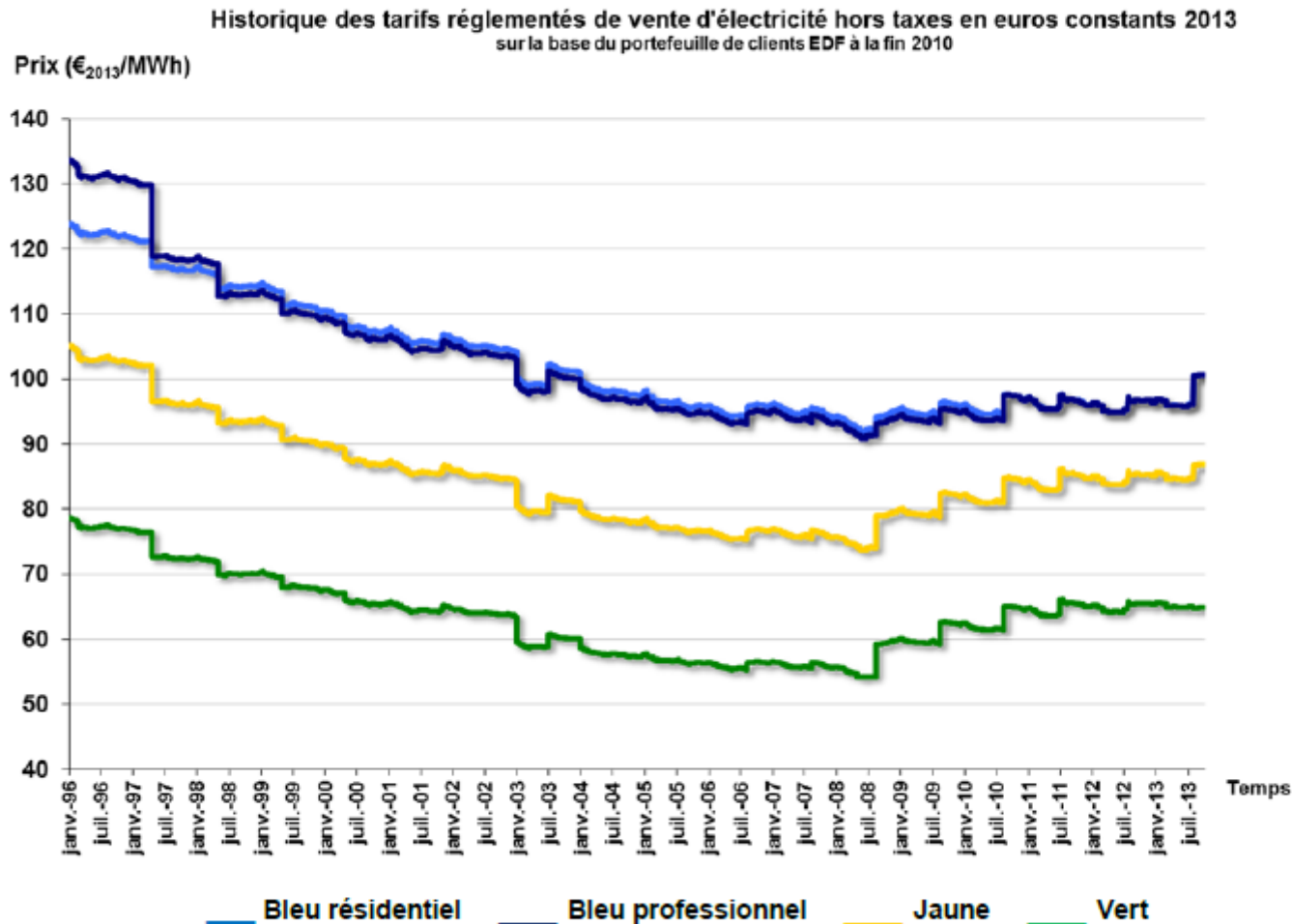


$P$  = puissance souscrite

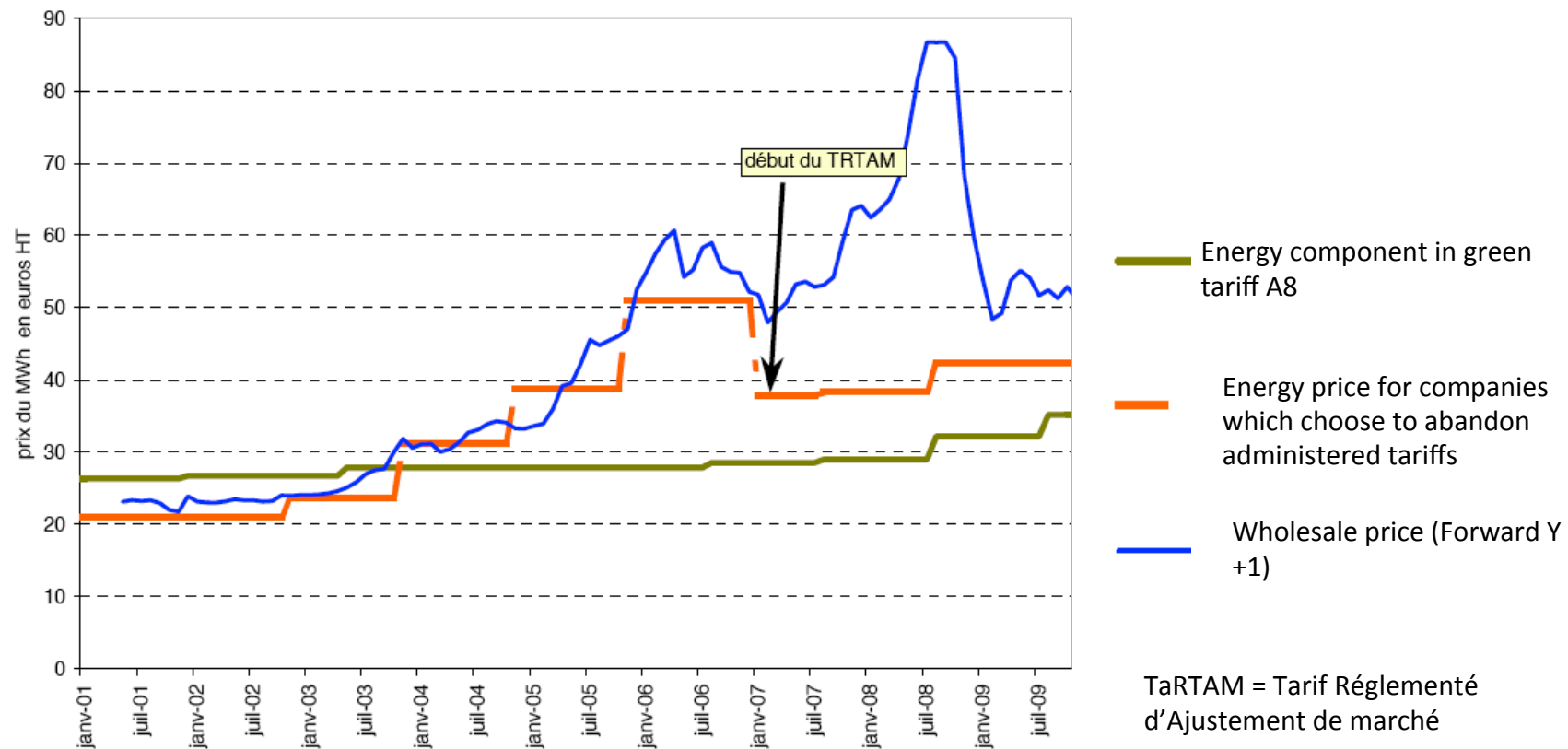
$U$  = tension de raccordement

# The evolution of retail tariffs

Figure 12 Historique des tarifs réglementés de vente d'électricité hors taxes en euros constants 2013 (sur la base du portefeuille clients EDF à la fin 2010)



# Comparing wholesale prices and administered retail tariffs for a industry (green and TaRTam)



## The introduction of a wholesale tariff for competitors to access to nuclear MWhs produced by EDF

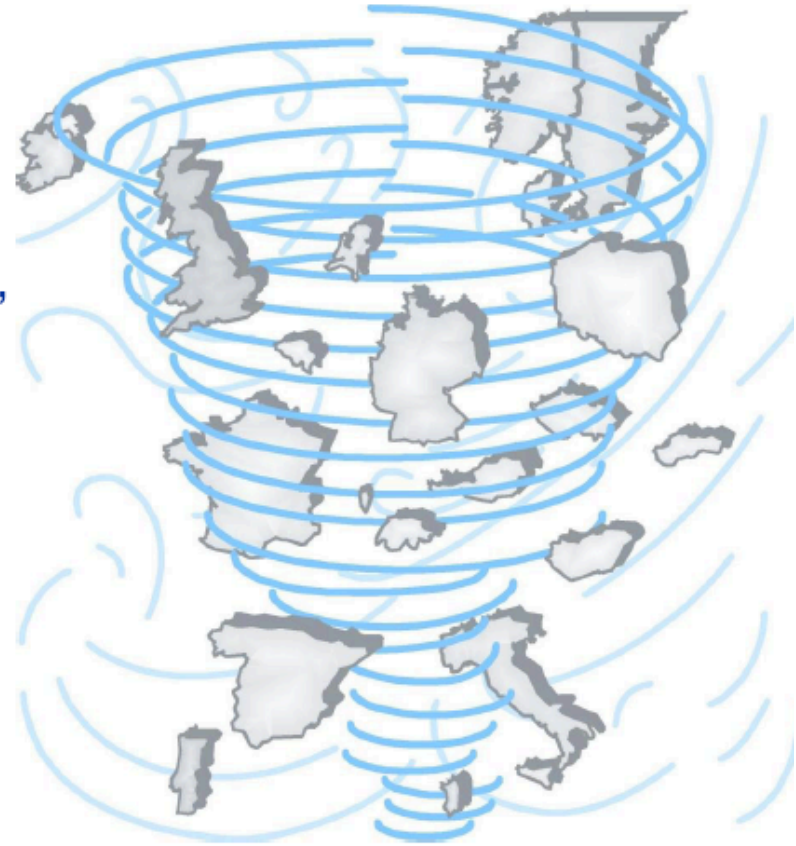
- A new energy law adopted in 2010 obliges EDF to sell to its rival on the retail market up to 100 TWh/year at a tariff set by the regulator/government (42 €/MWh in 2013)
  - Only customers located in France could enjoy this tariff
  - This access is scheduled until 2025 in order to give time to alternative suppliers to invest in generation
- The law also states that the retail tariffs for industry will be withdrawn in 2016
- The new law has been initiated to respond to concerns competition from the Commission
- The objectives have been to ensure that French industry will continue to enjoy a low electricity price and to facilitate competition in supply

# A pseudo-liberalization and a limited integration

- A large part of power is currently purchased at administered tariffs (retail tariffs for households and access tariff to EDF nuclear production) and this public intervention on price is likely to continue for a long time
  - The reason is that French policy makers want only French customers will enjoy the cost advantage resulting from the past choice to build a large nuclear fleet
- It is true that the opening-up a market to competition is difficult, not to say impossible, to achieve when the monopoly has not been dismantled and is the most cost efficient because of its nuclear assets

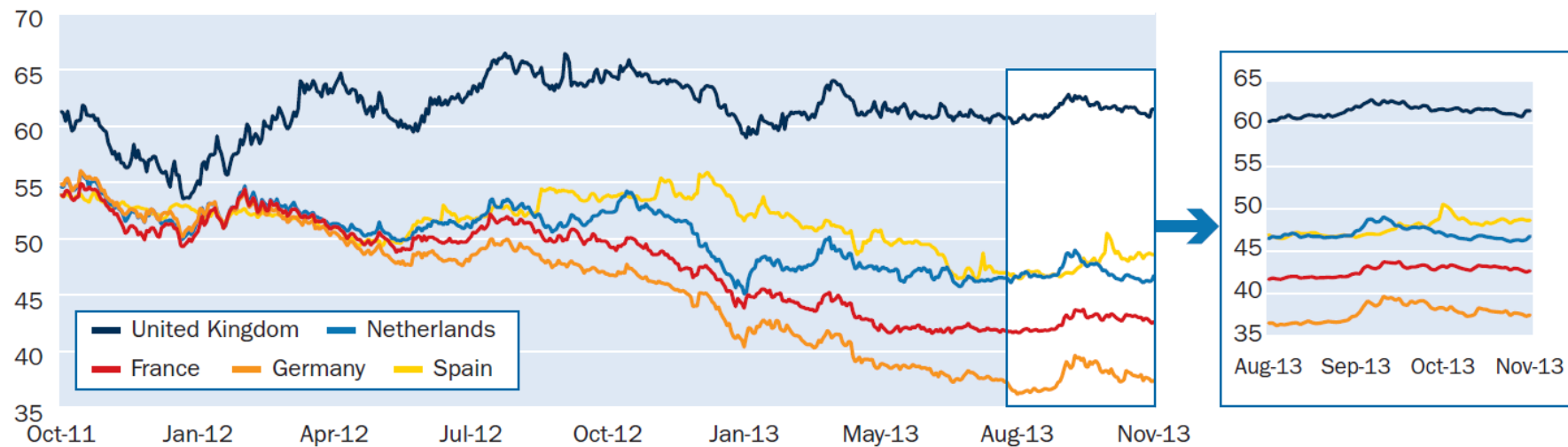
# The threats on the internal electricity market

- Three chocs
  - Economic crisis + Fukushima Daiichi + US Shale gas
- Structural distortions
  - The internal market is distorted by national renewables schemes and will be distorted more by future capacity mechanisms



# Electricity prices are diverging

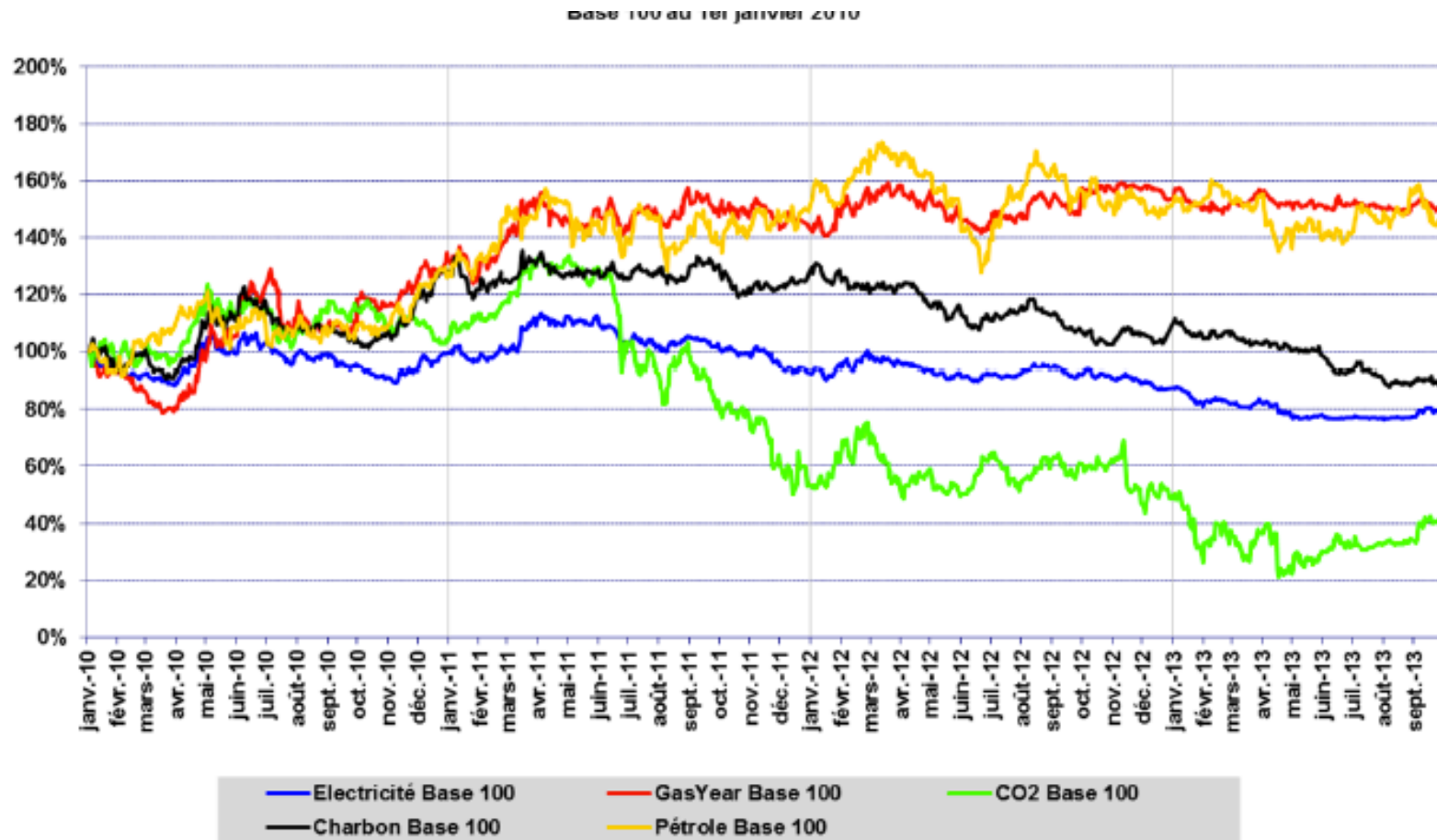
Platts Year Ahead Base Power Assessment (€/MWh)



Source: Platts



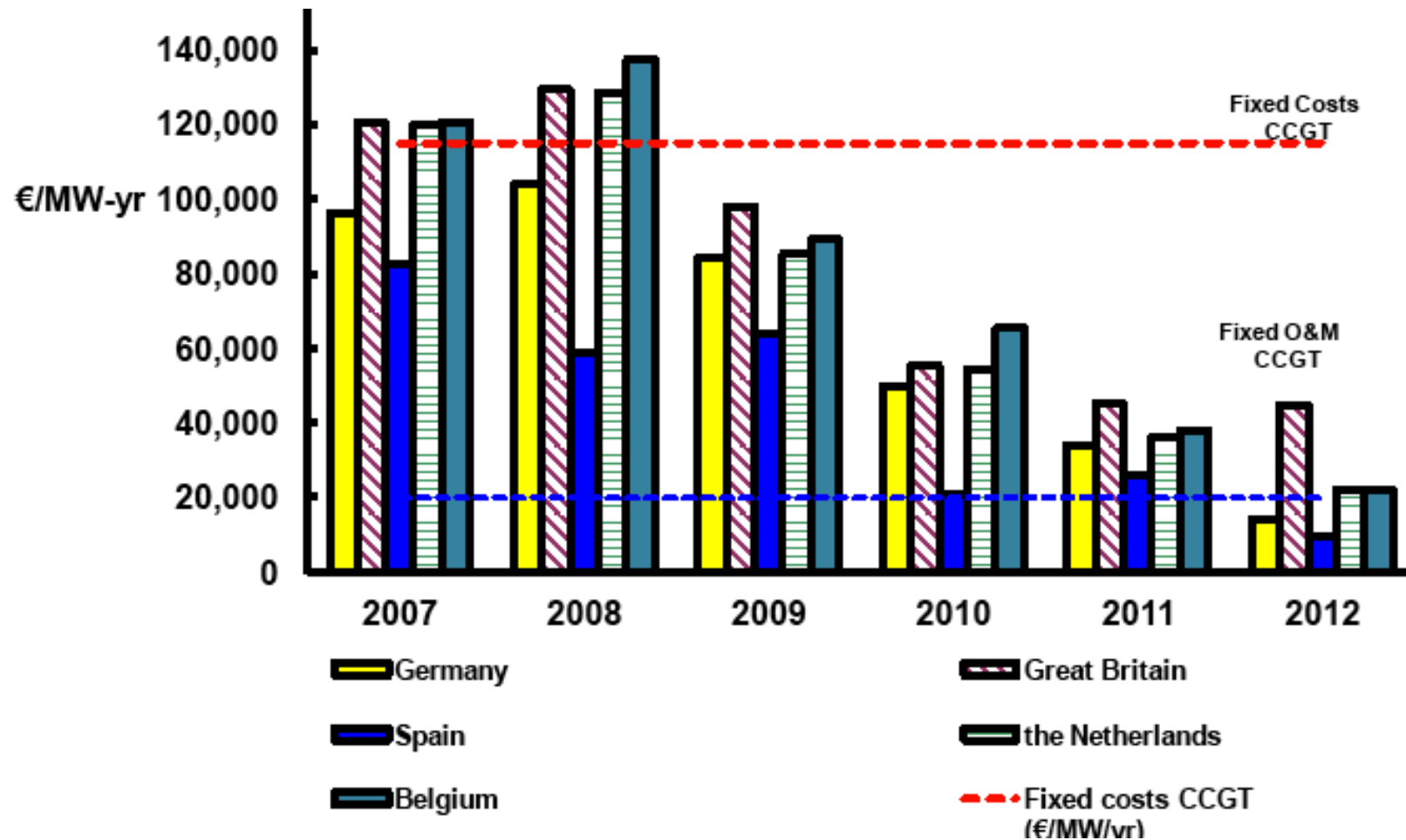
CO2 and coal prices are decreasing whilst gas price remains high (forward Y+1)



# Clean spark and dark spreads



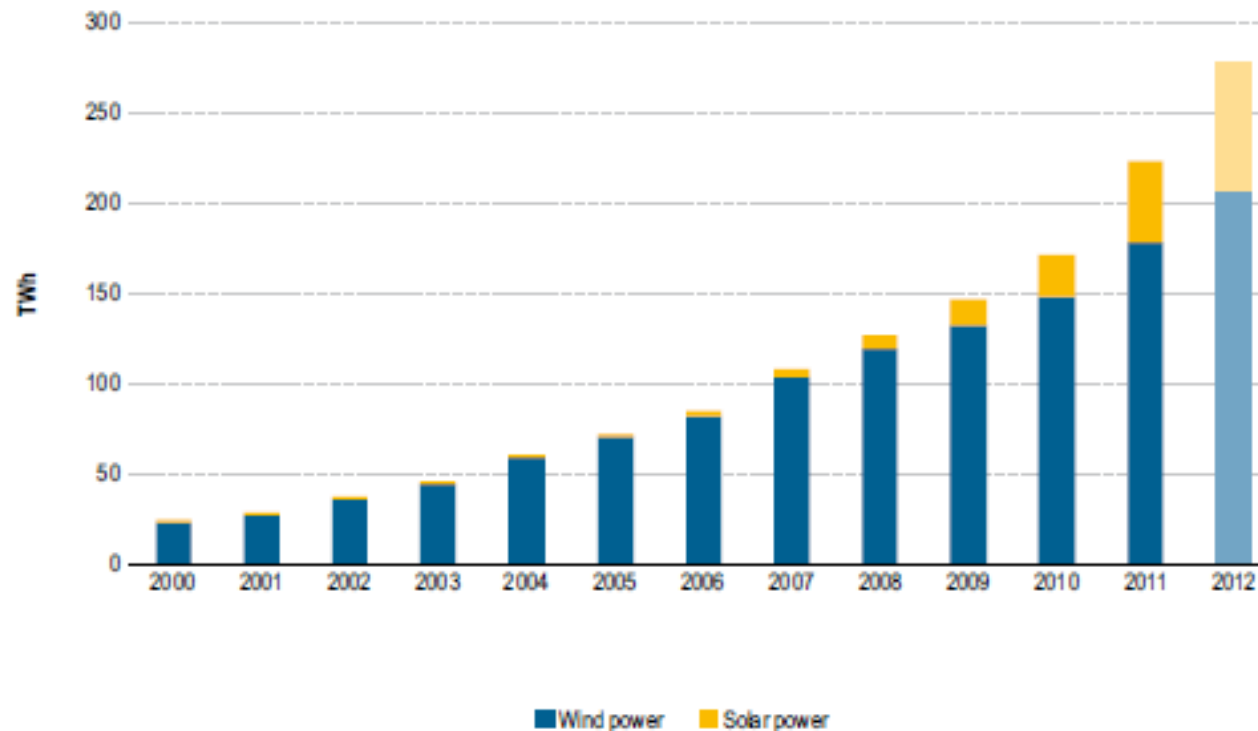
# Gas plants are loosing money



(Source: Roques IHS, 2013)

# Wind and power generation in Europe is fastly growing

Figure 39: Aggregated solar and wind generation in Europe – 2000 to 2012 (TWh)



Source: Eurostat (2013)

Note: Estimated value for 2012.

# Thanks to national subsidizing schemes

Target: 20% of energy consumption from renewables by 2020

RES integration into market differs from one country to another

Feed-in tariff → access priority → start-up and shutdown constraints on conventional generators  
Feed-in premium and green certificates → no access priority → more flexibility to manage situation of excessive energy

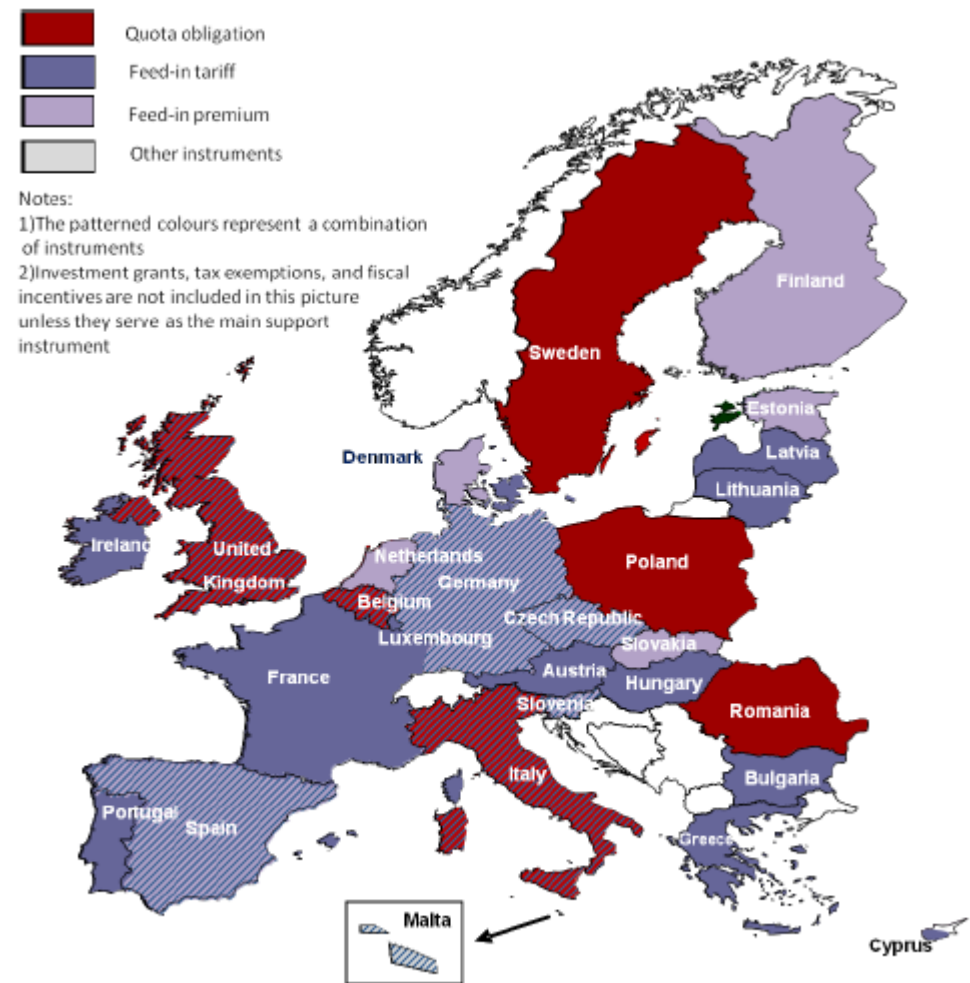
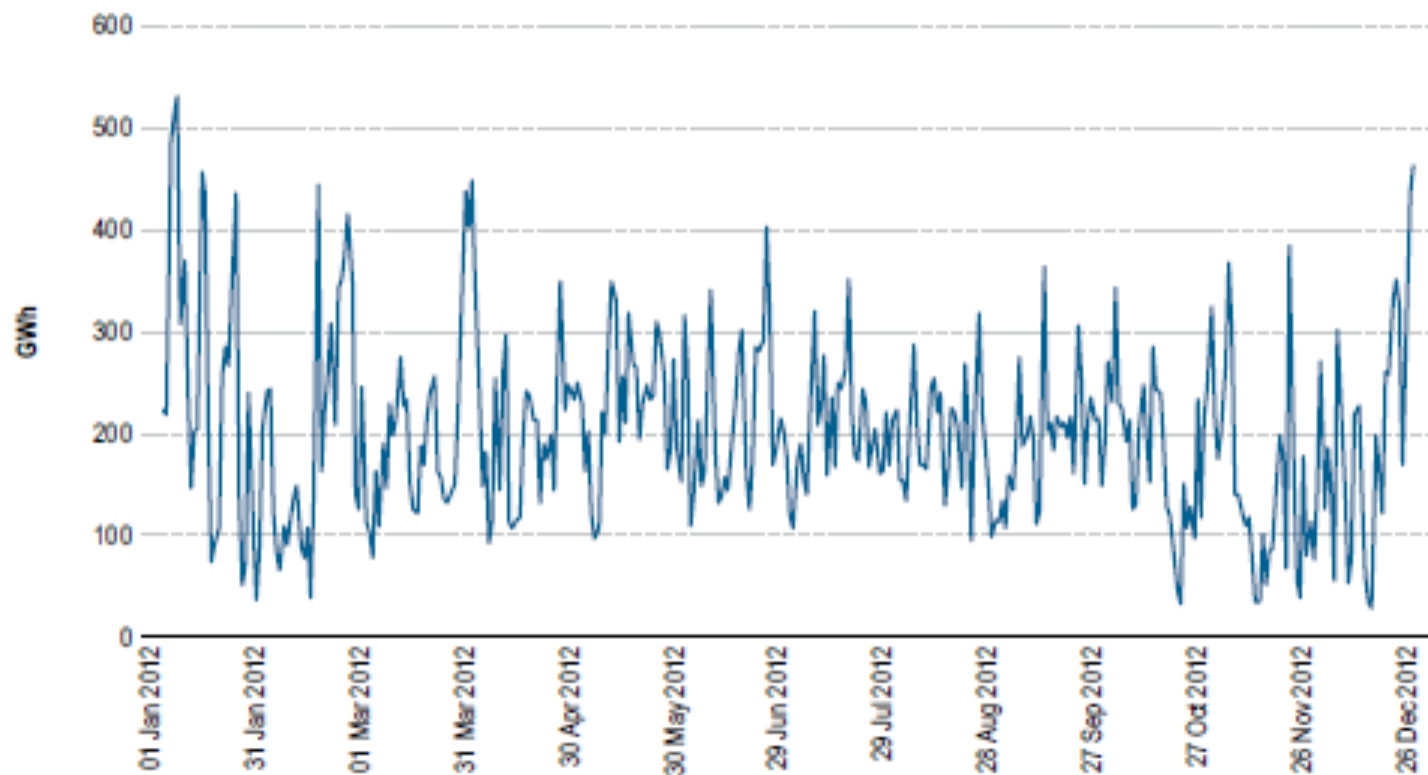


Figure 1 Map of EU countries according to their support mechanisms for RES-E

# Wind and solar production variability

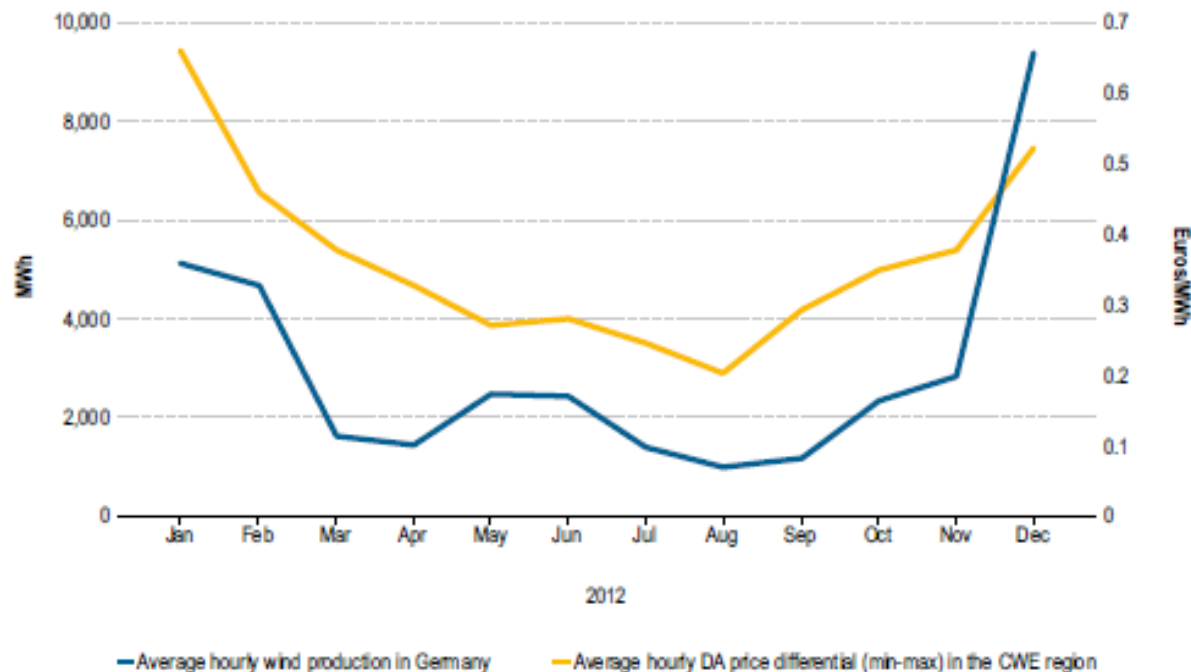
Figure 40: Aggregated daily wind and solar production in Germany – 2012 (GWh)



Source: The German TSOs (2013)

# Less price convergence because of renewables

Figure 14: Monthly average hourly wind production in Germany compared to price differentials in the CWE region – 2012 (MWh and euros/MWh)

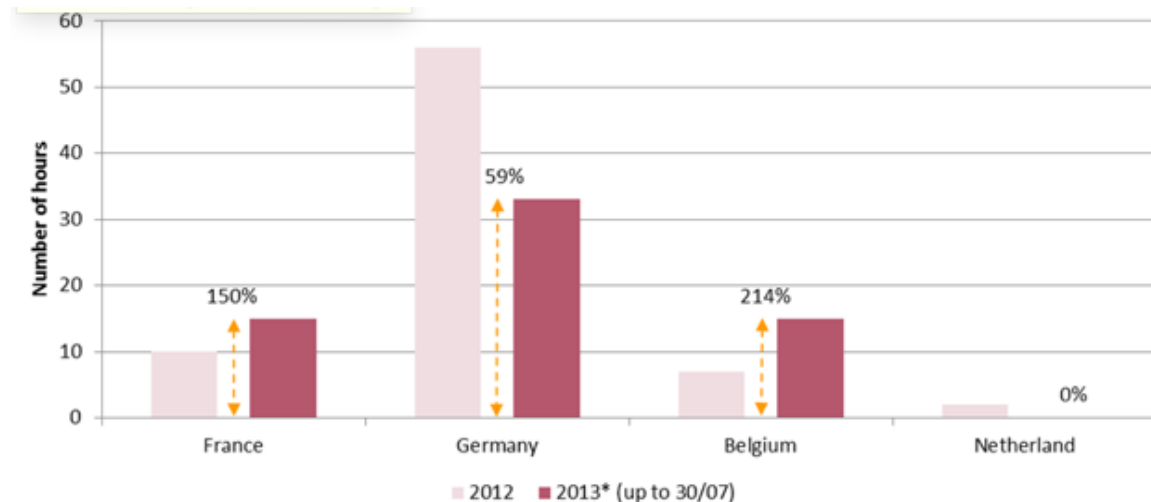


Source: Platts and German TSOs (2013) and ACER calculations

Note: The price differentials are calculated as the hourly difference between the maximum and minimum price of the bidding zones of the CWE region. In 2012, the lowest price was recorded in Germany for around 70% of the periods.

# Impacts of renewables on thermal plants

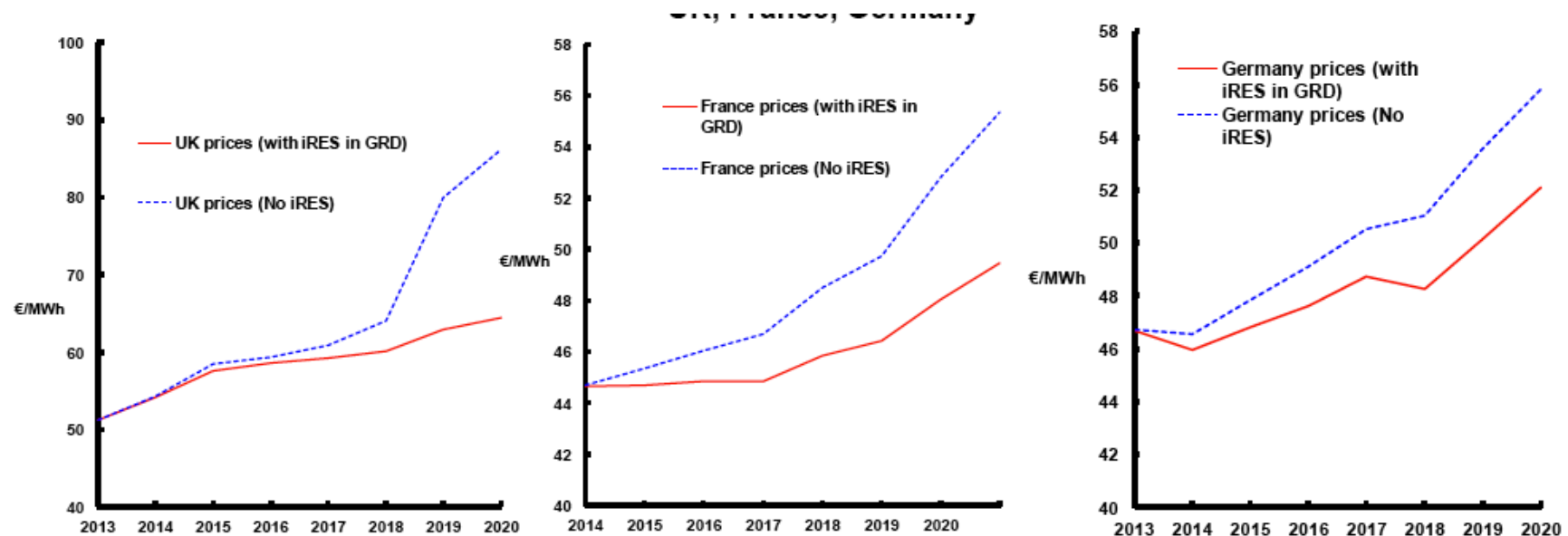
- Conventional plants' revenue decreases because they operate less hours and sell at a lower price
- Sometimes they are even confronted with negative prices!



Number of hours with negative wholesale price



# Modelled power price with and without renewables additions (Source: Roques IHS, 2013)



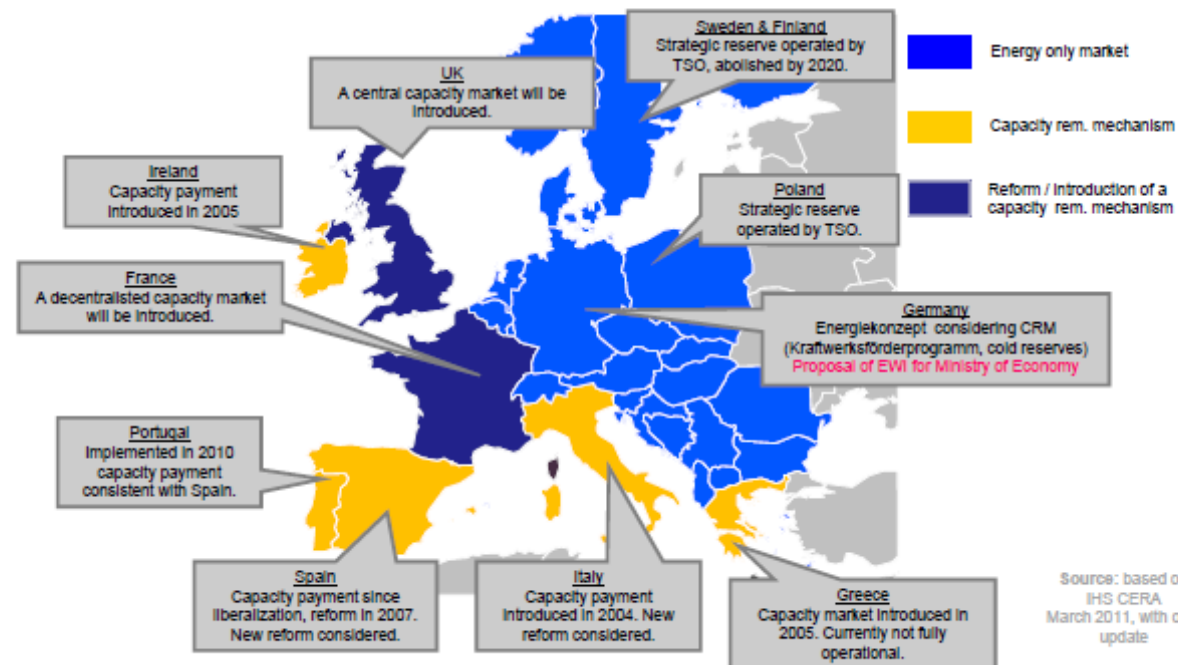
# The development of capacity mechanisms

- Paying conventional power producers to make capacity available
  - To get back-up capacity in absence of wind or sun
  - To try to counterbalance the trend in shutting-down conventional power plants and in not investing in new capacity
- Several different national schemes are in the pipe
  - They will distort spot market and investments allocation

# A new balkanisation of the internal electricity market



## Electricity Market Design – Situation in Europe



# Europe's unresolved energy versus climate policy dilemma

- The climate change policy implementation is inconsistent
  - Leaving the European CO<sub>2</sub> market dying
  - Renewables development based on national and non-market schemes
- And clashes with the achievement of the internal electricity market

# To conclude

- Opening-up power sector to competition is necessarily a difficult and long process
  - Electricity is a difficult product to trade as it requires hundreds of technical, legal and economical rules and standards to be agreed before it becomes tradable
  - Especially when liberalization is associated with an objective of regional integration
- Key requirements
  - Good market design
  - Independent regulator
  - Withdrawal of administered tariffs
  - Partial or total privatization
  - Breaking-up the incumbent in several pieces
  - Consistency between climate change policy instruments and energy markets

# Trends in price indexes (2005-2012)

