



Market arrangements and decarbonisation: what changes to market design are required?

EU perspective

**IEA WORKSHOP – ELECTRICITY
MARKET DESIGN UNDER LONG-TERM
DECARBONISATION 8.10.2014**

Paris

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Unit B.2 - Internal Market II:
Wholesale markets; electricity & gas



European
Commission

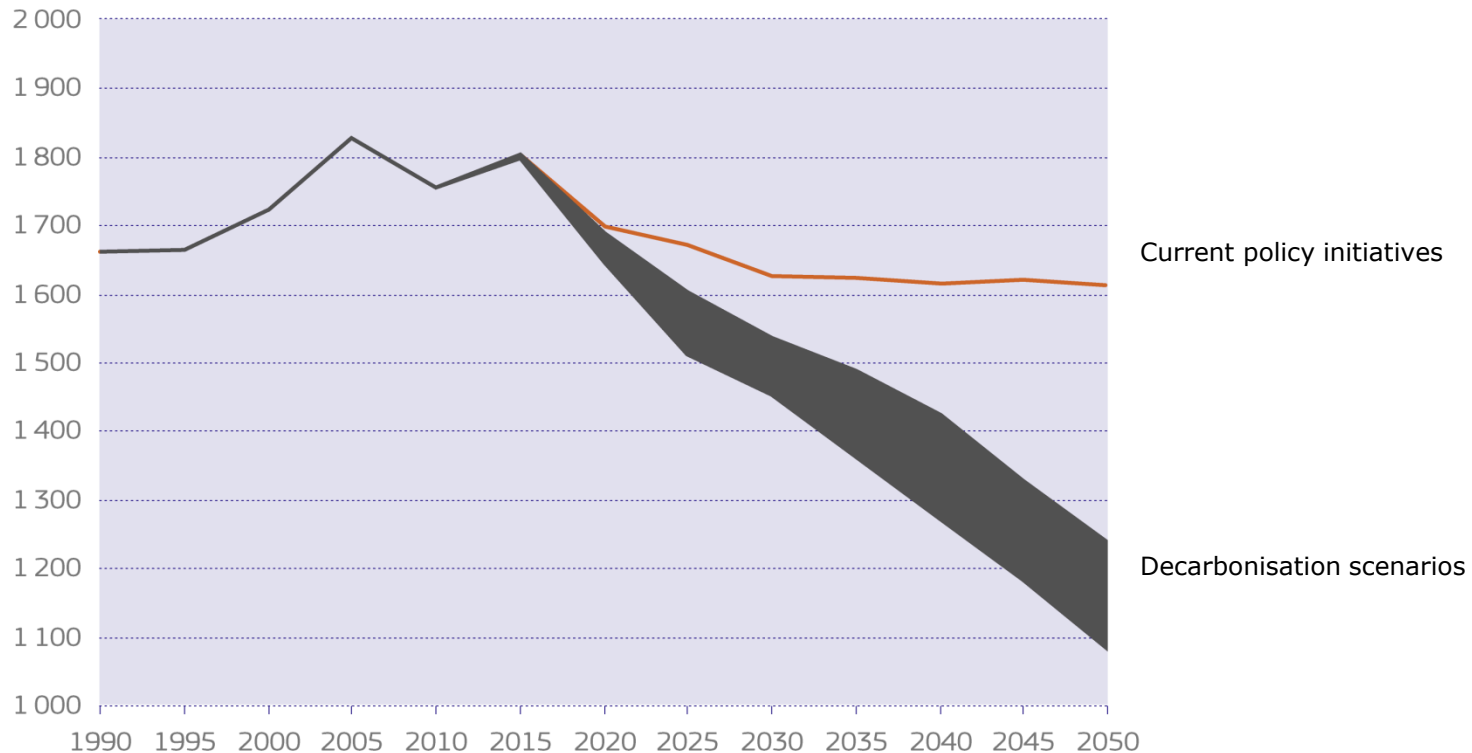
Menu

- **What?**
- **How?**
- **Who?**
- **When?**
- **Where**

What?

Energy savings throughout the system are crucial

Gross energy consumption (in Mtoe)



What?

Renewables move centre stage – but all fuels can contribute in the long-run

Decarbonisation scenarios - fuel ranges (primary energy consumption in %)

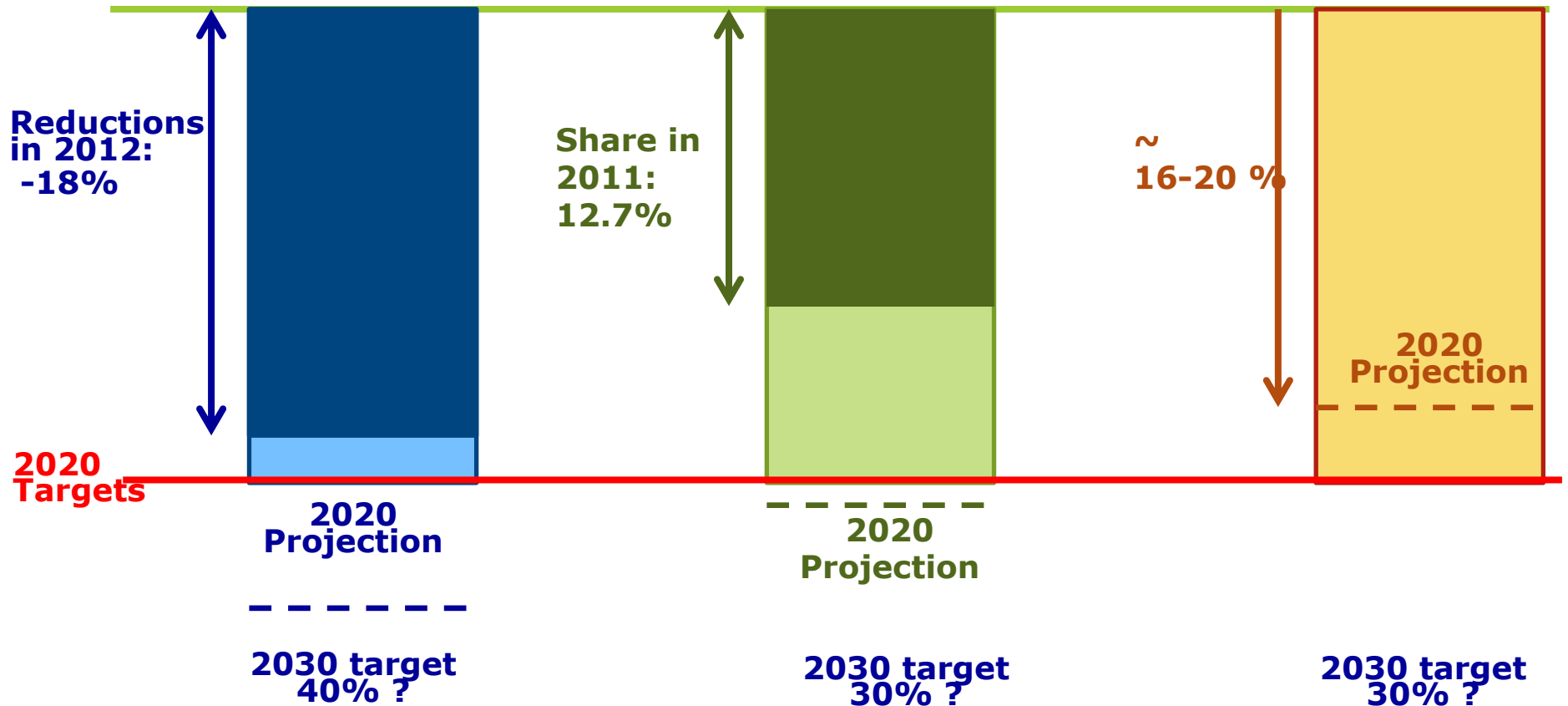


What?

Reduce Greenhouse Gas
Emissions levels by 20%

Increase share of
Renewables to 20%

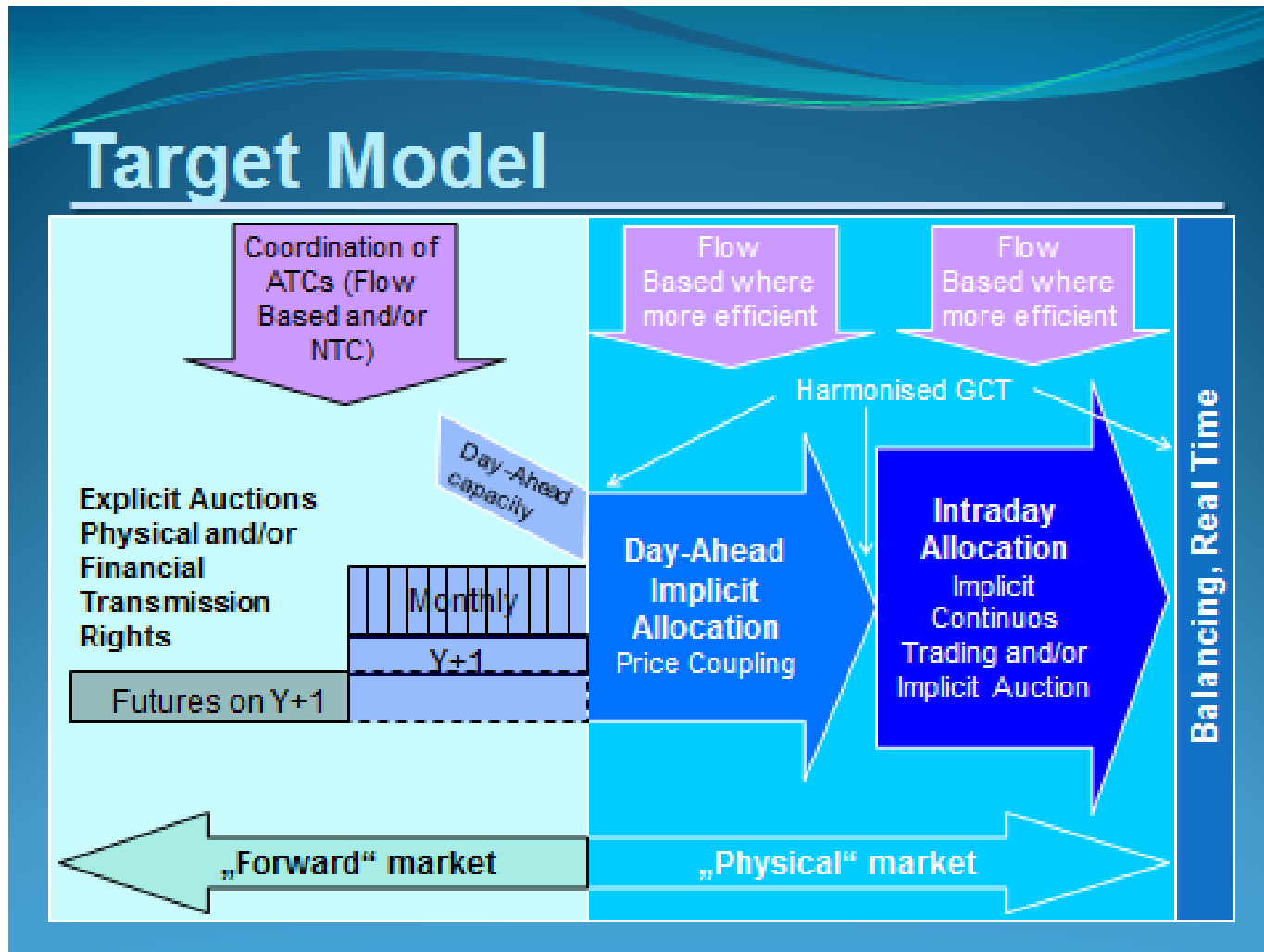
Reduce energy
consumption by 20%



How?

- **Emissions trading**
- **Recovery of demand**
- **Flexibility valued**
- **End consumers on board**
- **Sufficient transmission capacity**

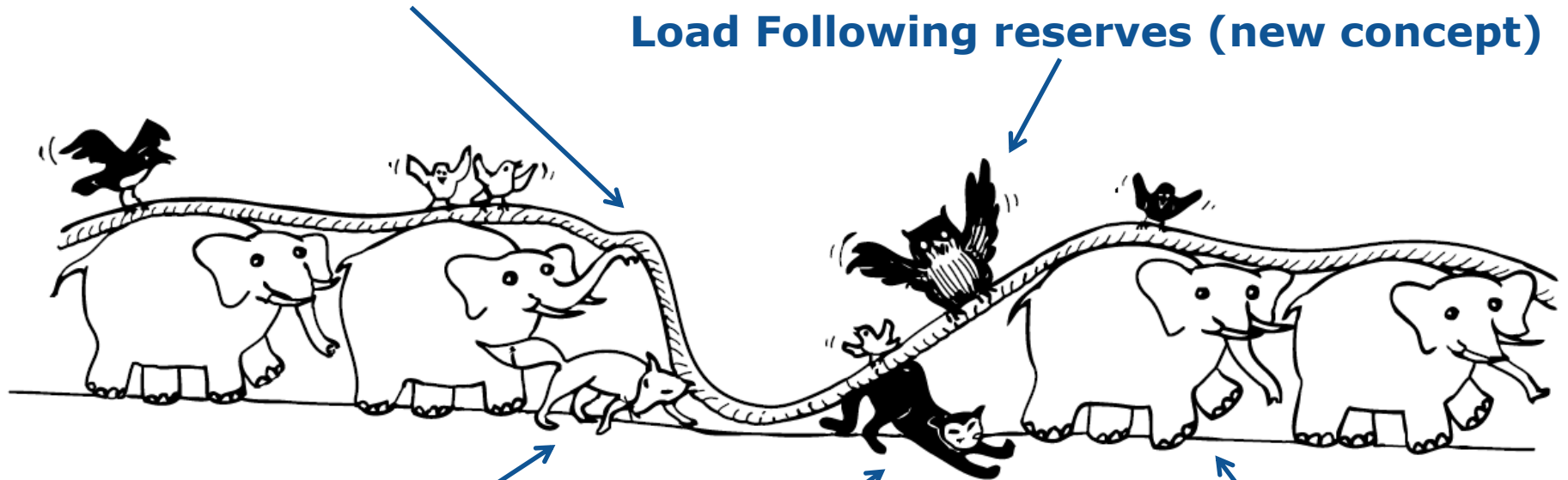
How?



How?

Frequency Containment Reserves (FCR)

Load Following reserves (new concept)



Replacement reserves (RR)

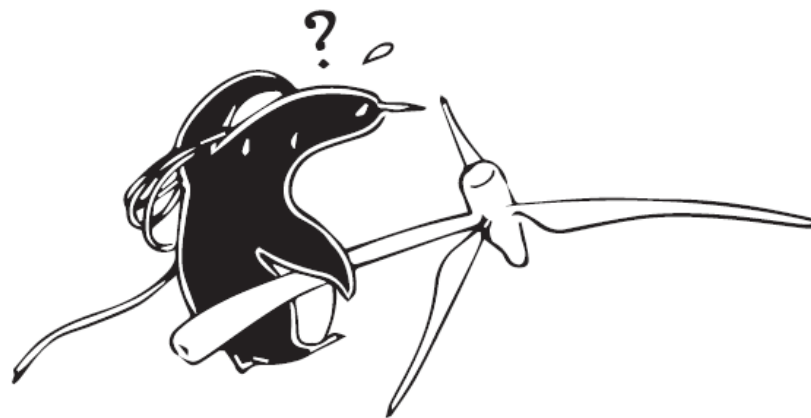
Ramping reserves (new concept)

Frequency Restoration Reserves (FRR)



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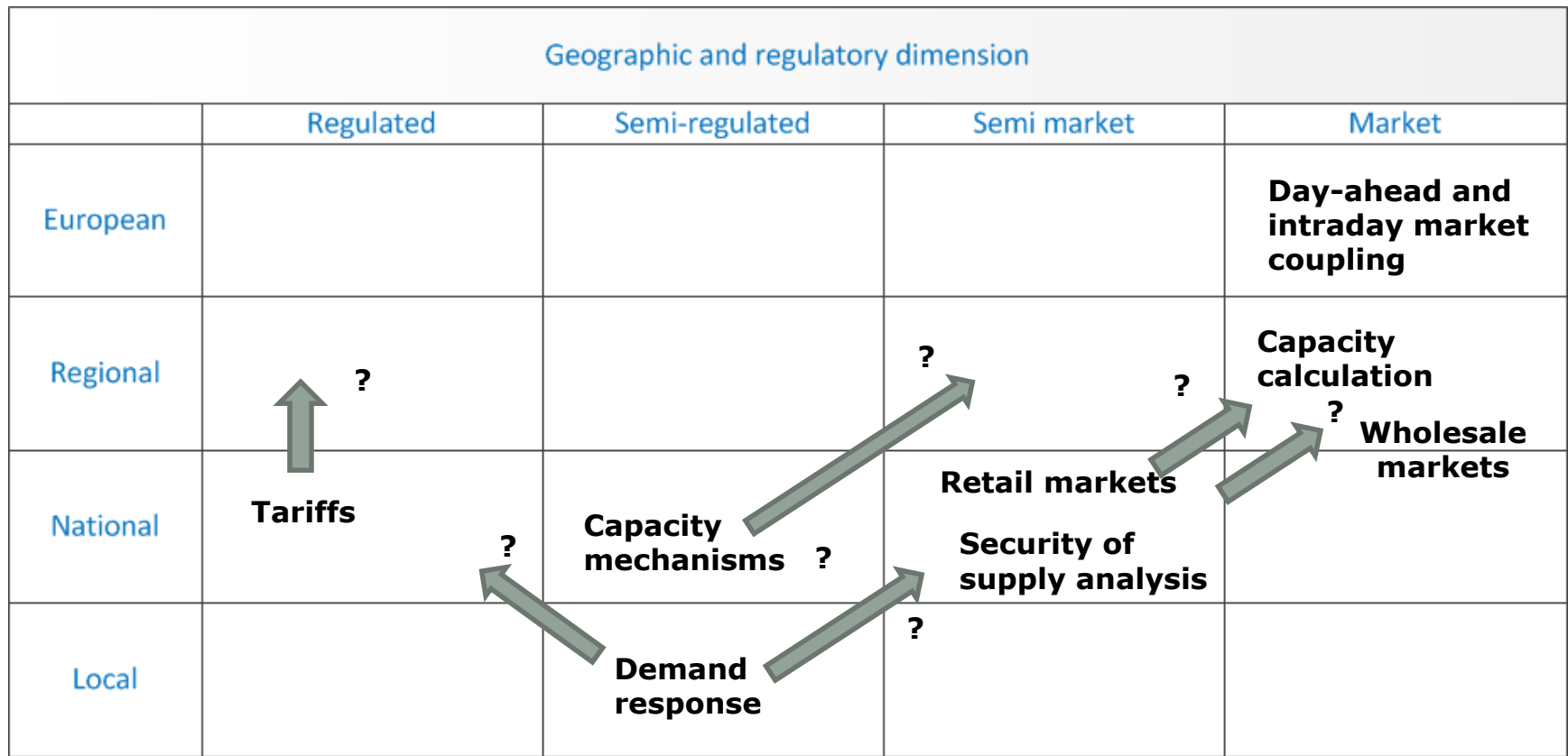
Who?



Energy

Where?

Geographic and regulatory dimension				
	Regulated	Semi-regulated	Semi market	Market
European				Day-ahead and intraday market coupling
Regional				Capacity calculation
National	Tariffs	Capacity mechanisms	Retail markets Security of supply analysis	Wholesale markets
Local		Demand response		



The diagram illustrates the relationships between different market types across geographic and regulatory dimensions. Arrows and question marks indicate dependencies or interactions:

- An upward arrow from National to Regional is labeled with a question mark.
- Diagonal arrows point from National to Regional, National to European, and National to Market, each labeled with a question mark.
- A diagonal arrow points from Local to National, labeled with a question mark.
- A diagonal arrow points from Local to Semi-regulated, labeled with a question mark.
- A diagonal arrow points from Local to Semi market, labeled with a question mark.



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Thank you for your

Attention!

Energy