

Challenges and Opportunities

The emerging EU market for electricity

Eforis conference 24.11.2014 Stockholm



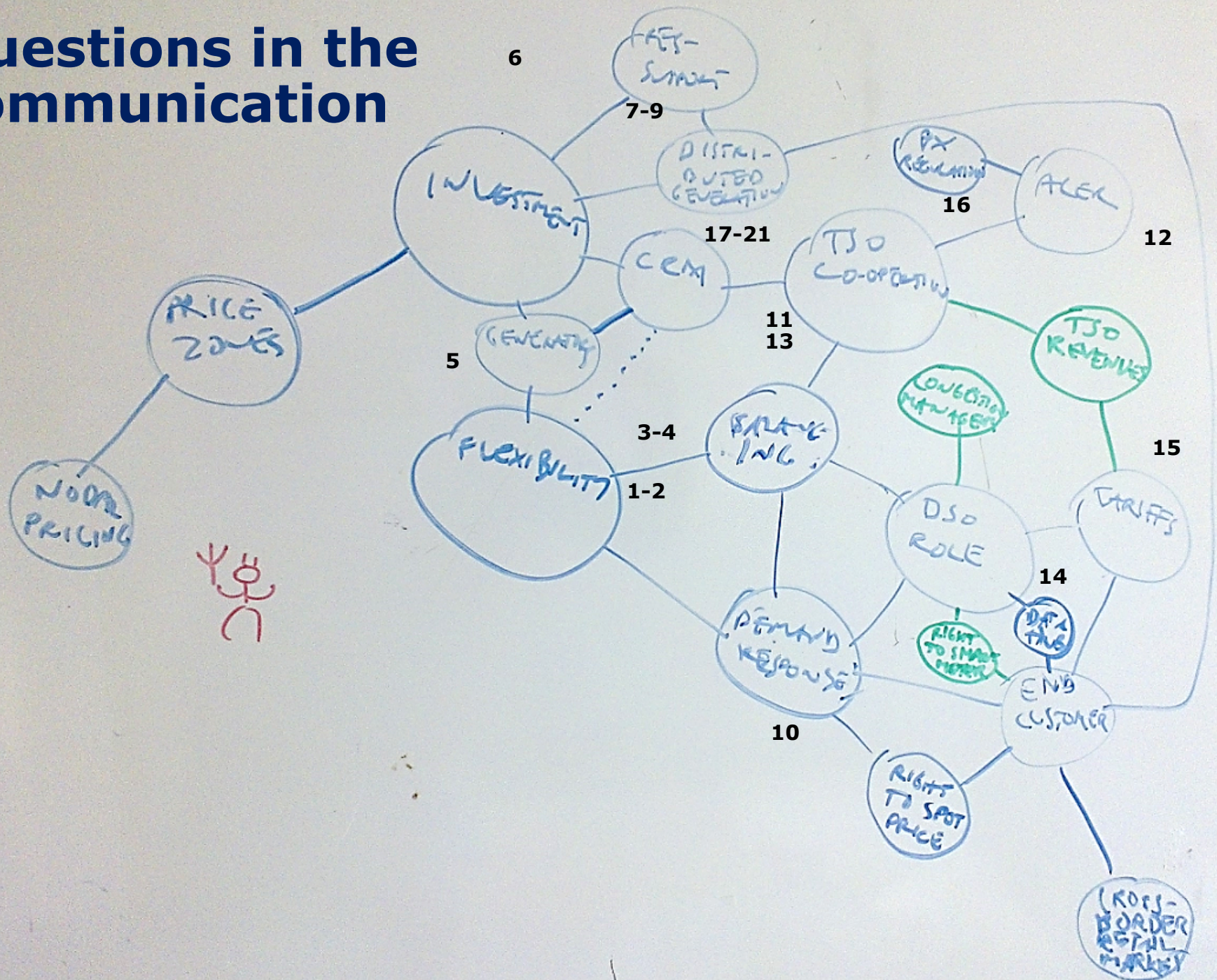
Matti Supponen

Unit B2: Wholesale markets; electricity & gas

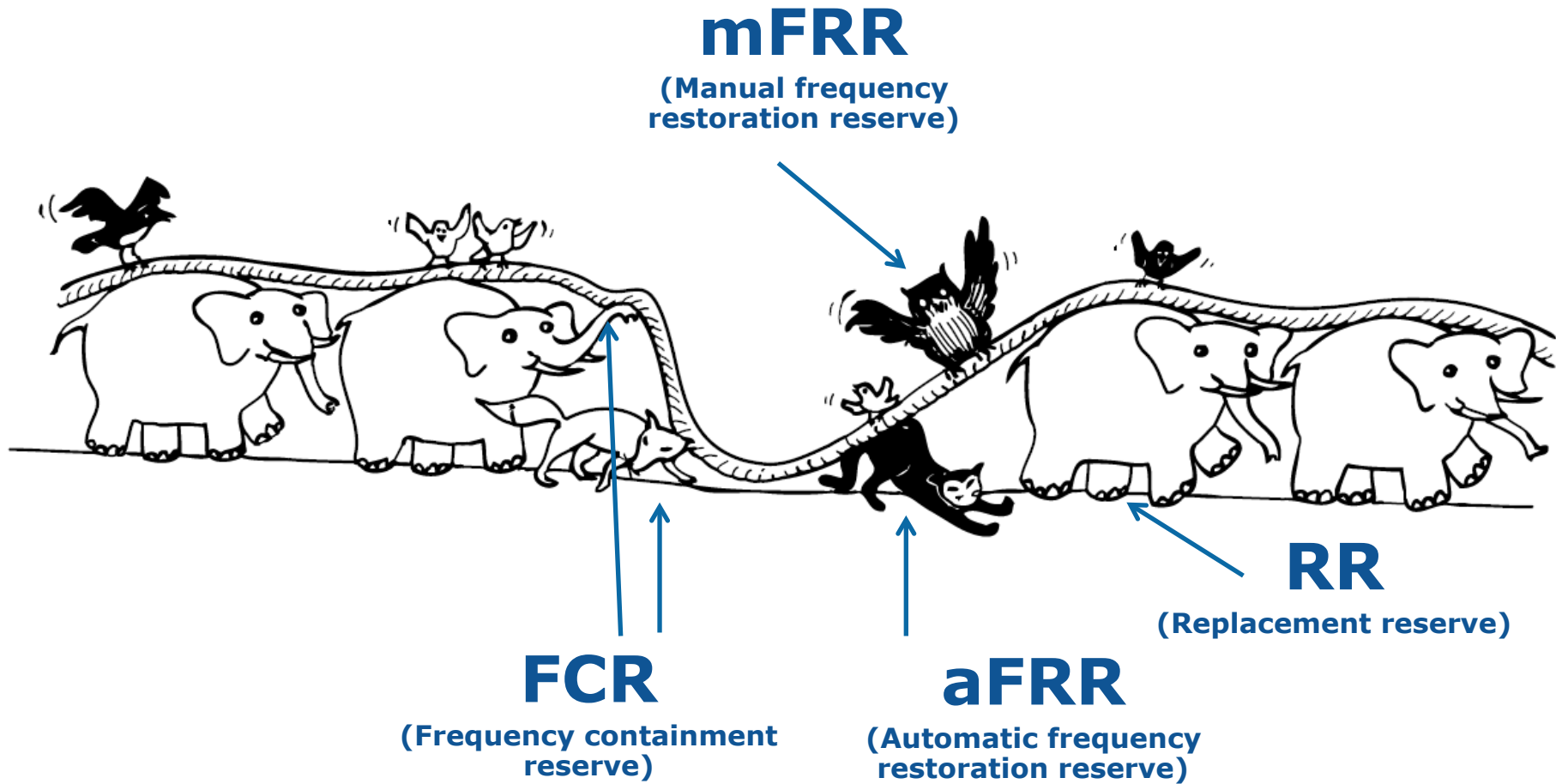
Questions in the summer package

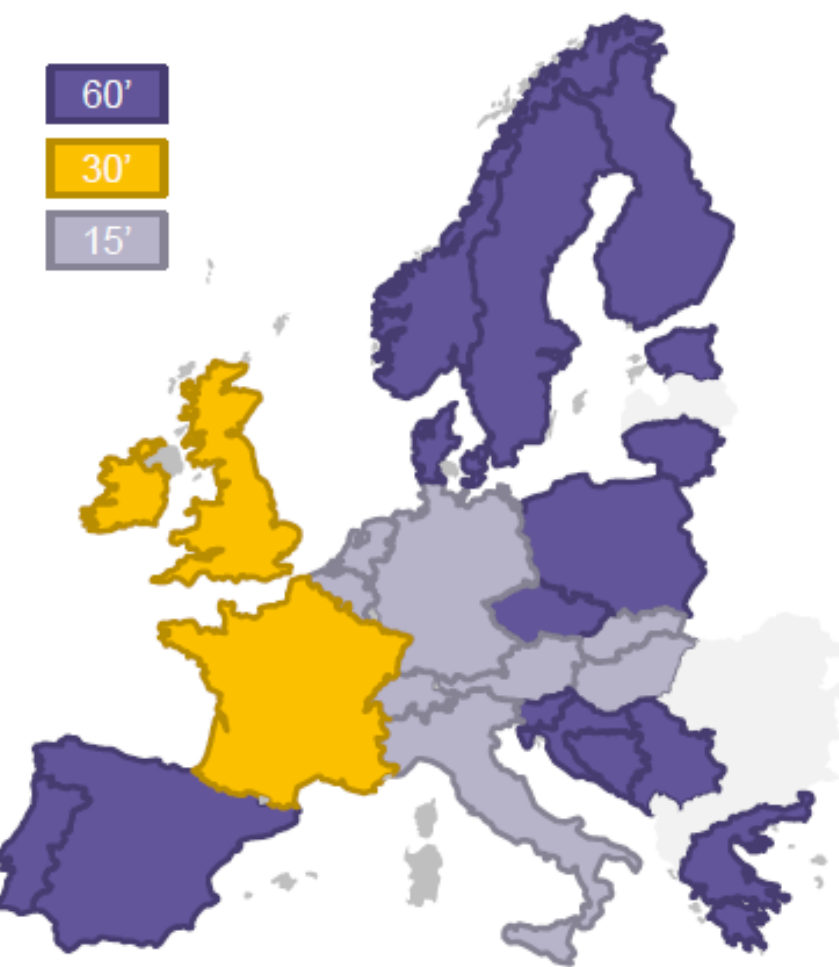
- 1-2) Scarcity pricing**
- 3-4) Integrating intraday and balancing markets**
- 5) Long-term contracts for new generation investments**
- 6) Distortion through taxes and charges**
- 7) Investment in renewables driven by market signals**
- 8) Integrating renewables into the markets**
- 9) Coordinated renewables support schemes**
- 10) Kick-starting demand-response**
- 11) Regional Security Coordination Initiatives ("RSCIs") of TSOs**
- 12) Strengthening ACER**
- 13) Strengthening the role of the ENTSOs**
- 14) Role and governance for DSOs, data handling**
- 15) European approach to distribution tariffs**
- 16) Governance rules for power exchanges**
- 17-19) Harmonised methodology for system adequacy**
- 20-21) European framework for capacity mechanisms**

Questions in the communication



Balancing





Observation (from ENTSOE survey 2013) :
various ISP in Europe : 15', 30', 60'

Concern : depending on ISP duration but also on
the way TSO operates its system, approach is not
the same for products duration and activation

Short ISP (15')

✦ Activation of manual
product **could be** based
on ISP duration

✦ Activation of manual
product **could be** based
on ISP schedule

✦ Usually « **short** »
balancing gate closure
time and often might be
no need for RR

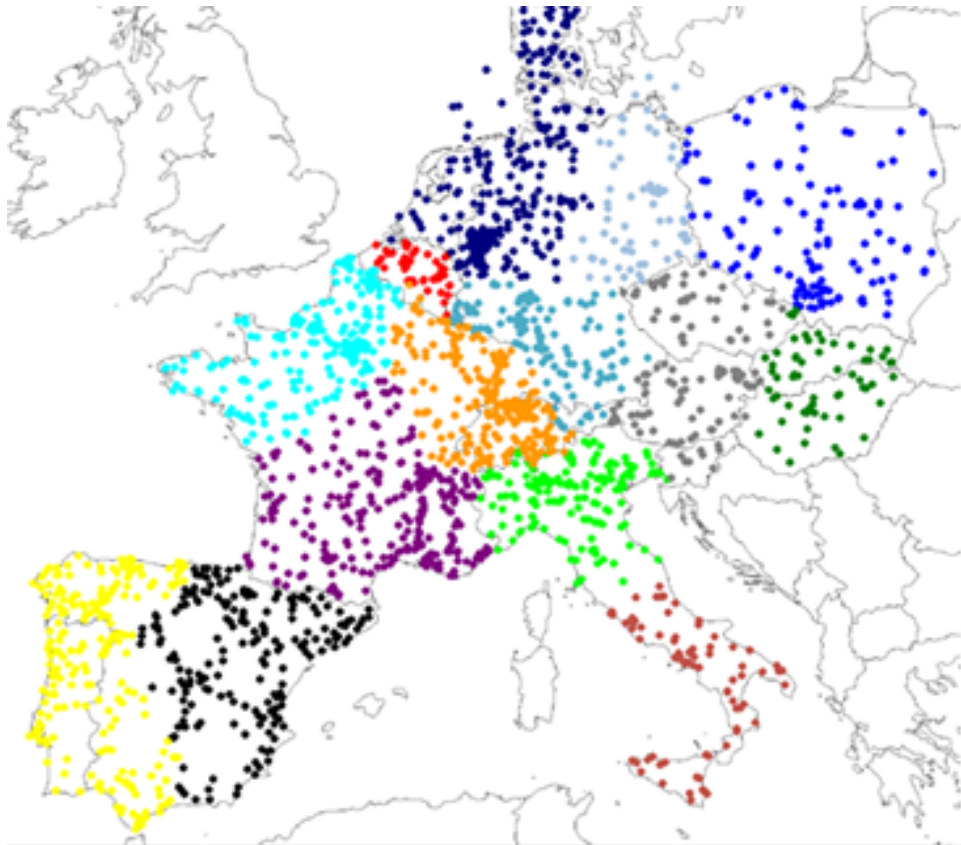
Long ISP (30', 1h)

✦ Activation of manual
product **could not** be
based on ISP duration

✦ Activation of manual
product **should be**
possible within ISP

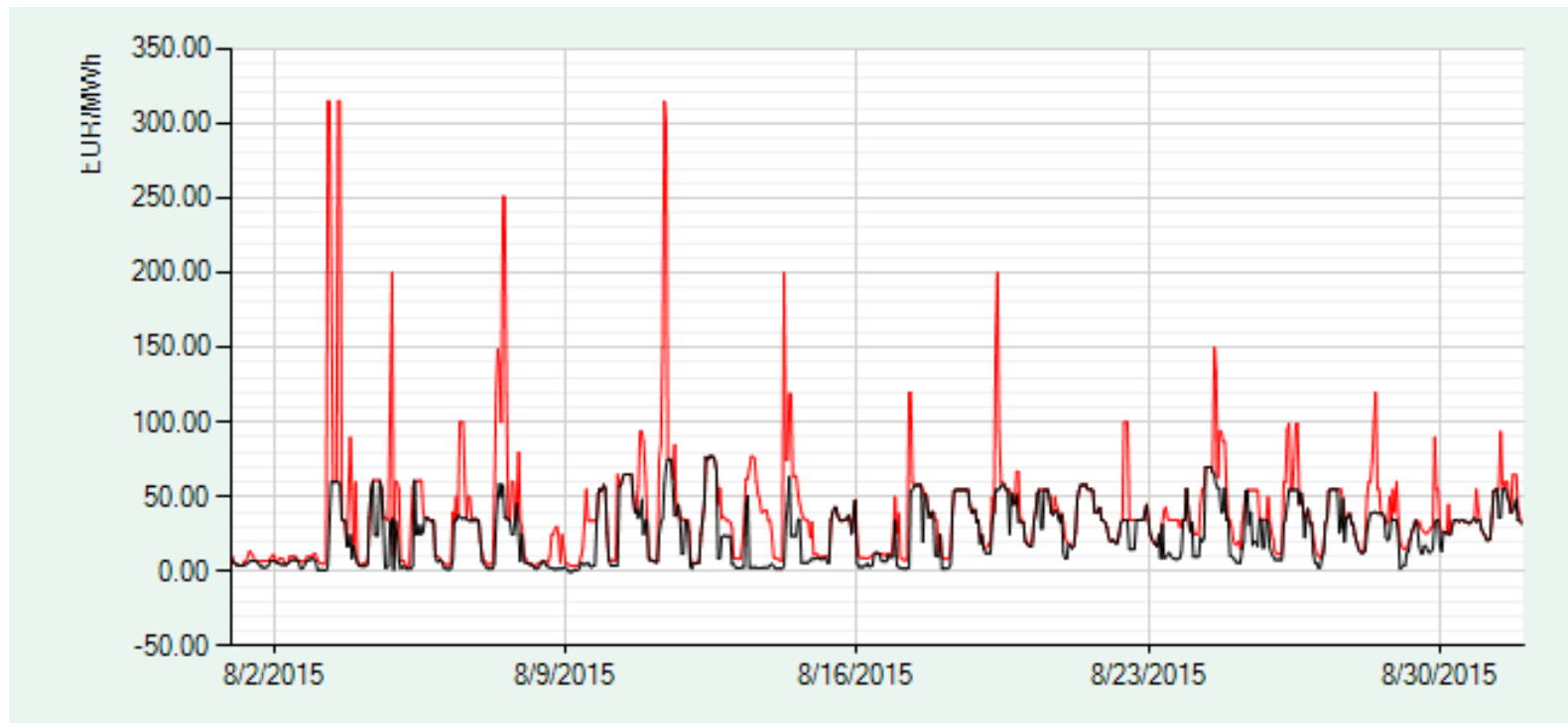
✦ Usually « **long** »
balancing gate closure
time and might be **need**
for RR, depending on
market responsibility

Or is nodal pricing better?



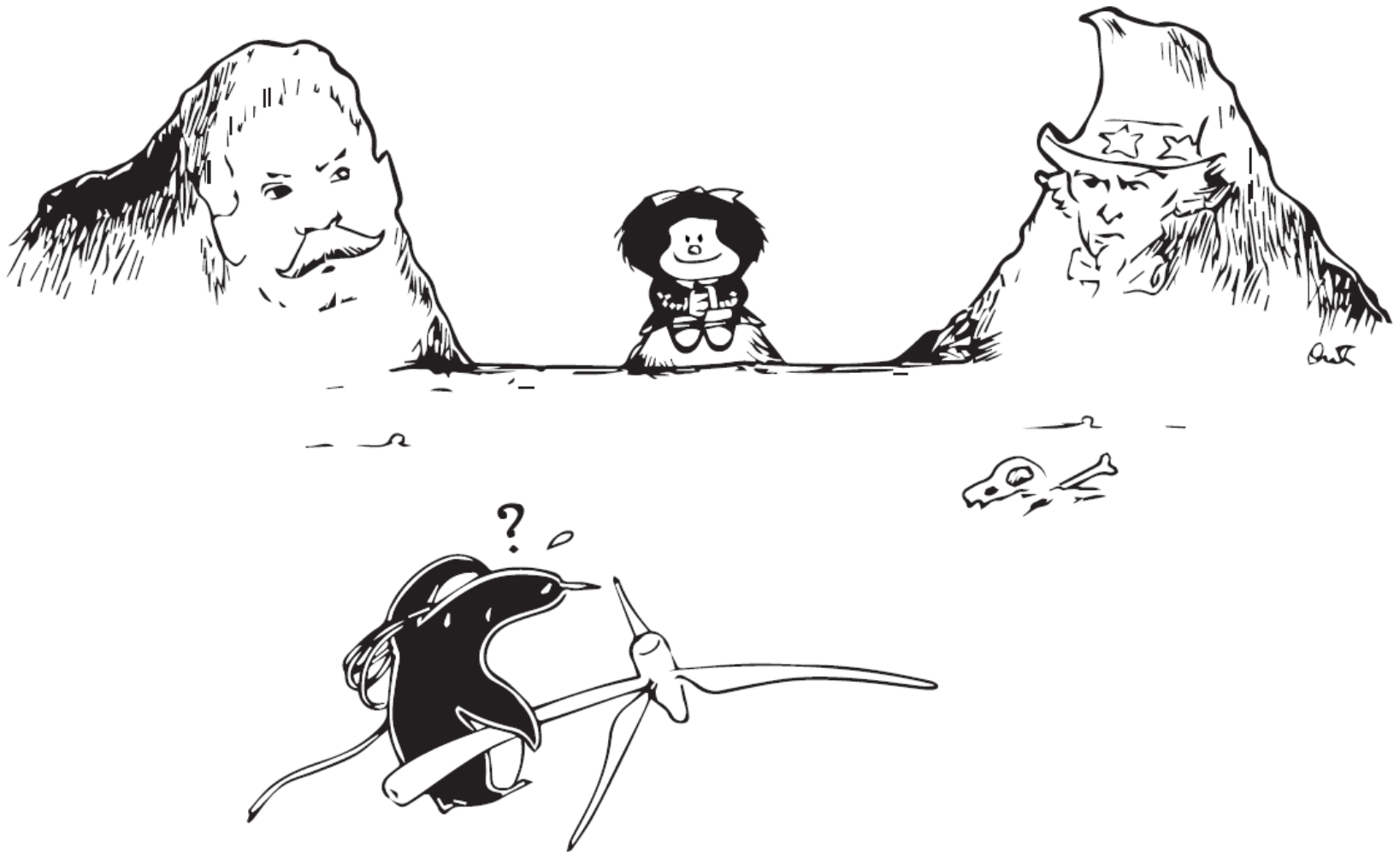
Short term price signals (Example: Finnish balancing power prices in August 2015)

— = upward regulation
— = downward regulation

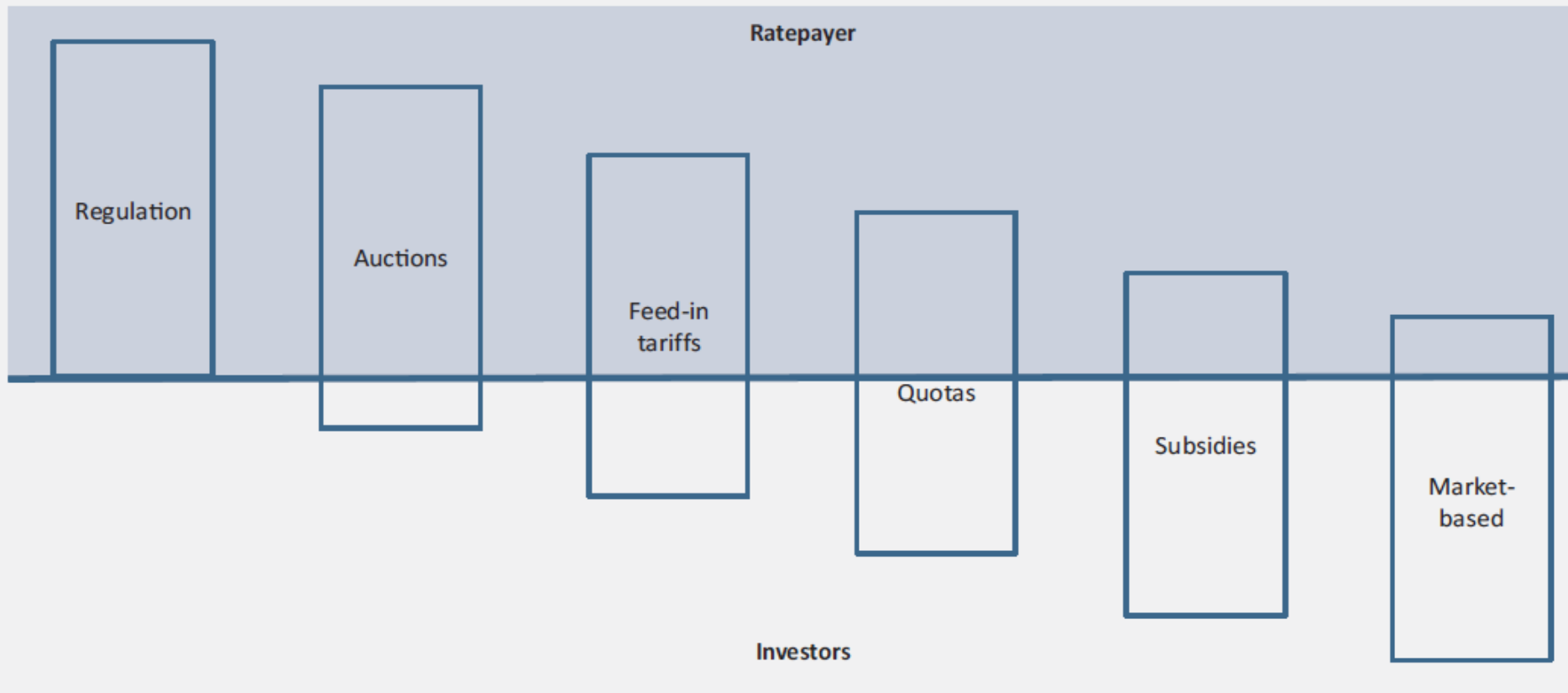


Source: Fingrid

Investments

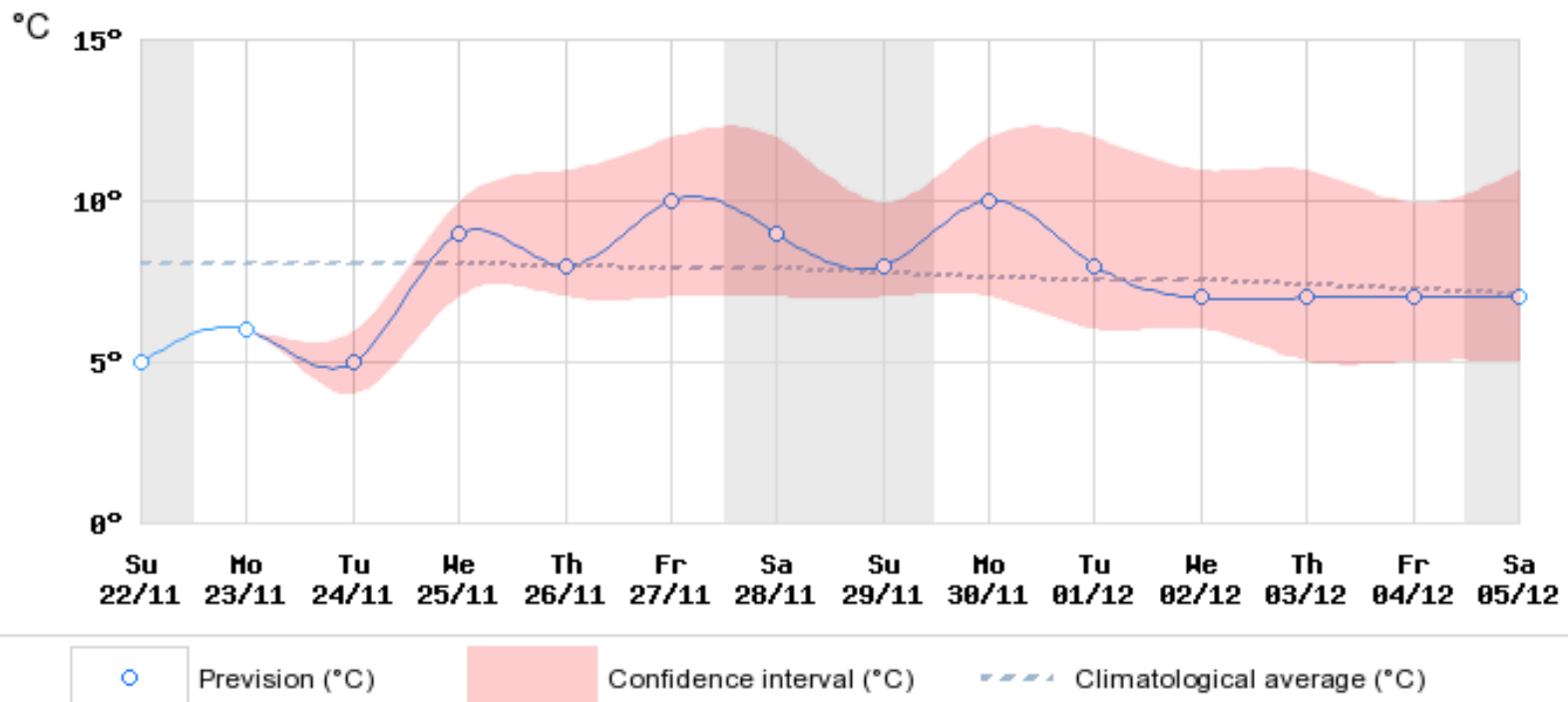


Who takes the risk?



Source: IEA Energy Technology Perspectives 2014

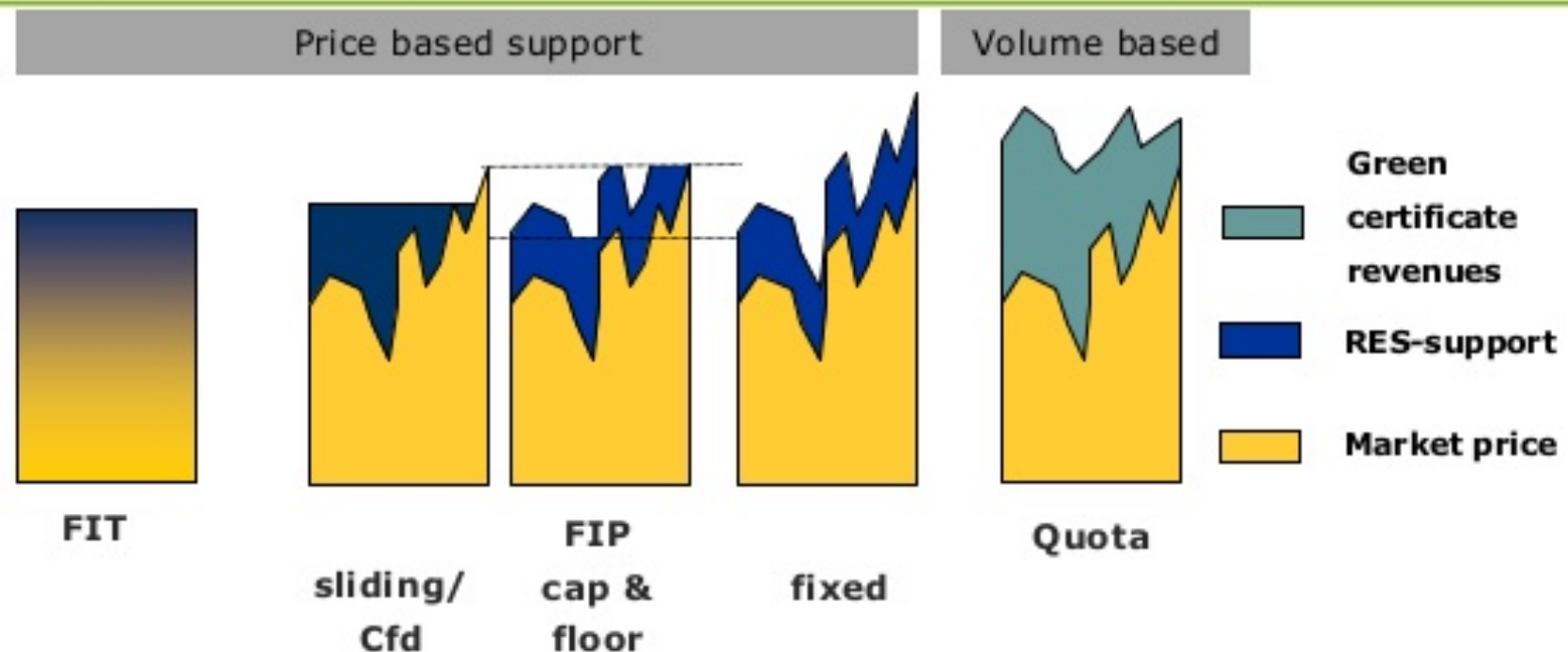
Influence of uncertainty



www.meteo.be

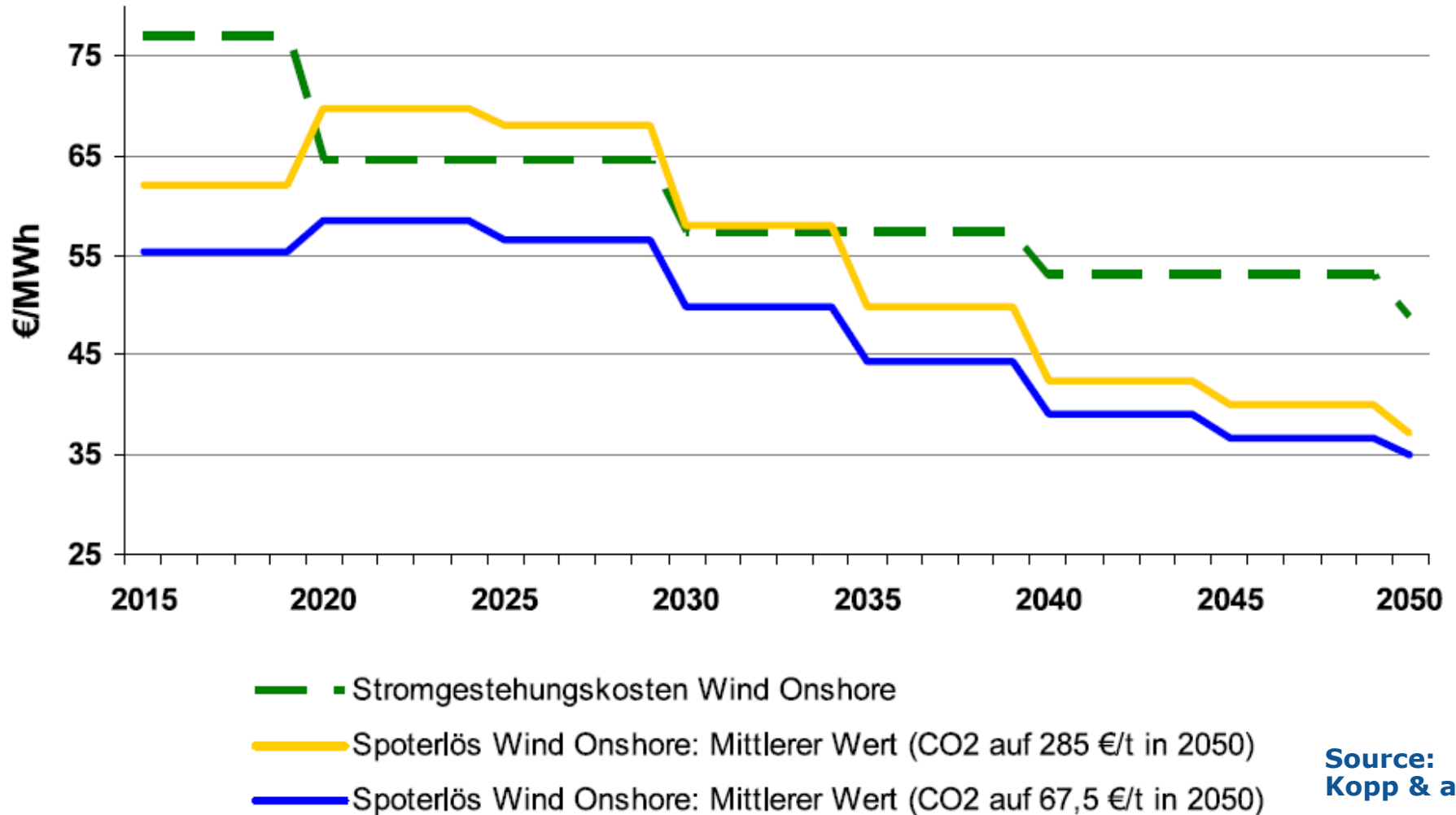
Source: KMI

The main support schemes expose RES-E producers to different levels of risk



Source: Ecofys

Revenues versus costs for wind power in Germany



Coordinated renewables support schemes

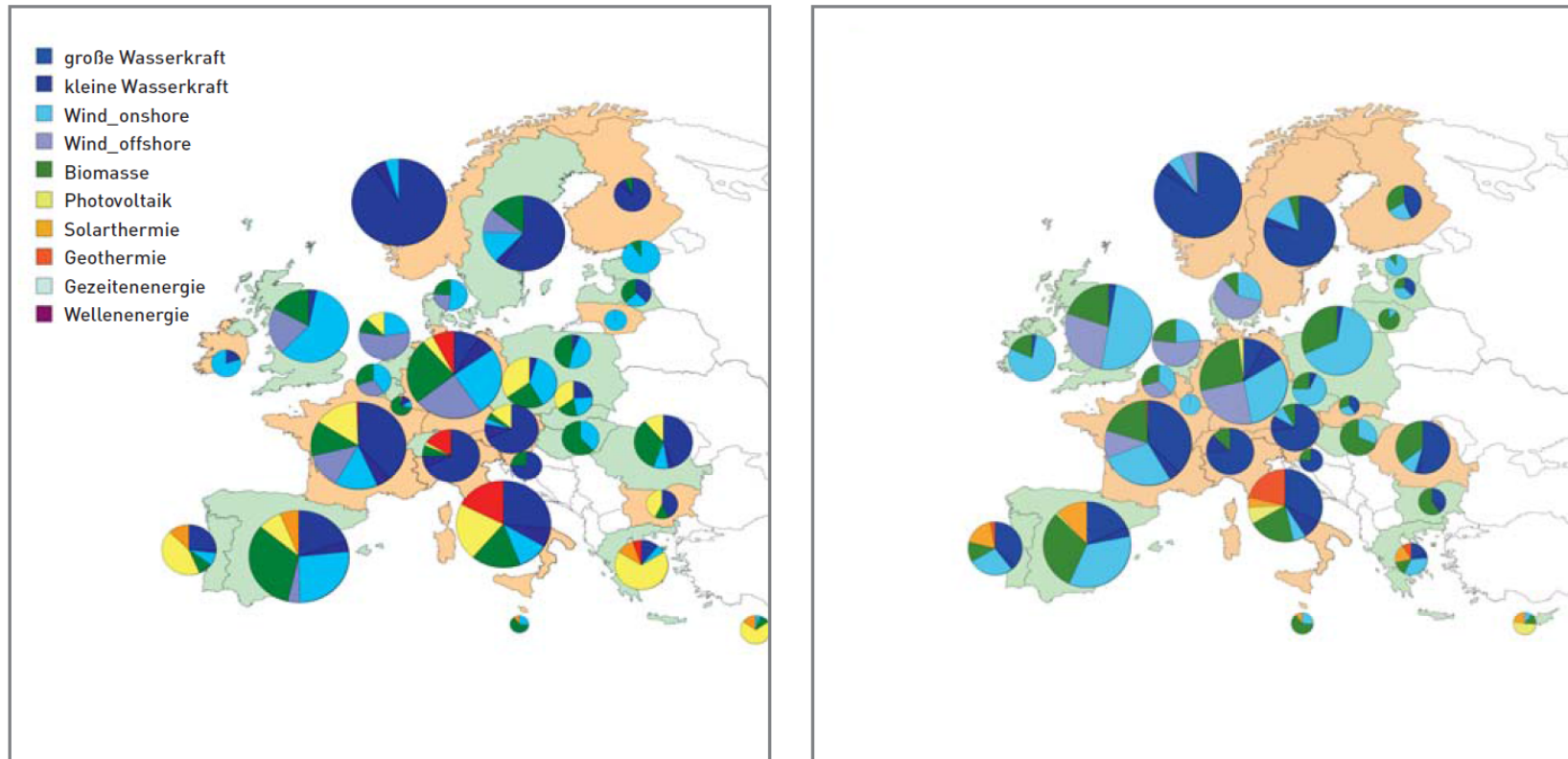


ABBILDUNG 4:

Verteilung des Zubaus erneuerbarer Energien im Business-as-usual Szenario (links) und des harmonisierten Quotensystems (rechts)

Source: EWI (2010)

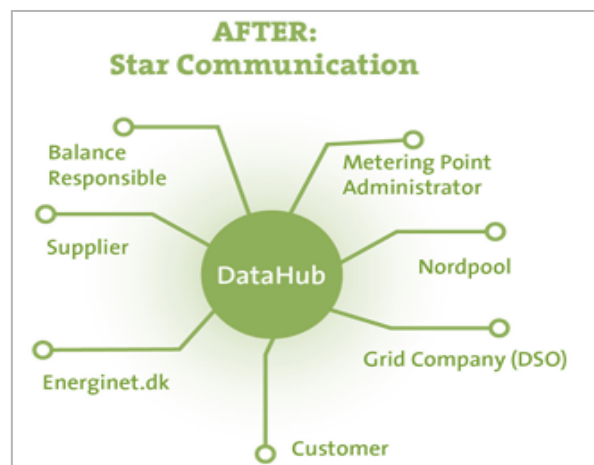
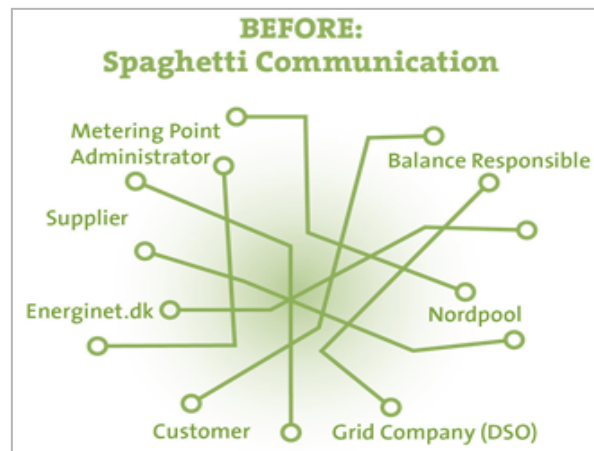
Smart meters and grids



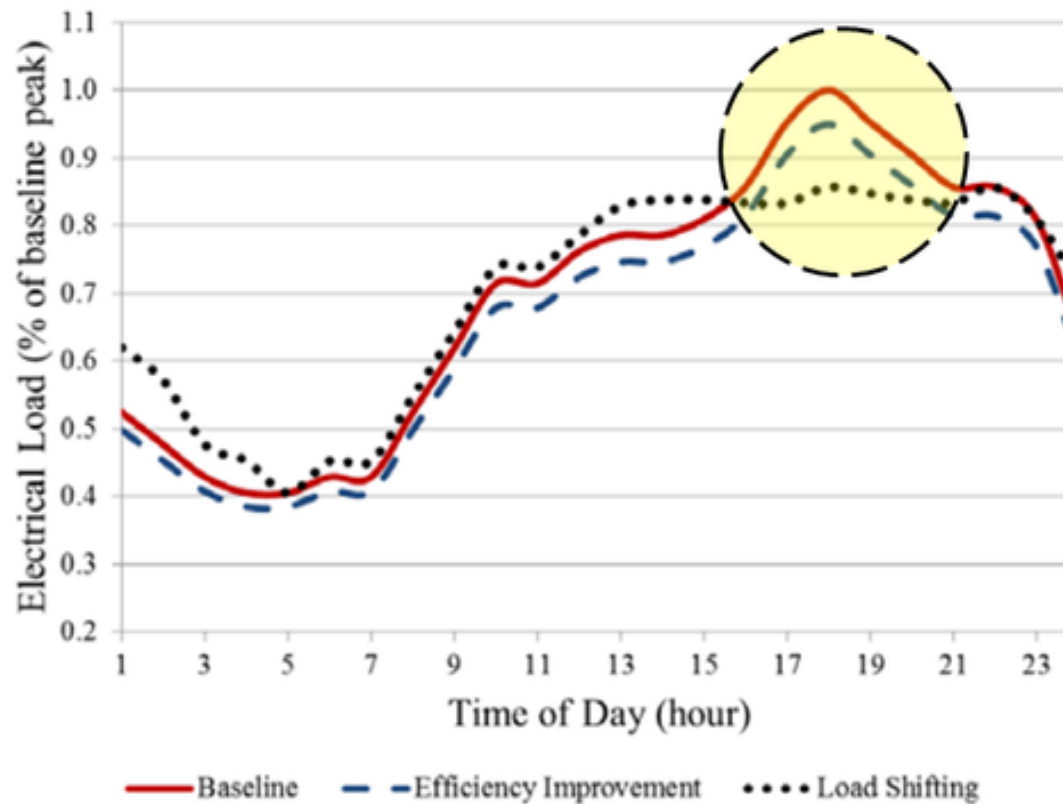
The Danish DataHub-solution

Datahub: The central register of all metering points in Denmark

- Lowers entry barriers for new suppliers: One point of entry at changes of supplier etc.
- Creates a level playing field for all suppliers: Functional unbundling of suppliers and DSO's
- Standardized and role based processes for registering and distributing market data per metering point
- Standardized aggregation processes on metered data to balance responsible etc.

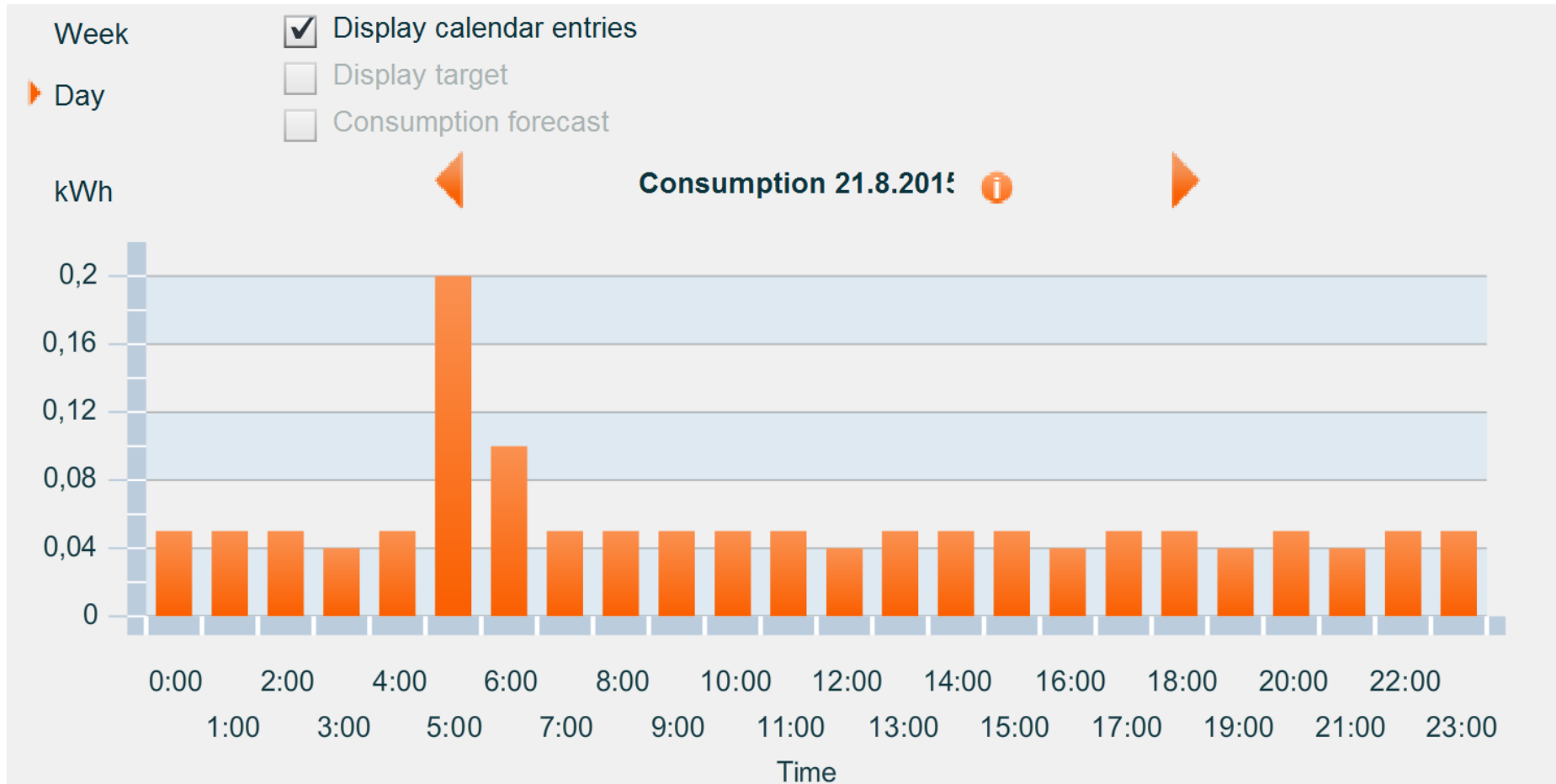


Load control = incentive based demand response



SOURCE: Quora

Price based demand response



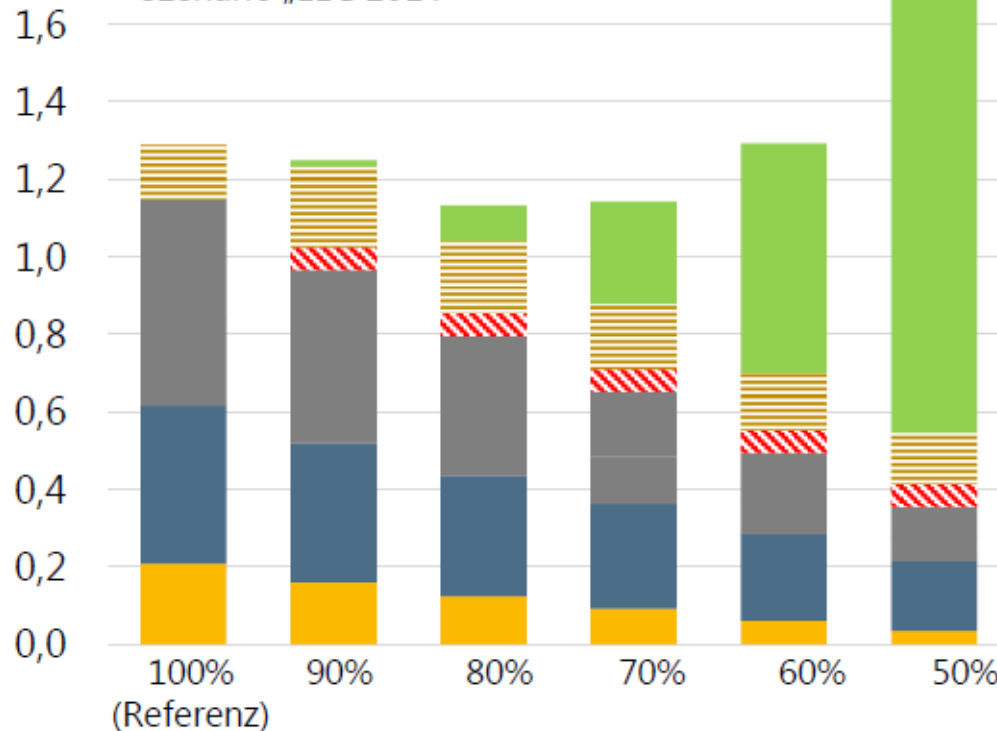
Source: Helen Sävel system

Curtailment of electricity infeed

Mrd. EUR p.a.

Durchschnittliche
jährliche Zusatzkosten bis 2032

Szenario „EEG 2014“



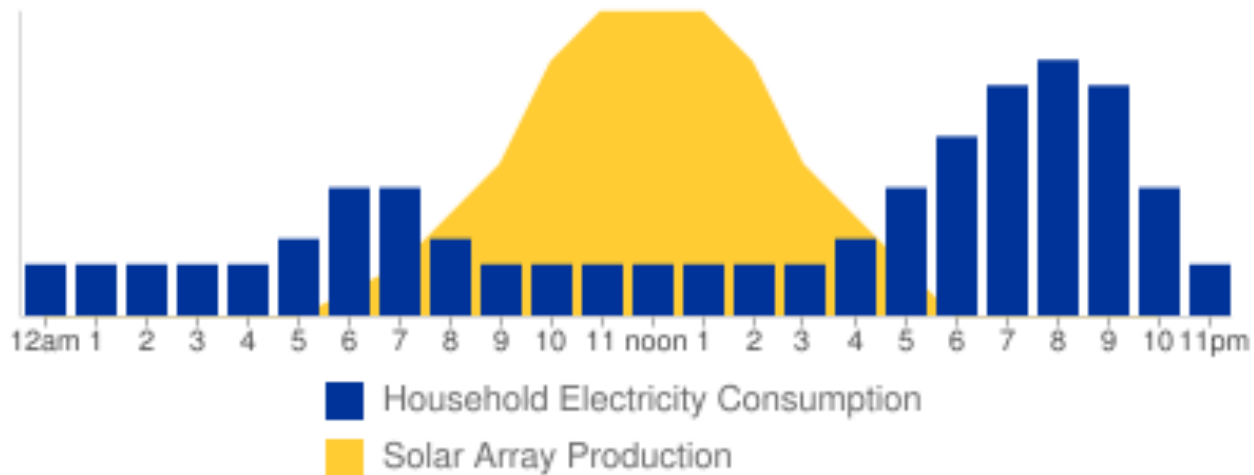
Maximale Einspeiseleistung bei Netzauslegung



Source: BMWi

DSO tariff reform

Daily Household Power Production and Consumption
(Home With Rooftop Solar PV)



TSOs' Regional Security Cooperation Initiatives

REGIONAL NETWORK SECURITY COOPERATION INITIATIVES

- Coreso
- TSC
- TSC + Coreso
- TSC + SSC
- Nordic
- Nordic + TSC
- MIBEL



Source: ENTSO-E

Regional TSO coordinators

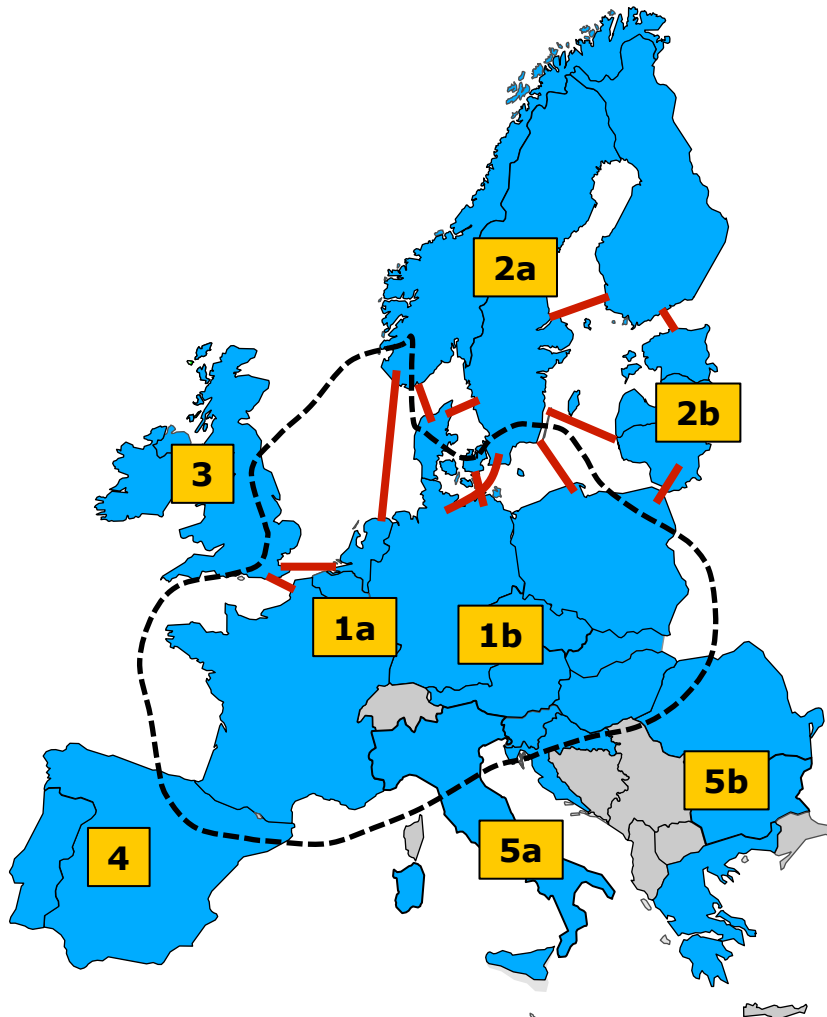
----- = Border between regional coordinators

1

= Regional Centre (RC)

2a

= Sub Centre of a Regional Centre



Functions

RCC

Regional capacity calculator

RSC

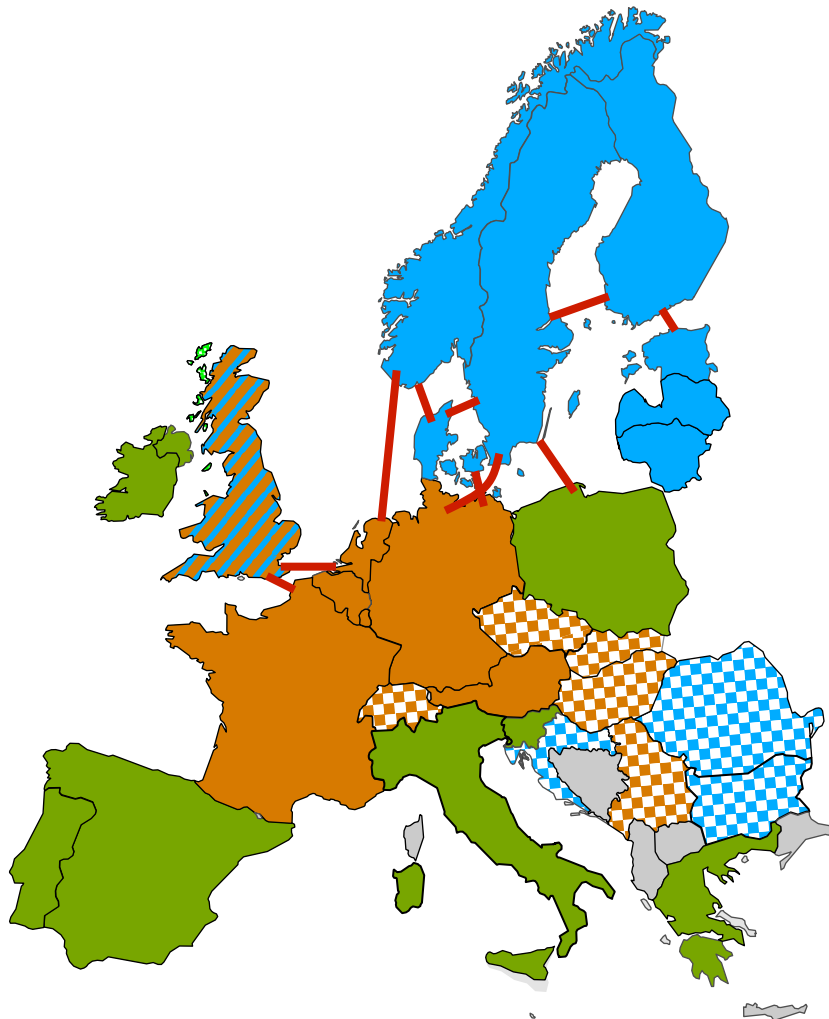
Regional security coordinator







RAC

Regional adequacy coordinator

+ RBC: Regional balancing coordinator
(responsible for common dimensioning,
procurement of automatic and manual
reserves, and development of secondary
markets)

European power exchange landscape in November 2015 (day-ahead spot markets)



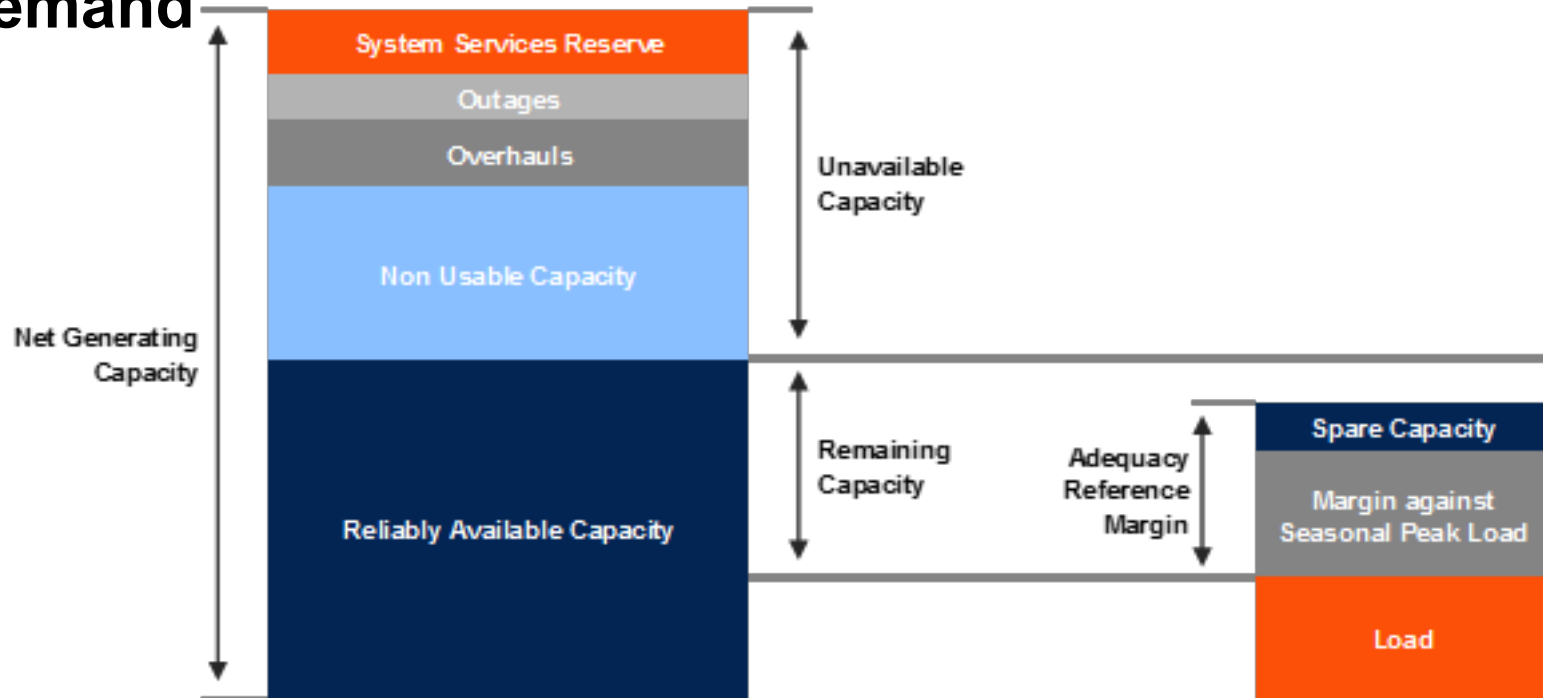
	Nord Pool Spot
	Nord Pool Spot influence
	EPEX Spot
	EPEX Spot Influence
	Own solution
	Competition Nord Pool Spot and EPEX Spot

Strengthening ACER



Definition and methodology

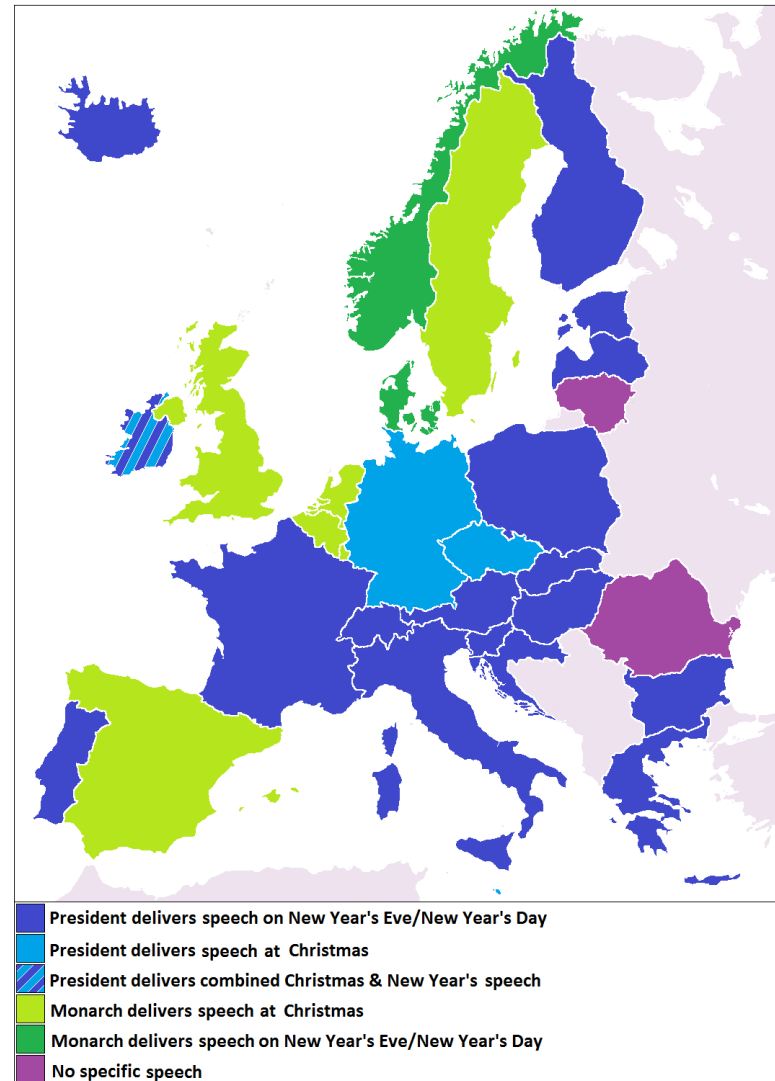
- **System adequacy = ability of a power system to supply demand**



- **Power balance = monthly assessment over the timeframe 2016-2020-2025**

Capacity mechanisms

Christmas and New Year's Addresses by European Heads of State

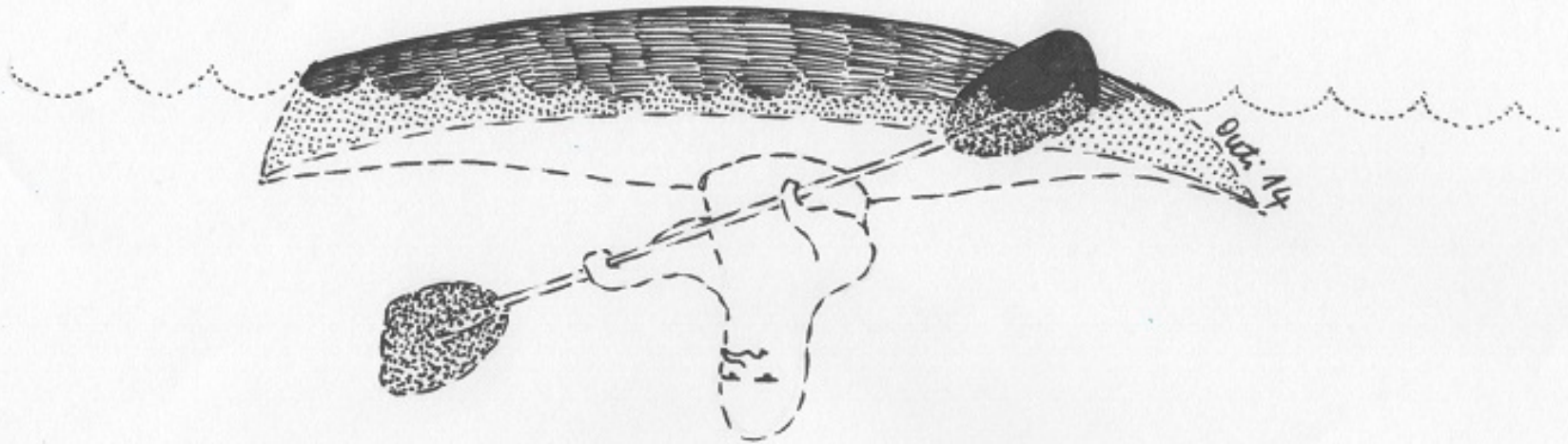


Market	Market design	Per gross electricity generated €/MWh	Committed capacity MW
Ireland	Capacity payment	20	7.000
Greece	Capacity payment	9	11.000
PJM	Capacity market	5.5	136.000
UK	Capacity market	5	49.000
UK	Strategic reserve	4	2.000
Spain	Capacity payment	2.7	25.000
Italy	Capacity payment	0.5	-
Finland	Strategic reserve	0.3	600
Norway	Strategic reserve	0.2	300
Sweden	Strategic reserve	0.1	2.000

SOURCE: Thema consulting

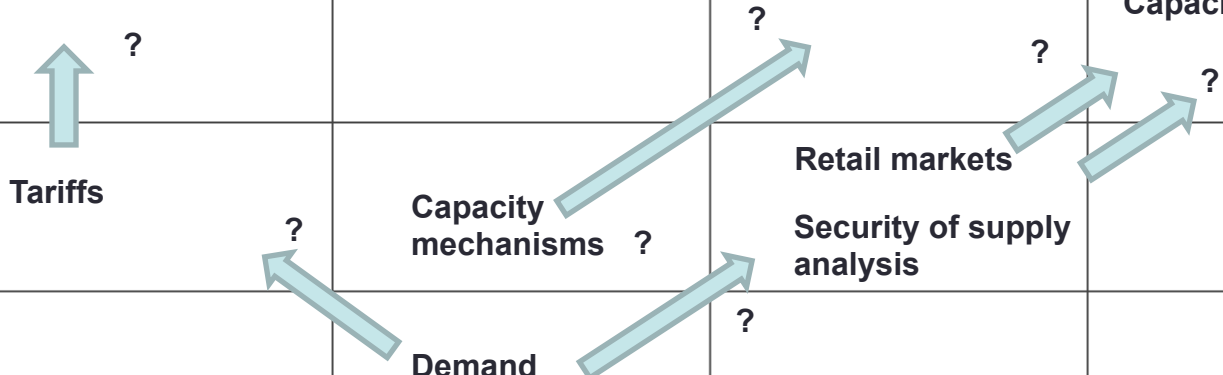


Reversibility of capacity mechanisms



Level of action

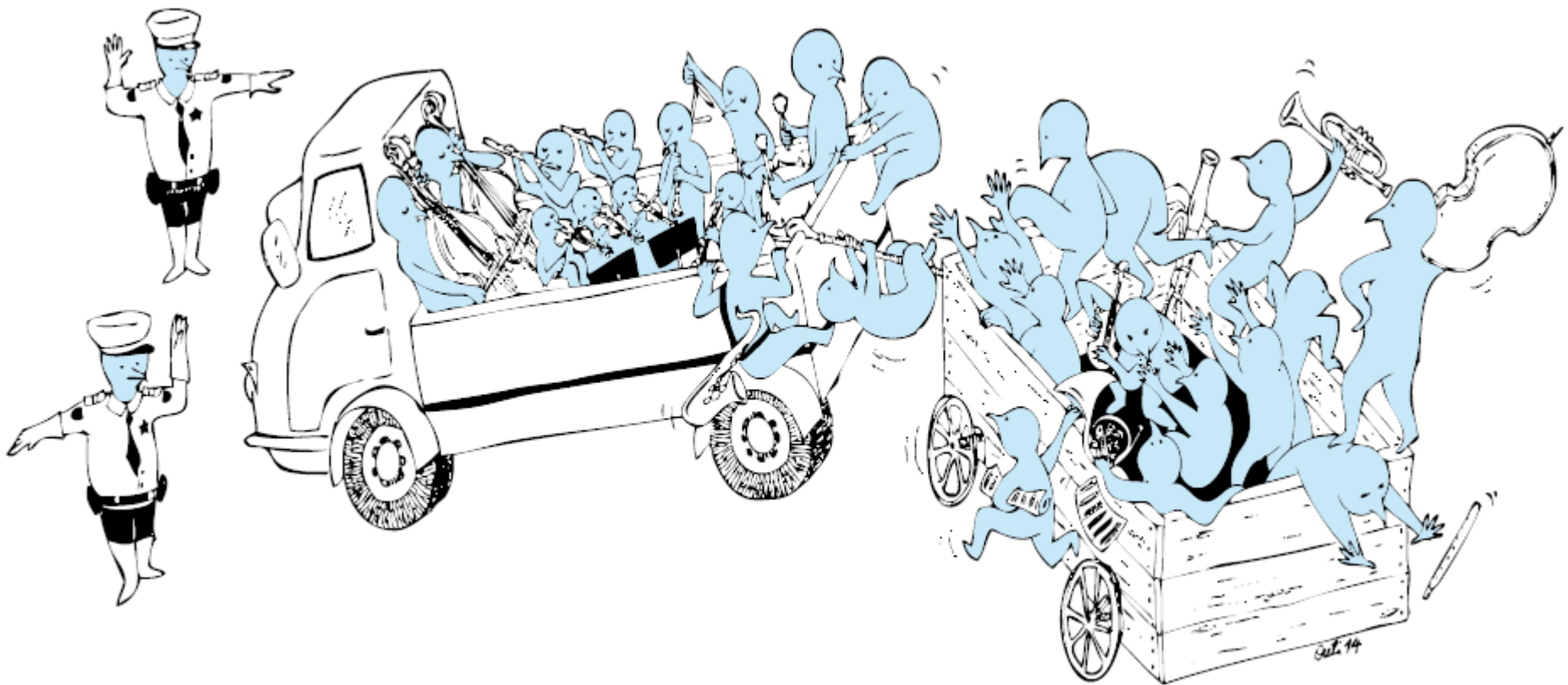
Geographic and regulatory dimension				
	Regulated	Semi-regulated	Semi market	Market
European				Day-ahead and intraday market coupling
Regional				Capacity calculation
National	Tariffs	Capacity mechanisms	Retail markets Security of supply analysis	Wholesale markets
Local		Demand response		



The diagram illustrates the following interactions:

- A vertical arrow points from **Tariffs** (National, Regulated) to the **Regional** level.
- A diagonal arrow points from **Capacity mechanisms** (National, Semi-regulated) to **Capacity calculation** (Regional, Market).
- A diagonal arrow points from **Capacity mechanisms** (National, Semi-regulated) to **Security of supply analysis** (National, Semi market).
- A diagonal arrow points from **Security of supply analysis** (National, Semi market) to **Wholesale markets** (National, Market).
- A diagonal arrow points from **Demand response** (Local, Semi-regulated) to **Capacity mechanisms** (National, Semi-regulated).
- A diagonal arrow points from **Demand response** (Local, Semi-regulated) to **Security of supply analysis** (National, Semi market).
- Question marks are placed in the **Regional** and **National** rows across the **Regulated**, **Semi-regulated**, and **Semi market** columns, as well as in the **Market** column for the **Regional** and **National** rows.

Legislative process



Future market design legislative proposals?

- Enhanced and more integrated intraday and balancing markets with deployment of short term price signals and demand response.
- Renewable support and operation more market based, with interaction between national schemes.
- Sorting out roles in distribution, supply and services, imposing collection and access to data, discussion on tariffs.
- Capacity remuneration mechanism guidance with regional adequacy analysis, adequacy standard and cross border participation.
- TSOs to cooperate more, oversight by ACER.
- More: power exchanges' governance, retail stuff, interconnectors, price zones, , and .





Thank you for your

Attention!

Electricity network codes and guidelines adoption timetable 2015 (indicative)

	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Capacity allocation Congestion management	Voted		Scrutiny					Adopted	Implementation				
Forward capacity allocation		Update text					Committee and Translation			Voted		Scrutiny	
Requirements for generators			Committee and Translation				Voted					Scrutiny	
High voltage direct current connection					Committee and Translation					Voted		Scrutiny	
Demand connection											Voted		Scrutiny
System operation		Redrafting and Combining										Committee	
Balancing										Update text			
Emergency and restoration										Update text			

Electricity network codes and guidelines adoption timetable 2016 (indicative)

	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Capacity allocation Congestion management	Implementation												
Forward capacity allocation		Scrutiny					Adopted	Implementation					
Requirements for generators	Scrutiny			Adopted	Implementation								
High voltage direct current connection	Scrutiny				Adopted	Implementation							
Demand connection	Scrutiny					Adopted	Implementation						
System operation	Committee and Tr.		Voted		Scrutiny					Adopted	Implementation		
Balancing	Update text and impact assessment									Committee and Translation			Voted
Emergency and restoration	Update text and impact assessment									Committee and Translation			Voted

European Electricity Rules

