SEERMAP

South-East Europe Electricity Roadmap

Market design – What changes the winter package brings?

László Szabó

Sofia RES workshop

17-19 January 2017

REKK FOUNDATION

Overview

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- SEERMAP project introduction
- Agenda of the RES training
- Winter package: proposed changes in Market Design:
  - Wholesale electricity markets
  - Capacity mechanisms
  - Retail market changes

Basic SEERMAP project data

Project title	South East European Electricity Roadmap	
Country/region of implementation	Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, Macedonia, Serbia, Romania, Bulgaria, Greece	
Project cycle:	July 2016	June 2017
Donors:	Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management	MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH
	European Climate Foundation	European Climate Foundation
Web:	www.seermap.rekk.hu	

Goals of the project

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Modelling

- Analyse the impact of the transition to a low carbon and energy secure pathway the electricity sector until 2050 in line with EU 2050 Roadmap (*Long Term Electricity Roadmap for the SEE region*) that highlights the potential synergies beyond the limited confines of national assessments
- Application of state of the art energy sector models of the participating consortia partners (electricity and gas sector market models of REKK, Green-X of Technical University of Vienna and the regional electricity network model of EKC)

Dialogue and capacity building

- Effectively distribute the findings of this roadmap to the high level decision-makers in the energy administration of the countries
- Build up capacities – in the form of training courses - amongst policy makers, TSO members, energy regulators and local think tanks in the field of renewable energy deployment and transmission network planning issues
- Build up a network of regional think tanks capable of contributing to the debate on the long term decarbonisation pathways in the SEE region
- Trigger discussions on electricity scenarios at a national level

Consortia and Local Partners

Consortium partners	Task
Regional Centre for Energy Policy Research (REKK) Budapest, Hungary	Overall coordination, electricity and gas sector modelling
Technical University (TU Wien) Vienna, Austria	Renewable deployment modelling with GREEN-X model
Electricity Coordinating Centre (EKC) Belgrade, Serbia	Network modelling
OG Research (Czech Republic)	Macroeconomic assessment
Energy Regulators Regional Association (ERRA)	Trainings

Country	Local partner organisation
Serbia	RES Foundation
Albania	POLIS University
Macedonia	MACEF – Macedonian Center for Energy Efficiency
Montenegro	IPER - Institute for Entrepreneurship and Economic Development
Kosovo*	INDEP – Institute for Development Policy
Bosnia	Enova
Romania	Energy Policy Group
Bulgaria	Center for Democracy
Greece	FACETS

Agenda of the course

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	Day 1: RES challenges		Day 2: Auction design		Day 3: RES modelling issues
9.00-9.30 **9.30-10.30**	Introduction to the workshop Implications of EU Winter package on RES-E (L. Szabó - REKK)	**9.00-10.30**	Tendering – lessons learnt in the European RES auction schemes, (G. Resch –TUV)	**8.30-10.00**	Electricity market modelling in SEERMAP: -The EEEM model (A. Mezősi -REKK) - Scenario design and main assumptions in SEERMAP (L. Szabó-REKK)
	Coffee break		Coffee break		Coffee break
11.00-12.30	Implications of EU Winter package on RES-E (Zs. Pató - REKK)	**11.00-12.30**	**Country presentations 1:** Introductions to national RES-E support schemes/plans and long term energy vision (2 countries: RO, GR) (Moderator: L. Szabo - REKK)	**10.30-12.00**	-The GREEN-X model: – RES potential in the SEE to be used in GREEN-X in the SEERMAP project (G. Resch/L . Liebmann -TUV)
	Lunch break		Lunch break		Lunch break
13.30-15.00	- Benefits of market integration on RES-E deployment (Ch. Redl - Agora)	**13.30-15.00**	**Country presentations 2:** Introductions to national RES-E support schemes/plans and long term energy vision (2 countries: BG, TR) (Moderator: G. Resch - TUV)	**12.45-14.15**	Closing of Workshop
	Coffee break		Coffee break		
15.30-17.00	**Exercise 1:** Where to invest in electricity generation in the in the future? Investment game (P.Kotek-REKK)	**15.30-17.00**	**Exercise 2**: At what level RES technologies break even? LCOE calculation of wind generators (P. Kotek - REKK)	**14.30-16.00**	
19.00-	Joint dinner	**19.00-**			

EU Winter Package

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The 2016 November EU winter package, motivated by:

- Commission wants the EU to lead the clean energy transition
- Cut CO2 emissions by at least 40% by 2030
- Modernise the EU's economy and delivering on jobs and growth

The three main goals:

- putting energy efficiency in focus,
- achieving global leadership in renewable energies
- empower consumers in electricity markets

What the Package proposes to change?

- Empowering consumers (information, easy switch, become prosumer.)
- Job creation through increased investments in new and innovative technologies
- Reduce energy poverty
- Renewables and bioenergy sustainability
- Enforce energy efficiency
- Energy efficient buildings
- Improve energy markets:
  - At both wholesale level (price formation…)
  - And at retail levels
  - Increase connectivity
  - Regulate capacity mechanisms
- Governance
- And also: Ecodesign, Funding, Innovation and Transport

The main challenges

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Higher RES-E penetration results in higher **volatility** (in quantities and in prices):

- Need for more flexible markets, but still ensure security of supply

Competition must be further enhanced:

- More competitive price formation
- Trade flows to reflect more market rules

Change in **consumer**'s roles:

- High shares of prosumers
- New technologies change market and market rules: smart grids, metering, storage

Price formation 1

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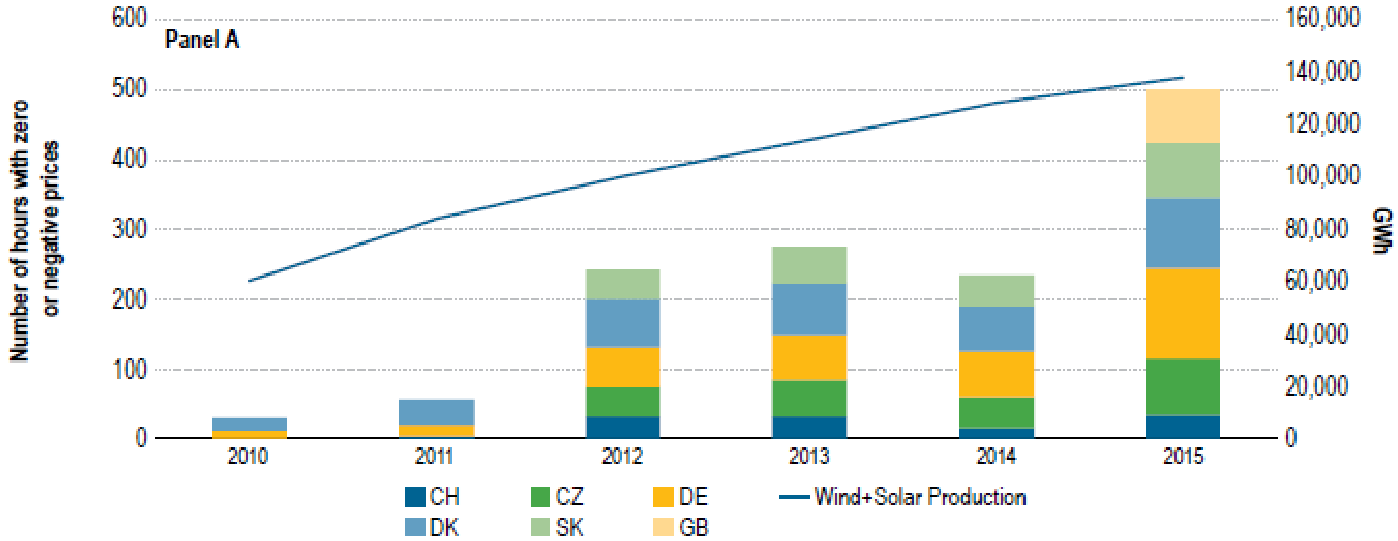
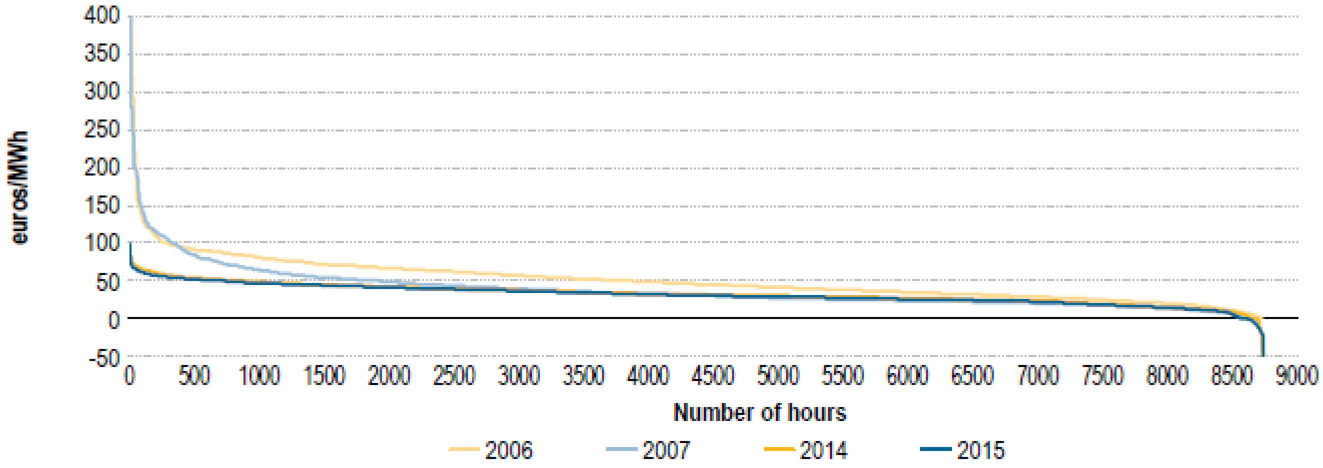


Price Duration Curve, DE:



Source: ACER MMR 2015

Price formation 2

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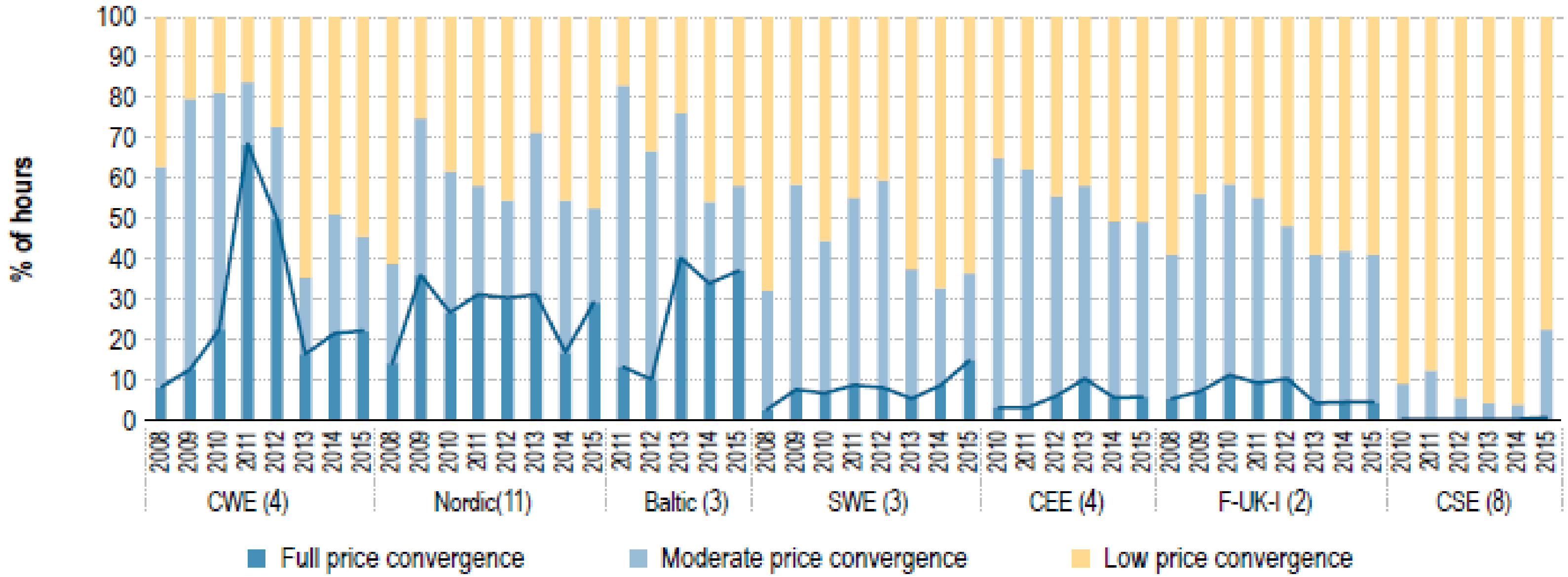
Price convergence in EU markets



- Decreasing or stagnating price convergence process
- High geographical differences

Source: ACER MMR 2015

Increasing interconnectivity? (1)

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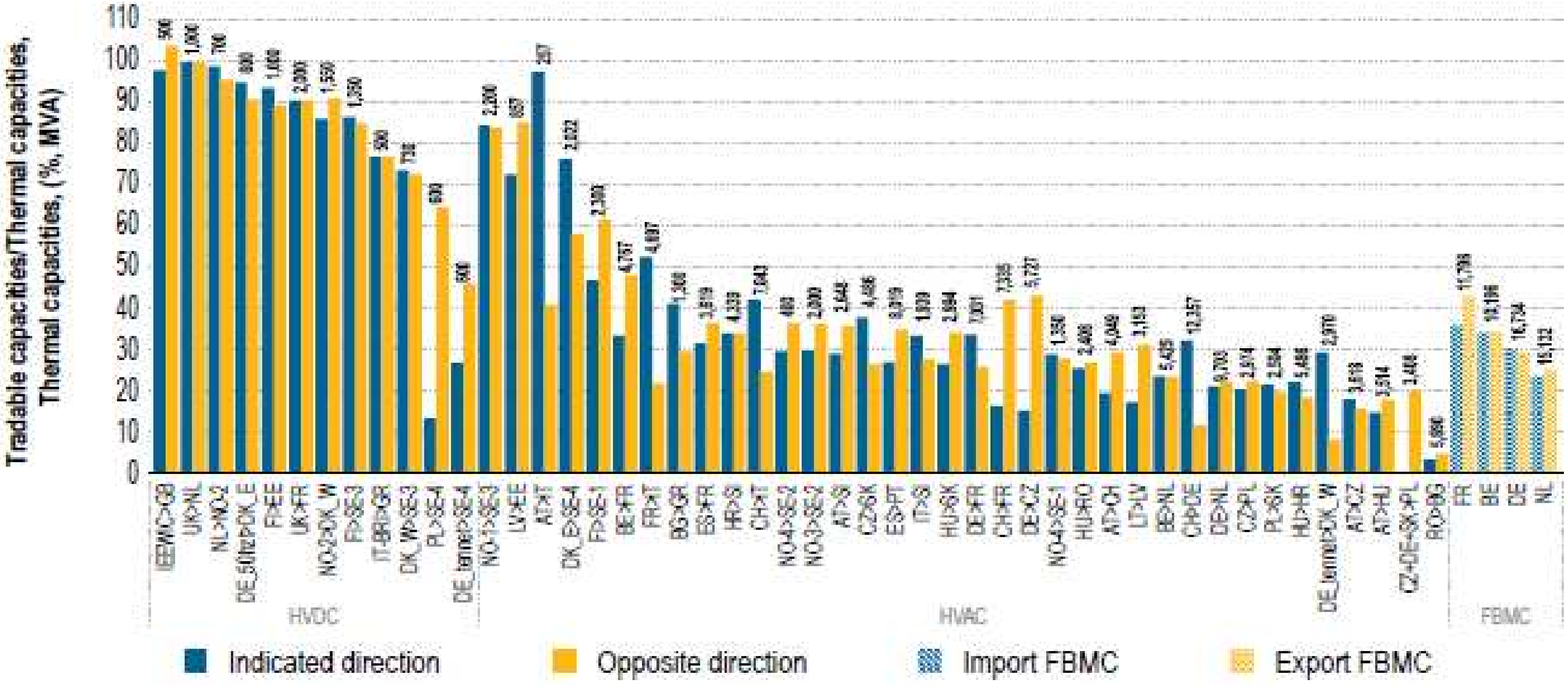
Ratio of NTC versus thermal capacity



- High differences in thermal capacity and NTC
- High regional differences

Source: ACER MMR 2015

Increasing interconnectivity? (2)

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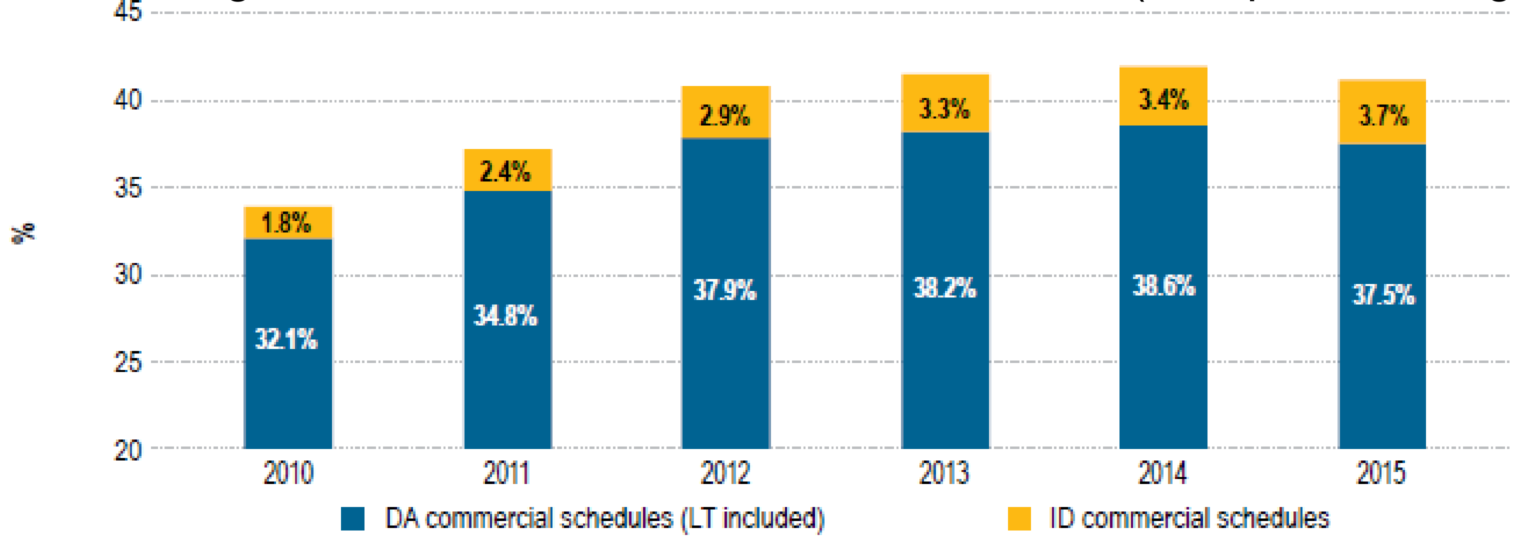
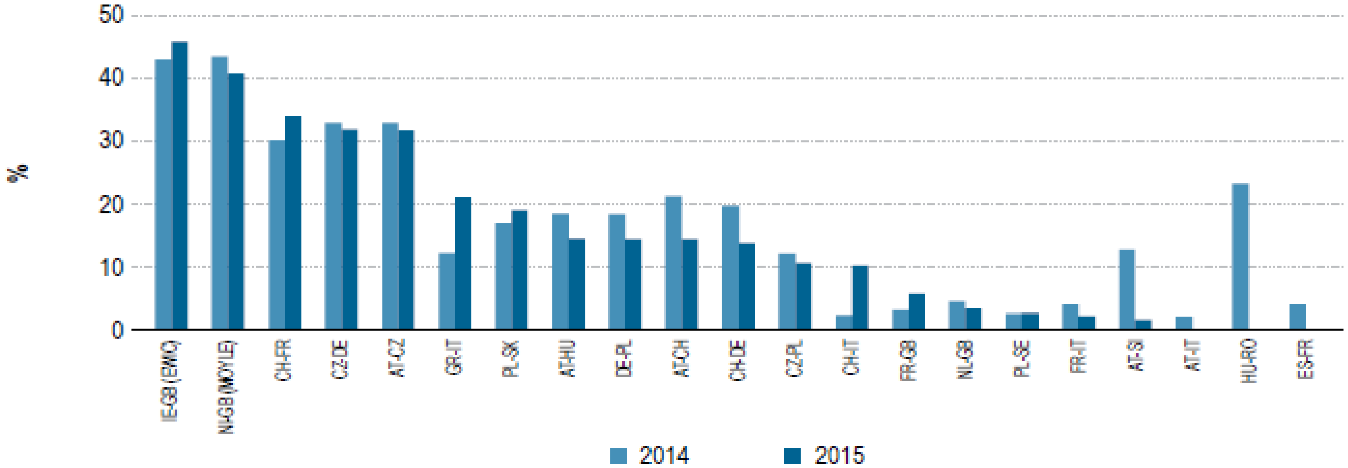
Average annual level of commercial use of NTC (European average)



Nomination against price differentials at border %



Source: ACER MMR 2015

Proposed improvements in market design

Wholesale markets – legal steps

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Which acts will be changed?

- Electricity Directive of the internal electricity market.
- Electricity Regulation of the internal electricity markets.
- Also revise Regulation on ACER.
- Propose new Regulation on Risk Preparedness.

Target entry date: 1st January 2020

- Gives 3 years to complete the legislative process and elaborate the detailed rules

Wholesale markets 1

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- Remove price caps:
  - Maximum value at VOLL
  - Minimum value at -2000 Euro
- Harmonisation of network tariff setting rules
- Removal of price regulation – vulnerable consumers must be protected with other tools – but derogations are possible
- Remove priority dispatch for bigger (RES) capacities (over 0.5 MW) – provide level playing field for all technologies, also all technologies will be responsible for their imbalances
- Exceptions:
  - Demonstration projects
  - Below 500 kW capacity, after 2026: under 250 kW capacity

Wholesale markets 3

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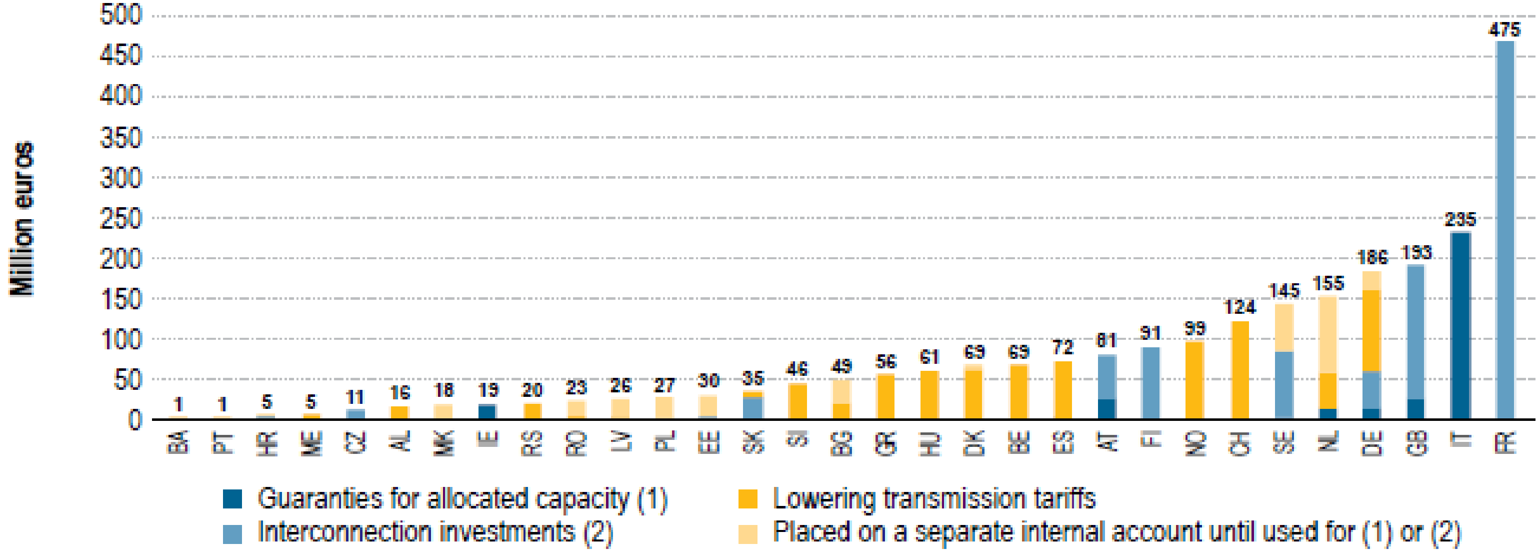
- Reduction of network bottlenecks – reinvest congestion rents to network investments
  - Only implicit or explicit auctions are allowed
  - Congestion rents must e reinvest to network

Use of congestion rent (2015)



Source: ACER MMR 2015

Regional Operational Centres

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- ROCs must be established within 1 year after entry to force
- Roles:
  - Coordinate capacity calculations
  - Coordinate security analysis, restoration plans
  - Regional sizing of reserve capacities
  - Facilitate regional procurement of balancing…
  - Outage planning
  - Optimisation of compensation mechanisms
  - …
- Will it help to speed up the otherwise very lengthy procedures?

Capacity Mechanisms

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- ENTSO-E carries out a European Resource Adequacy Assessment
- MS can only apply capacity mechanism – if:
    - It is non-discriminatory, does not limit cross-border trade
    - It was consulted with neighbours
    - If the EU Resource Adequacy Assessment does not indicates adequacy problems – no capacity mechanism can be applied
    - Must be open to non-domestic capacities!
- No fossil plant with emission over 550 gCo2/kWh can get capacity payment – no coal plant without CCS (5 years derogation after entry to force)

What will be the future of existing CMs?

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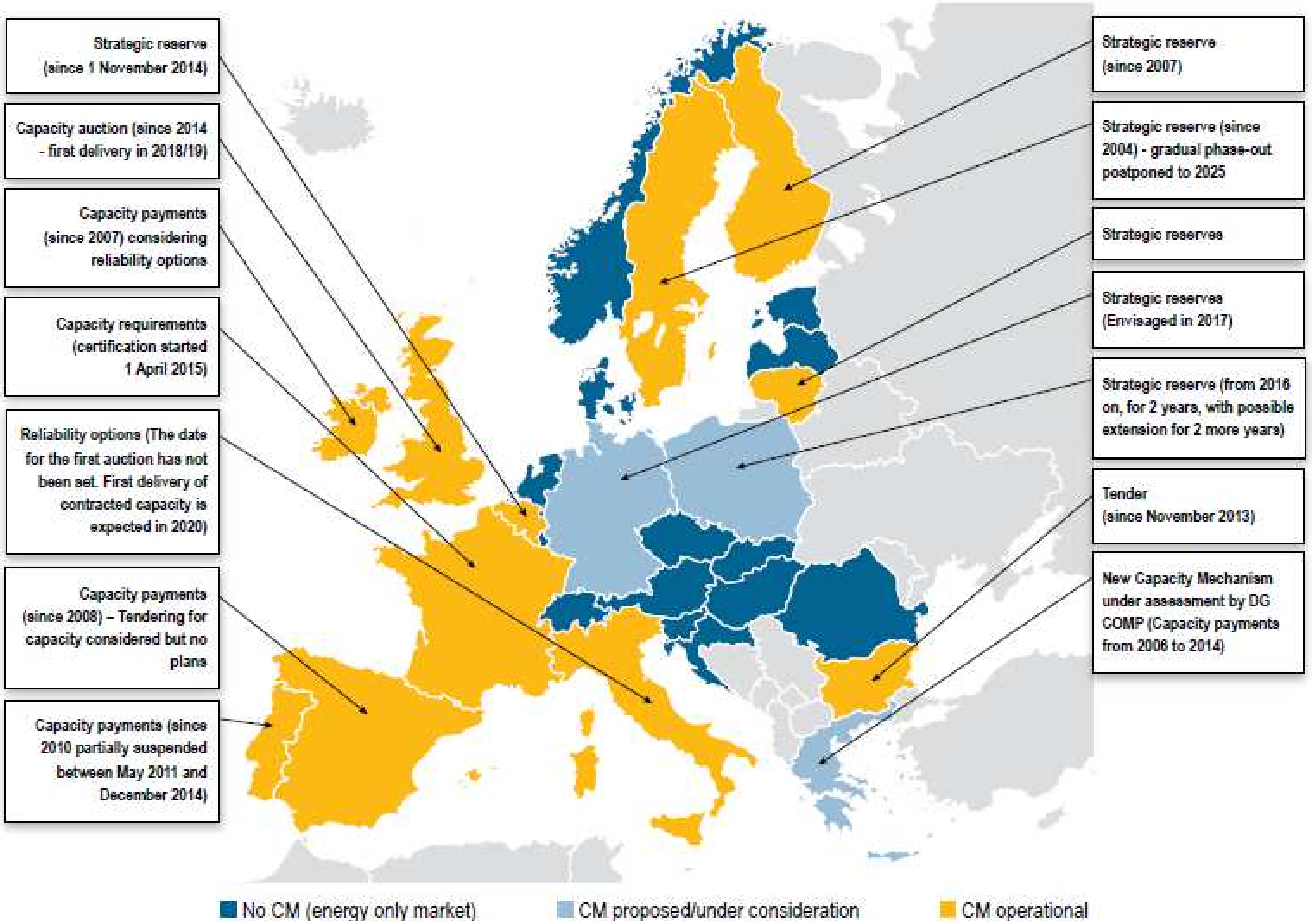

After 2020 – existing CMs must adapt to the new Regulation!

Retail markets

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Focus on the empowerment of consumers:

- Access to information
- Right to dynamic price contract – also right to smart meters
- Right to barrier free switch
- Right to offer demand response
- Contracting right with aggregator, who enjoys similar right as consumer
- Rights of setting up local energy communities – that can operate under fair, cost reflective charges

Retail markets 2

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- All these changes in consumer rights will put higher focus on DSO operation, which will get new tasks:
  - They will become responsible not only for their core activity (grid operation – monopoly activity) but for some competitive ones.
  - Become responsible for system flexibility
  - They will be able to use flexibility services. E.g. they will be eligible to use and own storage facilities (under certain conditions)
  - They will use energy efficiency measures to improve operations on their territories
  - DSO entity will also be created
- In summary: DSO will be more incentivise to actively participate in providing flexibility to the market core-not core

Does it answer the core challenges?

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- Overcapacity vs RES?
- CMs versus energy only markets?
- Long term contracts vs tendering FIPs?

What is a good strategy in an environment of overcapacities and increasing RES deployment?

- CMs vs higher competition?

- Improve flexibility and responsiveness of the electricity markets, but…
  - High number of Institutional measures
    - New functions of ENTSO-E, ACER, ROCs, DSO entity, aggregators, local energy communities ….
  - Hard measures – more limited number:
    - Capacity mechanisms – exclusion of coal, hard constraints
    - No priority dispatch to RES
    - DSO incentives
  - Soft measures – high number:
    - E.g. on consumer empowerment
    - On price formation

Could drive markets to quite many directions

Thank you for your attention!

laszlo.szabo@rekk.hu