Capacity mechanisms: State aid case practice since the sector inquiry

Matt WIECKOWSKI
DG Competition
30 April 2019

Role of DG Competition

- Member States increasingly rely on measures to ensure security of supply that pay capacity (mostly generators) for remaining available to the system: known as 'capacity mechanisms'

- DG COMP takes an interest in these measures, because they can constitute State aid and can have a distortive effect on the Internal Energy Market, particularly when badly designed and uncoordinated

Since July 2014

Energy and Environmental Aid Guidelines ('EEAG')

Specific rules for capacity mechanisms

April 2015 – Nov 2016

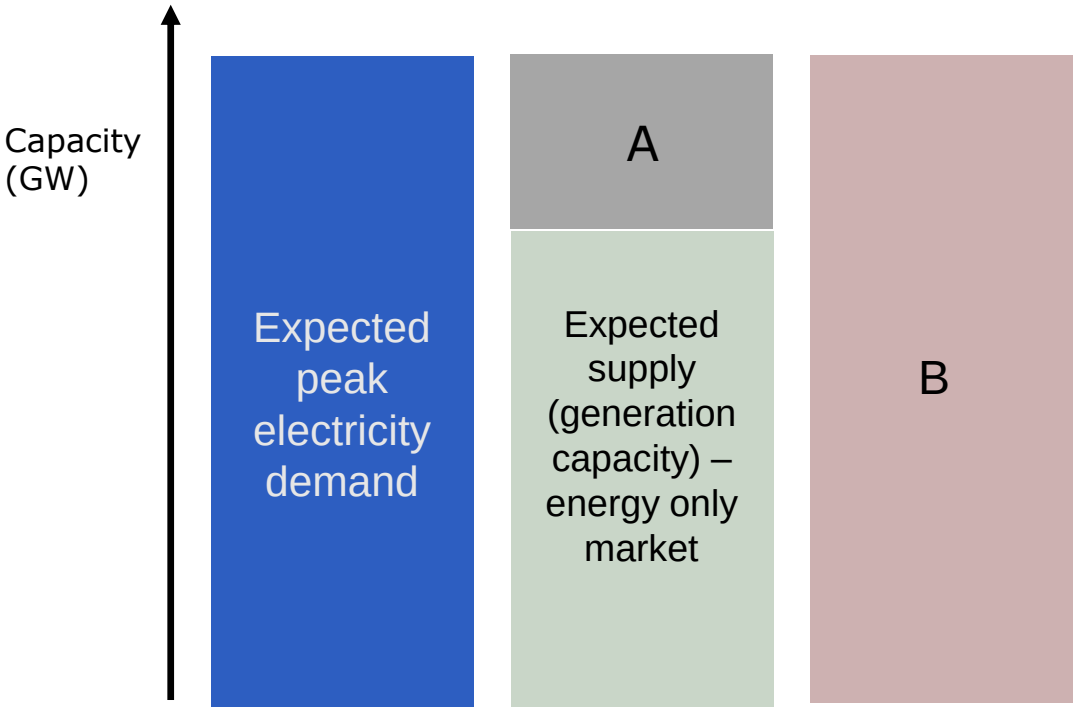
Sector Inquiry to identify the situation regarding State aid through capacity mechanisms

Contents

What did we find?

Inquiry concluded Nov 2016: 35 mechanisms identified in 11 Member States

Targeted / market wide mechanisms:

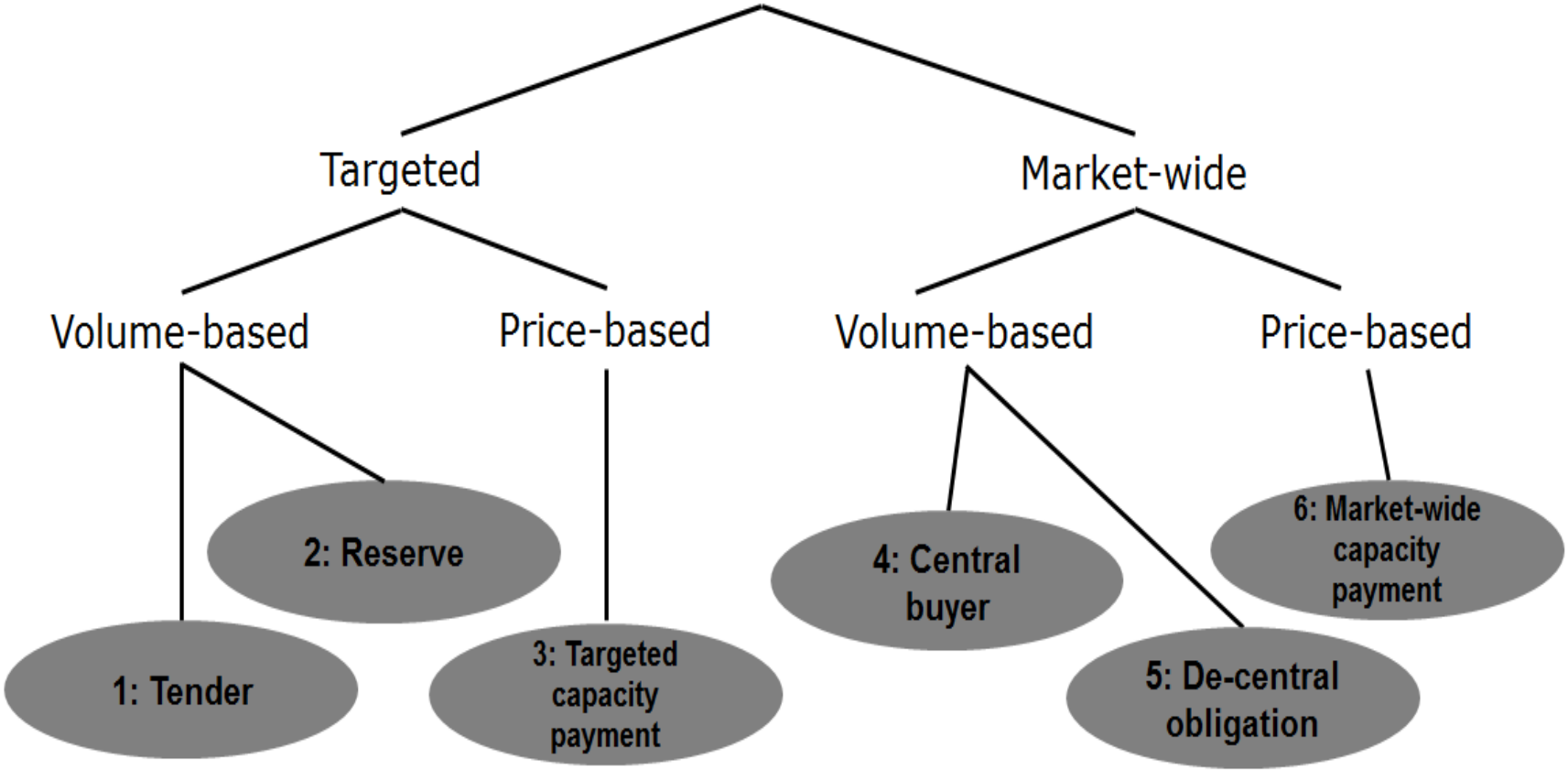


A: Amount of capacity paid / contracted in a targeted capacity mechanism

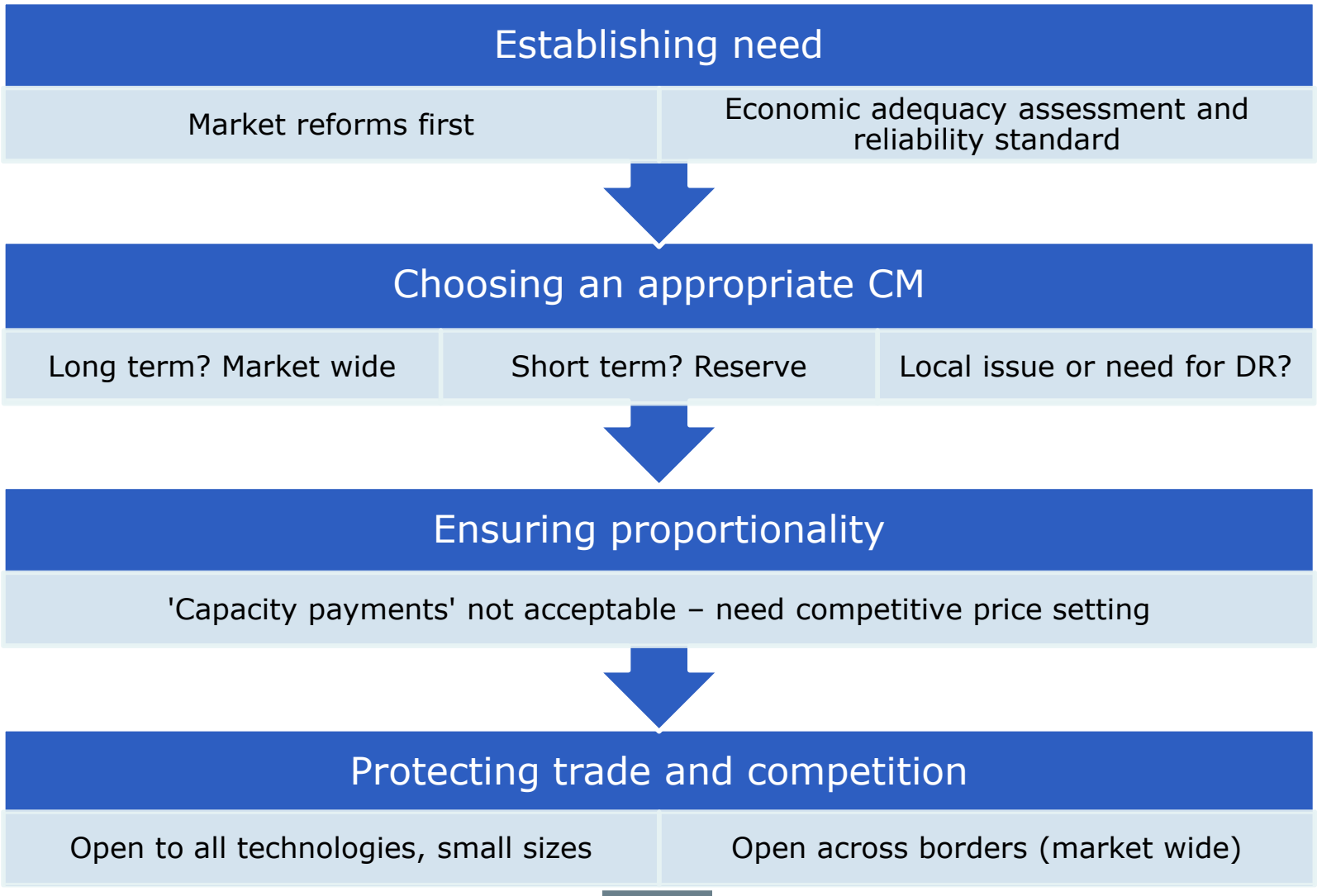
B: Amount of capacity paid / contracted in a market-wide capacity mechanism

What did we find?

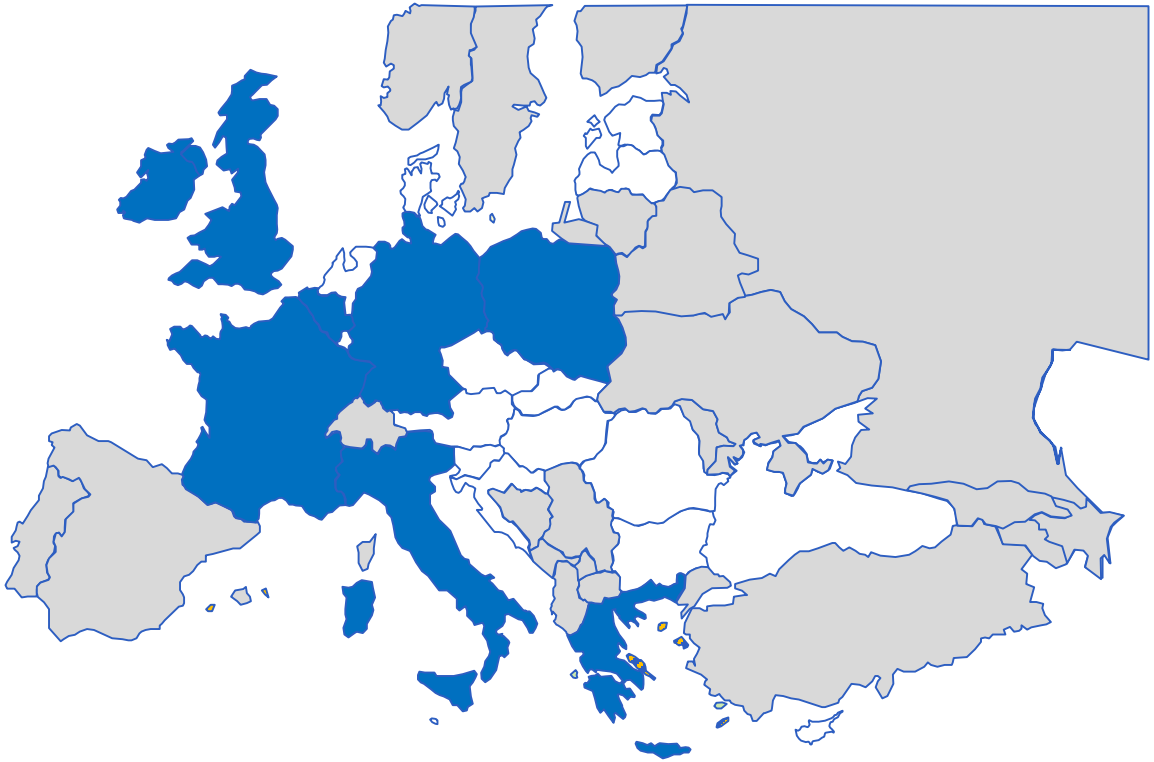
Types of capacity mechanism



What did we conclude?



Approved capacity mechanisms



GB – Scheme approved 2014:
- Central buyer
- Decision annulled Nov 2018

IE / Northern Ireland – Scheme approved 2017:
- Central buyer

DE – Schemes approved 2016 and 2018:
- Interruptibility scheme (reserve)
- Network reserve
- Capacity reserve

FR – Schemes approved 2016 and 2018:
- De-central obligations
- Demand response tender

EL – Scheme approved 2015 and 2018
- Flexibility remuneration mechanism (targeted)
- Interruptibility scheme

PL – Scheme approved 2018:
- Central buyer

BE– Scheme approved 2018:
- Strategic reserve

Contents

1. Sector inquiry and case practice
2. **Focus i: open competitive processes**
3. Focus ii: signals for flexibility and imports
4. New Electricity Regulation

100% of industry respondents to the questionnaire in the sector inquiry felt that the prices in mechanisms with administrative price setting were wrong

Competitors tended to feel they were 'too high'	Beneficiaries sometimes felt they were 'too low'

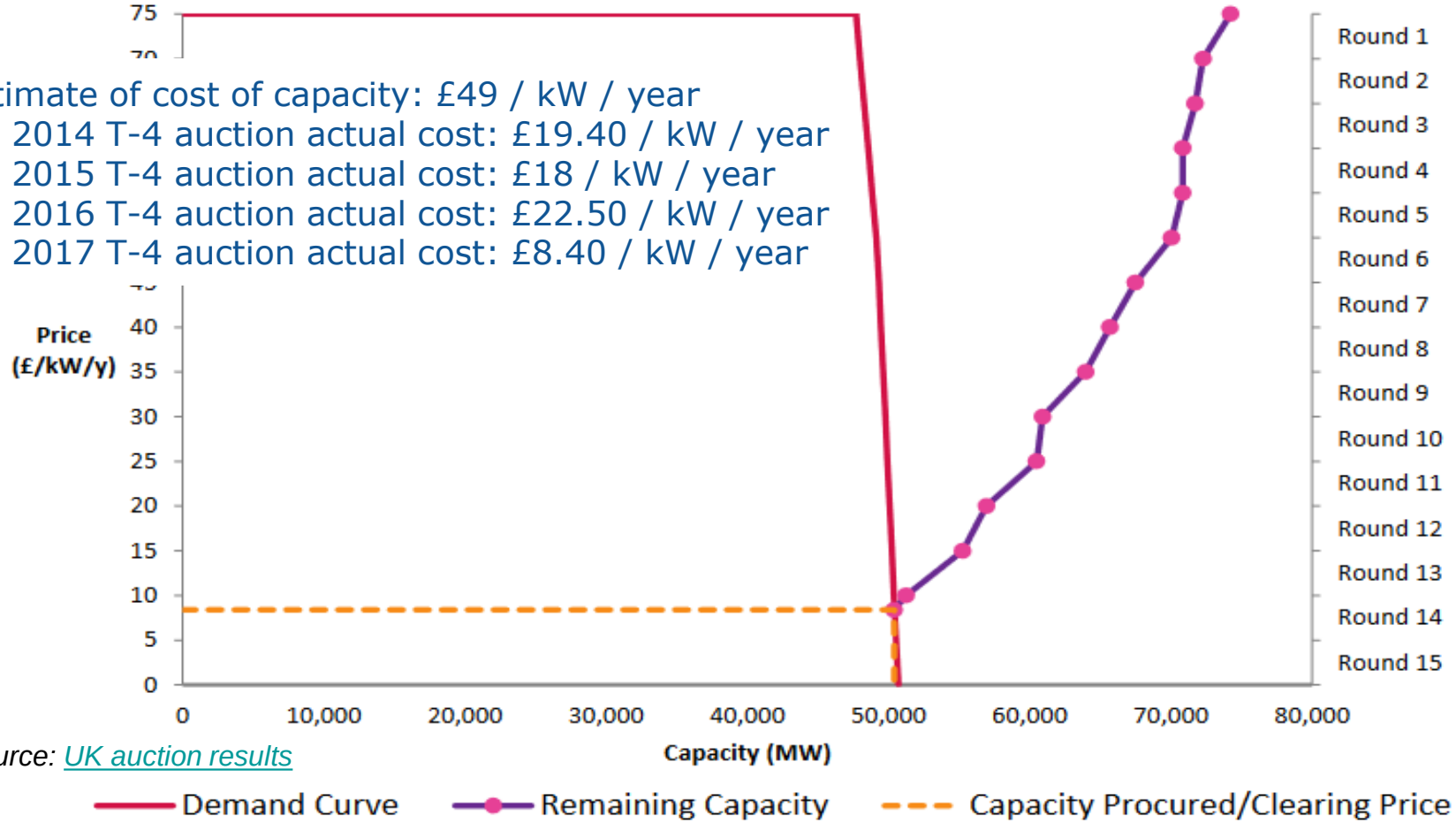
A competitive price setting process is essential

Must be open to all potential capacity providers

Experience suggests the market surprises regulators. UK example

Estimate of cost of capacity: £49 / kW / year
- 2014 T-4 auction actual cost: £19.40 / kW / year
- 2015 T-4 auction actual cost: £18 / kW / year
- 2016 T-4 auction actual cost: £22.50 / kW / year
- 2017 T-4 auction actual cost: £8.40 / kW / year

Figure 1: T-4 Demand and Possible Supply Range



Source: UK auction results

… eg. UK capacity

Table 3: T-4 Breakdown of Awarded Capacity by Primary Fuel Type

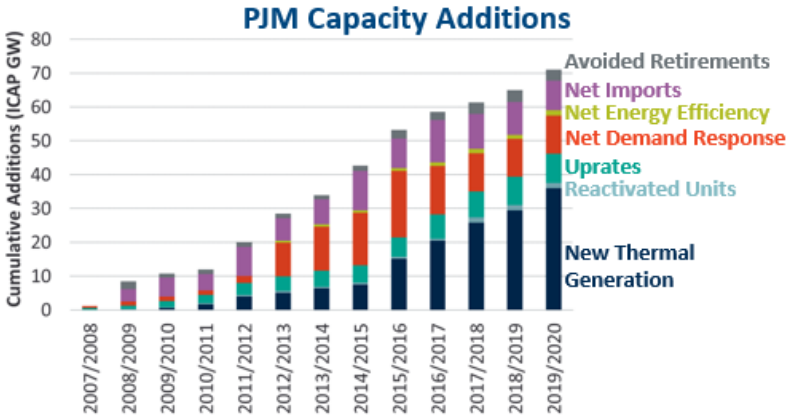
Primary Fuel Type	Capacity (MW)	%
Bio-fuel	23	0.05
Biomass	61	0.12
Coal	2,565	5.09
Diesel	361	0.72
Distillate	225	0.45
DSR	1,201	2.38
Gas	29,611	58.73
Hydro	654	1.30
Interconnector	4,558	9.04
Nuclear	7,926	15.72
Storage - Battery	158	0.31
Storage - Compressed Air	3	0.01
Storage - Pumped	2,524	5.01
Waste	547	1.08

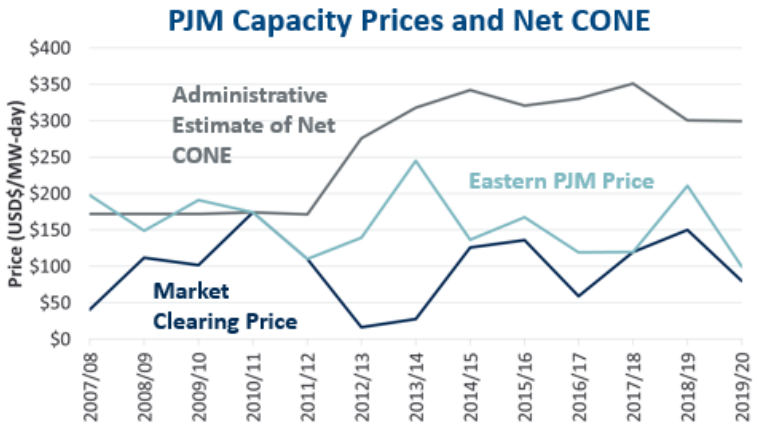
Source: UK 2017 T-4 auction results

… eg. PJM prices and capacity types

PJM: Maintaining Reliability at Low Cost

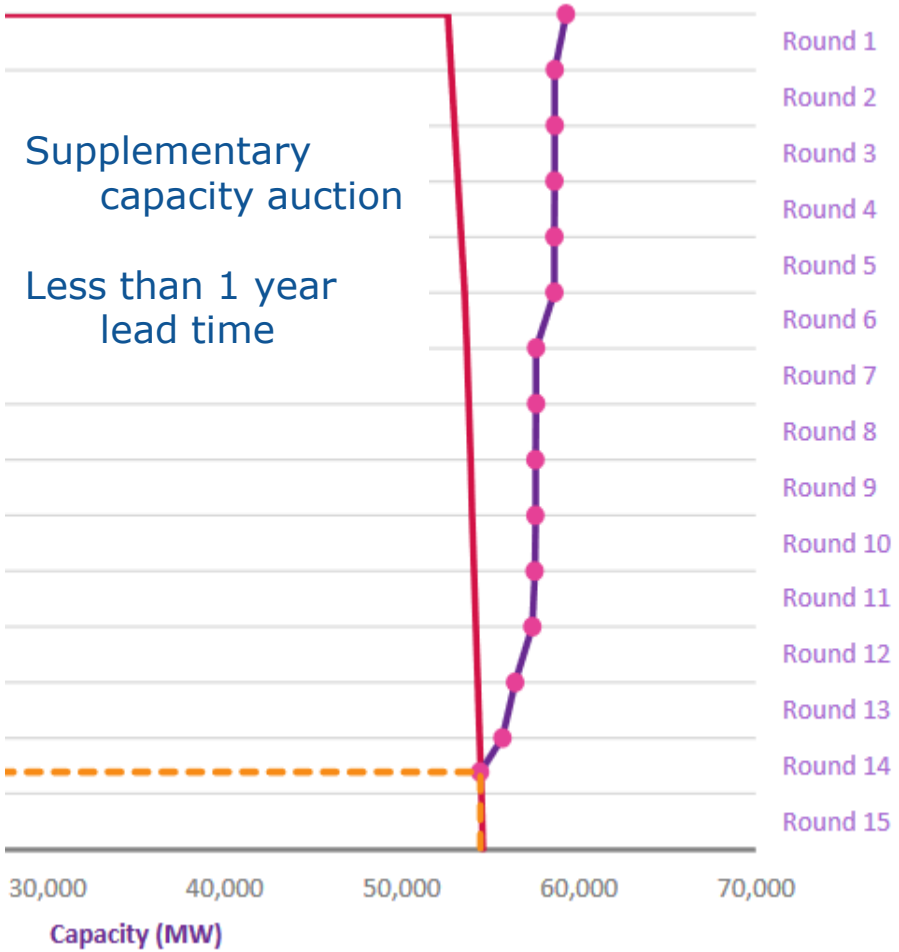
- PJM maintained excess reserve margins at low prices for almost a decade by attracting low-cost DR, imports, uprates, and life-extensions, with low-cost incremental supply amounting to 15% of the total resource base
- But many state regulators and developers feared the market could never attract new thermal generation
- With the mercury and air toxics rule, PJM faced a huge wave of coal retirements (approximately 25,000 MW, 10% of the fleet over only a few years)
- **But the market has responded:** approximately 35,000 MW of new gen attracted (mostly from merchant gas CCs), at prices only approximately 60% of PJM's estimate of Net Cost of New Entry (Net CONE)*

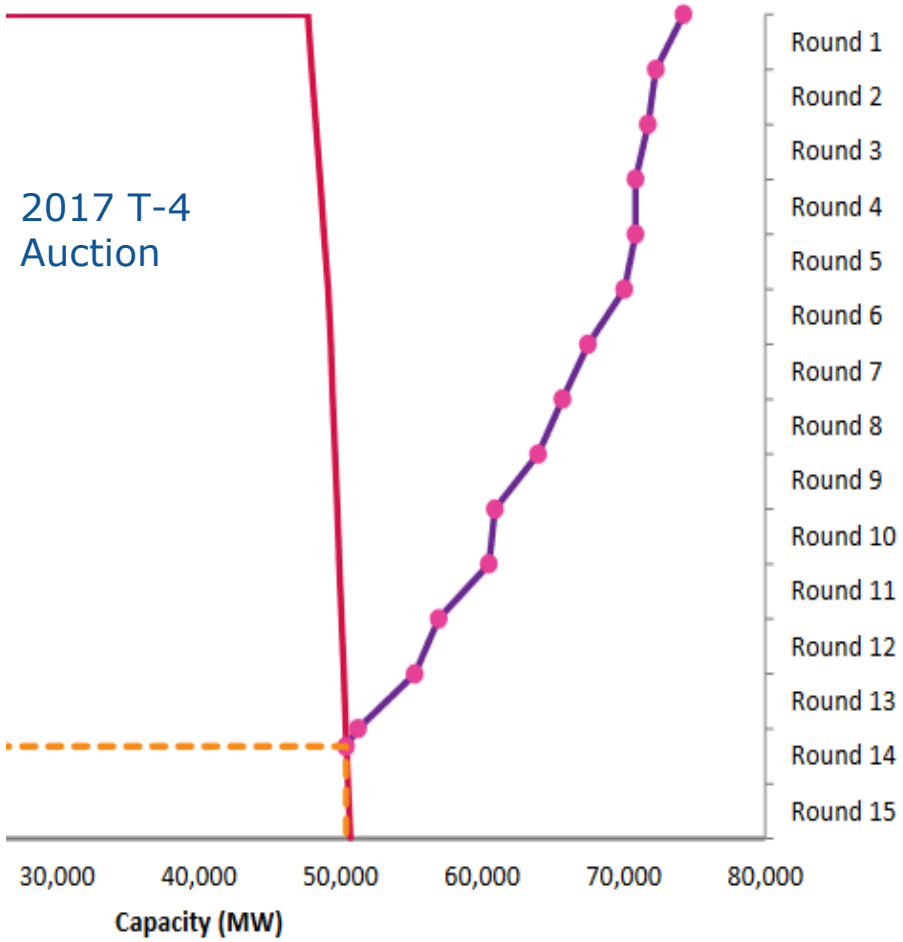




Source: The Brattle Group

Potential importance of long lead times





To ensure competition detailed rules are crucial

- Minimum sizes
- Open to aggregation
- Grid connection requirements
- Collateral requirements
- Testing requirements
- De-rating
- …

Contents

1. Sector inquiry and case practice
2. Focus i: open competitive processes
3. **Focus ii: signals for flexibility and imports**
4. New Electricity Regulation

Imbalance prices vs CM penalties

Use resources efficiently (short term)

Build right mix of resources (long term)

No better short term signal than electricity prices where:

- Imbalance prices reflect the full value of electricity
- Market participants have full balancing responsibility
- Locational prices reflect transmission constraints

	Attract imports?	Support demand response?
Electricity prices	Y	Y
Capacity mechanism penalties	N	N

A capacity mechanism can appropriately play a supporting role to make sure the right overall quantity of capacity is available in the long term.

But it will fail to efficiently deliver security of supply without electricity prices that send the right signals.

In a model based on reliability options the reference price is key. Belgium may be the first country implementing reliability options in a market with portfolio bidding.

Contents

1. Sector inquiry and case practice
2. Focus i: open competitive processes
3. Focus ii: signals for flexibility and imports
4. **New Electricity Regulation**

Electricity Regulation: new rules for capacity mechanisms

MSs must set reliability standard based on VOLL, eventually based on ENTSO-E methodology. Formal role for NRAs

ACER opinion where national adequacy assessments deviate from EU assessment

Commission opinion on market reform plans

Design rules for capacity mechanisms, including restriction on most-polluting capacity

Rules for cross border participation and harmonised operational rules to be developed by ENTSO-E

More information

http://ec.europa.eu/competition/sectors/energy/state_aid_to_secure_electricity_supply_en.html

https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans

European Commission

Backup

Electricity regulation (Art 21): new rules mean CMs must be open across borders

1: Identify maximum short term contribution of imports

2: Imports compete with domestic resources

3: Capacity product lets market coupling work

4: Allow 'multiple participation' to avoid self sufficiency

5: Penalties and trading support right capacity mix

ENTSO-e / ACER to develop various operational rules to enable harmonisation.