



Department  
of Energy &  
Climate Change

# Specifying the auction system to give Government flexibility to define price-duration preferences

Capacity Market Expert Group  
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# Existing auction format

- Descending clock auction
- Pay as clear
- Only new/refurbished plant can have long contract durations
- Bids assessed on price alone



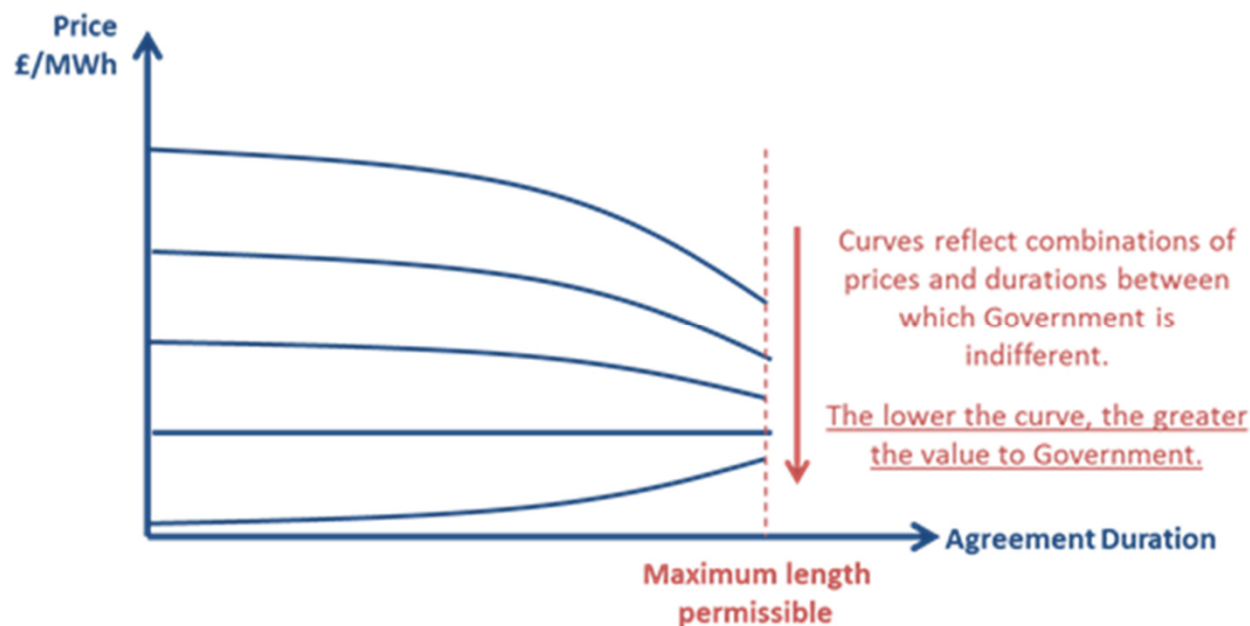
# Use of multiple criteria to assess bids

- Could assess bids on **contract duration** as well as price
- Pay more (or less) for short contract length
- 10 year agreement at £X equivalent to 1 year agreement at £Y



# Contract duration as well as price

- Government sets price-duration curves
- Offers expressed in terms of single year agreements





# Difference from existing auction format

## Existing auction format

- Pay the same irrespective of contract length
- Price-duration curves are horizontal
- Participants express preference for contract length before the auction
- If a tiebreaker, shorter contract length receives contract

## Price and contract duration

- Pay more (or less) for short contract length
- Price-duration curves are curved
- Participants can change their preference for contract length during the auction
- If a tiebreaker, winner is chosen randomly



# Conclusion

- Government needs to consider complexity in setting price duration curves when considering whether to move to multicriteria auctions
- However if it does wish to consider length as well as price, a “fixed prices” auction format works well
- Allowing for this outcome in specifying the auction format is appropriate as it adds minimal added complexity:
  - Require price discounts to be set for long term agreements
  - Need to build in optionality on maximum contract length, use of length in tie-breaker, and whether plants can amend their length preference between rounds.



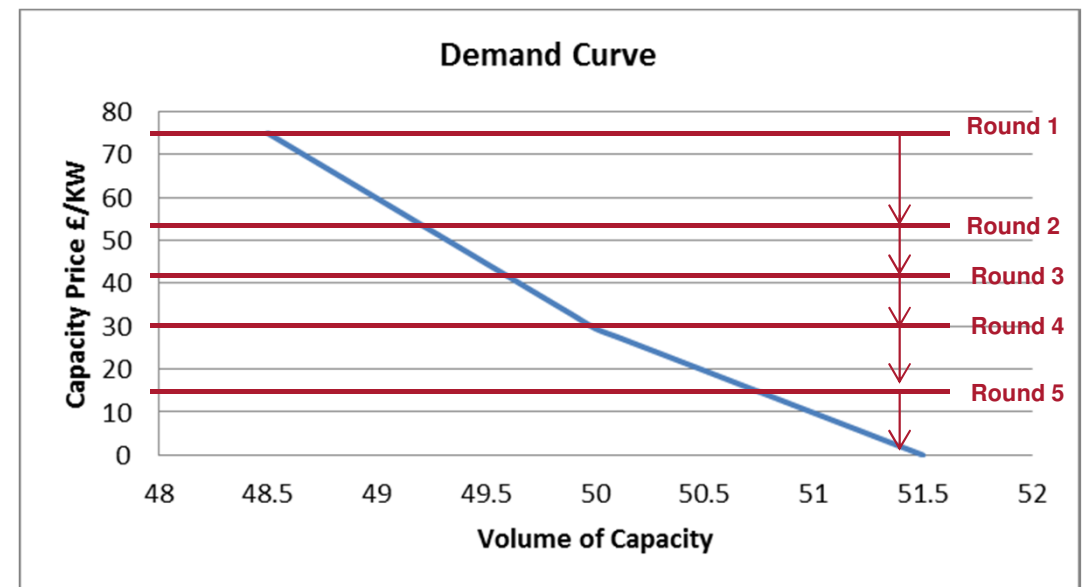
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# Price decrements



# Price decrements in the auction

- Auction approach involves Government or the Auctioneer setting how far the price will fall between each round in the auction.
- Rules allow Government to provide guidance on how these decrements will be set
- Paper sets out how approach to decrements should be set in the auction system specification, and what this guidance is likely to cover.







# Auction system specification

- Auction system needs specifying now to enable SO to finalise procurement contract in January
- Assumptions for specification:
  - Size of decrement between rounds not an output of the auction system
  - Auctioneer sets schedule for auction in advance
  - Auctioneer has ability to override schedule during auction
- Don't need to specify at this point how schedule will be set or in what circumstances auctioneer can override



# Determining price schedule

Proposed simple approach to minimise complexity:

- Can hold around 6 rounds per day
- Given desire to finish within 2 days, suggests holding 12 rounds in total
- Set fixed price decrements, so decrement is  $1/12^{\text{th}}$  of price cap
- Round size of decrements to nearest £1
- Have larger first round if unlikely to clear at high price – though potentially not appropriate in first auction

Round	£44 Price Cap	£75 Price Cap
	Prices (£/kW)	Prices (£/kW)
Round 1	44.00 – 40.01	75.00 – 68.01
Round 2	40.00 – 36.01	68.00 – 61.01
Round 3	36.00 – 32.01	61.00 – 54.01
Round 4	32.00 – 28.01	54.00 – 47.01
Round 5	28.00 – 24.01	47.00 – 40.01
Round 6	24.00 – 20.01	40.00 – 33.01
Round 7	20.00 – 16.01	33.00 – 26.01
Round 8	16.00 – 12.01	26.00 – 19.01
Round 9	12.00 – 8.01	19.00 – 12.01
Round 10	8.00 – 4.01	12.00 – 5.01
Round 11	4.00 – 0.00	5.00 – 0.00



# Potential discretionary role for System Operator

Auctioneer might want to vary decrement from schedule in some circumstances:

1. Speed up early rounds of auctions if excess supply is large
2. Speed up auction rounds to ensure it closes by the end of a particular day
3. Close the auction early to mitigate gaming concerns to prevent individual plants from learning when they are the marginal plant

Auctioneer should consult with Auction Monitor before deciding to do so.



# Questions

- Do you agree with the approach on auction specification?
- Do you agree with the approach for setting price decrements?
- In what circumstances might it be appropriate for the System Operator to depart from the scheduled decrements?



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# Workplan for review of secondary trading provisions



# Problems to address:

- Stakeholder engagement has already identified a number of potential barriers:
  - Uncertainty around size of the LFO
    - Exclusion of low carbon
  - Uncertainty around the level of penalty/reward
    - Impact of cap
    - Impact of revenue neutrality
    - Link to cash out
    - Different penalty for BM and non-BM providers
  - Impact of financial directives – MiFiD / EMIR
  - Timing: trading likely won't occur until years after first auction
- Stakeholders challenging whether Portfolio Cap is helpful for secondary trading.



# Issues for the review to consider:

1. Is secondary trading systemically important to functioning of Capacity Market?
2. Do the existing CM proposals provide the necessary and sufficient conditions to ensure secondary trading will happen organically and in time so that investors can count on it in the bidding strategies for 2014?
3. If not, what changes to the CM can be made to improve secondary trading?
4. Is the portfolio cap a necessary condition for secondary trading?
5. If it is unlikely that a market will develop immediately, are there alternative/transitional measures to ensure secondary trading is not systemically important?



# Revenue Neutrality

- Size of overdelivery payments affected by:
  - Position of parties in relation to their liability cap
  - Proportion of demand
  - Volume of non-CM output
  - Whether less reliable plants choose lower derating levels
- Seasonal variation in demand means overdelivery extremely likely to equal penalties in months where demand is low (when trading is needed)





### A simple model to calculate penalties and over-delivery payments

Inputs			
Penalty rate	2000	£/MWh	
Demand (winter peak)	70	GW	
Demand (summer peak)	50	GW	
CM capacity obligation	50	GW	
Derated Non-CM capacity	20	GW	
% Non-CM output relative to derated	50%		
No CM output	10	GWh	

#### Capacity market Load Following Obligations for a winter peak

Capacity Market's capacity					Market outcomes	
Capacity available to generate (GW)	Capacity not available to generate (GW)	LFO capacity available to generate (GW)	LFO capacity not available (GW)		Is there a stress event?	Capacity shortage (GW)
48	3	48	3		Yes	13

#### Capacity market penalty and over-delivery payments based on 1 hour stress event in a winter peak

Penalty regime outcomes				Market outcomes	
Penalties (£K)	Over delivery (GWh)	Over delivery payments (£K)	Over delivery rate (£/MWh)	Total CM Output (GWh)	Total output (GWh)
5,000	6	5,000	852	53	63

#### Capacity market Load Following Obligations for a summer peak

Capacity Market's capacity					Market outcomes	
Capacity available to generate (GW)	Capacity not available to generate (GW)	LFO capacity available to generate (GW)	LFO capacity not available (GW)		Is there a stress event?	Capacity shortage (GW)
25	25	20	20		Yes	20

#### Capacity market penalty and over-delivery payments based on 1 hour stress event in a summer peak

Penalty regime outcomes				Market outcomes	
Penalties (£K)	Over delivery (GWh)	Over delivery payments (£K)	Over delivery rate (£/MWh)	Total CM Output (GWh)	Total output (GWh)
40,000	8	16,180	2,000	28	38



# Are there alternatives to hedging?

- Relaxing constraints on physical trading
  - Not clear physical trading would be easier, or that having both forms of trading wouldn't *impede* liquidity
- Lowering need to trade
  - Maintenance windows
- Transitional plan - to ramp up CM penalties over time as hedging market develops



# Next steps

- Stakeholder engagement:
  - Independent generators
  - Large utilities
  - Insurance companies
- Quantitative analysis –
  - More worked examples of impact of soft cap and revenue neutrality on incentives to trade
  - Likelihood of revenue neutrality affecting incentives