Public

# Transmission Charging Methodologies Forum and CUSC Issues Steering Group

11 October 2024

NESO
National Energy System Operator

# Agenda

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|---|---|---|
| 1 | Introduction, meeting objectives – Camille Gilsenan, NESO | 13:00 - 13:05 |
| 2 | Financial instruments - Alastair Owen, NESO | 13:05 - 14:25 |
| 7 | AOB and Meeting Close - Camille Gilsenan, NESO | 14:25 - 14:30 |

# TCMF Objective and Expectations

| Objective |
| --- |
| Develop ideas, understand impacts to industry and modification content discussion, related to the Charging and Connection matters. |
| Anyone can bring an agenda item (not just the NESO!). |

| Expectations |
| --- |
| Explain acronyms and context of the update or change. |
| Be respectful of each other's opinions and polite when providing feedback and asking questions |
| Contribute to the discussion |
| Language and Conduct to be consistent with the values of equality and diversity |
| Keep to agreed scope |

# Financial Instruments

Alastair Owen, NESO

# (1) Defect and Objective

## Reason for Change

- Network Operators commit connection capacity – a scarce resource – to developers when they are provided with a place in the connections queue.
- NESO believes that developers should in-turn provide an appropriate financial commitment to develop that capacity and utilise the TOs scheduled investment.
- We believe that existing financial commitments do not reflect the scarcity of connection capacity and do not provide an adequate incentive to those entering the connection queue to develop their allocated capacity.

## Mod Defect

- The lack of a material financial commitment to development allows speculative "re-seller projects" to enter and remain in the queue in the hope of selling the project to a developer in need of a better connection queue position, rather than progress with development.
- This leads to connection delays, wasted resources and inefficient allocation of scarce capacity, particularly where projects are not sold and/or remain dormant in the queue until they are terminated.
- Progress towards net zero, and efficient least-cost transmission planning, are being impeded.

## Objective

- Design a new financial instrument for projects that pass Gate 2 under the reformed connections process that removes the perverse incentive for re-seller projects to enter and remain in the queue.
- The above objective is balanced by the aim to avoid adding a financial barrier to those projects that fully intend to connect and utilise their connection capacity.

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# (2) Overview & Interaction with User Commitment

NESO propose to amend Section 15: User Commitment of the CUSC to introduce a "Capacity Commitment Fee" set at a rate of £20k/MW. It will be applicable to those that are subject to User Commitment, pass the Gate 2 criteria and have accepted their Gate 2 contract offer.

Developers will be liable for the Capacity Commitment Fee on termination or reduction in Capacity (further info on next slide). There will be a requirement for developers to post a security against that liability.

Developers will have to maintain the Capacity Commitment Fee security until they demonstrate that they have achieved User Progression Milestone 7: Project Commitment.

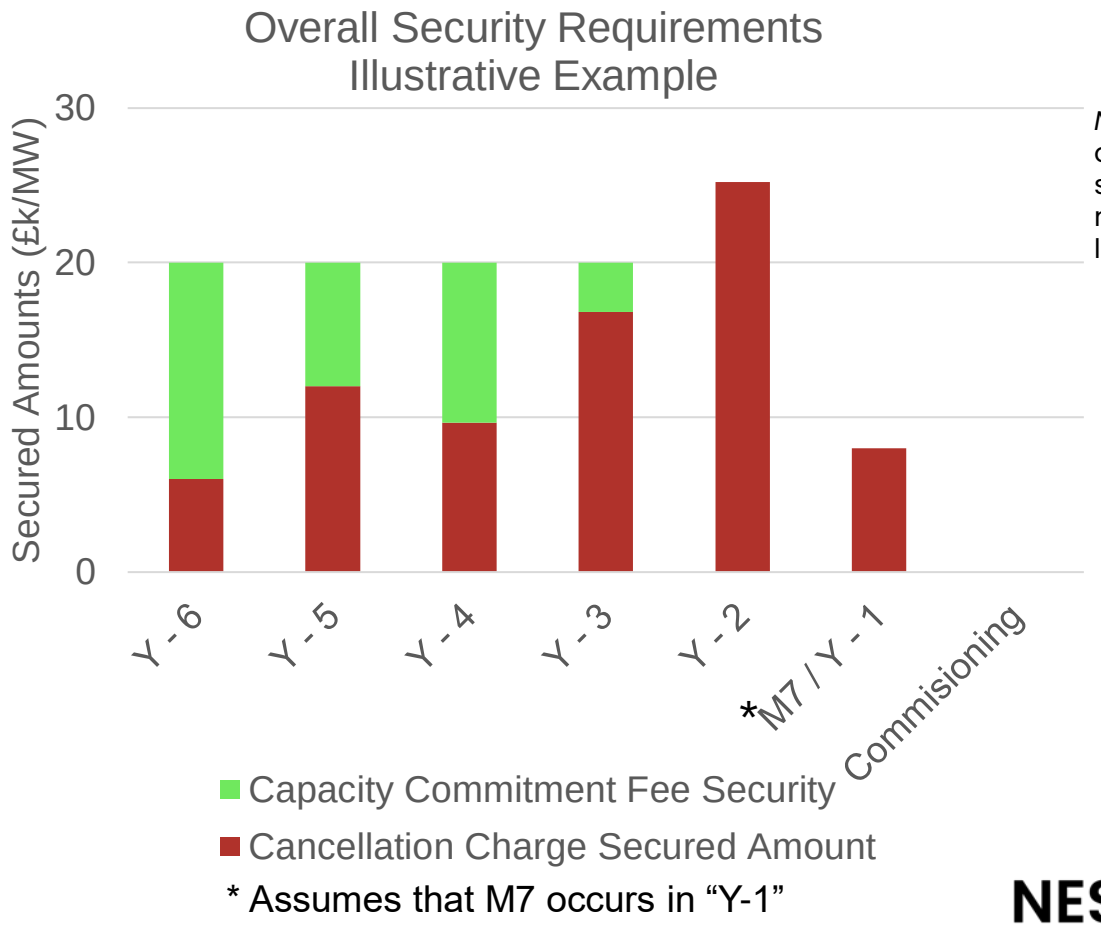
To avoid excessive security requirements, we propose to net off the *Cancellation Charge Secured Amount* ("CCSA") from the Capacity Commitment Fee security ("CCFS").

If a developer's *Cancellation Charge Secured Amount* is less than the equivalent of £20k/MW multiplied by either their Transmission Entry Capacity ("TEC") or Developer Capacity ("DC"); then:

$$CCFS = £20k/MW \times (TEC \text{ or } DC) - CCSA$$

If a developer's *Cancellation Charge Secured Amount* is equal to or greater than the equivalent of £20k/MW x TEC; then:

$$CCFS = £0$$




*N.B.* The graph only illustrates security values - not the underlying liabilities.

# (3) Drawing upon the Security

- Should a developer choose to **leave the queue** between accepting their Gate 2 contract offer and achieving User Progression Milestone 7: Project Commitment, then NESO will draw upon the Capacity Commitment Fee security.
- Should the developer **not deliver on any one of its milestones** between accepting their Gate 2 contract offer and achieving User Progression Milestone 7: Project Commitment, then NESO will draw upon the Capacity Commitment Fee security.
- Should a developer choose to **reduce its original TEC or DC** down to either a "Revised TEC" ("RTEC") or "Revised Developer Capacity" ("RDC") between accepting their Gate 2 contract offer and achieving User Progression Milestone 7: Project Commitment, then NESO will draw upon the Capacity Commitment Fee security to a value of:

  - (£20k/MW x (TEC or DC)) - (£20k/MW x (RTEC or RDC)); Or
  - the entire Capacity Commitment Fee security where the Capacity Commitment Fee security is less than (£20k/MW x (TEC or DC)) - (£20k/MW x (RTEC or RDC));

- Any net increase in the NESO's cash position due to these actions will be redistributed to network users by netting off the excess income against TNUoS charges.

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# TM04+ Connections Reform: Using Financial Measures to Manage the Queue

## Presentation at TCMF

**NESO**

11 10 2024

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Baringa is a certified B Corp™ with high standards of social and environmental performance, transparency and accountability.

# Approach to quantitative assessment

We have modelled 4 developer archetypes that are committed to progressing with development as well as the re-seller. **The instrument should keep the NPV/MW of the former positive and of the latter negative.**

Keep NPV positive: **determines max instrument size**

Turn NPV negative: **determines min instrument size**

| Type of developer | Modelling approach |
|---|---|
| **Developers that are financially committed to progressing with development** | |
| Solar PV<br>Onshore wind<br>Offshore wind<br>Storage | • The premise behind these developers is that they all plan to build a generator or storage on the site that they are taking through to Gate 2.<br>• To establish the costs of these developers, we use Baringa assumptions on GB solar, onshore wind, and storage CAPEX, OPEX, and hurdle rate assumptions. We also have assumptions on development and construction timeframes that help us profile the costs.<br>• We estimate the revenues by using the insight that companies aim to out-perform their hurdle rates. The revenues can therefore be roughly approximated with a flat profile that ensures that the developer out-performs their hurdle rate by 0.5%.[1]<br>• We use 0.5% because this is a low level of ourperformance[1], and we want to see how large an instrument a low-profitability project could tolerate. This will provide an upper bound on the cost of the instrument. |
| **Developers that are not financially committed to progressing with development (aka 'reseller'):** | |
| Re-seller (differentiated by the same technologies as above) | • Re-seller projects are those that attempt to get a connection agreement even though they have no intention of continuing with the development process. Ofgem and DESNZ highlighted in the Connections Action Plan (CAP) that the ability to 'sell on' a connection agreement is a key reason why re-seller projects enter the queue (i.e. the ability to 'sell on' the connection provides them with a good worst-case scenario on their investment).<br>• We model re-sellers' NPVs as the NPV gained from selling the connection agreement multiplied by the probability they do this.<br>• In our model, re-sellers incur costs associated with grid application fees plus land lease costs, and then sell the grid connection – the sales value achieved is based on Baringa experience of these types of projects. The sales price also gets uplifted by the fact that the developer purchasing the project will receive a refund. |

For all of the above we use the best available evidence and reasonable assumptions to parameterise the NPVs that these developers could earn

(1) While generation projects will in general have non-flat revenue streams, our objective here is to calculate an NPV per MW and this will not be substantially affected by the use of a flat vs non-flat revenue profile.

 

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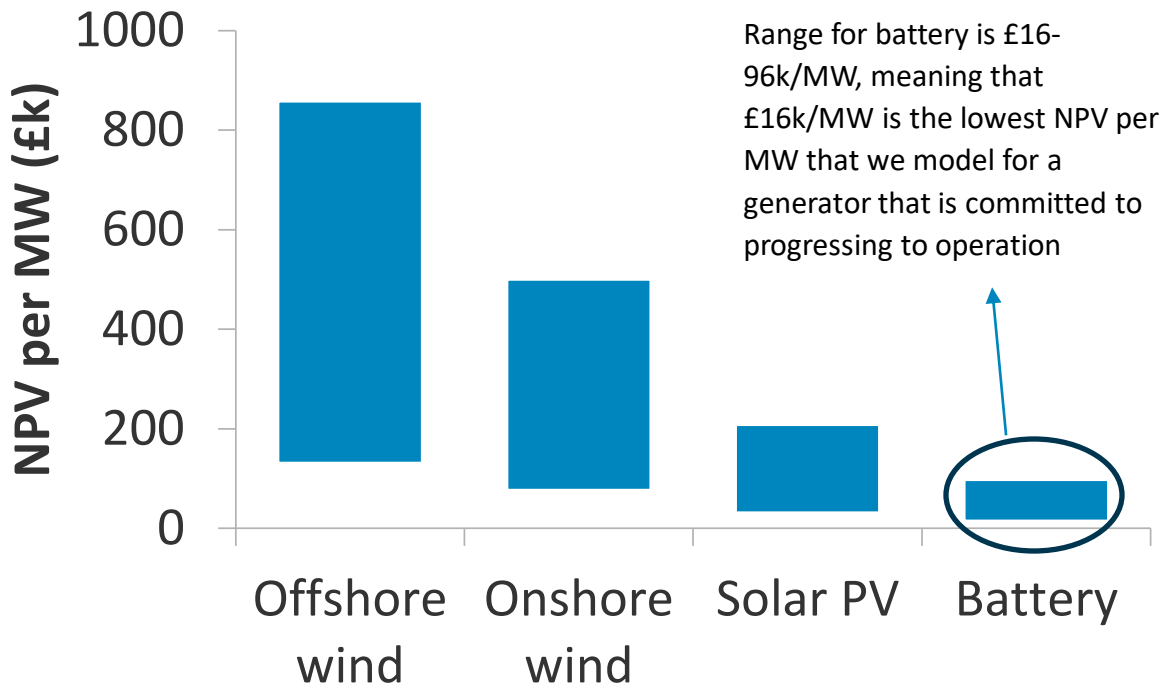
# Determining the maximum size of the financial instrument (1)

## To avoid placing barriers on the development of certain technologies, the £16k/MW for the battery sets the upper bound for the NPV impact of the financial instrument

**Range of NPV per MW for different types of generator, assuming that they progress to operation**




Source: Baringa modelling

- We have modelled a range of NPVs per MW for battery, onshore, offshore, and solar PV. These ranges show the NPV of projects when they outperform their WACC by 0.5% (low-end) and 3% (high-end) for a typical project.
- As expected, when NPV per MW is calculated this way, it is proportionate to the cost (CAPEX plus OPEX) of the different technologies. As offshore wind is the most expensive, a given level of outperformance over WACC will give the highest NPV per MW. Onshore wind is second most expensive, then solar PV, and finally batteries.
- Given that we want to ensure that the NPV per MW does not turn negative for any of these projects, we are currently using the result from the 0.5% outperformance for a battery project as the maximum impact for the instrument.
- Due to the refundability of the instrument, the security can be made higher than £16k/MW. We discuss this precise magnitude in more detail on the next slide.

# Determining the maximum size of the financial instrument (2)

## Based purely on the maximum impact that we can allow the financial instrument to have on developers, the security could be levied up to £52-159k/MW

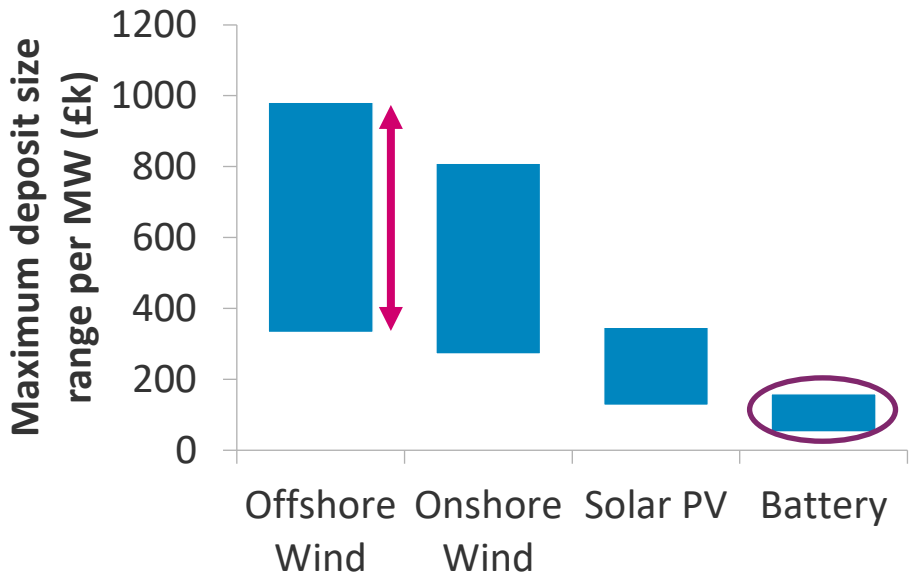
If the financial instrument cannot have more than a £16k/MW impact on a the NPV of a project that is committed to progressing with development, this will bound the maximum level of security that can be demanded. For a refundable instrument, this maximum level of security will be bounded by:

- **The time from payment to refund.** A shorter timeframe corresponds to a lower financing cost on the payment, and therefore the security can be higher.
- **The discount rate of the developer.** The higher this discount rate is, the more expensive will any financing cost be. Therefore, a lower discount rate will correspond to a higher potential security.

To construct the range, we have taken the lowest NPV of the modelled projects (i.e. with a 0.5% outperformance over WACC) and varied the time from security to refund from a minimum (refund at the start of the construction period) to a maximum (refund after the start of project operations, assuming a 2-year delay to 'normal' timescales).

For the discount rate of the project at development stage, we have used Baringa assumptions on WACC for developers by different technology types. However, as these WACCs are averages over the project's lifetime, we illustrate the higher risk taken on at the development stage by uplifting the WACCs by 2%. **The graph to the right summarises the maximum values that the security could take for developers of different technology types**.

**Range of maximum security sizes per MW for different types of generator, assuming that they progress to operation**




If we want to ensure that we do not select out projects which are financially committed to progressing with development, the **financial instrument security size cannot exceed £52-159k/MW**, depending on the timing of the refund.

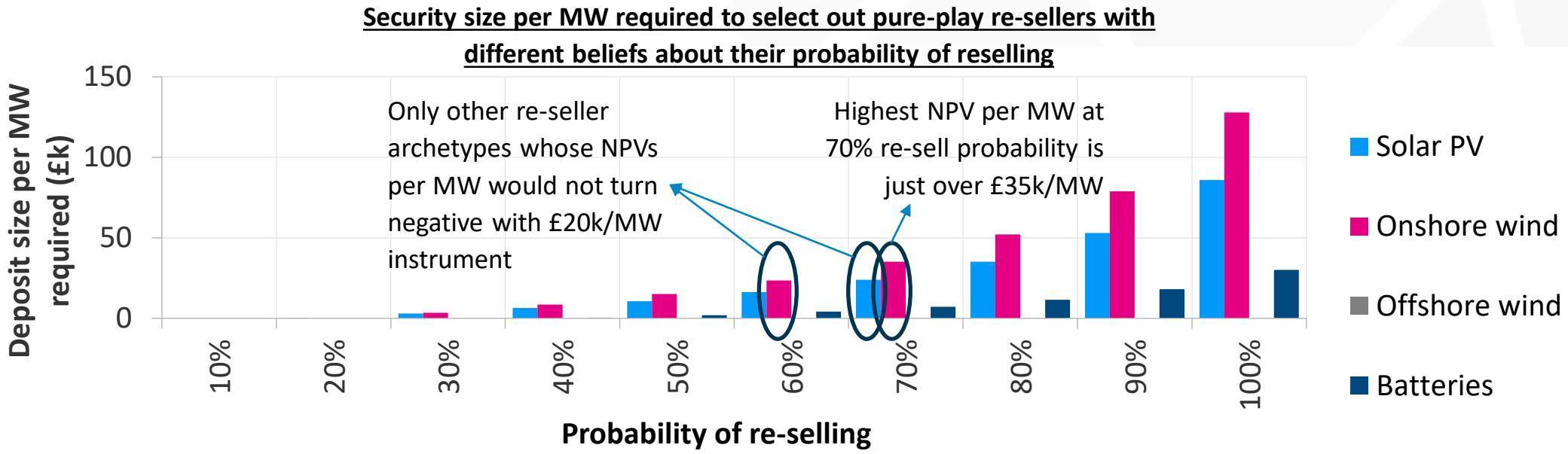
The range of maximum security sizes is given by **changing the timing of the refund** in the way specified on the left. This range also changes by technology type due to different development and construction times.

# Minimum size of financial instrument

## To ensure all the re-sellers whose NPVs we want to turn negative do so, the security would need to be set at £20-36k/MW

- This slide shows the minimum magnitude of security that may be required for the pure-play re-seller's NPV to turn negative when we are unable to prevent the resold project from receiving the refund.
- We do not know what the true probability of re-selling a project is for the typical re-seller, but suspect that it could be up to 60-70%.
- According to our modelling, a security of £20-36k/MW is needed to ensure that these developers self-select out of the queue.
- A security towards the lower end of this range may be preferable as it minimises the level of financial barrier that projects committed to progressing with development will face.




Note: The above graph occasionally has no bars because the NPV per MW for a particular type of project is negative. This always occurs for offshore wind because of the high cost of seabed leases, which would be required to secure the land rights needed to progress to Gate 2.

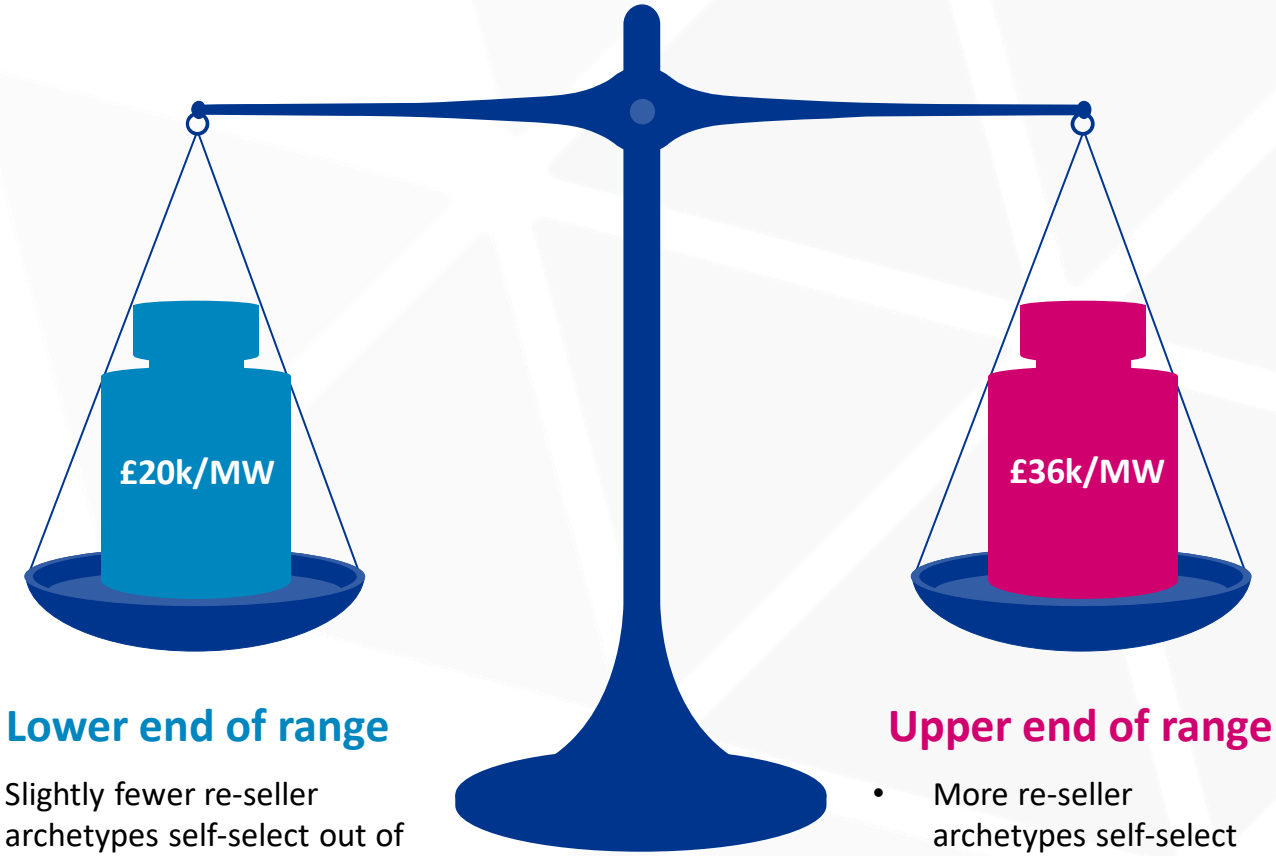
 

# Setting the precise magnitude of the instrument

## We do not propose a specific magnitude but suggest something nearer to the bottom of the £20-36k/MW range

- Our analysis suggests that the instrument size should be set anywhere between £20-36k/MW
- This is the level that our analysis showed achieved the twin goals of: (i) encouraging re-sellers to self-select out of the queue; (ii) maintaining projects that are committed to progressing with development in the queue.
- We propose that a value nearer the low-end of this range is selected because:
  - the number of re-seller archetypes that self-select out of the queue is relatively insensitive to the financial instrument;
  - a lower value is likely to create less of a financial barrier to developers that are committed to progressing with development, and is below the levels introduced in Ireland and Spain.

| | | |
|---|---|---|
| **Grid bonds in other countries:** | Spanish instrument - €40k(£35k)/MW | Irish instrument - €25k(£22k)/MW |




### Lower end of range

- Slightly fewer re-seller archetypes self-select out of queue, but most still do
- Less risk of creating financial barrier to projects committed to progressing with development

### Upper end of range

- More re-seller archetypes self-select out of queue

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# (4) Next Steps

- Take the modification to CUSC Panel on the **25th October**.
- Request for Urgency in order to implement the solution in parallel to connections reform mods CMP434 and CMP435.
  - The timeline for this modification is therefore dependent on the timeline for CMP434 and CMP435.
- We welcome any feedback on the proposal ahead of CUSC Panel.

# AOB & Close