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Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation

Covering Letter – January 2020

Context

The document titled "Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation" has been developed in accordance with The Commission Regulation (EU) 2015/1222 guideline on capacity allocation and congestion management (CACM) and the Commission Regulation (EU) 2016/1719 guideline of forward capacity allocation (FCA).

This document supplements the C16 Procurement Guidelines in reference to Intraday Transfer Limits (also known as Network Transfer Capacity) which is currently being consulted upon with the GB industry as part of the 2019-2020 C16 Consultation prior to the final approval by Ofgem[1].

An informal industry consultation titled "GB Commercial Arrangements relating to Interconnector Capacity Calculation" was held by NGESO, dated 6 November 2019, to support the development of this document. You can find more details and material of this consultation on the link here.

If you have any comments on this final proposal, please respond to the 2019-2020 C16 Consultation by 10th February 2020. This "Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation" document shall be treated as final following the completion of the 2019-2020 C16 Consultation (ie April 2020) and shall be located on the NGESO website for future reference.

Background

The Commission Regulation (EU) 2015/1222 establishes a guideline on Capacity Allocation and Congestion Management (CACM) that entered into force on 14 August 2015. In addition, the Commission Regulation (EU) 2016/1719 establishes a guideline for Forward Capacity Allocation (FCA) and entered into force on 17 October 2016. Their objectives are to maximise the efficient use of interconnection and facilitate greater cross border electricity trade.

[1] https://www.nationalgrideso.com/document/161011/download

Under the Regulations above, TSOs are required to calculate and allocate cross border capacity to market parties. The output of this calculation of the coordinated cross border capacity due to constraints on the Transmission System may be a reduction of the interconnector's Net Transfer Capacity (NTC).

Under the approved Capacity Calculation Methodologies (CCMs), a reduction of NTC could restrict capacity being sold in auctions in various timescales and restrict both unallocated and allocated capacity. 'Unallocated capacity' is the capacity that has not been sold within the interconnector's previous auction whereas 'allocated capacity' is the capacity that has been sold.

One of the existing NGESO's tools to manage interconnector flows called Intraday Trading Limits (ITLs/ NTCs) is the tool most closely equivalent to a reduction of NTC for unallocated Intraday capacity prior to the intraday auction, as illustrated in Diagram 1. For clarity, the coloured box shows the "Unallocated capacity restricted" is the equivalent of ITLs.

Diagram1:

Timing of NTC	Impact of NTC	
Capacity management feeds into Day Ahead auctions	Allocated capacity restricted	Unallocated capacity restricted
Capacity management feeds into Intraday auctions	Allocated capacity restricted	Unallocated capacity restricted

While the methodologies under the CCMs specify the process for the coordinated capacity calculation, they are mostly silent on the appropriate commercial treatment of the consequences resulting from the performance of these methodologies. Therefore, the document titled ""Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation" was developed to cover the GB commercial arrangements.

Prior to the implementation of the CCM, there is an ongoing need for NGESO to manage interconnector flows and any commercial arrangements that are approved for the CCM will also be applied to the existing interconnector capacity management tools (ie ITLs/NTCs).

For more information on the background to the purpose of this document, please refer to the material to our informal industry consultation.

Final Proposals and Justification

Following the informal consultation held in November 2019, the recommended final proposals are illustrated in this table below, as well as the justification for each element.

Timing of ITL/ NTC & type of capacity affected	Allocated capacity restricted	Unallocated capacity restricted
Capacity management feeds into Day Ahead (DA) auctions (i.e. before Day Ahead Firmness Deadline (DAFD))	Loss adjusted, market spread adjusted for increased scarcity by annually approximated discount factor - (1)	Loss adjusted, market spread adjusted for increased scarcity by annually approximated discount factor - (2)
Capacity management feeds into Intraday auctions (i.e. after DAFD, before ID auction opening)	Net imbalance charge from both markets - (3)	Net capacity revenue loss/gain calculated from unrestricted marginal price - (4a) For 0MW auctions; the annually calculated, directional, modal marginal price, collared at €0.01, capped at €0.50 - (4b)

Justification

(1) Allocated but un-nominated capacity from the long term going into the DA Capacity Calculation is compensated on a Use It or Sell It (UIOSI) principle, which uses the, loss adjusted, DA market spread as the reference price. NGESO is proposing to use this as a basis for DA NTC payment but with an added calculation step (discount factor) to account for the fact that the restriction being implemented causes the resulting spread to be artificially larger than it would have been the case without any restriction. This is in line with the FCA and Harmonised Access Rules (HAR) principles that take into account the adjustment for the market spread where allocation constraints are applied. The discount factor is an approximation for what is a complex relational algorithm. In an ideal world, this would be modelled using the actual order book for the coupled markets but this has been deemed an inappropriate solution due to complexity and cost. To fairly approximate this effect, an annual assessment will be done on sample data to model the relationship*. Additionally, a contractual clause will need to be applied to outline the consequences for the extreme scenarios where market coupling fails to converge either due to IT failure or extreme market events.

*it is expected that this will be modelled as a dynamic discount such that an NTC reduction of X% will equate to a discount of Y% on an appropriate sliding scale. To determine this

relationship, 20 market periods (with no active restriction) will be chosen at random from the previous year and the Nominated Electricity Market Operator (NEMO) will provide the resulting clearing price for a range of different capacities in order to approximate the relationship. Views are sought on whether the discount factor is determined on a national GB, a member state or per interconnector basis.

(2) Whilst this capacity was un-allocated prior to the Firmness Deadline, it still has an opportunity value at the day ahead stage, therefore the payment should be the same calculation as for (1).

(3) If the resulting outcome of an NTC impedes on the final allocated capacity (i.e. an indicated or nominated flow is not delivered) then these flows must still be considered financially firm and the net accrued imbalance in both markets as a result of being long or short is compensated.

(4) If at this stage, there is remaining capacity (un-allocated) then the implicit market has not valued it on the assumption that it would not generate any additional social welfare and therefore value to the end consumer. If an NTC only impinges on this, then we must try to reflect its lost value fairly. The resulting value of this capacity may still end as £0.00 but also in other cases may be worth something to the speculative market in the form of an option, in case market prices move sufficiently to then value this capacity later. As the capacity is auctioned explicitly, on a pay-as clear basis, it seems a reasonable assumption that the bid curve can be used directly as an indication for its marginal value.

(4a) Therefore, to try and value this ‘lost option’ we can read its ‘potential’ (i.e. under a no restriction scenario) clearing price from the bid curve itself.

(4b) This theory does not extend to 0MW auctions (i.e. the effect of the NTC is that 0MW are available to be sold) as there is no bid curve. Therefore, an alternative mechanism is proposed to try to account for this ‘lost option’ value, again to be approximated on an annual basis with sensible caps. This is to represent the most commonly applied value to said capacity in each direction.

Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation

January 2020

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1. Context

This document outlines the GB Methodology for GB Commercial Arrangements relating to Interconnector capacity calculations.

2. Application

The commercial arrangements in this document should be applied to:

- All interconnector projects that are connected to the GB transmission system;
- Existing and new interconnectors;
- Capacity calculations are made both before and after the Day Ahead Firmness Deadline (DAFD).

3. GB Commercial Arrangements

The GB commercial arrangements shall be based on the following principles:

- Any commercial arrangements are between the Interconnector and National Grid Electricity System Operator (NGESO). For the avoidance of doubt, this does not cover the arrangements between the interconnector and the holders of transmission capacity through the interconnector capacity auction processes;
- To ensure cost neutrality, payments to interconnectors for reduction to:
    - Allocated capacity must only reflect the cost of remunerating transmission capacity holders;
    - Unallocated capacity must reflect the likely cost to the interconnector, as compared to a scenario where the action had not been taken.
- Any payments should consider that interconnectors may generate income through a reduction in capacity (e.g. as capacity becomes scarce this may increase the price of capacity and congestion income may increase). This may result in interconnectors paying rather than receiving payments;
- Any applicable payment must only cover the volume of Intraday Trading Limit (ITL) / Net Transfer Capacity (NTC) capacity reduction from the direct instruction of NGESO at that time;
- No payment shall be due if the capacity reduction is the result of factors outside the GB National Electricity Transmission system (NETS) (e.g. reduced availability of the interconnector circuits or constraints in the connecting European grids by the other EU Transmission System Operators (TSOs)). In the case of loss of access resulting from the

interconnector's assets (such as a trip by the interconnector), there should be no compensation to the interconnector via this mechanism;

- Ex-ante capacity reductions resulting from planned maintenance or works on the NETS shall not result in any compensation between the NGESO and the interconnector owner if the Bilateral Connection Agreement (BCA) for that interconnector describes a reduction of the Transmission Entry Capacity (TEC) for that specific planned outage condition;
- A reduction of capacity can only be paid once; and should the NTC be restricted by two TSOs simultaneously, a sharing methodology should be agreed amongst TSOs to prevent over compensation from both System Operators (SOs).

The diagram below illustrates the GB commercial arrangements for each of the different categories that capacity is restricted under the methodologies outlined in the Day Ahead and Intraday Capacity Calculation Methodology's (CCMs).

Timing of ITL / NTC & type of capacity affected	Allocated capacity restricted	Unallocated capacity restricted
Capacity management feeds into Day Ahead auctions (i.e. before DAFD)	Loss adjusted, market spread adjusted for increased scarcity by annually approximated discount factor.	Loss adjusted, market spread adjusted for increased scarcity by annually approximated discount factor.
Capacity management feeds into Intraday auctions (i.e. after DAFD, before ID auction opening)	Net imbalance charge from both markets.	Net capacity revenue loss/gain calculated from unrestricted marginal price. For 0MW auctions; the annually calculated, directional, modal marginal price, collared at €0.01, capped at €0.50

4. Settlement and Payment

Payments between the interconnectors and NGESO will only commence when there is an agreed bilateral agreement between the interconnector and NGESO, that is in line with the arrangements and principles within this document (tilted "Methodology for GB Commercial Arrangements relating to Interconnector Capacity Calculation"). The detail of the settlement and payment arrangements shall also be outlined in each parties' bilateral agreements.

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