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13 February 2024

ESO Response to Transmission Constraint Licence Condition call for input - December 2023 and Transmission Constraint Licence Condition guidance consultation - December 2023

Dear Graham,

Thank you for the opportunity to respond to your consultation on ESO Response to Transmission Constraint Licence Condition call for input - December 2023 and Transmission Constraint Licence Condition guidance consultation - December 2023

Who we are

As the Electricity System Operator (ESO) for Great Britain, we are at the heart of the energy system, balancing electricity supply and demand second by second.

Our mission, as the UK moves towards its 2050 net zero target, is to drive the transformation to a fully decarbonised electricity system by 2035, one which is reliable, affordable, and fair for all. We play a central role in driving Great Britain's path to net zero and use our unique perspective and independent position to facilitate market-based solutions to the challenges posed by the trilemma.

Our transformation to a Future System Operator (FSO) is set to build on the ESO's position at the heart of the energy industry, acting as an enabler for greater industry collaboration and alignment. This will unlock value for current and future consumers through more effective strategic planning, management, and coordination across the whole energy system.

Having reviewed the updated guidance we do not have any concerns with the drafting that is proposed. We welcome the work you are doing and would welcome the opportunity to continue to work with you to achieve these outcomes. We have also enclosed analysis supporting the call for input on the transmission constraint licence condition and we look forward to engaging with you further. Please do not hesitate to contact us if there is any evidence, analysis or questions you may have that we can help you with. Should you require further information on any of the points raised in our response please contact Claire Thorpe Morris, Senior Market Monitoring Manager, at claire.thorpe-morris@nationalgrideso.com.

Our response is not confidential.

Yours sincerely

Zoe Morrissey

General Counsel and Company Secretary

Transmission Constraint Licence Condition guidance consultation Response

Are there additional areas of background that respondents would find it useful to have covered in the guidance?

The updated guidance provides additional clarity with respect to the scope of the Transmission Constraint Licence Condition. We do not have any concerns with the background content provided.

Are there areas where respondents consider that the guidance would benefit from additional detail on Ofgem's interpretation of or approach to the enforcement of the TCLC?

The updated guidance provides further clarity on the scope, interpretation, and enforcement of the Transmission Constraint Licence Condition, ESO will continue to refine detection and evaluation of potential events taking account of published guidance.

Are there any areas where respondents consider that the proposed changes to the guidance are unclear?

The updated guidance is sufficiently clear to support all market participants and ESO in understanding the Transmission Constraint Licence Condition.

Are there any examples of material costs or benefits of curtailment that are missing from Table 1?

Table 1 provides additional context as to the costs and benefits of curtailment and identifies useful metrics for these by fuel type. We do not consider that anything is missing.

Are there circumstances which could objectively justify bid prices that would otherwise be excessive, which are not captured in the updated guidance?

The guidance is sufficiently clear and provides further support to all market participants and ESO in understanding potential justifications of an otherwise excessive bid price. However, a condition has been identified where a unit is contracted to provide an ancillary service which otherwise prevents Balancing Mechanism Bid delivery or incurs costs associated with breach of contract. This may rationalise an otherwise excessive price through costs of non-delivery or non-participation in an ancillary service market.

Do respondents have any other comments on the proposed changes to the TCLC guidance?

ESO welcome the greater clarity provided through this more comprehensive guidance.

Transmission Constraint Licence Condition call for input

Expanding the TCLC to balancing services used by the ESO to manage constraints other than the BM

ESO agrees that the Transmission Constraint Licence Condition (TCLC) should be expanded to cover constraint management services outside of the Balancing Mechanism (BM), with Schedule 7 trades being a significant proportion of current constraint management costs and the most critical service for inclusion.

ESO uses several methods for managing transmission constraint periods, including Balancing Mechanism Actions, trading via Schedule 7A Grid Trade Master Agreements, inter-trip services, and ancillary services. Costs and prices associated with these services represent a significant proportion of the overall transmission constraint spend, particularly for import constraints that are resolved using offers to increase output or reduce demand.

If the licence condition is expanded to include import constraints, Schedule 7A trades become a significant cost and volume. However, if the condition is not expanded, it remains a less relevant market to consider, this is illustrated in figure 1.

In 2023, the total direct spend on constraint actions was £1.13bn, and 23% of the overall transaction cost was from Schedule 7A trades. Therefore, this is a materially significant proportion of the overall direct constraint management spend. Expanding the TCLC to cover non-BM actions, particularly Schedule 7 trades, would help ensure fair competition and prevent excessive benefits for generators during constraint periods.



Figure 1: Direct costs of payments for export constraint management (Bids) and import constraint management (offers) as split into Schedule 7A Trades or BM as action source for 2023.

Schedule 7 trade prices are agreed to save money on a future expectation of offer price or bid price as indicated through pre gate closure BM prices alongside other market metrics. The proposed licence condition will not cover pre-gate closure BM prices and therefore does not mitigate the risk associated with prices agreed for schedule 7 trades. Given that these provide market participants with opportunity for greater risk management and thus greater cost optimisation across fixed duration runs, this has the potential to be at the detriment to the market if not considered.

Further expanding the licence condition to maintain broad parity between the BM, ancillary services, and bilateral contracts, where made for the purposes of constraint management, is valuable. While the BM price is normally the alternative cost for these markets to outperform, this is not always an appropriate benchmark. Therefore, unless TCLC were to cover these markets, the consumer is not protected against impacts of similarly localised constraint issues resolved through non-BM actions.

However, it is important to recognise that the cost base of providing these services may be significantly different from that of the wholesale energy reduction or increase position considered by other licence conditions. Appropriate guidance on how to price compliantly for these more varied market structures would be needed to support market participants in achieving desired reasonable benefits from providing valued services. For ancillary service markets long run marginal costs including the cost of capital may be far more proportionally significant than the short run marginal cost of delivering the action provided as an input into the consideration for excessiveness under existing TCLC and the inflexible offers licence condition (IOLC).

Expanding the TCLC to Offer Prices

ESO agree that TCLC should be expanded to offer prices. Import constraints have a high proportion of locationally specific requirements resulting in instances of low competition and potential for market power and therefore excessive benefits to be achieved.

Import constraints and export constraints have similar level of market power available with regards to the number of BMUs able to resolve the constraint criteria. In many cases and for voltage constraints in particular, this limits the available resources leading to limited competition. While other system requirements such as inertia instead provide a technological limitation on the units which can resolve the constraint condition and are therefore much more competitive. Figure 2 shows the distribution of import and export constraints which existed across 2023 and the number of different Balancing Mechanism Units which were able to resolve them. In some cases, competition is limited to a single generating station providing complete pricing power, while a significant proportion of import constraints can be resolved by less than 10 units in competition with each other.

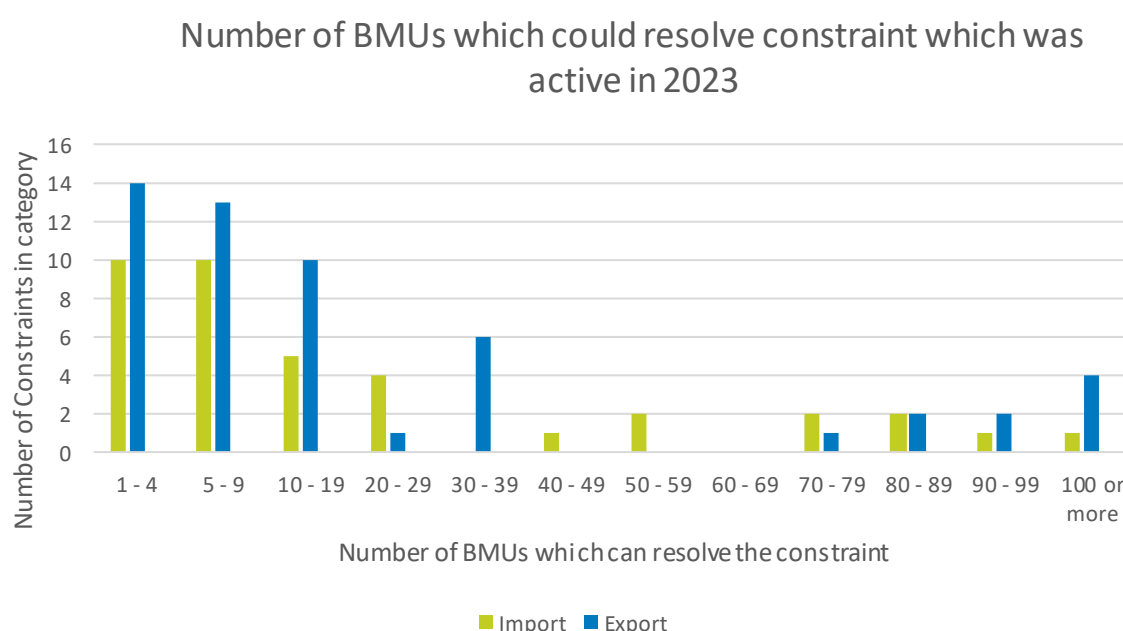


Figure 2: Number of BMUs which can resolve each constraint condition which was active during 2023 split by *import* and *export* constraints

The direct cost of system flagged offers to manage import constraints represents 82% of the total direct spend on constraint management (excluding replacement energy which is included in normal ESO cost reporting). This represented over £920M in 2023 and therefore given limited competition as illustrated above should be considered a high priority for inclusion within TCLC.

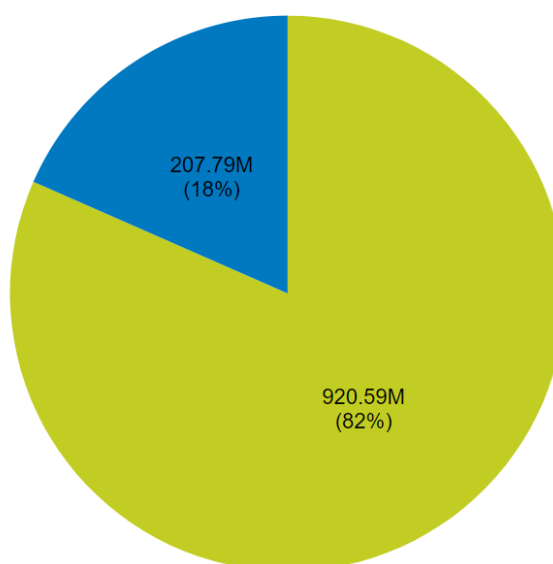


Figure 3: Export constraint management direct cost of bids and offers (£) split by **import constraints** and **export constraints**.

An example of how this market power is potentially exhibited by some market participants, is the volume weighted average price of offers accepted for import constraint management compared with energy flagged actions (Figure 4). Across 2023, in 11 out of 12 months the volume weighted average accepted BM price was higher than the wider accepted energy price. Outside of days where operating margin were low, and thus high-priced offers to manage the energy tagged margin requirement are accepted, this broadly remains consistent.

Given this data set also includes schedule 7 trades which typically outperform balancing mechanism action prices, it further illustrates that market power exists and is exercised on occasion in balancing markets for import constraint actions.

Volume Weighted Average Price of Offers (£/MWh) by Month and FLAG_STATUS

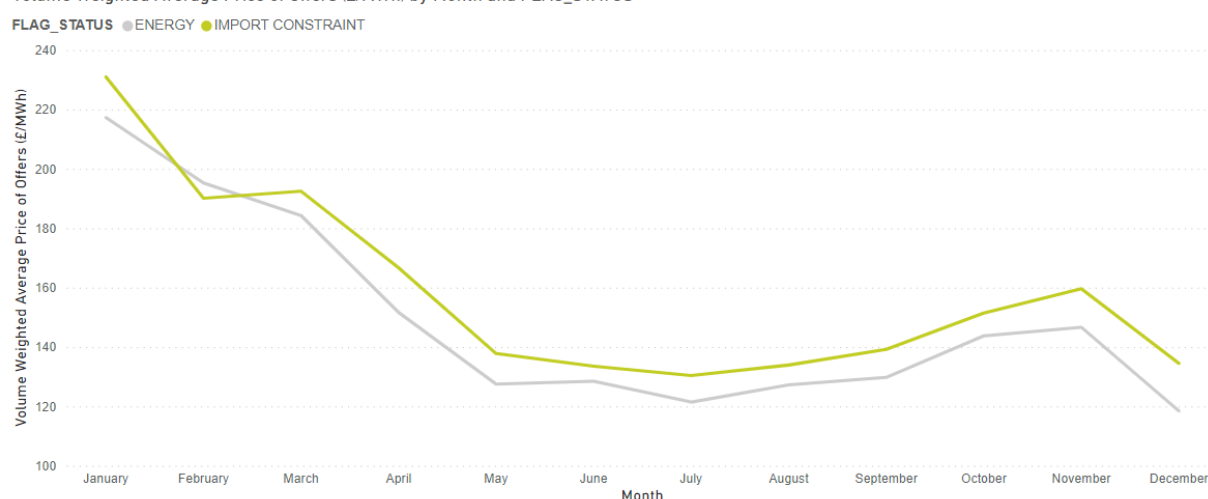


Figure 4: Volume weighted offer price for accepted BM Offers which have a **system flag** compared with those which don't have a system flag and are for actions classified as **energy**, monthly calculated data point

Volume Weighted Average Price of Offers (£/MWh) by SETTLEMENT_DATE and FLAG_STATUS

FLAG_STATUS ● ENERGY ● IMPORT CONSTRAINT

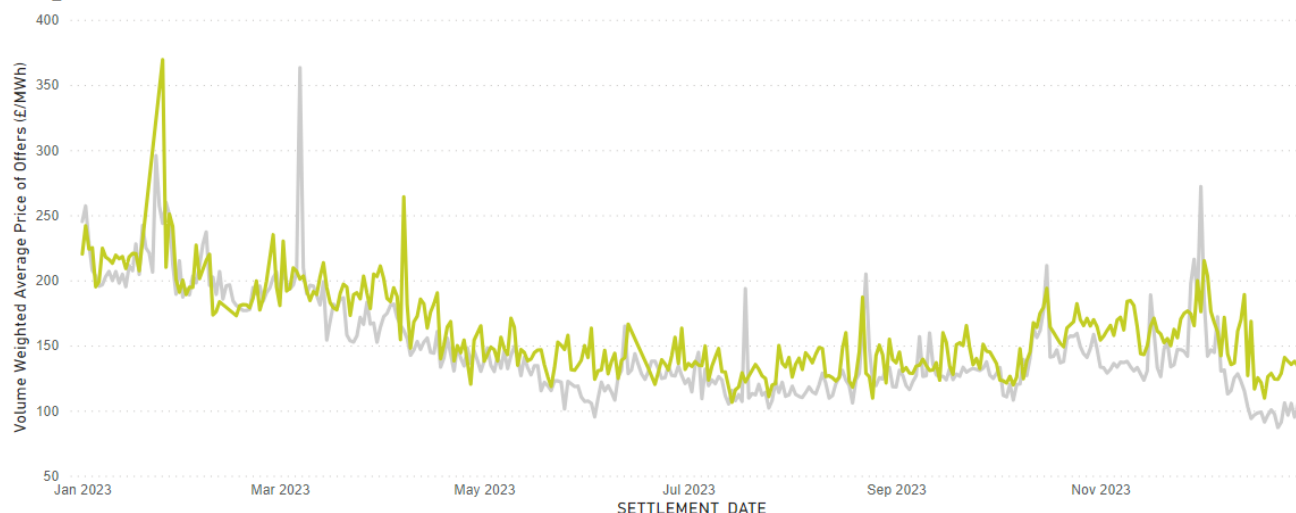


Figure 5: Volume weighted offer price for accepted BM Offers which have a **system flag** compared with those which don't have a system flag and are for actions classified as **energy**, daily calculated data point

There are periods where energy prices are above importing constraint offer prices, typically driven by scarcity of reserve. However, the typical timing requirements for voltage requirements and for inertia synchronisation which represent a very high proportional volume (see Figure 6) correspond to periods where market prices are typically lower, therefore the observation that they are often higher (See Figure 5) is more significant as even at lower volume weighted trade prices they may not be justifiable through market fundamentals.

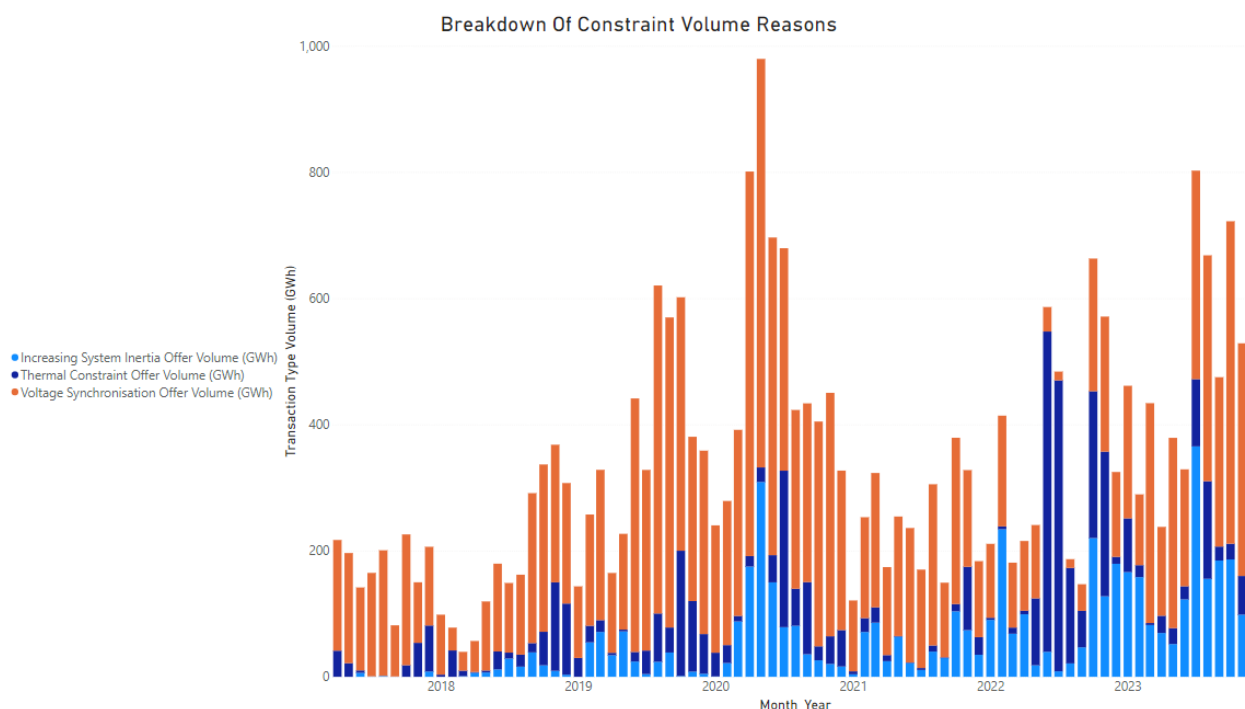


Figure 6: Volume in GWh of system flagged offers (import constraint costs) by transaction reason: **Increasing System Inertia**; **Thermal Import Constraint management**; **Voltage Synchronisation**

Despite support for import constraints being included within the transmission constraint licence condition, a unit should not be expected to offer their energy into the balancing mechanism at an uneconomic level due to their value in resolving a constraint condition or geography. For this reason, any guidance should make explicit reference to the benefits which could have been achieved in other energy markets such as the day ahead market, intraday market or wider balancing mechanism offer stack. The conditions applied in the inflexible offers licence condition are likely to be a good proxy for pricing expectation in an expanded TCLC and if kept broadly consistent should prevent an inherent disadvantage arising from the existence of a unit within a constrained area.

Specific case studies of this behaviour exist much more obviously at BMU level, but the purpose of this consultation response is not to identify individual units and therefore these examples have been anonymised.

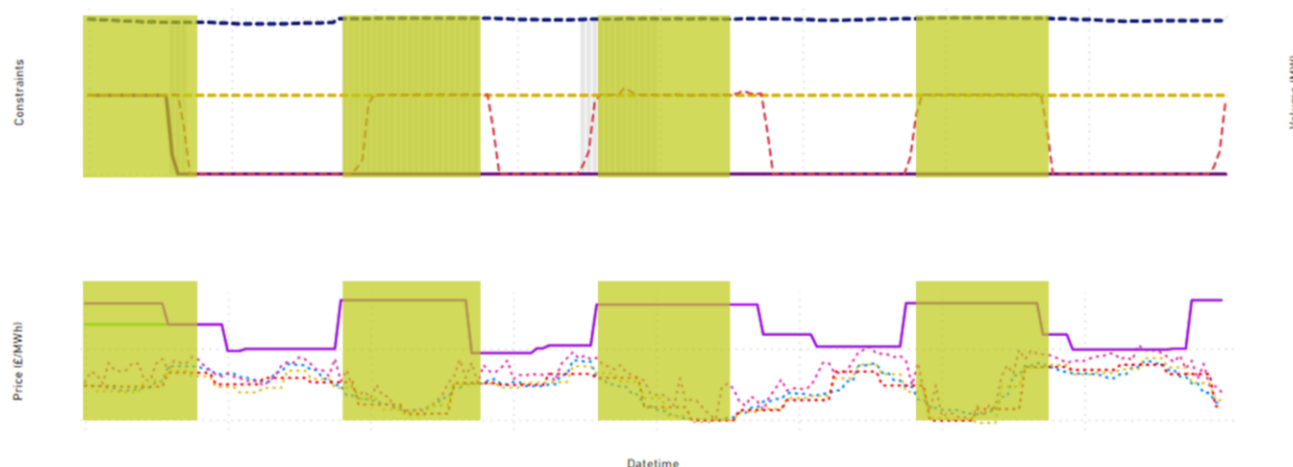


Figure 7: Demonstration of price responsiveness to constraint existence on an example unit. When a constraint exists (Import constraint period) the offer price appears to respond with an increase in the available price. This does not correspond to expectations of prices from wider markets as the increase in price appears in an overnight period when wider market prices are low (prices from wider markets indicated by dotted lines). As a result of constraint existence which requires a specific subset of units for voltage management overnight, offers are accepted (dashed line) at these elevated prices compared with the wider market. It is reasonable that the unit should have sought to recover costs and a reasonable profit within this period and that they should have flexibility in consideration of market prices which they require to self-dispatch, but it is less likely to be reasonable that they should have a higher cost and profit margin only during the periods impacted by the constraint existing which limits competition. However, should the unit be able to demonstrate a reason that these elevated costs were required (ie. Increased strain on the generating unit), then they should reasonably be able to defend that if investigated for TCLC.

In summary, it is evident that import constraint management prices are significant to the overall Balancing Services Use of System charges and that frequently these actions are taken at substantially higher prices than wider energy transactions. On inspection at individual case study level, it is demonstrated that some units price differently and higher in response to system flagged offers and that these prices may remain elevated for an extended period where longer duration constraints exist. All of this contributes to excess costs and therefore should be included within the TCLC legislation.

Expanding the TCLC bids to import or offers to export

ESO agree that TCLC should be expanded to cover bids to import or offers to export.

It is important to expand regulation to cover bids that reduce output below 0MW as part of the transmission constraint licence condition. Bids to import or offers to export are treated the same as bids to reduce output or offers to increase output. While there may be different costs involved in increasing or decreasing demand, these options should be subject to the same prohibition of excessive benefits.

Consumers face significant costs when demand on storage units increases and subsequently seeks to export energy within the same constraint period. Pricing against only competition for increased demand options does not lead to optimal consumer outcomes, when the service provided is treated equivalently to a reduction in output that is already governed by TCLC. Therefore, expanding regulation to cover bids that reduce output below 0MW is necessary to ensure fair competition and optimal consumer outcomes.

Replacing the requirements of the TCLC with an explicit cap on generators prices or profits in constraint periods

ESO disagree that the requirements of TCLC should be expanded to include an explicit cap on prices or profits in constraint periods.

Price or profit caps have potential to encourage inefficient market behaviour. While ESO do not believe any unit should receive excessive profits in the balancing services markets, we recognise that the costs and profit margins of individual units are wide ranging and that legislating for all acceptable pricing methodologies would be extremely difficult without introducing market risks.

We have concerns that introducing explicit price caps could lead to clustering behaviours around the market cap instead of cost-reflective behaviours. Similarly, if a cap on profits were introduced, a small but significant portion of the market that derives revenues from infrequent but high-priced balancing services market activation may be unable to reflect this in their pricing. This market segment is important for operability requirements and makes a valuable contribution to the wider power market.

While a profit cap may lead to greater certainty, clear guidance on what should be included within bid and/or offer prices during constrained periods, with a requirement for a well-documented pricing strategy which does not relate to transmission constraint periods provides much greater flexibility. This also prevents units behind constraints from being inherently disadvantaged where they operate under a different costs or benefits model by providing for flexibility to track wider market metrics.

Extending the requirements of the TCLC to providers of balancing services other than licensed electricity generators

ESO agree that TCLC should apply equivalently irrespective of connection method, unit type or unit size. While we recognise that cost bases will be different for different unit types this is appropriately covered for within TCLC itself.

While all units have different cost drivers which must be understood and included within assessment of a TCLC breach, it is believed that all providers inclusive of those not covered by the electricity licence should be considered.

This is particularly significant when considering interconnector trade parties who on occasion will need to reduce import or increase export to alleviate constraint conditions caused by a combination of transmission system outages, total import/export volumes and demand. In many cases interconnector trades have no alternative balancing mechanism actions which can resolve the issue. Therefore, this leads to potential for excessive benefits by virtue of requiring significant proportions of the overall interconnector volume available. 20th July 2022 is an understood and published event where system conditions led to this form of requirement. Excessive consumer costs were borne while some trading parties benefitted significantly compared with the spreads and risks taken with actions up to £9754/MWh.

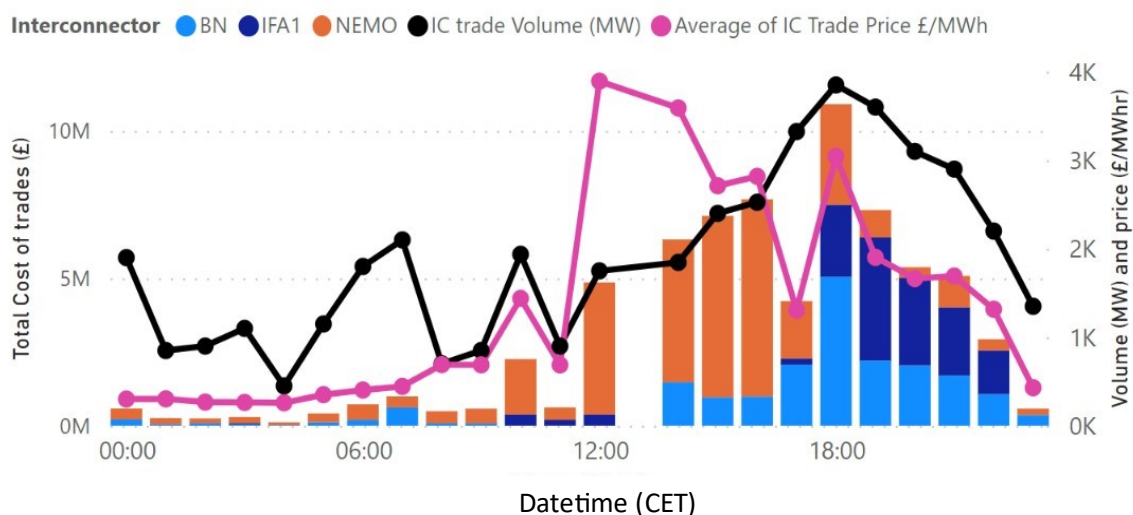


Figure 8: 20th July 2022 interconnector trading cost prices and volumes plot

Like the Balancing Mechanism, these ESO interconnector auctions are normally liquid and competitive but on occasion lead to the potential for excessive benefits to be achieved. Furthermore, the market disparity between interconnector trade parties and licenced generators is important to address; should interconnector trade parties be able to seek excessive benefits but GB generators not able to, this has potential to create a significant market disparity across multiple Gigawatts of energy market availability in GB. Many of the most expensive transactions on an average price both from an export and import perspective are driven by transactions with interconnector trading parties.

In summary, while a fair market structure should consider all generation parties equivalently irrespective of their connection type or size, interconnector trading parties represent a very large market segment that are a priority for inclusion within this licence condition to prevent disparities in opportunities for GB BMUs as compared with interconnector trading parties. Similarly, as ESO develops methodologies for the dispatch of small non-BM assets for constraint management purposes such as the local constraint market, ensuring fair competition between these different markets is important and would be partially resolved through consideration within an expanded TCLC.