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Response to the Ofgem consultation on the Transmission Constraint Licence Condition Guidance 2023

1. The Renewable Energy Foundation (REF) is a UK charity that publishes data and analysis on the renewable energy sector. The costs of payments to on- and off-shore wind farms to reduce output during periods of constraints are included in REF's published data. Since 2010 we have repeatedly expressed our concerns that wind farm constraint payments are an excessive and unfair burden on consumer bills.

2. Although the steep increase in constraint costs is referred to in the guidance document, the extent of the increase (from approximately £300m in 2010 to £1bn in 2023) is not made clear nor that this is mainly attributable to the large-scale deployment of wind farms in Scotland behind the well-known thermal constraints between the north of England and Scotland, and within Scotland. Direct payments to wind farms have increased 12-fold between 2010/11 and 2023 with the annual total for 2023 reaching an all-time high of £307 million. This total does not include the costs for the ESO, and ultimately the consumer, of dispatching generators to make up the constrained volume on the other side of the constraint.

Question 1: Are there additional areas of background that respondents would find it useful to have covered in the guidance?

3. There are two areas that we believe could be usefully expanded on: setting accurate prices in the BM and more explicit detail on the subsidy regimes impacting the bid price levels.

Setting accurate prices in the BM

4. It appears that some wind farm generators may not be entering bid and offer data into the Balancing Mechanism correctly with the consequence that expensive errors occur. It is not clear to us whether these errors have any impact on the generators or if the cost of the error is borne by the consumer.

5. We have some sympathy for data entry errors because the BM data system appears highly over-engineered and over-complex. It is also not clear that the ESO is providing useful feedback when data which is probably patently wrong to the ESO is entered into the system.

6. A recent example appears to have occurred on 27 January 2023 when Aikengall II was apparently paid £203,518 in a single half hour period (settlement period 10). This huge payment was not a result of an excessive bid price but an excessive offer price as part of the bid-offer pair. The pairing of bids and offers is not covered in this guidance which over-simplifies how prices to reduce output are submitted by the generators.

7. Our understanding is that a bid price to reduce output in any half hour must always have an offer price for returning the output MW to the final physical notification level at the end of the half hour i.e. there is a bid-offer pair for reducing output. Analogously, there is an offer-bid pair for increasing output. Four different prices are submitted. For the bid/offer pair of prices for reducing output, Aikengall II submitted (-£93.50) per MWh to reduce output and £99,999 per MWh to increase output back to its submitted FPN. (On the offer-bid pair for increasing output, Aikengall II has set £99,999 per MWh to increase output and -£93.50 to decrease output back to its submitted FPN.) Because the ESO apparently instructed Aikengall II to return to its FPN within the half hour period (possibly also in error), the £99,999 per MWh price to increase output back to normal resulted in a huge cost for a trivial volume of electricity.

8. The correct settings for the bid-offer pair for reducing output should probably be (-£93.50) and £0 i.e. the generator seeks to be paid £93.50 per MWh for any reduction in output within the half hour but does not seek payment for returning to the projected output.

9. There is the potential for inaccurate pricing in the offer half of the bid/offer pair making up a constraint instruction to result in high constraint costs and this situation is not covered at all in the guidelines. In fact, the statement in the guidance that the *TCLC only applies to "reductions in generation"* could be unhelpfully imprecise. The intention is surely that the TCLC applies to net reductions in generation in any settlement period.

Subsidy regimes impact on bid prices

10. Paragraph 2.33 on the impact of subsidies in the consideration of the TCLC provides insufficient detail given the overwhelming lack of understanding of even industry players of the interplay between constraint bid prices and subsidies forgone (or in the case of CfD's when wholesale prices are high, bonuses received).

11. At paragraph 2.41 reference is made to "comparable generators" to provide evidence of reasonable pricing. However, we believe it would not be at all straightforward for market participants to determine which wind farm generators would be comparable given the range of subsidy mechanisms.

12. In the case of RO-subsidised wind farms it should be spelled out that there are multiple ROC bands. Of the onshore wind farms in the BM, the older plants are in receipt of 1 ROC per MWh so forego roughly £60 per MWh constrained off, but the more modern wind farms are in the lower 0.9 ROCs per MWh band so only forego £54 per MWh. This assumes a ROC is worth £60 which is approximately correct for 2023/2024.

13. In the case of RO-subsidised offshore wind farms there are examples in the 1, 1.5, 1.8, 2.0, 2.5 and 3.5 ROCs per MWh bands so that the subsidy foregone ranges from £60 to £210 per MWh.

14. There are now a number of wind farms (32 BM units) which are not in receipt of either ROCs or the CfD, either because they are financed via a commercial Power Purchase Agreement or have not yet activated their CfD. These wind farms lose no subsidy when bid down so their costs of being constrained off and thus, their bid prices ought to be close to zero.

15. The CfD generators, of which there are 28 BM units would forego the subsidy which is the difference between the strike price and the reference price, but only if the reference price (day ahead forward price) is lower than the strike price. However, in recent years, there have been significant periods where the reference price exceeds the strike price, in which case a fair bid price should be positive – i.e. such that the bonus on top of the strike price received by the generator when constrained off the grid is returned to the ESO (and ultimately to the consumer).

16. These differences in the subsidy regimes should be spelled out clearly in the guidance.

Question 2: 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?

17. In our earlier consultation responses on the TCLC we raised the issue of submission of inaccurate FPNs resulting in increased consumer costs at times of constraint because the volumes being paid for were potentially higher than they would have been absent a constraint.

18. Two academic papers have since been published that raise the issue of inaccurate wind farm FPN submissions.[1] Intini and Waterson state "*we observe that in making their final physical declarations of output, the sample windfarms overestimate their final physical notifications of generation, the more so when other circumstances suggest constraints will be required*".

19. It is not clear from paragraph 1.21 and 1.22 whether inaccurate FPN submissions are deemed to be a breach of the TCLC. Since it is the multiple of FPN and the bid price that determines the costs of constraints we believe it should fall within the scope of the TCLC. Splitting enforcement of the two parts of the total cost between the TCLC and REMIT would be bizarre and inefficient.

Question 3. Are there any areas where respondents consider that the proposed changes to the guidance are unclear?

20. We understand that a number of the wind farm generators in receipt of constraint payments have been granted an exemption from having to hold a generation licence. Having read paragraphs 1.18 and 1.19 several times, it is not clear how breaches of the TCLC by such wind

[1] "Strategic behaviour by wind generators: an empirical investigation", Intini & Waterson, International Journal of Industrial Organization, **89**, 2023. "Accuracy of wind energy forecasts in Great Britain and prospects for improvement", Forbes & Zampelli, Utilities Policy, **67**, 2020.

farms could be policed. Is it the case that generators that are exempt from holding a transmission licence are outside of the TCLC and that the only means of enforcing fair bid pricing strategies is via the Competition Law? If this is the case it is not clear in the guidance. If it is the case that some wind farms are subject to the TCLC and some are not then this would clearly be unsatisfactory and should be remedied by removing the exemptions if necessary.

21. The issue raised in 2015 where generators were not aware that a system constraint had occurred until after a bid had been accepted by the ESO by which time it was too late for them to change their bid prices is clearly still unresolved in any satisfactory way. Furthermore, the National Grid "*System Management Action Flagging Methodology Statement*" referred to in the guidance makes it clear that there is no guarantee that accepted bids are always correctly flagged as resolving a system constraint. Thus, reliance on the system flag is not always possible even if it were available in a timely manner, which it is not. This is unreasonable and the guidance should provide fair advice to generators on whether their bids are likely to result in a TCLC investigation. It seems sensible that all wind farms behind the Scottish constrained boundaries should be advised to assume that any accepted bids to reduce output are to be considered necessary to resolve a system constraint and to price their bids accordingly.

Question 4. Are there any examples of material costs or benefits of curtailment that are missing from Table 1?

22. Avoided balancing charges seem to have been overlooked on the benefits side and the value of REGOs forgone on the costs side.

Question 5. Are there circumstances which could objectively justify bid prices that would otherwise be excessive, which are not captured in the updated guidance?

23. We are not aware of any.

Question 6. Do respondents have any other comments on the proposed changes to the TCLC guidance?

24. In REF's response to the 2015 consultation on constraint costs we calculated that the premium or profit being taken by onshore wind farms after subsidy forgone was accounted for ranged from £16 per MWh to £105 per MWh.

25. We have repeated the calculation of the average annual premium when bid down for wind farms in 2023 taking into account bid prices submitted in each half hour, subtracting the costs of the generator-dependent RO subsidy which would be forgone (assuming a ROC value of £60), or any CfD top-up subsidy forgone. We also include generators with private support arrangements where no public subsidy is forgone. This allows comparison of the range of potential profits or 'costs' of being bid down across the range of wind farms in the BM. Our latest calculations show the premium sought by the bid pricing strategy of wind farms to range from £10 per MWh to £195 per MWh.

26. Figure 1 shows the range of these average annual premiums per BM unit in 2023, colour-coded to indicate the various subsidy regimes. What this shows is that there is a very wide range of pricing for this single technology and the apparent 'costs' of not generating are extremely and implausibly high in most cases. If some wind farm can reduce output for £10 per MWh, it is extremely difficult to understand why others charge over £100 per MWh.

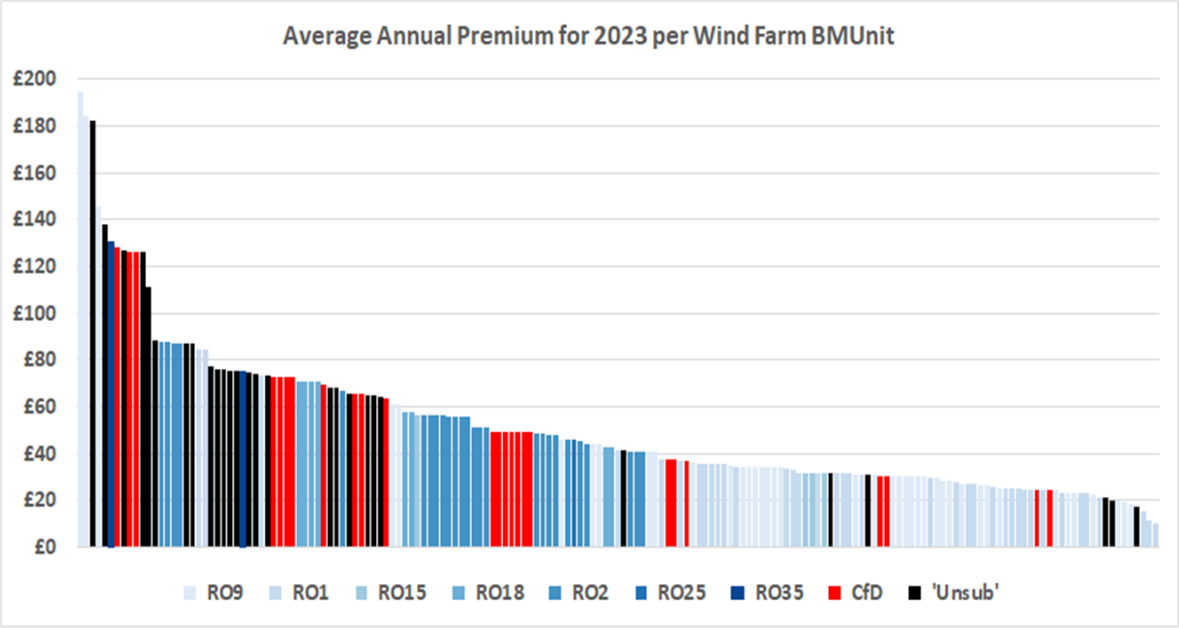

Figure 1. The average premium in GBP/MWh above any subsidy forgone for subsidised and unsubsidised wind BM units in 2023. In the case of RO subsidised BM units the RO band is taken into account in determining the potential subsidy that would be foregone. The key codes are R09 for generators in the band receiving 0.9 ROCs per MWh, RO1 = 1 ROC per MWh, RO15 = 1.5 ROCs per MWh, RO18 = 1.8 ROCs per MWh; RO2 = 2 ROCs per MWh; RO25= 2.5 ROCs per MWh; RO35 = 3.5 ROCs per MWh. CfD represents the average annual premiums charged by the various CfD-supported generators. 'Unsub' the average annual premiums charged by generators which are subsidised by private commercial agreements rather than public subsidies.

27. Figure 2 shows the distribution of premiums above subsidy forgone.

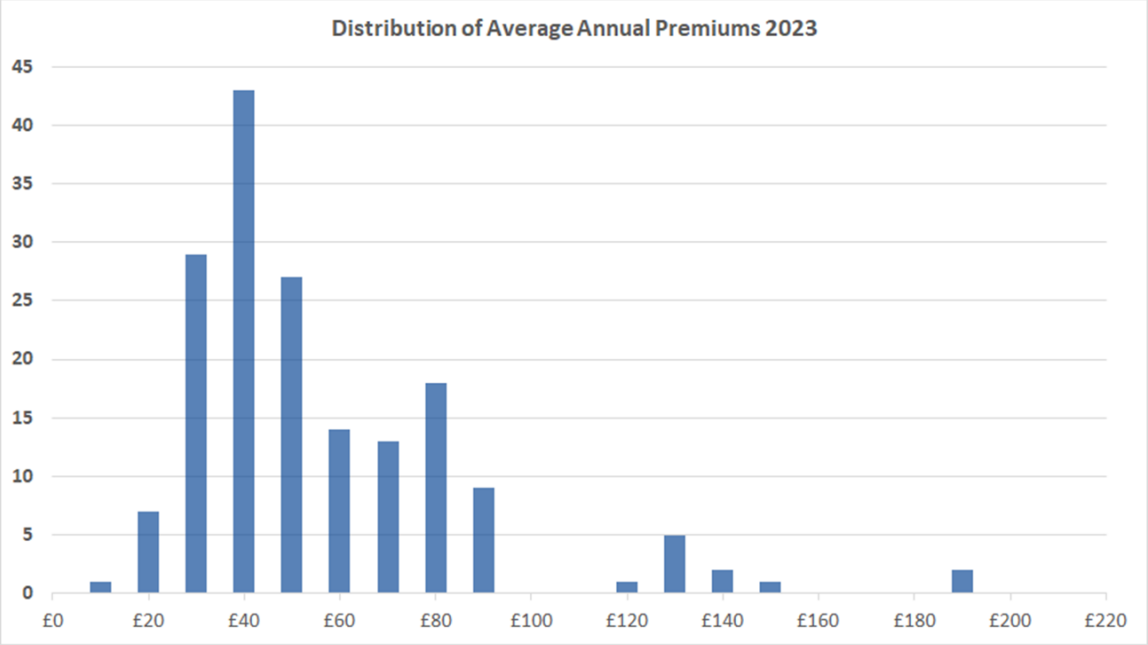

Figure 2. The frequency distribution of average annual premiums charged for reducing output in GBP/MWh above any subsidy forgone for subsidised and unsubsidised wind BM units in 2023.

28. Figure 3 shows the actual total constrained off volumes from ESO-accepted bids in 2023 for the wind farm units in Figure 1 displayed in the same order for comparison purposes, such that the units with the highest constraint premiums are on the left.

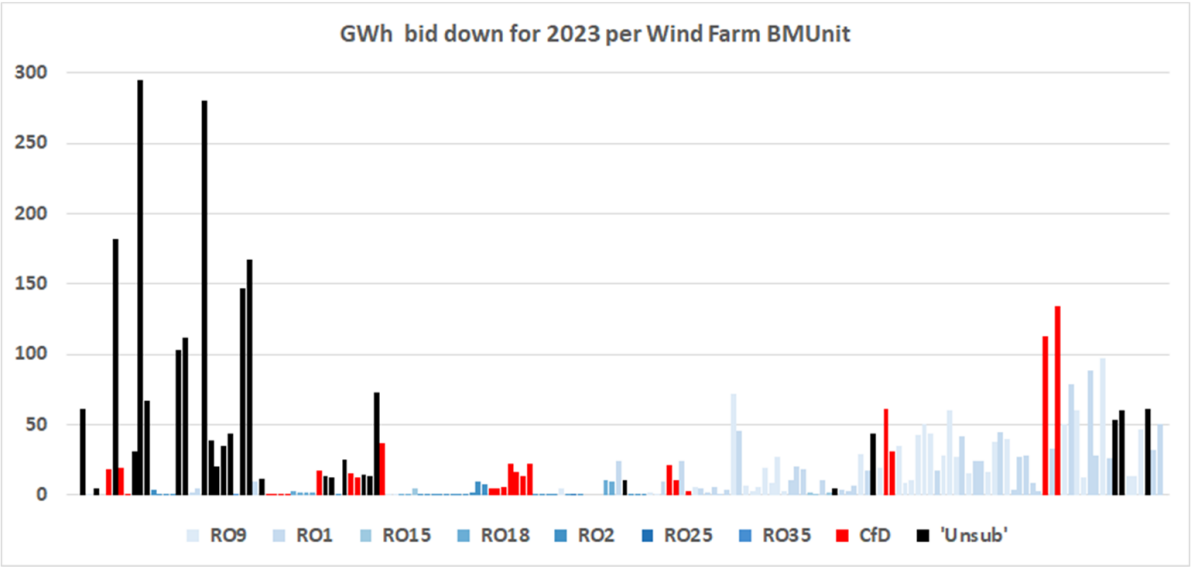

Figure 3. The total GWh of accepted bids for the wind farms in Figure 1. The order of wind BM units is that same as in Figure 1, as is the key.

29. This shows that many of the generators charging the highest premiums and the most expensive for impact of costs on consumers are being bid down most often which undoubtedly accounts for the very high constraint costs in 2023.

30. It is not clear that the imposition of the licence condition in 2010 has had any significant impact on bid prices over the last 13 years. Why? Guidance is one thing but if Ofgem fails to investigate and explain, costs will inevitably keep rising.