

REF

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Response to the Ofgem consultation on future of the Transmission Constraint Licence Condition

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 the 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 this consultation concerns both import and export constraints, we note that export constraints' costs exceed those of import constraints by nearly 9 times¹, and that the majority of the export constraints' costs arise from the two locations designated by National Grid as Cheviot and Scotland. This problem has clearly arisen because of the large scale deployment of onshore wind farms in Scotland prior to construction of infrastructure capable of exporting the excess generation from these locations. In this response we have concentrated on the impacts of the TCLC on the Scottish onshore wind fleet.
3. In order to respond to this consultation we have analysed two sets of bid price data: the wind farm bid prices accepted by the system operator since 2010 as well as all the bid prices submitted by wind farm operators but not necessarily accepted by the system operator.

Question 1: What are your views on the impact of TCLC on the behaviour of market participants?

4. It is not clear that the imposition of the licence condition has had a *major* impact on bid prices. The major fall in prices occurred earlier - at the end of 2011. While prices in November to December 2012 were lower than for January to October 2012, that could be explained by the consistent downward trend in bid prices since

¹ National Grid MBSS reports for the financial year ending March 2016 showed that the total constraint net cost for exports was £283 million compared with £33 million for imports.

the beginning of 2012, and thereafter. We see from the bid offer price data that average bid prices have fallen each year since 2012.

5. The figure below shows average bid prices for onshore wind farms since 2010-11 standardised for changes in the composition of the fleet, and separated into those that are subject to the TCLC and those that are exempt from complying with the licence condition.² Average bid prices fell sharply from 2010-11 to 2012 and have continued to fall more gradually since 2012. Exempt wind farms – those not subject to the licence condition – had much higher standardised bid prices in 2010-11 but the relative difference between exempt and non-exempt wind farms has been small since 2012. From 2013 to 2015 the average standardised bid prices for licence exempt wind farms were lower than those for non-exempt wind farms which suggest that price reductions are not attributable to the TCLC.

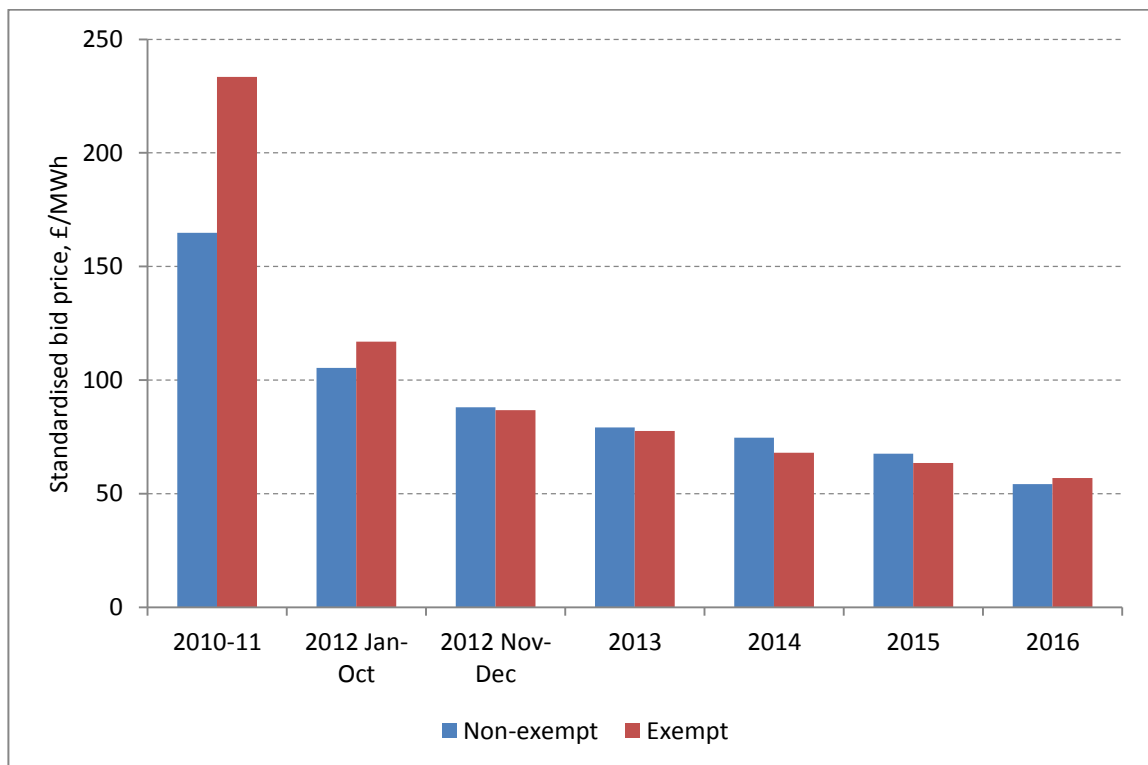


Figure 1. Average standardised bid prices submitted by onshore wind farms by licence category

6. Figure 2 shows the trend in average bid prices submitted by the set of Scottish onshore wind farms which have been participants in the Balancing Mechanism participants since 2011.

² The standardisation uses a multiplicative specification and takes account of the age of the wind farm, the operator, turbine manufacturer and turbine size. All of these variables have a significant impact on bids.

7. The individual wind farm prices show that in the early years of wind farm constraint payments, the participants seemed uncertain about setting prices. There were many instances of prices of £99,999, or £9,999 or £999 or £5000 per MWh to reduce output. These were clearly meant to signal to the system operator that the wind farm operators were unwilling to reduce output in any circumstance. These infeasibly high prices are occasionally still seen – sometimes, but not always, when a wind farm is in its commissioning phase - and the specific reason for setting such prices is not clear.

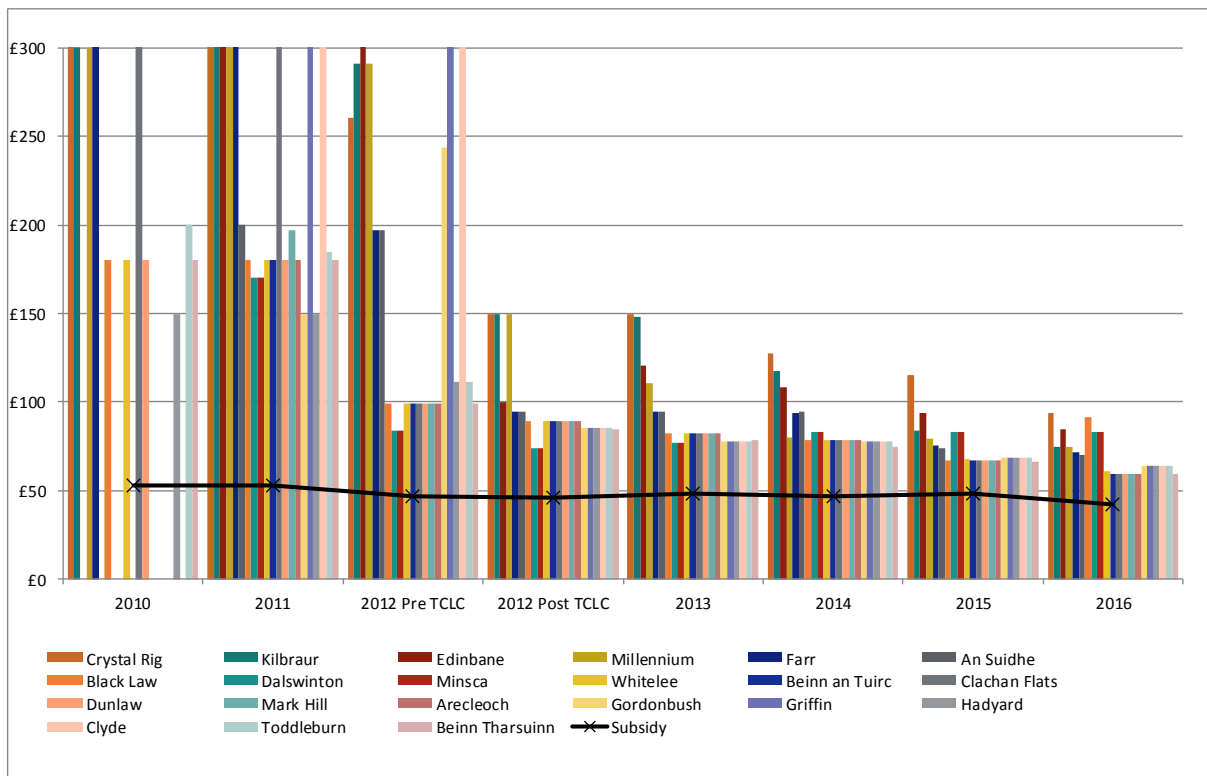


Figure 2. Average bid prices in GBP per MWh per year submitted for wind farms in existence in 2011 plus the average subsidy level (ROC + LEC) for that period.

8. It appears to be a common practice in the balancing mechanism system to 'overload' the bid price data field in order to send multiple signals to the system operator. This is a bad data practice in any enterprise. It has led in the past to the highly unsatisfactory situation where the system operator has had to pay £999 per MWh for a wind farm to reduce output. Ofgem should actively discourage the balancing mechanism participants from permitting this practice as a matter of good data management. A separate specific data field should be available that enables a generator to indicate to the system operator that particular conditions – preferably made publicly explicit – mean that output cannot be reduced except under emergency conditions.

9. The bid price scale on Figure 2 has been set to a maximum of £300 per MWh to focus on the prices most likely to reflect the wind farm operator's view of the appropriate price for reducing output. As in Figure 1, it can be seen that in the first 10 months of 2012, prior to the introduction of the TCLC, the bid prices of the majority of wind farms had settled at a level around £100 per MWh. After the introduction of the TCLC, prices fell by about £15 per MWh.
10. Figure 3 shows bid price changes for six Scottish Power wind farms which have shared the same bid price since before the introduction of the TCLC.

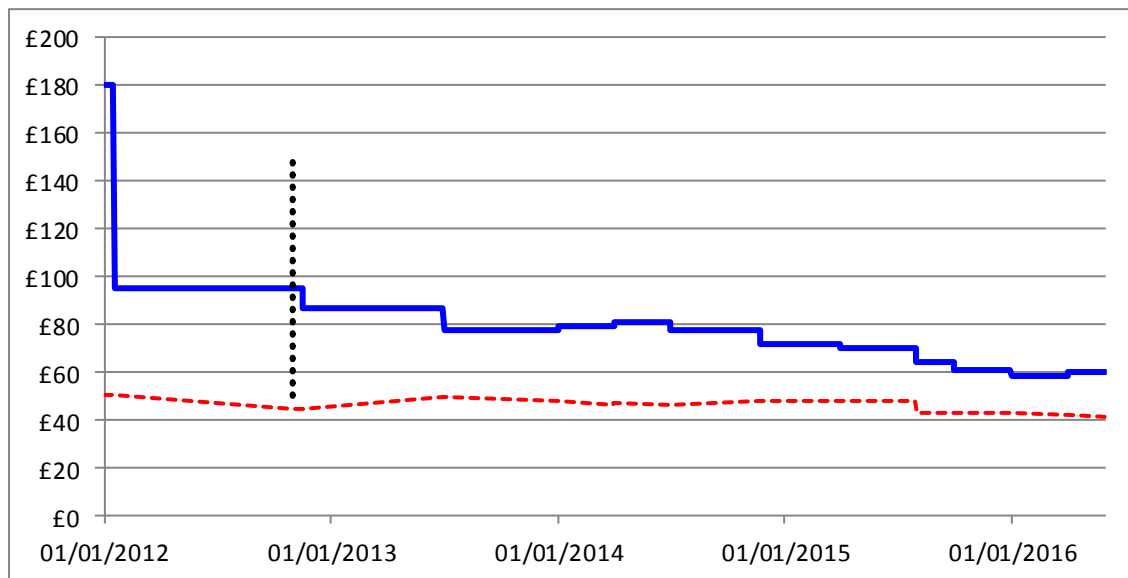


Figure 3. Bid prices in GBP per MWh since 1 January 2012 for Black Law, Dunlaw Extension, Clachan Flats, Mark Hill, Arecleoch and Beinn an Tuirc wind farms (Blue line). The black vertical dotted line marks the introduction of the Transmission Constraint Licence Condition. The red dashed line is the subsidy level over the period determined from the average ROC price obtained at auction plus the prevailing value of the Climate Change Levy Exemption Certificates.

11. This shows that the TCLC may have triggered the price drop of £8 per MWh which occurred 2 weeks after the introduction of the TCLC, but subsequently, there have been 7 further price falls ranging between £2 and £9 per MWh. There have been 3 price rises. It seems unlikely that these price changes can be attributed to the TCLC.
12. Nor is it clear that changes in subsidy (which represents the value foregone when a wind farm's output is reduced) have triggered the rises and falls in the bid price since the movements in subsidy level plotted in Figure 3 are not mirrored by the bid prices. The exception to this is the sharp downturn in both bid price and subsidy seen at 31 July 2015. As of 1 August 2015, renewable energy generators were no longer entitled to claim the levy exemption certificate which was worth at that time

£5.54 per MWh. Both SSE and Scottish Power reflected this reduction in subsidy entitlement in the bid prices submitted for their wind farms, although no other wind farm operators appear to have done this.

13. Appendix 1 lists the bid prices of onshore and offshore wind farms at 31 May 2016. This shows that onshore wind farms apparently require a supplement of between £16 and £94 per MWh on top of the subsidy foregone to reduce output. In the case of offshore wind farms the range is £38 to £105 per MWh on top of the subsidy foregone to reduce output. These wide ranges strongly suggest that the bid prices are not based on cost of reducing output.
14. In Appendix 2 we have also plotted the bid prices for the range of wind farms submitting bid prices in the balancing mechanism. This shows that all operators tend to follow a similar pricing strategy for the wind farms in their portfolio once they are fully commissioned. Figure 4 shows the bid price changes per operator for the most recent year.

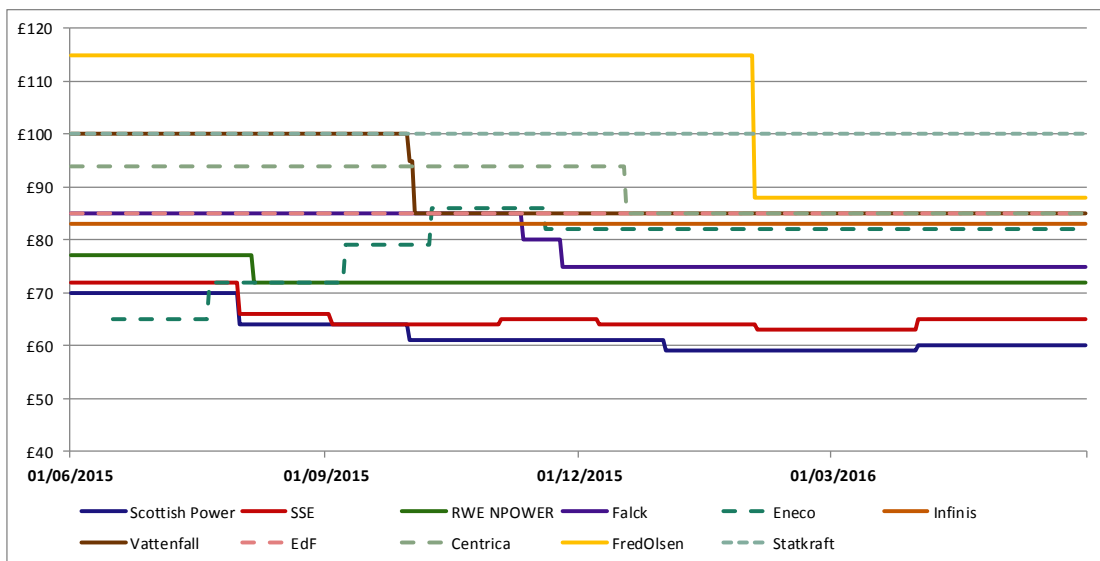


Figure 4. Indicative Bid Prices in GBP per MWh to reduce output set by onshore wind owner/operators for the year to 1 June 2016. Where more than one price is set for different wind farms, the price set for the majority of wind farms per owner/operator is plotted. Infinis, EdF and Statkraft have not changed their bid prices over the year; Eneco's prices have risen; the remainder have decreased over the year.

15. The evidence from all these datasets indicates that while bid prices have tended to move generally downwards, different operators have different bidding strategies. This leads us to conclude that bid prices are not reflecting costs of reducing output but are being set in response to market forces.

16. This raises the issue of whether constraint prices should be subject to market forces. We believe that the pool of Scottish wind farms in the areas where constraints bite and that are participants in the Balancing Mechanism is too small for a realistic market to operate effectively and that the current situation is contrary to consumer interests.
17. On the basis of Ofgem's pre-consultation seminar, we understand that Ofgem believes that constraint payment bid prices should not be a market price but rather a fair reflection of the costs of reducing output. This interpretation seemed at odds with that of the market participants who pointed out that they are not made aware when a constraint exists because that information is deemed confidential by the system operator.
18. It is our contention that whenever a wind farm is required to reduce output, it should be assumed that a constraint has arisen and that market-based bid prices should not be permitted. Furthermore, we believe that an appropriate bid price should be the subsidy price forgone and no more than that. This would ensure that onshore wind farms receiving 0.9 of a ROC per MWh, and offshore wind farms receiving 1.5 ROCs per MWh would have bid prices lower than those receiving 1 and 2 ROCs respectively.
19. We note that the proliferation of Scottish onshore wind farms has caused and exacerbated export constraints and thus it seems unreasonable that they should be rewarded with additional profit, made at the consumers' expense and above that already inherent in the renewable subsidies, as a result of the necessity to curtail output. This should be seen as part of the risk of building non-dispatchable generation in an area of limited infrastructure, rather than incentivising building in such areas as the current system of rewards does.
20. We note that if the 2012 version of the TCLC had capped constraint payments at the level of the subsidy foregone, the consumer would have been saved an additional £80 million since October 2012. As the volume of constraint payments is increasing yearly and is likely to continue given the backlog of Scottish wind farms with planning consent, making such savings will become increasingly significant.

Question 3: What have been the benefits of TCLC?

21. The TCLC was set up to be a market abuse condition, and on the basis of the Ofgem seminar, the purpose was to ensure bid prices covered only the costs of reducing output during a constraint. However, the idea that operators are submitting bids

based on their constraint costs is clearly contradicted by the patterns of systematic differences in bids across operators, turbine types, etc. which leads us to conclude that the bids reflect the market strategies of different operators. Establishing a basis for identifying and penalising market abuse is a reasonable goal and clearly in the interest of the consumer, but Ofgem needs to be clearer about what they require of the market participants. Until the requirements of the TCLC are utterly clear and the evidence of costs in the public domain, it is impossible to quantify the benefits in any meaningful way.

Question 4: Should the scope of TCLC be widened to include licence exempt generators participating in the BM?

22. Yes, insofar as it makes no sense for generators to operate under two separate regimes. That being said the bid price evidence (as distinct from the accepted prices) does not show a significant difference between pricing from exempt generators and non-exempt generators.

Question 5: What are your views on extending TCLC until 2019 in its current form as allowed by current legislation?

23. The TCLC should be extended but the terms should be changed so that bid prices are capped at the level of the subsidy foregone if output needs to be curtailed.

Question 6: What are your views on extending TCLC beyond 2019 with a further review after five years?

24. We agree that the TCLC – in the improved form described above – should be extended until it is clear that there is no longer any need for such a condition.

Question 7: What are the risks and benefits of introducing an extension of TCLC?

25. The benefits are that there would be an effective cap on consumer costs, as long as the terms are made clearer and some of the existing flaws are addressed. If not, there is a risk that the TCLC will be perceived to be toothless and will be ignored as was suggested by some of the industry participants at the Ofgem seminar. The major flaws that need addressing are that BM participants don't know when a constraint exists and that there is no clear definition in the TCLC of an appropriate cost-based bid price.

Question 8: Do you have any concerns around TCLC you want to raise?

26. We have the following three concerns.
27. Firstly, it emerged during the Ofgem seminar launching this consultation that balancing market participants are not told when a constraint exists at the time that bid prices are submitted to the system operator. Apparently, the information is deemed to be commercially confidential by the system operator.
28. This fact would suggest that the TCLC, as currently designed, is legally unenforceable. A wind farm operator may consider it reasonable to set a market bid price assuming constraints are not in place but have a separate lower, cost-based bid price for when constraints exist. If an operator is not permitted to know when a constraint exists and thus, when to submit the cost-based price, it would be unreasonable to accuse that operator of seeking to exploit the constraint by setting an excessive price.
29. The solution to this conundrum would be to assume that if a wind farm is asked to reduce output, a constraint of some type exists, and that only cost-based bid prices are acceptable. It follows that there should be a single price mechanism for wind farm bid prices set at the level of the subsidy forgone.
30. Secondly, in our consultation response in 2012, we raised our concerns about the accuracy of wind farm generators in matching their FPNs. Where a generator cannot demonstrate it is reliable at delivering the notified power, it seems unlikely that the appropriate level of constraint payment can be fairly established. For example, we imagine this is particularly the case at times of high winds. It would be unacceptable if a wind farm were paid to reduce output if high wind conditions would have necessitated it ceasing generating in any case.
31. We have seen no analysis of the reliability of matching FPNs by generator type which is surely a fundamental issue in determining a fair, cost-based bid price. If there is uncertainty in the accuracy of delivering power at the FPN level, we would like to see this uncertainty reflected in an appropriate lowering of bid prices.
32. Finally, we understand that Ofgem has evidence that bid prices accurately reflect costs but this is not publicly available. We believe that transparency is vital for public confidence in the system and that this evidence should be published.

Question 9: What are your views on the interactions between TCLC and

REMIT Article 5?

33. The wording of REMIT has a let-out clause which weakens it, whereas the TCLC has, as the Ofgem consultation notes at paragraph 5.4, a more specific obligation not to set excessive prices in the event of a constraint. The REMIT wording at 2(2)(a)(ii), and mirrored at 2(3)(a)(ii) seeks to prevent the setting of prices at an 'artificial level' **unless** it can be proven that the price was set for legitimate reasons and that it conformed to 'accepted market practices'. We understand that the definition of what are 'accepted market practices' is the responsibility of Ofgem.
34. This built-in defence included in the REMIT regulation causes us to believe that REMIT could not unequivocally prevent excessive prices being charged for constraint actions. The TCLC has the potential to be a more straightforward mechanism for preventing market abuse.

Question 10: What are the risks and benefits of relying on REMIT to address the behaviours prohibited by TCLC, as compared to the risk and benefits of keeping the TCLC?

35. It is our position that REMIT is unlikely to prevent excessive constraint prices because it permits the defence of 'accepted market practices' if prices are deemed to be artificially high. Making an assessment of the diffuse ideas of 'accepted market practices' and 'artificial' prices seem unnecessarily onerous for the regulator. Consequently, we believe there is a distinct risk that consumers would be burdened with unfairly high costs if REMIT was deemed to be a satisfactory replacement for TCLC. We believe TCLC has flaws but that they can be remedied by capping bid prices at the level of the subsidy foregone.
36. Consequently, we don't believe that REMIT is equivalent to an improved TCLC and that it could not offer satisfactory protection to the consumer.

Appendix 1 Wind farm bid prices as at 31 May 2015

Table 1. Bid prices submitted 31 May 2015 for reducing output by onshore wind farms showing the subsidy per MWh and the surplus portion of the bid price over the subsidy forgone.

BMUnit	Wind Farm	Bid Price per MWh	Owner	ROCs per MWh	Subsidy Lost per MWh	Surplus charge per MWh
T_BLLA-2	Black Law Ext ³	£135	Scottish Power	0.9	£40	£94
E_BRYBW-1	Berry Burn	£100	Statkraft	0.9	£40	£60
E_BABAW-1	Baillie	£100	Statkraft	1.0	£45	£55
T_CRGHW-1	Carraig Gheal	£97	GreenPower	1.0	£45	£52
T_CRYRW-2	Crystal Rig II	£88	FredOlsen	1.0	£45	£43
T_ACHRW-1	AChruach	£83	Infinis	0.9	£40	£43
E_TULWW-2	Tullo Ext	£83	Eneco	0.9	£40	£43
E_MOYEW-1	Moy	£82	Eneco	0.9	£40	£42
T_LCLTW-1	Lochluichart	£82	Eneco	0.9	£40	£42
T_EDINW-1	Edinbane	£85	Vattenfall	1.0	£45	£40
T_FALGW-1	Fallago Rig	£85	EdF	1.0	£45	£40
E_GLOFW-1	Glens of Foudland	£85	Centrica	1.0	£45	£40
E_GDSTW-1	Gordonstown	£83	Infinis	1.0	£45	£38
E_MINSW-1	Minsca	£83	Infinis	1.0	£45	£38
E_DALSW-1	Dalswinton	£83	Infinis	1.0	£45	£38
T_KILBW-1	Kilbraur 1	£75	Falck	1.0	£45	£30
T_MILWW-1	Millennium 1	£75	Falck	1.0	£45	£30
T_FARR-1	Farr Unit 1	£72	RWE NPOWER	1.0	£45	£27
T_FARR-2	Farr Unit 2	£72	RWE NPOWER	1.0	£45	£27
T_ANSUW-1	An Suidhe 1	£70	RWE NPOWER	1.0	£45	£25
T_GRIFW-1	Griffin 1	£65	SSE	1.0	£45	£20
T_CLDSW-1	Clyde South	£65	SSE	1.0	£45	£20
T_TDBNW-1	Toddleburn	£65	SSE	1.0	£45	£20
T_CLDCW-1	Clyde Central	£65	SSE	1.0	£45	£20
T_GRIFW-2	Griffin 2	£65	SSE	1.0	£45	£20
T_HADHW-1	Hadyard Hill	£65	SSE	1.0	£45	£20
T_CLDNW-1	Clyde North	£65	SSE	1.0	£45	£20
T_GORDW-1	Gordonbush	£65	SSE	1.0	£45	£20
T_STRNW-1	Strathy North	£60	SSE	0.9	£40	£20
T_WHILW-1	Whitelee	£62	Scottish Power	1.0	£45	£17
T_WHILW-2	Whitelee Ext	£62	Scottish Power	1.0	£45	£17
E_CLFLW-1	Clachan Flats	£60	Scottish Power	1.0	£45	£16

³ Black Law Extension commenced generation 22 April 2016 so may still be in a commissioning phase. Two other wind farms commenced generation in 2016: Moy, 4 March 2016 and AChruach, 1 March 2016

T_MKHLW-1	Mark Hill	£60	Scottish Power	1.0	£45	£16
T_DNLWW-1	Dunlaw Extension	£60	Scottish Power	1.0	£45	£16
T_ARCHW-1	Arecleoch	£60	Scottish Power	1.0	£45	£16
E_BETHW-1	Beinn Tharsuinn	£60	Scottish Power	1.0	£45	£16
T_BLLA-1	Black Law	£60	Scottish Power	1.0	£45	£16
T_HRSTW-1	Harestanes	£60	Scottish Power	1.0	£45	£16
E_BTUIW-2	Beinn an Tuirc	£60	Scottish Power	1.0	£45	£16

Table 2. Bid prices submitted 31 May 2015 for reducing output by offshore wind farms showing the subsidy per MWh and the surplus portion of the bid price over the subsidy forgone.

BMUnit	Wind Farm	Bid Price per MWh	Owner	ROCs per MWh	Subsidy Lost per MWh	Surplus charge per MWh
T_SHRSW-1	Sheringham Shoal 1	£195	Statkraft/Statoil ASA/UKGIB	2.0	£90	£105
T_SHRSW-2	Sheringham Shoal 2	£195	Statkraft/Statoil ASA/UKGIB	2.0	£90	£105
T_WTMSO-1	Westermost Rough	£188	Dong/Marubeni/UKGIB	2.0	£90	£99
T_GNFSW-1	Gunfleet Sands 1	£161	DONG/Marubeni/DBJ	1.5	£67	£94
T_GNFSW-2	Gunfleet Sands 2	£161	DONG/Marubeni/DBJ	1.5	£67	£94
T_LNCSW-1	Lincs 1	£175	Centrica/DONG/Siemens	2.0	£90	£85
T_LNCSW-2	Lincs 2	£175	Centrica/DONG/Siemens	2.0	£90	£85
T_WLNYO-2	Walney 2	£172	DONG/PGGM & Ampere Equity/SSE	2.0	£90	£83
T_WLNYW-1	Walney 1	£172	DONG/PGGM & Ampere Equity/SSE	2.0	£90	£83
T_GYMR-15	Gwynt y Mor 15	£170	RWE/SWM/Siemens AG/UKGIB	2.0	£90	£80
T_GYMR-17	Gwynt y Mor 17	£170	RWE/SWM/Siemens/UKGIB	2.0	£90	£80
T_GYMR-28	Gwynt y Mor 28	£170	RWE/SWM/Siemens/UKGIB	2.0	£90	£80
T_GYMR-26	Gwynt y Mor 26	£170	RWE/SWM/Siemens /UKGIB	2.0	£90	£80
T_HMGTO-1	Humber 1	£158	E.ON	2.0	£90	£68
T_HMGTO-2	Humber 2	£158	E.ON	2.0	£90	£68
E_BURBO	Burbo	£129	DONG	1.5	£67	£62
T_RREW-1	Robin Rigg East	£142	E.ON	2.0	£90	£53
T_LARYW-3	London Array 3	£141	DONG/E.On/Masdar/CDPG	2.0	£90	£52
T_LARYW-1	London Array 1	£141	DONG/E.On/Masdar/CDPG	2.0	£90	£52
T_LARYW-2	London Array 2	£141	DONG/E.On/Masdar/CDPG	2.0	£90	£52
T_LARYW-4	London Array 4	£141	DONG/E.On/Masdar/CDPG	2.0	£90	£52
T_WDNSO-1	West of Duddon Sands 1	£140	Scottish Power,DONG	2.0	£90	£51
T_WDNSO-2	West of Duddon Sands 2	£140	Scottish Power,DONG	2.0	£90	£51
T_GRGBW-2	Greater Gabbard 2	£140	SSE/RWE	2.0	£90	£50
T_GRGBW-3	Greater Gabbard 3	£140	SSE/RWE	2.0	£90	£50
T_GRGBW-1	Greater Gabbard 1	£140	SSE/RWE	2.0	£90	£50
T_THNTO-1	Thanet 1	£135	Vattenfall	2.0	£90	£45

REF response Ofgem Constraint Consultation

T_THNTO-2	Thanet 2	£135	Vattenfall	2.0	£90	£45
T_RRWW-1	Robin Rigg West	£111	E.ON	1.5	£67	£43
T_OMNDW-1	Ormonde	£130	Vattenfall/AMF	2.0	£90	£40
T_BOWLW-1	Barrow	£82	DONG	1.0	£45	£38

Appendix 2 Historic bid prices per onshore wind farm and owner/operator

The following charts show the variation in bid price for individual wind farms for different owner/operators between May 2012 and May 2016. These show the different bidding strategies adopted by different operators for different aged wind farms over the 4 years.

