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SECONDARY TRADING

Section 1: SUMMARY

1. This paper considers:
 - a. What are the principal barriers to secondary trading?
 - b. What amendments to the penalty regime and trading proposals best mitigate these barriers?

Section 2: SUMMARY OF RECOMMENDATIONS

2. Following a proposal from Energy UK, DECC proposes that a new form of secondary trading ("hybrid trading") be introduced, whereby parties can sell their surplus capacity (i.e. their delivered energy over their load following obligation) to other parties. This is proposed as a complimentary measure to overdelivery payments.
3. DECC has also developed a proposal to enable the Capacity Market overdelivery rate to always be rewarded at the inverse of the penalty rate, and that any shortfall at the end of the year should be collected through an additional levy on suppliers, while any surplus should be returned to suppliers. It should however be noted that this proposal needs further assessment of its feasibility and consistency with principles of public finance management.

Section 3: BACKGROUND

4. DECC has previously set out why it sees having penalties and overdelivery payments is vital for ensuring parties have adequate performance incentives and are paid the appropriate value for their capacity. DECC has also set out why it sees secondary trading as important for parties to manage their risk of holding capacity obligations at least cost.¹
5. DECC proposed a system of penalties and overdelivery payments for parties according to the energy they deliver in stress events. Parties are expected to hedge their position with other obligation holders through private financial hedging.
6. DECC instigated a review of its proposals for secondary trading following stakeholder concerns about the likely liquidity of any such hedging market. Stakeholders had particularly identified two potential barriers to trade:
 - a. The lack of symmetry between the penalty and overdelivery rate – caused by the requirement for incentive payments to be revenue neutral – means that parties find it hard to know how to trade and creates distortions to how parties use their plants.
 - b. Large portfolios are internally hedged against penalty risk and so do not need to trade with independents.

¹ This is set out in Annex F of the October 2013 Capacity Market Impact Assessment

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7. DECC agreed to look at options for ensuring that overdelivery payments match penalties, while also working with Energy UK to develop an alternative solution for secondary trading that would allow parties to better manage their risk if it were not possible to match overdelivery rate to the penalty rate.

Section 4: PROPOSED CHANGES TO BASELINE POLICY DESIGN

8. DECC has developed a proposal (set out in further detail in Annex A) for how overdelivery rates could be made to match the inverse of the penalty rate in a way that is potentially consistent with principles for public finance management. This either provides a refund to suppliers or charges suppliers for the shortfall at the end of the year.
9. DECC considers this an appropriate change to the baseline policy design as it increases the viability of secondary trading and maintains efficient performance incentives for plants. There is now also a near-consensus amongst industry that if this change is introduced that the main industry concerns around secondary trading would be mitigated.
10. DECC considers that “hybrid trading” – the back-up option developed with Energy UK also addresses some of the problems with financial trading if overdelivery cannot be made to match penalties. Even if overdelivery payment rate is fixed to match the penalty rate, there may be additional advantages to allowing hybrid trading in that it gives parties a greater choice about how to trade. DECC therefore proposes to enable Hybrid trading regardless of whether it is possible to restore symmetry between the penalty and overdelivery rates.
11. In addition to changes to the secondary trading proposals, some respondents also identified specific issues relating to the Load Following Obligation that increase the likelihood of penalties collected failing to match the overdelivery payments needed. We will look to address these issues:
 - a. The LFO is based on “residual load” – i.e. demand minus the output from plant outside the Capacity Market. However some capacity will be “sterilised” – i.e. held back for operational reserve – and so the LFO needs to be increased to ensure there is sufficient unsterilised capacity to meet demand.
 - b. The obligation and the definition of delivery for plants held back to provide operating reserve mean that some plants can be rewarded for a level of overdelivery greater than the difference between their load following obligation and their nameplate capacity.

Section 5: NEXT STEPS

12. DECC will continue to explore proposals to fund shortfalls in overdelivery payments from an additional supplier levy.

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13. DECC will also develop proposals for allowing Hybrid Trading, including consideration of an appropriate gate closure point and the role of the Settlement Agent in providing a platform for trades.

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ANNEX A: RESTORING SYMMETRY BETWEEN PENALTIES AND OVERDELIVERY PAYMENTS

Current policy

1. The timeline for settling penalties and over-delivery payments is currently aligned with the collection of the principal capacity market charge – meaning the penalty charge is settled the month following the month in which a stress event occurred. Under these arrangements, revenue neutrality is guaranteed by ensuring the total amount paid out to *all* providers as over-delivery payments made will always equal the total amount collected in as penalties. However, this is likely to lead to the over-delivery rate received by individual providers being pro-rated down so that it does not equal the penalty rate. This is because it is possible that some of the generators that failed to deliver during a stress event may sit outside the capacity market, and are therefore not subject to penalties. This means that recipients of over-delivery payments cannot be guaranteed an equal rate for over-delivery payments. Stakeholders have been unanimous in the view that this undermines the intent of over-delivery payments as a means of underpinning secondary trading, and that DECC should establish a means of addressing this as a matter of priority.
2. Early policy design in advance of the consultation included provision for this shortfall between penalties and over-delivery payments to be recovered via a levy on suppliers in the month following a stress event – this would be used to ‘top-up’ an shortfall in over-delivery payments so that they provided a guaranteed rate which equals the penalty rate. However, this was removed as this arrangement was not permissible as it led to an uncertain/variable amount being collected – whereas Capacity Market levies, as a tax, must be set out in advance in regulations.

New proposal

3. In order to address the above issues an alternative option has been developed – although further work is needed to assess its feasibility. In this proposal penalty payments are collected in the month following a stress event as now. However, rather than calculating and paying over-delivery payments to providers after the end of the capacity month (and paying any surplus to suppliers) all penalty payments would be retained by the delivery body until the end of the capacity year.
4. At the end of the capacity year, a full reconciliation would take place. The settlement agent/body would calculate the shortfall (if any) in over-delivery payments across the capacity year in question. The funds collected in via penalties would then be paid out, or prorated depending on availability of funds,

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as over-delivery payments at the end of the year, and a new levy would be put into regulations in order to collect any shortfall in the following capacity year (if there were excess this would be returned to suppliers as per current policy) . Once put into regulations this shortfall would be collected from suppliers based on the same apportionment used for other capacity market payments.

5. This levy could be collected as a one-off payment, or spread across a period –the former is preferred as the latter will further extend the amount of time over-delivering providers would need to wait in order to receive their payment. However, suppliers may object to a one-off lump sum payment as it may create billing challenges – although these are likely to be small relative to the total capacity charge (i.e. less than around 3% of the capacity payment), and on average we would expect to *refund* money to suppliers as penalties are more likely to exceed overdelivery payments in stress events.²
6. Once collected the money would be paid out to Capacity Providers so that they receive the full over-delivery rate. It is intended that there would be no legal obligation on the Settlement Body to pay any such top-ups until the funds had been collected, retaining the current ‘pay-when-paid’ principle.
7. This proposal relies on DECC’s auditors agreeing that the ‘pay when paid’ principle, and any other relevant stipulations included in regulations, means that the CMSB and DECC would not have to recognise any liability to top-up an over delivery payment to the fixed rate until a relevant levy is agreed and the obligating event has occurred (assumed to be a supply or estimated supply of electricity in the following year). If this was not possible a liability and expense would have to be accounted for immediately after a stress event occurred even if there wasn’t a current source of income (an offsetting levy due in that year). This would result in an overspend against DECC’s budget as the required fiscal neutrality would have been broken (ie. income no longer equals expenditure in any one financial year).

² Penalties should already largely match overdelivery payments due to the fact that parties’ obligations are load following and as Government will be buying enough capacity obligations to always peak demand and to retain a buffer on top. The only discrepancies that will occur are if Government significantly underprocures capacity, or if there is significant discrepancy between the payments of different plants and those plants on the highest levels of payment prove the most reliable.

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ANNEX B: OPTIONS FOR IMPROVING SECONDARY TRADING PROPOSALS

Problems Identified

8. Respondents to the Consultation all said that secondary trading was likely to be very important to the ability of parties to manage the penalty risk within the Capacity Market. Respondents raised a significant number of issues with the arrangements, although through Energy UK meetings it became clear that there were two principal concerns with the arrangements.
 - a. Incentives to Trade: Smaller parties worried that larger parties would not have the same need to trade as them, and could even wilfully avoid trading in order to create a barrier to entry into the capacity market. They pointed out that this was already an issue in the energy market, where DECC and Ofgem have for some time been looking at liquidity issues and proposals to mandate trading on the day ahead market.
 - b. Asymmetry of Incentives: All parties worried about the requirement for overdelivery payments to be funded out of penalties collected introduced uncertainty around the level of reward for overdelivery. This has two negative effects. The first is that it increases the difficulty of knowing how much hedge a plant has to sell. It also means that portfolios that deliver their total obligation across their fleet can still get penalised according to which plants in their portfolio produced the generation.

Worked Example: Revenue Asymmetry

Party A has 4 generating units in his portfolio. Each unit has a 400MW nameplate capacity and is derated to 75%.

There is a stress event in winter when the LFO is 100%.

Units 1, 2 and 3 all deliver their nameplate capacity and so collectively overdeliver 300MW.

Unit 4 is unavailable and so fails to deliver his 300MW obligation.

Party A is thus delivering his total LFO across his fleet. However if the overdelivery rate is greater than the penalty rate, then Party A is still penalised overall.

9. It should be noted that discussion of improvements to secondary trading focused on addressing the second issue – which is more easily solveable.

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10. We also considered the scale of any likely mismatch between the penalty and overdelivery rate. On average we would expect penalties collected to *exceed* overdelivery payments, even in events at winter peak, as if there is load shedding then a significant number of CM plants need to have failed. Nevertheless there are occasions when penalties would fail to cover overdelivery payments:³

- a. If insufficient capacity had been procured – such that the market is on average overdelivering relative to its LFO yet there is still load shedding.
- b. If plants are on different levels of payment (e.g. if there is new build contracted at £50/kW while the T-4 auction cleared with existing plant at only £15/kW) – and if the new build on high payment levels outperformed the existing plant on low levels of payment (and who therefore see their penalties capped out at an earlier point).

11. Any shortfall between penalties and overdelivery is likely to be small, as DECC will be contracting more than is needed to meet demand (e.g. a 10% capacity margin), while new build on long term contracts is likely to remain a small proportion of the market for some time and is, on average, not expected to outperform existing plant (and, if it were, a higher derating factor could be set for new build relative to existing plant). Nevertheless, consultation responses showed unanimity among industry that this was a serious problem for the design of the mechanism and therefore one that had to be addressed.

Options for improving secondary trading

12. This Annex considers two options for improving secondary trading relative to the current policy baseline. The first option is to retain Financial Trading but ensure overdelivery payments match penalties. The second option is to introduce Hybrid Trading, which lessens the importance of overdelivery payments in the design.

13. **Financial Trading:** The simplest solution to the issues identified by stakeholders is to have a route to fund overdelivery payments even where they exceed penalties collected. Annex A sets out how this can work. In this case, parties are guaranteed to receive the inverse of their penalty rate.

14. This means that parties should face neither penalties nor overdelivery payments if their total energy delivered in their portfolio matches their total LFO. This also

³ Two additional issues were raised that could lead to a shortfall of penalties – to do with how some capacity is sterilised for operational reserve - but we expect that these can be mitigated in the definition of the LFO.

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means that parties should have greater confidence to trade on a secondary market as they have certainty about the reward for their overdelivery.⁴

15. Hybrid Trading: An alternative option is to allow for “Hybrid Trading.”⁵ Under this form of trading, parties are allowed to inform the Settlement Agent that any physical overdelivery from a particular unit should be reallocated to another unit. Parties are able to trade either forward or ex-post (i.e. within a short window after parties’ physical delivery and LFOs have been established). Overdelivery payments could be retained under this approach, though their role would be lessened as the possibility of hybrid trading would further reduce certainty around the level of overdelivery payments – as the greater the hybrid trading undertaken by other parties, the lower the pool of penalties collected with which to reward underdelivery by those parties that have not undertaken Hybrid Trading.

16. Under both Financial and Hybrid trading, the responsibility to pay penalties always remains with the original contracted party. For instance if Party B sells spare capacity to Party A but then fails to deliver, it is Party A that gets penalised according to his original obligation. However if Party A delivers on the capacity he sold to Party B, then under Hybrid trading the Settlement Agent doesn’t collect penalties from Party B and doesn’t recover payments from Party A.

Options Appraisal: Financial versus Hybrid Trading

17. The Financial and Hybrid trading options were previously considered early on in the design process and Financial Trading was seen as the superior option for a number of reasons:

- a. **Enabling a homogenous product:** A key determinant of the liquidity of any secondary market is the ability of the market to identify a homogenous product which acts as a useful hedging instrument for different parties. However a Financial Market allows parties on different penalty levels to trade a homogenous product, whereas under a Hybrid Market parties must bilaterally agree the terms for the trade and so cannot trade the product on an exchange.

Worked Example 2: Trading Instruments

Party A and Party B are both willing to sell 100MW capacity for the following

⁴ These assertions both assume parties liabilities and overdelivery payment are either not constrained by the liability cap, or that parties correctly anticipate how far the cap will bind, or that they specify trading contracts such that payments vary according to the number of events in the month.

⁵ This was a proposal that was originally considered in January 2013 but rejected in favour of financial trading.

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summer.

Their plants are identical – and each has a 10% performance risk – but Party A expects a penalty rate of £1000/MWh if he fails to deliver while Party B expects a penalty rate of £2000/MWh (because he is on a contract with a higher price and so a higher liability cap).

Under Financial trading, both parties can trade a homogenous product – e.g. to pay out £2000/MWh in a stress event – except Party A offers to sell only 50MW of the hedge whereas Party B offers 100MW. This homogenous product provides a perfect hedge for both the buyer and either seller (if they can estimate their average penalty level). Since the product is homogenous, the buyer can easily compare which hedge is cheapest by comparing just the price in £/MWh.

Under Hybrid Trading, there is no homogenous product that both parties can trade. Both Party A and Party B will wish to sell the buyer 100MW of capacity. However in the event that they fail to deliver, Party A will only want to compensate the buyer at £1000/MWh while Party B may prefer to compensate the buyer at £2,000/MWh. This means that either the market trades two separate products (100MW with £1000 compensation, or 100MW with £2000 compensation), or else the market settles on trading only one of those products and one of the parties is now unable to perfectly hedge through trading the product.

- b. **Ensuring secondary trading works for independents:** It is important that secondary trading arrangements minimise the advantage that large portfolio players have in the capacity market. Under purely Hybrid Trading, i.e. without overdelivery payments, parties are only able to realise the value of their overdelivery by reallocating obligations between units. This gives an advantage to portfolio players who can reallocate obligations between their units. Under Financial Trading, by contrast, independents are guaranteed to be paid for their delivery rate even if they haven't reallocated their obligations to another party. This mitigates the reliance of independents on secondary trading.

Worked Example 3: Market Power without Overdelivery Payments

Party A is a portfolio with 4 units with a 400MW nameplate capacity, each derated to 300MW. Party A is very confident that exactly three of his four units will be performing in an event.

Under either purely-Hybrid trading, or purely financial trading (where Overdelivery matches the Penalty rate), this party is completely hedged and doesn't need to trade

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with other parties.

Now imagine Party B is an independent generator with a single 400MW unit, derated at 75%, and is able to generate his nameplate for three quarters of the year but takes outages for the remainder of the year.

Party B can only *fully* hedge his risk – whether through financial or through hybrid trading – if another party is willing to trade with him. But Party A doesn't have the same need to trade as Party B – he can self-hedge under either financial or physical.

The principal difference between purely financial and purely hybrid for Party B is how badly off he is if he cannot find another party willing to trade with him at a fair price: Under financial trading, Party B holds upside risk (overdelivery payments) as well as downside risk (penalties) – and so his expected value of penalties is still zero even if he cannot trade. Under purely hybrid trading (i.e. with no overdelivery payments) Party B holds only downside risks from penalties and so his expected value of penalties across the year is to lose money if he cannot trade with Party A.

- c. **Having strong performance incentives:** Having overdelivery payments improves the performance incentives of providers in the Capacity Market. In scenarios where the CM has underprocured capacity, Hybrid Trading will not provide a strong incentive to parties to deliver more energy than their LFO as they will only be rewarded for their overdelivery if there are enough parties being penalised to buy their surplus energy in the secondary market. By contrast Financial Trading ensures that there is always a strong performance incentive to maximise your output at times of stress. Moreover under Financial Trading the incentive to overdelivery is more certain as it does not depend on your ability sell your overdelivery to other parties ex post (where the value of your overdelivery might be reduced if your bargaining power is weak in bilateral negotiations). This reward for overdelivery is important for two purposes:

- i. **Incentivising delivery:** Parties in the current energy market are rewarded for overdelivery at a relatively low level – a maximum of £264/MWh in the last stress event - and there is no guarantee that cash out will have been adequately reformed in future to provide sufficient incentives. Even if cash out is fully reformed, DSR providers will not face strong energy-market incentives to deliver energy (as they are not BSC participants and have high short run marginal costs), and yet they might be the party that is most likely to overdeliver as their “nameplate” capacity is not constrained in the same way as generation.

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- ii. **Selecting the right plant mix in the auction:** Overdelivery payments incentivise the most reliable plants to bid in at a lower price into the Capacity Auction. This not only reduces the cost of capacity payments but also ensures that the right mix of plant is procured, minimising the occurrence of stress events and the associated high wholesale prices.
 - d. **Consistency with other mechanisms:** Other Capacity Markets have penalty regimes and in these regimes plants are centrally derated according to their reliability, but there is then an adjustment made to the plant's payment that allows it to receive more or less payment according to how reliable it is relative to its initial derating factor. There is a considerable body of academic literature supporting this design choice, and it has been the unequivocal recommendation from our market design experts, Steven Stoft and Peter Cramton.⁶ There are also performance incentives for under- and overdelivery in the energy market – with Ofgem proposing to equalise these incentives.⁷
18. However it should be recognised that there are also some advantages to the Hybrid Trading arrangements:
- a. **Reduced uncertainty for suppliers:** By scrapping overdelivery payments, suppliers no longer face an uncertain downside risk if additional moneys need to be collected to finance overdelivery payments.⁸ It should be recognised however that these additional charges are expected to be minimal relative to the cost to suppliers of capacity payments as:
 - i. Government will buy a comfortable margin of capacity over what is needed to meet peak demand, so in most events more penalties are likely to be collected than overdelivery payments paid.
 - ii. The hourly penalty/overdelivery rate is rewarded at a small fraction of the annual payment rate
 - iii. The penalty rate is to be capped, so overdelivery costs cannot be too large. For instance, if liabilities were capped at 100% of annual payment, and if plants were derated on average at 85% of nameplate capacity, the most plant could be paid for overdelivery is 15% of the annual payment – and the aggregate shortfall would be significantly lower as inevitably some CM plant will underdeliver.

⁶ See “Economics and design of capacity markets for the power sector” by Cramton and Ockenfels (May 2011); <http://www.cramton.umd.edu/papers2010-2014/cramton-ockenfels-economics-and-design-of-capacity-markets.pdf>

⁷ EBSR Draft policy decision to move to a single marginal cashout price: <https://www.ofgem.gov.uk/ofgem-publications/82294/ebscrtdraftdecision.pdf>

⁸ Although they retain “upside risk” – i.e. uncertainty about whether there will be money refunded in the event that penalties

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- b. **Reduced credit exposure:** Some parties have noted that Hybrid trading reduces the cash flow between trading parties as payments only need to be made in the event that the party selling a hedge fails to deliver (whereas under Financial Trading the party selling a hedge pays out either way). However if this is seen to be a material benefit then it could be achieved by allowing Hybrid Trading in addition to guaranteeing overdelivery payments, and then letting parties choose which form of trading they prefer.

Conclusion

- 19. Guaranteeing overdelivery payments at the inverse of the penalty rate would help to resolve market concerns about the viability of secondary trading. We therefore propose to further explore the feasibility of the proposal to match overdelivery rate with the penalty rate.
- 20. Regardless of whether overdelivery payments can be funded through an additional source, it is also preferable to permit Hybrid trading – to allow parties a range of tools for mitigating their risk and to let the market figure out their preferred means of trading.