

October 2016 consultation on changes to the Capacity Market

Analytical Annex to the Government Response

The changes being made to the Capacity Market ('CM') Rules and Regulations, whilst essentially technical in nature, are generally intended to remove barriers to competition, including by simplifying and improving accessibility. The impacts of the proposals and the extent to which we can draw analytical conclusions vary. Certain changes, such as switching the basis of the CM supplier settlement calculations from net- to gross- demand, may affect the ways in which costs fall across different companies in the business community, but should be broadly neutral in terms of the overall costs on that community as a whole. Other proposals, which simplify procedures, are if anything predicted to reduce CM costs for the majority of businesses, albeit the effects are likely to be small scale.

The impacts of the change to the CM supplier settlement calculations, the most substantive change being made to the Regulations following the October consultation, are outlined in Section 1.

A description of the impacts of new arrangements to prevent selective overcompensation in the CM arising from certain types of risk finance schemes is provided in Section 2. These measures are being introduced following a separate consultation exercise in September 2016¹ and supplement changes made to the CM Rules that came into effect on 21 November 2016.

1. Supplier Settlement Calculations: Net to Gross Charging

Policy Objective:

- 1.1. The high level objective of changing the basis of the CM supplier settlement calculations² from net-demand to gross- demand, in relation to delivery years and financial years from 2018 onwards, is to improve the CM design and ensure that the costs of the CM are recovered from suppliers in a fair and equitable manner.

Rationale for Intervention:

- 1.2. Under existing arrangements, the costs of the CM are levied on electricity suppliers (who in turn recoup them from bill-payers) according to their share of total demand at peak times over the winter. The basic principle is that those who use more electricity should pay more of the costs of ensuring that electricity is available, and this is measured by the demand they place on the transmission grid i.e. their net demand.
- 1.3. These arrangements allow demand serviced from the distribution network to be netted off demand from the transmission network. Therefore, suppliers that meet some of their demand using generators connected to the distribution network ('embedded generators') can reduce their share of the supplier charge costs of the CM – with others that do not use the distribution network, or use the distribution network to a lesser extent, having to pay more. It is assumed that suppliers pass on most of this saving to embedded generators.

¹ <https://www.gov.uk/government/publications/selective-overcompensation-in-the-capacity-market>

² This includes the Settlements Costs Levy, the Capacity Market Supplier Charge, Mutualisation Payments and Penalty residual supplier amounts.

- 1.4. The rationale for intervention is that these net charging arrangements offer embedded generators ('EGs') eligible for entering the capacity mechanism the opportunity for a 'double payment' for what is really only one contribution to helping security of supply – they can potentially get paid both for providing capacity through the CM, and for "reducing" electricity demand on the grid, via their contracts with suppliers. This larger compensation arguably gives them a competitive advantage over transmission-connected generation.
- 1.5. This is inconsistent with the principle of technology neutrality, which is a central tenet of the CM's design, and could potentially lead to inefficient investment decisions which distort auction outcomes. It could also potentially contribute to distortions in the wider market, for example encouraging inefficient dispatch decisions, where EGs displace more efficient capacity connected to the transmission network.
- 1.6. Whilst embedded generation does bring benefits to the wider system (e.g. in order to reduce demand on the transmission network) the CM charging mechanism is not the right place to reward this – its purpose is the fair and equitable recovery of CM costs.
- 1.7. The change to charging on a gross basis aligns the Capacity Market with the methodology used in respect of Contracts for Difference (CfDs) and is consistent with Ofgem's recent 'minded to' decision on its review into whether embedded generation is getting an unfair competitive advantage from the network charging regime more generally.

Options:

- 1.8. Two options have been assessed:
 - Option 1. 'Do nothing' – suppliers' costs continue to be calculated on a net demand basis i.e. the demand they place on the transmission network.
 - Option 2. Introduce gross charging arrangements – suppliers' costs calculated on the basis of the demand they place on the transmission and distribution network.

Impact:

Societal impact

- 1.9. Determining the impact of the switch to gross charging arrangements in terms of overall electricity system costs is challenging. We would expect any impact to be broadly neutral with just some transfers between businesses as a result of changing to gross charging arrangements. However, the overall costs of the system in theory could come down if the change leads to more effective competition and more efficient investment and dispatch decisions. If this occurs, any cost savings would likely be passed on to consumers.
- 1.10. Consistent with the above broadly neutral impact, any impact on overall CM costs is expected to be minimal and subject to considerable uncertainty.
- 1.11. On the one hand, there may *potentially* be some upward pressure on CM costs. For example, EGs could become more reliant on CM revenues as their customers (suppliers) will no longer pass on to them the cost savings that had been anticipated under the existing net-charging arrangements (paragraph 1.15). This could increase the CM bids of EGs and potentially lead to more expensive capacity setting the auction clearing price.
- 1.12. Conversely, there may be some downward pressure on overall CM costs. More efficient dispatch decisions following the change to gross charging (paragraph 1.5),

could lead to transmission connected generators running more over winter peaks. This increase in wholesale market revenues could be reflected in more competitive CM bidding behaviour. However, any increase in wholesale revenues is highly uncertain, particularly at an individual plant level – consequently there is limited evidence that this will impact bidding behaviour.

- 1.13. Further adding to this uncertainty over the impact on CM costs, there is also uncertainty over whether the clearing plant in any year will be a distribution or transmission connected generator.

Main affected groups and distributional impacts

- 1.14. Whilst overall societal and CM costs are likely to be broadly neutral, the switch to gross charging is expected to lead to some redistribution of costs across individual suppliers, generators, and bill payers.

Suppliers and consumers

- 1.15. As noted above, some suppliers (those that contracted with embedded generators to reduce their net demand) will no longer benefit from any cost savings they would have enjoyed under the existing net-charging arrangements. It is estimated that, based on CM costs to date, the value of this cost saving would have been around £15/kW³ (note – future value would have varied according to the cost of future auctions). We expect most of this would have been passed on to EGs with whom they contract.
- 1.16. On the other hand, those suppliers that are not reliant, or less reliant, on EG can expect to see a reduction in their costs following the switch to gross-charging.

Embedded generators

- 1.17. Under the existing arrangements, EGs (typically SMEs) could have expected to receive the majority of the cost-saving identified in paragraph 1.15.
- 1.18. The significance of this loss of revenue under the new gross-charging arrangements will vary between EGs⁴.
- Existing EGs financed at a time before any benefit from basing the CM supplier settlement calculations on net-demand was envisaged are unlikely to be significantly impacted. Given they have been operational without receiving any benefit from this source to date, it is reasonable to assume they will be able to continue operations unaffected.
 - New EGs (i.e. those that took investment decisions during the 18 months in which net charging arrangements were in place) may have assumed, as part of their business case, a benefit from the CM supplier settlement calculations which will be curtailed under the new arrangements. If the loss of this expected benefit impedes business viability there is a risk that these plants may not build out or, if already

³ This is derived from the total saving that suppliers get in supplier levy costs achieved through reducing their demand on the transmission network. This saving has been calculated using the average clearing price, total CM cost and capacity procured in the early auction and T-4 auctions. The calculation of the saving is derived from hypothetical calculations of cost savings per kW to suppliers utilising the distribution network from an average total cost of the CM. The average clearing price per kW and capacity procured in the early auction and T-4 auctions generates the average total cost of the CM. All savings are assumed to be passed on to embedded generators. The saving assumes that around a tenth of suppliers' total demand is placed on the distribution network. There may also be savings achieved under the other three CM supplier settlement calculations, but these are expected to be small and are not estimated here.

⁴ We note that the ongoing Ofgem review of embedded benefits may have a more significant impact on existing and new EGs. Whilst we do not consider the cumulative impact of all changes here, we note that removal of the anticipated benefit from the CM supplier settlement calculations may mean EGs are more exposed than they might have been otherwise to possible changes arising from Ofgem's review of embedded benefits.

built, may become stranded assets – leading to termination fees and a shortfall capacity that will need to be met through future T-1 auctions.

- 1.19. The amount of new EG that might be impacted includes around 2GW of new build EG capacity that won CM agreements in the 2014 and 2015 auctions⁵. However, discussions with developers suggests that many had discounted any potential future benefit from the CM supplier settlement calculations for a variety of reasons including (a) the CM supplier settlement calculations were outside the provisions of the CM that are expressly grandfathered; (b) there has been no explicit suggestion that any benefits from the CM supplier settlement calculations were a 'right' that should be retained for a specific length of time; (c) this benefit had not materialised, in the form of an actual income stream, by the time of the consultation; and (d) how suppliers choose to share any benefit with EGs is not governed by the CM Regulations.
- 1.20. There may also be a group of EGs not eligible to participate in the CM (e.g. renewables) that are also impacted. National Grid estimate there may be around 10.5GW of this type of capacity (de-rated), although only a proportion of this will reliably generate over winter peaks (and potentially not all of this is distribution connected)⁶. The majority of this capacity is likely to be existing plants and therefore, as explained in paragraph 1.18, unlikely to be affected by the change from net to gross. Any new build renewable EG is likely to have been financed on the basis of other Government subsidy for renewable generation and therefore insulated to an extent from changes in revenue from the CM supplier levy.

Transmission connected generation

- 1.21. Transmission connected generators (typically large businesses) may benefit to the extent that any distortion to competition in the wholesale and capacity markets has been removed. As noted in paragraph 1.12, more efficient dispatch decisions may lead to transmission connected generators running more over winter peaks, although we expect any increase in load factors to be small. Additionally, removing what is perceived by many as an unintended distortion of the CM should act to improve investor certainty in transmission connected projects.

2. Selective Overcompensation

Policy objective:

- 2.1. To ensure fair competition in the CM auctions, all prospective (i.e. new and refurbishing) CMUs awarded agreements in capacity auctions since 21st November 2016 are required to declare whether they have incurred any capital expenditure funded by investment secured through certain types of risk finance schemes and agree for the value of any such expenditure to be offset against CM payments⁷.
- 2.2. These measures have been taken in addition to the Government acting to exclude from the risk finance schemes (a) from 30 November 2015, those companies that provide reserve electricity generating capacity as a substantial part of their trade, and (b) from 6 April 2016, all energy generation activities.

⁵ EG capacity entering the 2016 auction should have been aware of the impending change from net- to gross-charging, and so have adjusted their bidding behaviour appropriately.

⁶ https://www.emrdeliverybody.com/Lists/Latest%20News/Attachments/47/Electricity%20Capacity%20Report%202016_Final_080716.pdf

⁷ Details of the consultation on these proposals, and Government Response, are available on our website: <https://www.gov.uk/government/publications/selective-overcompensation-in-the-capacity-market>

Policy rationale:

- 2.3. The CM determines the amount of capacity payments by a competitive bidding process to discover the “lowest sustainable price at which the necessary capacity can be brought forward.”
- 2.4. In principle, the use of investment through risk finance schemes (specifically the Enterprise Investment Scheme ("EIS"), the Seed Enterprise Investment Scheme ("SEIS") and Venture Capital Trusts ("VCT") – the “risk finance schemes”) to finance prospective capacity that is also incentivised by securing a long-term capacity agreement under the CM would go beyond the minimum amount of aid needed to incentivise the additional investment.
- 2.5. To ensure the amount of aid under the CM is limited to the minimum needed, and that there is no over-compensation, the total amount of aid (i.e. the total aid received under the risk finance schemes and the total aid received under the CM) should not exceed the amount awarded in the CM auction.
- 2.6. Investment raised under the risk finance schemes, before amendments were made in November 2015 and April 2016 to the excluded activities list, may have been used, or may continue to be used, to fund prospective capacity that also has the opportunity to secure a capacity agreement in a future CM auction. Therefore, in principle, there is the potential for over-compensation.
- 2.7. Receipt of capacity payments in addition to aid received through risk finance schemes would constitute double subsidy and likely distort the outcome of the CM auctions. To ensure fair competition in CM auctions, the Government has taken action to ensure that capacity providers are not over-compensated.

Options:

- 2.8. The Government had to take action to prevent over-compensation – doing nothing was not considered a valid option. All capacity providers of prospective CMUs awarded capacity agreements in auctions held since 21st November 2016 are required, as part of achieving the financial commitment milestone, to declare whether they have incurred any capital expenditure funded by investment secured through the risk finance schemes and agree for the value of any such expenditure to be offset against CM payments. We have sought to understand the impact of this action relative to a hypothetical ‘do nothing’.

Impact:

Societal impacts

- 2.9. The impact of the offsetting arrangements on the overall electricity system is expected to be limited. They remove a potential distortion in competition insofar as no potential CMUs should be able to take advantage of risk finance schemes without these offsetting arrangements. This should facilitate more efficient investment decisions with similar impacts as those described in Section 1.
- 2.10. The data available (paragraph 2.11) suggests that the amount and value of capacity affected is limited and as a result the changes should have a limited impact on the sector overall. Moreover, the exclusion of energy generation activities from risk finance schemes in future limits both the capacity affected and the future timeframe of any impacts.

Main affected groups and distributional impacts

Beneficiaries of risk finance schemes

- 2.11. Stakeholder responses to the September 2016 consultation and further analysis suggest that, as of Autumn 2016, up to 500MW of prospective capacity may have secured support from risk finance schemes (before eligibility was changed in November 2015 and April 2016) and could, if it chose to, participate in a future CM auction, beginning with the four-year ahead auction in 2016 (the 'beneficiaries'). We understand the amount of aid available to these projects through the risk finance schemes is typically around £200,000/MW⁸.
- 2.12. Some of these beneficiaries may have entered the recent 2016 four-year ahead auction, although some may have decided to target future four-year ahead auctions. Therefore, the impacts described below may have already taken place or may still yet happen.
- 2.13. Without measures in place to prevent the potential for overcompensation from the risk finance schemes and CM, the beneficiaries would be more competitive than would otherwise be the case within CM auctions. This could potentially place downward pressure on clearing prices and displace other capacity that had not benefitted from this double subsidy. At the theoretical maximum, if all the estimated 500MW of beneficiaries win 15-year capacity agreements, the level of overcompensation (i.e. the amount by which consumers had overpaid for capacity) would equate to £100m⁹.
- 2.14. However, now that measures to prevent overcompensation are in place (since November 2016), any beneficiary winning a long term CM agreement will not be permitted to receive the value of the CM payments until the value of the support from the risk finance schemes has been fully offset. To illustrate, if a 20MW prospective CMU, that had been backed by £4m from a risk finance scheme¹⁰, won a 15-year agreement in the recent 2016 four-year ahead auction, the CMU would not keep any value from the CM payments until the aid from the risk finance scheme had been fully offset – this would take nearly 10-years based on the 2016 clearing price of £22.50/kW.
- 2.15. The offsetting arrangements have, therefore, removed the competitive advantage that would otherwise have been available to the beneficiaries. It also means consumers will not over-pay for capacity, with up to the full value of the £100m of risk finance support¹¹ being returned to suppliers via the reconciliation process, to the benefit of consumers.
- 2.16. Bidding behaviour of CMUs is uncertain and difficult to predict. It is possible that, for a proportion of the affected beneficiaries, the delay in the receipt of value from CM payments (as described in paragraph 2.14) may be acceptable and their project may remain competitive even without the double subsidy. If this is the case, they may not respond by changing bidding behaviour (for example, the bid that they consider will ensure success in the auction may not change).
- 2.17. On the other hand, changes in bidding behaviour may be observed. For example:
 - Some of the beneficiaries may not be willing to accept the offsetting of capacity market payments taking place over an extended period, or their projects may not be viable unless some of the lost benefit is replaced with increased payments from the CM. As a consequence, they may increase their bids within the CM auctions which

⁸ Based on information from stakeholders

⁹ £200,000/MW multiplied by 500MW

¹⁰ £200,000/MW multiplied by 20MW

¹¹ Exact amount of value returned depends on how much of the estimated 500MW enters and wins agreements in the CM after the offsetting arrangements were put in place.

in turn might put upward pressure on the clearing price and overall capacity market costs, and/or lead to some of their projects failing to secure an agreement. The overall impact is uncertain and would partly depend on the clearing plant in the relevant auction.

- Some CMUs may see limited value in entering the CM as a 'prospective' CMU but may choose to build out and enter the CM at a later date as an 'existing' CMU. Whilst this would reduce liquidity in some auctions, it would add to liquidity in later auctions.

2.18. We do not expect these potential variations in bidding behaviour to have significantly impacted the overall costs of the 2016 four-year ahead or impact future auctions. While past auctions are not illustrative of what may happen in future auctions, the supply curves for recent auctions provide some reassurance that the bidding behaviour of less than 500MW of capacity is unlikely to have a significant impact on the clearing price given recent auctions have over-procured versus the target capacity. In fact we note that the 2016 auction secured around 700MW more than the target capacity due to the clearing price being at the low end of the demand curve.

Other CM participants

2.19. Other CM participants (i.e. those that have not secured aid through the risk finance schemes) may benefit to the extent that a distortion to competition in the capacity market has been removed. As noted above, this may lead to more efficient investment decisions. Additionally, removal of this distortion should act to improve investor certainty.

Consumers

2.20. As noted in paragraph 2.15, the offsetting arrangements mean consumers will not over-pay for capacity. It is possible that up to £100m may be returned to suppliers via the reconciliation process, to the benefit of consumers. As noted above, however, there is some uncertainty over whether this may be offset by some increase to bids and/or clearing prices. We expect, however, that these increases would be limited and it is also possible that the changes may lead to more efficient investment decisions from the removal of overcompensation arrangements, putting downward pressure on CM costs that may in turn be passed onto consumers.