Department of Energy & Climate Change

Capacity Market Strawman v11
June 2013

Areas of amendment since version 10.1

1 – Inclusion of a target range for demand curve (paragraph 33)

2 – Detailing the 'price-taker threshold' (paragraph 48)

3 – Amendment of the existing indexation proposal (paragraph 60) to now fully index capacity payments and the associated parameters (e.g. VoLL, CONE etc.) to Consumer Price Index (CPI) for plants on multi-year contracts, from the end of the first delivery year to the end of the multi-year contract.

4 – Tightening of the auction participation rules to mitigate the gaming risk of generators claiming they will retire, or opting in and then not turning up at the auction (paragraph 62).

5 – Detailing of the circumstances for cancelling the auction (paragraph 63)

6 – Insert 'Collection and administration of bid bonds' to the list of Elexon's responsibilities (paragraph 90).

Section 1: Overview

1. This document provides a complete description of the design of Capacity Market **("CM")** proposed for introduction in GB.

2. The design described here is the Baseline for preparation of detailed implementing regulations, licence changes, codes or other documentation **("Documentation"),** and for the System Operator **("SO")** to develop a Business Readiness Programme (e.g. building new capabilities, business processes, IT Systems, System Integration staff training etc.) to enable the first auction to be held in 2014 (if required). Further details will be developed with the SO, Ofgem and stakeholders in the next phase of the project.

3. It is inevitable that the design will require further refinement as implementation progresses and specifically as IT systems are specified and procured and as legislation developed.

 This is a working document, intended to provide a technical description of how the proposed GB Capacity Market might work in practice. It is not a description of agreed Government policy and proposals may change before implementation.

4. There are a number of areas which are still subject to further work.

- **Penalty Regime** – now that we have a stable definition of the circumstance when penalties will apply and on the formula for calculation of the penalties, we will undertake further work on calibration to ensure that the penalties are appropriate and proportional.

- **Term length** - we are still considering the term limits for refurbishing and new plants, and the eligibility criteria for existing plants to access different agreement lengths. We will consult formally on the length of contract available and also on whether it would be feasible and desirable to run an auction process which would require new entrants to bid on the basis of a contract of around 10 years and one that is significantly longer. This would enable the System Operator to choose the length of contract based on price comparison.

- **Compliance with the EU Industrial Emissions Directive ("IED")** – we are giving further consideration as to whether the scheme set out for the auction (e.g. contract length and price maker stipulations) are suitable to the circumstance of plant who are obliged to imminently make decisions to comply with the IED.

- **Events of Force Majeure** – we are giving further consideration as to whether it is justified (as if so under what circumstances) that CM rights and obligations ought to be suspended.

- **Parameters –** further work is to be done to establish certain parameters for example the price taker threshold, cost-of-new-entry **("CONE"),** the value-of-lost-load **("VoLL"),** the loss of load expectation **("LOLE")** and other parameters which key off these for example the price cap for the demand curve and for the penalty cap (both a multiple of CONE).

- **Market Power Mitigation** – We have further work to do on setting out the format of the Board Certificate that will be required to accompany the written justification an existing provider must supply to enable it to become a price maker and for refurbishment works. Work is also required to establish quantitative thresholds for refurbishment.

- **Termination –** we will do further work on the provisions for terminating Capacity Agreements i.e. under what conditions can rights and obligations be extinguished.

- **New Plant** – we have outlined a proposal for incentives for new plant to meet its commercial operation date which includes long-stop dates and payment ratchets. We have further work to do on verifying these proposals.

- **Interconnected capacity** - we will continue to examine what may be possible within the design of the Capacity Market as it is finalised in the coming months, including exploring possible solutions that might enable participation of interconnected capacity in future years.

- **Adaptation** - we intend that learning from early years can be swiftly incorporated into updated rules and that matters not provided for in this initial design that become discovered can be also be incorporated. We will do further work on setting out the process by which this can happen. For the present purposes we have identified the following list:

    - Locational issues – we have determined that GB will be a single auction zone and have distinguished between "system balancing" and "energy balancing events". If the energy market is split pursuant to an Ofgem determination related to the EU Target Model, the CM may need be split also.

    - We may have to bring in specific arrangements for non-licenced generators.

    - The DSR Transition Arrangements themselves provide for a review.

    - We have determined that: (a) non-CM resources; and (b) CM resources who are prevented from delivery by virtue of transmission deficiency are both ineligible for payment for over delivery. This will need to be kept under review especially in light of the development of the secondary market.

5. The final design and Documentation will be the subject of a public consultation in October 2013. This may also lead to further changes to the design.

6. For the purposes of this document the term Capacity Market Unit **("CMU")** has been used to identify the level at which entities (i.e. Balancing Mechanism Units and their Demand-Side Response (**"DSR")** equivalents) participate in the CM.

Section 2: Summary of the Capacity Market

7. A capacity price (£/MW-year) is discovered annually by a competitive auction(s). These auctions are intended to remunerate capacity at the rate required to make the electricity market sufficiently profitable to attract an adequate quantum of reliable capacity. Competition in these auctions should result in capacity payments being at the minimum level necessary to meet the pre-set reliability standard.

8. The auction will result in Capacity Providers **("CP")** taking on Capacity Obligations **("CO")** and receiving up-front payments to reimburse them for the energy market's 'missing money' component. The CO is a promise to deliver energy and/or demand reduction in periods of system stress. A system stress period **('Stress Period')** is defined as a Settlement Period where voltage reduction or controlled load shedding occurs anywhere on the system for 15 continuous minutes or longer; excluding faults or deficiencies on the transmission or distribution systems.

9. The SO will issue a Capacity Market Warning (**"CMW")** which will serve as a 4 hour notice to CPs to make good on their CO. Should a CP fail to perform in the first settlement period after the elapse of the notice they will be required to pay a penalty on their deficit based on the VoLL minus the prevailing System Buy Price (as that term is defined in the Balancing and Settlement Code).

10. This penalty exposure will be subject to a portfolio-wide cap based on the product of a multiple of CONE and the de-rated capacity of the portfolio.

11. CPs who increase their delivery output at times of system stress, relative to their status immediately prior to the CMW, will be eligible for a payment at the penalty rate from the moment the CMW has been issued, providing at all times that the CPs are in compliance with the Grid Code and any obligations arising from the Balancing and Settlement Code and other relevant requirements. CPs who decrease their output, relative to their pre-warning status, will be penalised. This method of calculation will last until the first settlement period after the elapse of the warning.

12. The Secretary of State will set an enduring reliability standard likely expressed as LOLE and will be set out for consultation in the draft Delivery Plan in [July] 2013, to be finalised in December 2013. The Secretary of State will also establish a methodology for constructing a demand curve (which will likely feature both a price cap and a downward sloping feature). The demand curve (which expresses price and quantity preferences) provides the flexibility to procure more or less depending on price.

13. The SO will undertake analysis and advise on the corresponding quantum of capacity which is needed to meet this reliability standard. The process and analysis itself will be scrutinized by an independent Panel of Technical Experts.

14. The form of the demand curve and a range for its parameters will be published in advance of the auction. In the interest of a competitive and fair auction the precise demand curve will not be published in advance.

15. A pre-qualification stage will take place c. seven months ahead of the auction and is designed to confirm the eligibility status of CPs. Pre-qualification requirements will vary for different types of capacity resources (e.g. for generation and DSR). Participation in the pre-qualification stage will be mandatory for all eligible licensed generation. Plant supported by a Contract for Difference **("CfD")** or the Renewables Obligation **("RO")** will be ineligible to participate ("**Excluded Plant")**.

16. The de-rated capacity for each CMU will be set administratively by the SO based on an algorithm/process to be developed. The basis for the de-rating will be provided by the SO to the CMU and CMU is free to suggest an alternative de-rating factor to the SO and to justify this suggestion. In the event of a dispute, [Ofgem] will be the arbiter (and [Ofgem] may seek independent technical advice).

17. A pay-as-clear auction will take place four years ahead of the relevant delivery year, with plant able to opt out on the grounds they will remain open without the capacity payments or that they intend to close before the delivery year. The clearing price and volume are determined mechanistically using the demand curve.

18. A second year-ahead pay-as-clear auction will be held in advance of the delivery year to enable fine adjustments of capacity positions and providing room for DSR participation which is better suited to a short lead time.

19. Excluded Plant must be accounted for auction process in some manner – e.g. in the supply curve or in an adjustment to the target volume to contract.

20. In periods of system stress following notice CPs will be required to meet their CO (i.e. be generating electricity or reducing demand), relative to their profiled obligation, with only minimal exceptions based around transmission constrained CMUs. Delivery performance will be assessed as the energy volume of the lower of metered output or their Final Physical Notification plus the SO's instructions. Penalties for underdelivery and payments for overdelivery will principally apply where a Capacity Market Warning has been issued with a notice period of at least four hours. The only parties that will be penalised or rewarded in an event where Notice hadn't been issued at least four hours in advance will be parties that change their output relative to their position at the start of the event. Parties will be required to comply with the Grid Code and all other relevant requirements.

21. The costs of the capacity payments will be recovered from licenced suppliers according to a forecast of that supplier's customers' demand at the time of GB system peak total annual demand, reconciled against the actual demand of that Supplier's customers when meter data is available. The time of peak demand will be established according to the existing "TRIAD" methodology used by National Grid when determining Transmission Network Use of System **("TNUoS")** charges.

22. CPs who also provide "relevant Balancing Services" will be able to participate in the CM. Providers of relevant Balancing Services will be deemed to be delivering energy if they are complying with the SO's instructions in a stress period. If they failed to respond to a SO dispatch instruction for the relevant Balancing Service they will be exposed to penalties under both the CM and the relevant Balancing Service contract.

23. A multiple stage DSR programme will be implemented over time to deliver a healthy and liquid DSR market participating fully and on equal terms to other Capacity Providers. The programme will focus on temporary load shifting, temporary load reduction, behind the meter generation and small scale generation and storage linked to a consumption account.

Detailed design

Section 3: Setting the volume

24. The Secretary of State will set out an enduring Reliability Standard, which will be expressed as a LOLE - i.e. expected number hours/periods per annum (rather than energy unserved) in which over the long-term it is expected that there will be a failure to meet demand - and which reflects the economically efficient level of capacity. The Secretary of State will also set out the enduring methodology for calculating the demand curve.

25. The System Operator will provide an assessment of the amount of capacity that is needed for a delivery year (running from 1st October to 30th September) to meet the reliability standard based on an assessment of different possible scenarios.

26. The SO's analysis will include estimates of the level of capacity needed, netting off the capacity provided outside of the auction (i.e. through interconnection, Exclude Plant or pre-existing long-term capacity contracts). The SO will also include the capacity contribution of any pre-contracted Provider of a relevant balancing service such that its capacity contribution will be accounted for even where the Provider chooses not to participate in the CM auction or if it does so, but is unsuccessful.

27. The Secretary of State will also set out the methodology for determining a demand curve. The analysis that the SO provides to Ministers will include the amount of capacity to contract for in the auction at different prices, based on the pre-determined methodology.

28. 4.5 years ahead of the delivery year, informed by the analysis from the SO, DECC will set out how much de-rated capacity will be required in the delivery year, and how much capacity is expected to come on outside the CM (e.g. CfD) and therefore how much will be procured through the CM. DECC will then set out how much capacity will be contracted through the four-year ahead auction and how the demand curve may adjust that. DECC will also set out an indicative amount for the year-ahead auction if the capacity expected in the four year ahead auction is achieved and nothing else changes in the next three years.

29. 1.5 years ahead of the delivery year DECC will set out the target level of capacity to procure in the year ahead auction. A number of considerations will be taken into account when setting the level of capacity to procure in this auction, for example up-to-date analysis on the amount of CfD plant that will be generating and demand forecasts. The

amount of capacity procured from the four year ahead auction will be taken into account in the same way and inform the amount to procure in the year ahead auction.

30. The independent Panel of Technical Experts[1] will engage with DECC's Analytical Steering Group and provide scrutiny, advice and recommendations to Government on the robustness of National Grid's assumptions, their use of DECC's assumptions, and their modelling approach. The Panel's final report will be published annually.

31. Annually, the Secretary of State will establish a demand curve to be contracted and indicative range for its parameters will be published in advance of the auction.

32. The Demand Curve sets out how much de-rated capacity will be contracted given any potential capacity price in the auction. The key relationship is between Target and Net[2] Cost of New Entry (CONE) – if the estimate of net CONE reflects the market price for capacity then the System Operator will contract exactly the Target level of capacity (ignoring "lumpiness" in the volumes of capacity offered).

33. The slope of the demand curve determines how the volume contracted differs according to the price. The slope will be set so that the auction contracts a level of de-rated capacity within 1.5GW more or less than Target. This slope is justified on the basis of providing the equivalent de-rated capacity of two large CCGT's either side of capacity[3].

34. An indicative demand curve is depicted in Figure 1 and an indicative supply curve in Figure 2.

[1] https://www.gov.uk/government/news/new-appointments-announced-to-decc

[2] which takes account of energy market revenues that the marginal plant will earn

[3] A large CCGT based on Carrington power station, the last CCGT to be built.

Figure 1 - Illustrative Demand Curve

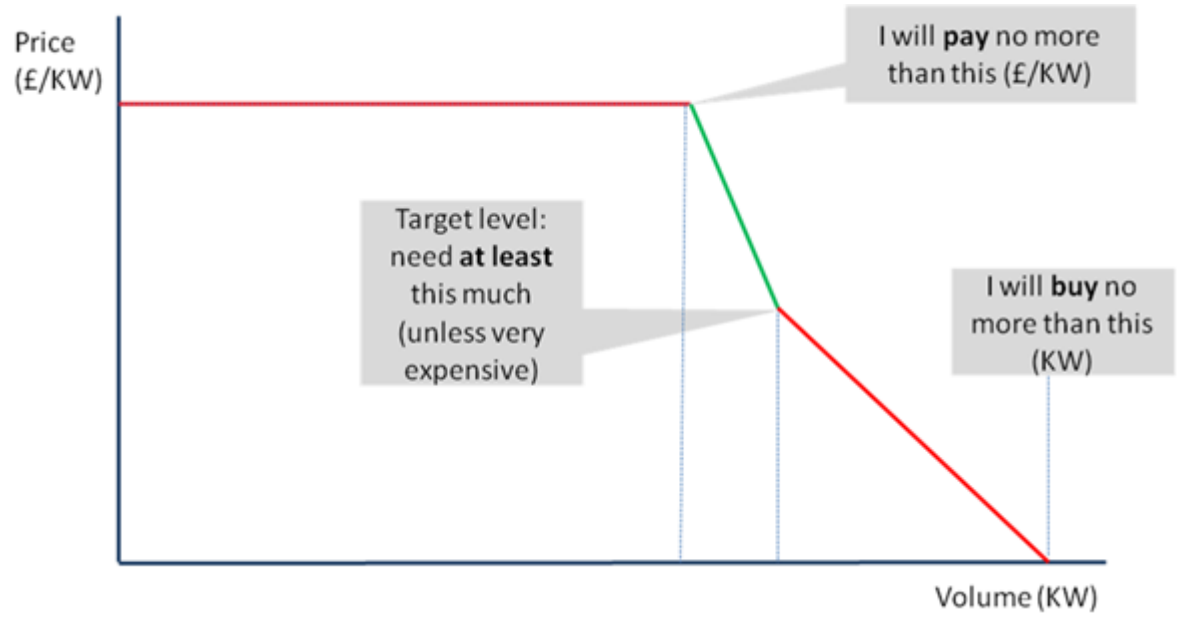
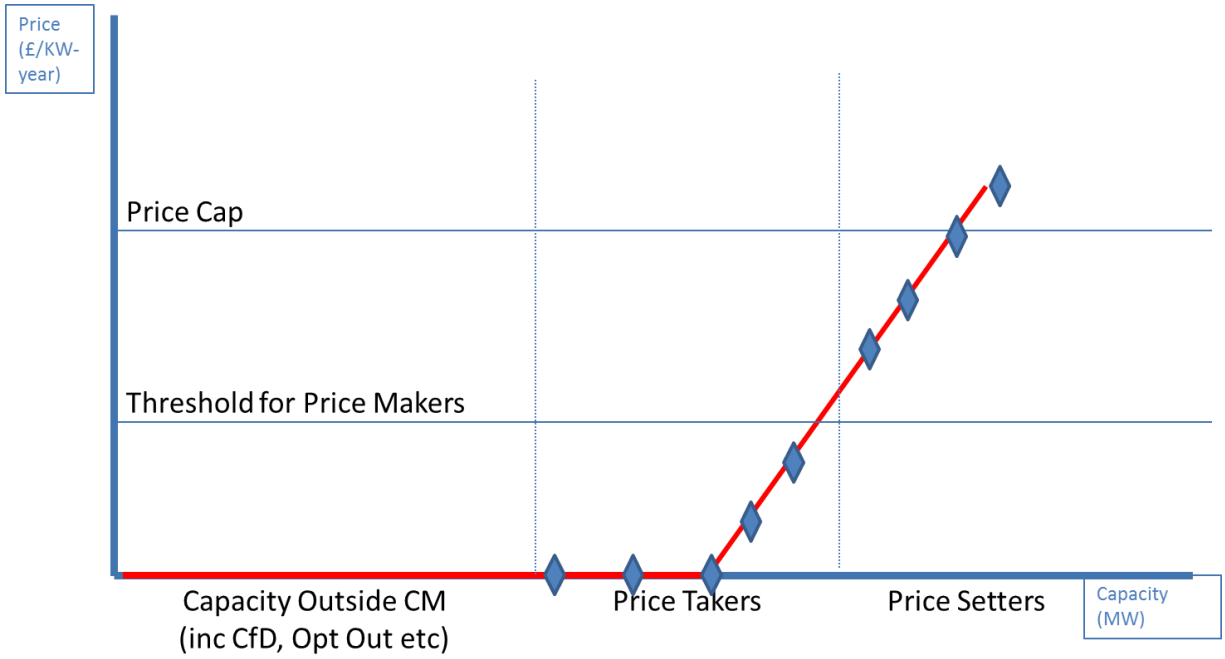


Figure 2 - Illustrative Supply Curve



35. The auction is run and the clearing price established where the curves cross giving the level of CO and the price. This is a mechanistic process.

Section 4: Auction

36. An auction for physically backed capacity will be held [in November] every year, for a delivery year in four-years' time, cleared against a demand curve. The auctioneer's agent will be the SO.

37. A year-ahead auction will be held in the year prior to each delivery year. In this auction the any additional CO needed can be acquired. The process for setting out the demand curve for this auction is the same as that for the four-year ahead auction. The SO will assume that any capacity previously contracted will be able to deliver.

38. Each auction will be run on a pay-as-clear basis, where every successful CP is paid the clearing price. The auction will be run in multiple rounds on the basis of a "descending clock". This means an auction where parties indicate the quantum of COs they are willing to provide at the announced price. The price is lowered progressively in rounds until a clearing price is found where the offers for CO equal the willingness to pay. The volume of CO on offer at a given round will be announced after each round is completed.

39. The number of rounds and the size of the decrement in each round will be determined by the SO. It is anticipated that the auction would be completed in c. one working week.

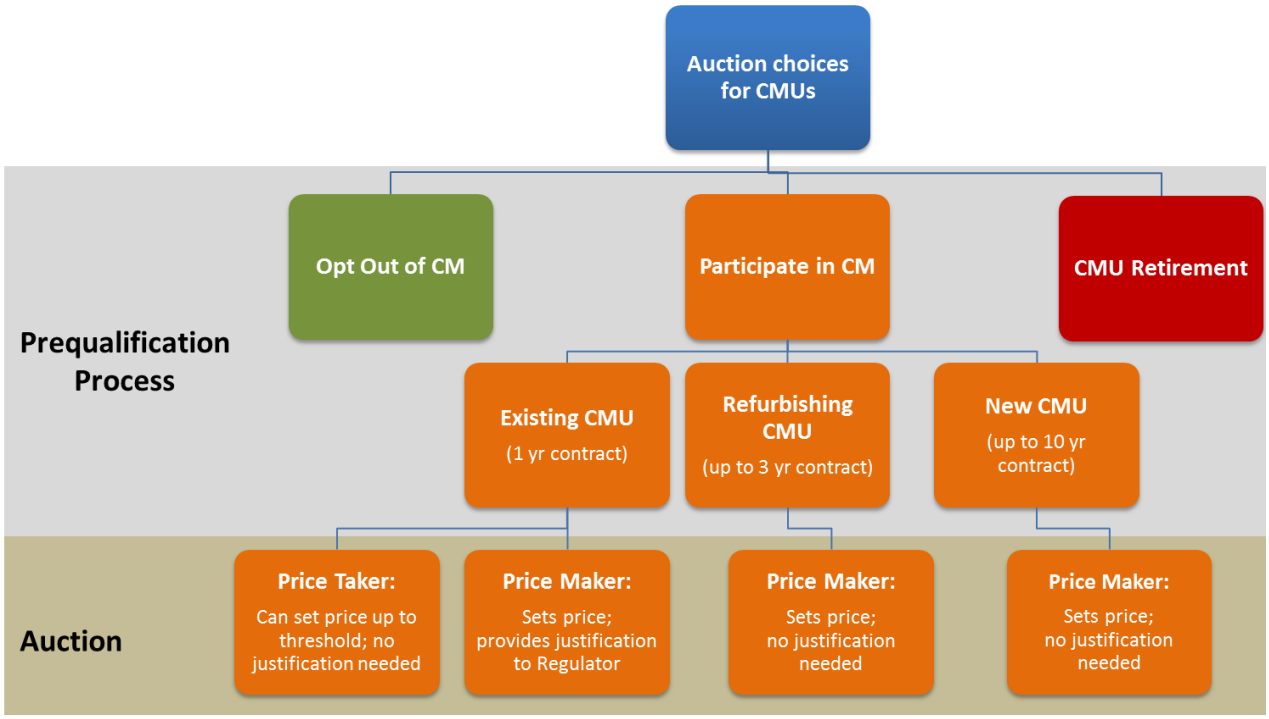
40. A CMU may indicate an "exit price" which is the minimum price they would be willing to offer their CO. Once the round has been reached in which supply is less than demand, the clearing price is set at the exit price of the cheapest unit that is not contracted. If there are two marginal CMUs at the same price, the tie will be broken according to which CMU is seeking a shorter contract duration. If they are both seeking the same contract duration, the tie will be broken by lottery.

41. Supply in the auction might be "lumpy" such that there is no point where supply exactly equals demand. In this case the SO will determine the optimal level according to that which maximizes net welfare (taking into account the cost of extra capacity and its value to society) – utilizing methodology set out in advance.

42. If the auction is not cancelled, there will be no Ministerial discretion in relation to the outcome of the auction process. Ministerial discretion is restricted to the decision to hold the auction and the construction of the demand curve prior to the auction being held.

43. Participation in the pre-qualification process will mandatory for all licensed generation that is eligible to participate in the CM, including co-firing plants that are *partly* eligible to participate. This will be enabled via a license amendment implemented by Ofgem.

However participation in the auction is voluntary. The table below illustrates the options for generators:



Note: we are still considering the term limits for refurbishing and new plants and will be consulting on these issues.

44. At the pre-qualification stage all such CMUs must register through a tick box mechanism whether they will provide capacity in the delivery year and how they will participate in the auction. They have three options:

45. **Opt out of the CM**: Existing CMUs may choose to state in the pre-qualification process that they do not intend to close but that they wish to opt out of participating in the CM. If they opt out, they will not hold obligations or be eligible for any payment for overdelivery and they will also not be able to trade obligations. They will however be able to opt back into the mechanism at a later date (including at the year-ahead auction for the same delivery year). The SO will apply the methodology to de-rate capacity to plant opting out and will net this capacity off the volume procured in the capacity auction.

46. **Participate in the CM**: CMUs wishing to participate in the CM must declare whether it is a new plant, an existing plant or an existing plant undergoing significant refurbishment.

47. Existing CMUs can then choose prior to the auction whether they will participate in the auction as a price maker or price taker.

48. **Price takers**: Existing CMUs will by default participate in the auction as price takers meaning that they may offer a price up to a threshold ("**PT Threshold")** and may not exit the auction until the price has fallen below their offer. The threshold will be set at the lesser of [50%] of net CONE or 70% of the last clearing price set by new entry in the four-year ahead auction (adjusted for inflation).

49. If successful in the auction a CMU will become a CP and bound at that price for a one year term all set out in a Capacity Agreement issued by the SO.

50. **Price makers**: Any existing CMUs wishing to set an exit price exceeding the PT Threshold will have to provide justification that they face net going forward costs. This justification must be set out in writing and contain sufficient support for the claim and must be approved by the CMUs Board and accompanied by a Board Certificate, the format of which is to be determined **("PM Memorandum and Certificate").** This PM Memorandum and Certificate will be sent directly to Ofgem who upon receipt will confirm to the SO that the CMU is entitled to be a price maker.

51. Subsequently, Ofgem may review this PM Memorandum and Certificate and enter it into evidence in any investigation/ enforcement proceeding.

52. Such CMU (i.e. those who request price maker status) and who not accepted at auction but continue to operate in the delivery year will automatically be subject to investigation by the Ofgem who will consider whether there has been abuse of market power

53. **Refurbishing CMUs**: Existing CMUs wishing to access a long term contract will be required to submit a Board approved Business Plan and Board Certificate (format to be determined)("**Refurbishment Plan and Certificate")** to [the SO] outlining nature of the proposed works and quantifying the proposed investment. For existing plant to qualify for this category it must demonstrate that the planned capital expenditure is material (defined as exceeding a proportion of the value of the plant once refurbished). The "materiality" threshold for refurbishing plant will be published in advance of the prequalification process. The threshold will be set to exclude routine long term maintenance of a plant and to include only more significant refurbishments (such as conversion of CCGT to OCGT, boiler replacement or supercritical technology conversion).

54. Refurbishing CMUs will be able to select in each round of the auction process their term from [one year to five years], to which the relevant auction clearing price will apply. They will then be eligible to participate in the auction as a price maker without providing

additional justification. The refurbishment expenditure must take place between the date of the auction and the start of the relevant delivery year.

55. **New entrants**: New CMUs will be able to set their own bid price and to select a contract term [up to 10 years] without justifying their 'net going forward' costs or need for a long term contract. They must state their desired contract length in each round of the auction. New CMUs will be defined with reference to the level of new construction involved in the project: CMUs may reuse existing infrastructure (including grid connection, pipelines and up to [50]% new equipment) and still qualify as "new".

56. **Retiring CMUs:** Plant may also opt out of the auction on account of impending closure. This plant will not be assumed to provide any capacity in the delivery year. If this plant stays open it will not be eligible to participate in the year-ahead auction for the same delivery year and it will automatically be subject to investigation by the Regulator to consider if there has been abuse of market power.

57. **DSR Providers:** will able to set any price in the auctions.

58. An auction price cap will be set for the clearing price, at a multiple [1.5x] of Net CONE – with the size of the multiple recognising the degree of uncertainty around the estimate.

59. Capacity will not be withheld from the auction to cover post-auction disputes and appeals.

60. Capacity payments, and the associated parameters (e.g. VoLL, Cost of New Entry), will be fully indexed to the Consumer Price Index (CPI) for plant on multi-year contracts from the end of the first delivery year to the end of the multi-year contract.

61. CMUs that began construction or refurbishment between May 2012 and the first capacity auction will have the option of being treated as new or as refurbishing plant in the auction (i.e. allowed to be a price maker and access to a long term contact). This will ensure that we do not provide a disincentive to investment now. Such CMUs must state what length contract they wish to receive in each round of the auction.

62. Providers claiming they will retire, or opt in to the auction process at pre-qualification but then do not turn up at the auction, will be prevented from participating in the year-ahead auction or in the auctions for the two subsequent delivery years. In those auctions such capacity will be required to participate in pre-qualification, with their eligible options being restricted to 'opt out' or 'retire'.

63. The four-year ahead auction may be postponed or cancelled if there is insufficient supply: In circumstances where less than 1.5GW below Target pre-qualifies for the auction or offers capacity in the first round (i.e. at the price cap), the auction will be declared to have insufficient supply. This is intended to prevent an illiquid auction leading to artificially high capacity prices. Providers claiming retirement or opt in but do not turn up, as per the previous paragraph, will be eligible to participate should the original auction for which they made their claims be rearranged.

64. The auction would then be held at a later date and steps would be taken to ensure that the next auction has more supply, including:
    - Immediately reopening the pre-qualification process to enable new units to enter the auction;
    - Ensuring any remaining appeals from the previous pre-qualification process are completed; and
    - Potentially reviewing the Net CONE parameter.

65. The second auction will be held within six months of the first auction having been declared illiquid. If the second attempted auction were again deemed illiquid then the process for contracting capacity for that delivery year will be cancelled. However if the auction is cancelled due to technical failures in the auction system then it may be possible to postpone the auction more than once - provided that the auction date remains within six months of the original planned date for the first auction.

66. In the first year of running auctions, the auctioneer will have a duty to inform Secretary of State if there are any indications of impropriety among bidding and the Secretary of State will reserve the right to cancel or reschedule the auction at any point up to its conclusion. Potential improprieties include suspicion of collusion by bidders, a serious failure of the auction system, or a leak of confidential information to one or more bidders. In subsequent years, the above process will operate with a senior official in Ofgem being informed of the auction and having discretion whether to postpone/cancel the auction.

67. The year-ahead auctions operate in the same way as the four-year ahead auctions in terms of the price cap, price taker threshold, and use of CONE. However given the shorter lead time and the lower level of capacity to be contracted, the year-ahead auction will be different to the four year ahead auction in the following ways:
    i. There will be no option for long term contracts at the Year Ahead stage;
    ii. The slope of the demand curve will be +/- 5% around the Target, rather than +/- 1.5GWs; and

iii. There will be no minimum supply requirements in the auction. However there will remain discretion to cancel/postpone the auction if there are indications of impropriety.

Locational issues

68. It is a policy decision that the GB Capacity Market shall be operated as a single zone. This treatment will only be reviewed should the GB electricity market split in line with any decision to do so as a consequence of the implementation of the EU Target Model, or should capacity external to Great Britain be able at a future date to participate within the GB Capacity Market and in so doing trigger the need for a zonal auction.

69. Although we do not anticipate the need for a zonal auction to occur in the initial years of the Capacity Mechanism we will require the SO to future proof its IT System to cater for this. We are therefore proposing that the following policy on zonal auctions be adopted.

70. The potential for a zonal auction will be identified by pre-notified limits on the capabilities of certain zones to supply capacity to the main GB Capacity Market. Any such zones shall be identified and published prior to the auction. If capacity is offered in such a zone in excess of the capacity supply capability of that zone, the zone will be subject to a "zonal auction".

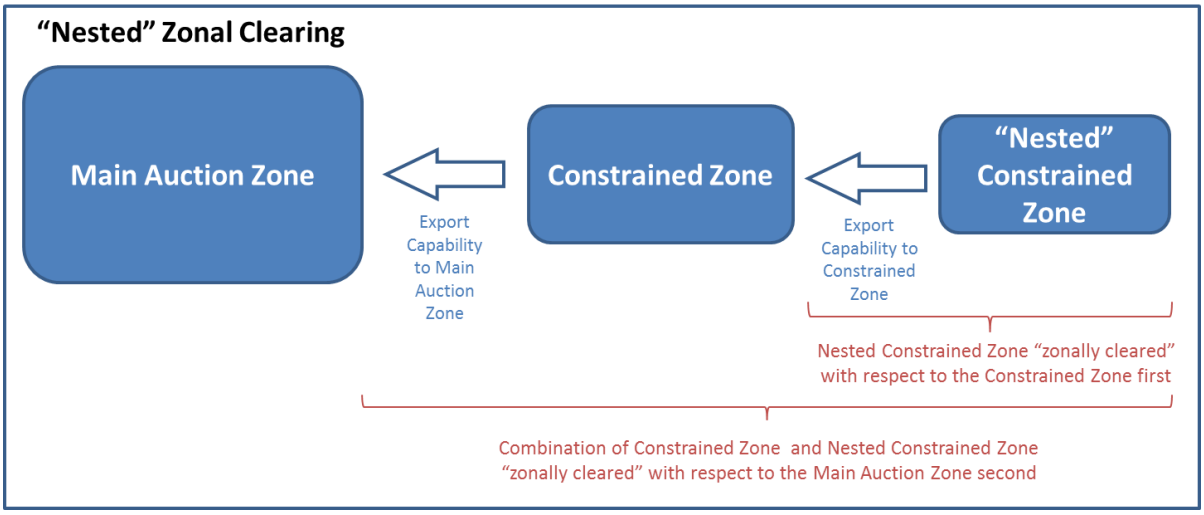
71. Under this arrangement, the main GB auction will be paused, while the descending clock auction proceeds only for the identified zones until such time as the zone "zonally clears". A zone will clear once the capacity that remains being offered by parties is less than or equal to the capacity supply capability of the zone. The main GB auction will then recommence, with the capacity "zonally-cleared" from the zonal auction being accounted for in the main auction.

72. Should the main GB auction then clear at a price higher than a zonally-cleared zone, CPs in the zone, shall receive the zonally-cleared price for their capacity and those in the GB auction will receive the "main" price.

73. Should the main GB auction remain to clear once it has descended to the price of a "zonally-cleared" auction, then the capacity in that zone will be "re-entered" into the main auction where it will compete against the remaining capacity in the main auction. This process will continue for all "zonally-cleared" zones should the "main" auction price decrease further.

74. Once the main auction clears, then any capacity which remains in those "re-entered" zones will receive the same price for capacity as the main auction price.

75. Should a constrained zone exist which contains within itself a further constrained zone – a "nested" constrained zone, then the nested constrained zone shall be zonally cleared with respect to the wider constrained zone, before finally the two zones are cleared zonally with respect to the main GB auction.



Section 5: Criteria for participation in the auction

76. Potential Providers will have to register for the pre-qualification stage at least four months ahead of the primary auction – except for the 2014 auction when reduced timelines may apply.

77. The purpose of the pre-qualification stage is to confirm the eligibility status of capacity that prospective CPs wish to bid into the capacity auctions and to reduce complications which could otherwise prevent the effective operation of a price based auction. The SO will undertake a series of mechanistic checks on the non-financial elements of the capacity Providers' application to assess their ability to deliver on their prospective capacity obligations should they be successful in the auctions.

78. CMUs which are able to demonstrate achievement of the key criteria at their individual CMU level will be considered as having provided an acceptable level of surety as to their ability to deliver and are therefore considered eligible to participate in the auction process as either a price taker or price maker. The criteria for existing CMUs are i) submission of a de-rated capacity, ii) passing a financial/credit check via a submitted credit reference, iii) has generated onto GB system, or reduced demand from the system, up to their bid level and iv) has a valid Transmission Entry Capacity **("TEC")** to

GB (or interconnected zones) for the delivery year, where appropriate for their size of CMU.

79. Refurbishing CMUs seeking a long term contract will also have to v) submit a Board Certificate and Board approved business plan ("Refurbishment Plan and Certificate") justifying the finance requirements for their proposed essential expenditure.

80. New CMUs will have the criteria of vi) evidence of a valid Development Control Order and vii) submission of plausible construction milestones to achieve commissioning onto the GB system in addition to the aforementioned de-rated capacity and financial checks.

81. The de-rating volume for each CMU will be set administratively by the SO as part of the pre-qualification process.

82. The pre-qualification process will also confirm Providers' compliance with the Grid Code, the existence of a connection offer for the relevant delivery year and the CfD FIT/RO status of the bid capacity. Equivalent checks will also be undertaken for capacity connected to the Distribution network.

83. Providers' dispatch systems will be assessed post-auction to ensure they are compatible with the SO's systems and processes and are capable of accepting instructions from SO.

Section 6: Capacity Agreements

84. The contractual architecture of the Capacity Market is under development (i.e. the Regulations, Codes, Licences, Relevant Requirements and Capacity Agreements), but for the present purposes there is a necessity for an instrument to bind bidders to the pre-qualification and auction rules ('Auction Instrument'). The Capacity Agreement is issued to successful bidders.

85. Prior to being eligible for participation in an auction a potential CP will need to commit to the rules of the auction. This agreement will effectively commit the Capacity Provider to the auction rules.

86. Once the potential provider has passed through the pre-qualification process it will receive, from the SO, a document confirming its eligible units for the forthcoming Capacity Auction and the basis of their participation.

87. Capacity Providers successful in the auction process will be awarded a Capacity Agreement issued by the SO. This agreement will record the size of the capacity obligation awarded to each of that Provider's relevant Capacity Market Unit(s) as a consequence of the Capacity Auction. Providers' performance at times of system stress would be assessed across the portfolio of CMUs specified in this schedule.

88. The Capacity Agreement will include the following:

- **Identity of the Capacity Obligation Holder:** The Capacity Agreement will identify the company that owns/operates the CMUs that are to ultimately hold the Capacity Obligations defined by the Capacity Agreement. Standard details such as registered company name, registered company address, company number, and contact details for serving any notices due under the obligation shall be included.

- **Definition of the unit(s) eligible to hold a Capacity Market obligation:** This will include the BM Unit ID of any units that are registered within the Balancing Mechanism systems, and for those outside of those systems it will define how the unit is to be constituted and metered.

- **Definition of the Capacity Obligation awarded:** This figure specified for each Capacity Market Unit within the Capacity Agreement will define the basis for future Capacity Market Payments for the unit for the term of the Capacity Agreement

- **Term of the Agreement:** The commencement date and term of the Capacity Obligation will be specified.

- **Termination Provisions:** The Capacity Agreement will contain the provisions for the termination of the agreement.

- **Works Provisions:** Where a Capacity Agreement is awarded on the basis of a "new-build" unit this section of the Capacity Agreement will set out the key project milestones and the corresponding dates at which such milestones must be achieved. The Agreement will also set out the process by which permitted amendments to this Works Programme will be allowed.

- **Indexation Provisions:** The Capacity Agreement will contain the provisions for the indexation of any capacity price for each year of the Capacity Agreement.

89. Should other CMU specific information be identified during the detailed design of the arrangements then this too will be placed within the Capacity Agreement or pre-auction documentation as may be appropriate.

Section 7: Payment model – Settlement Body

90. DECC announced in February 2013 that it was to designate Elexon Ltd ("**BSCCo")** to discharge the responsibilities of the Settlement Body for the Capacity Market. Elexon will be responsible for:

- The collection and administration of market and participant data relevant to the Capacity Market
- Calculating and administering Payments due to Capacity Market participants
- Calculating and administering Charges due from Capacity Market participants
- Calculating and administering Penalties due from Capacity Market participants
- Invoicing, Collection and Payment of the sums owing or due
- Calculating and enforcing Credit Requirements where they are due
- Administration of the Governance of the Capacity Market
- Collection and administration of bid bonds

Assignment of Capacity Market costs to suppliers

91. Licensed Suppliers will be liable to fund the Capacity Market. The total sum recoverable across the year from Licensed Suppliers will be calculated as follows:

$$\left(\sum_i CMP_{ix} + SAMC_x\right) \times \frac{SFSPD_x}{TFSPD_x}$$

Where $\sum_i = The\ sum\ over\ all\ providers\ i$

$TFSPD_x = Total\ Forecast\ System\ Peak\ Demand\ in\ Year\ x$

$SFSPD_x = Supplier's\ Forecast\ System\ Peak\ Demand\ in\ Year\ x$

$SAMC_x = Settlement\ Agents\ Annual\ Costs\ in\ Year\ x$

Not all elements of the above formulae will be able to be determined at the commencement of the Capacity Year in question and thus a forecast will need to be generated and used. Where forecast values are used they shall be reconciled as metered or actual information becomes available.

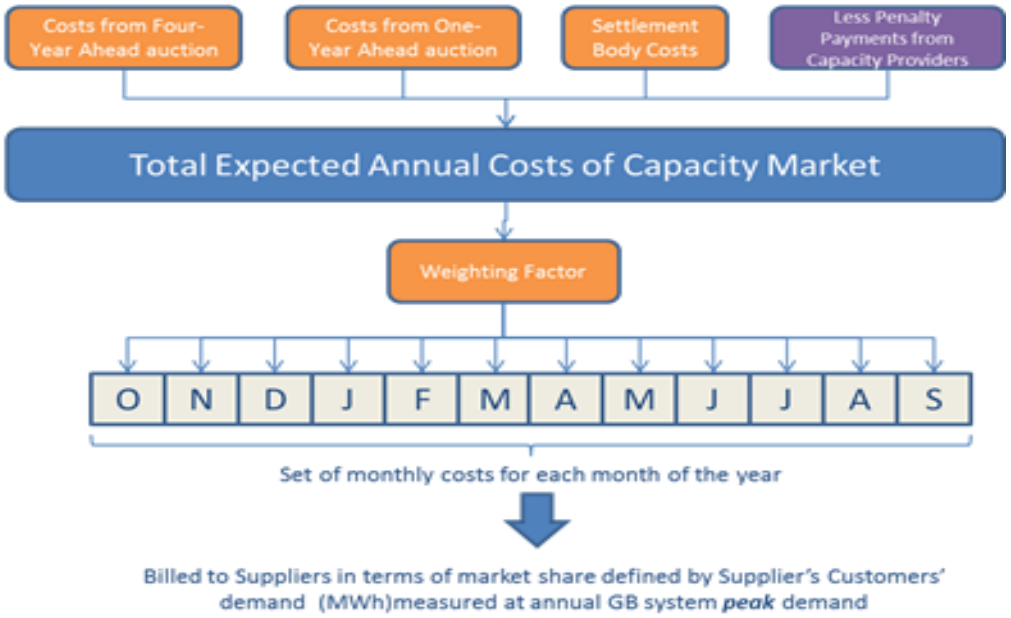
92. The annual revenues will be recovered from licensed suppliers in monthly instalments. The proportion of the total that needs to be collected from ***all*** Suppliers in each month shall be determined according to a weighting factor. This weighting factor shall be

determined such that revenues are collected and paid out proportionate to the GWh of demand expected in each month. Such weighting factors shall be established by examining a historic period of demand data and published in advance of the delivery year.

93. The total monthly Capacity Market revenue will then be recovered from each licensed suppliers according to their proportionality. Proportionality will be based upon a System Operator forecast of the Suppliers Customer's demand taken at times of annual GB System Peak Demand, reconciled against the supplier's customers' metered demand when meter data is available. Annual GB System Peak Demand will be determined in accordance with the existing methodology used by the GB System Operator when determining its "TRIAD" charges for the purposes of calculating Transmission Network Use of System **("TNUoS")** charges.

94. The above process is described diagrammatically below.

Figure: Payment Flows Structure – Supplier Perspective



Capacity Payments to Capacity Providers

95. Capacity Providers charges shall also be levied in 12 monthly instalments with the total sum recoverable across the year being calculated as follows*:*

Where $CMP_{ix} = C_{ix} \times P_{ix}$

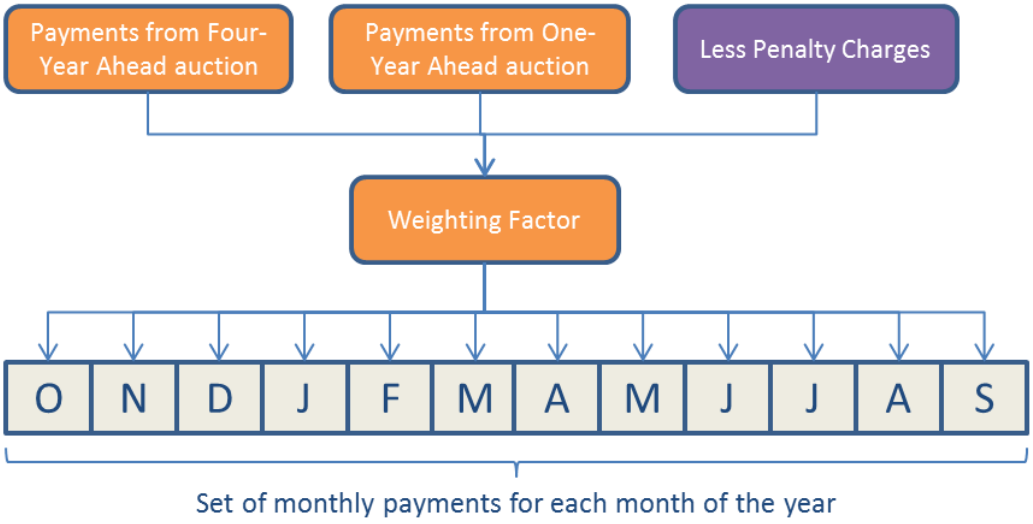
Where $CMP_{ix} = The\ Monthly\ payment\ to\ Capacity\ Provider\ i\ in\ Year\ x$

$C_{ix} = The\ Capacity\ cleared\ for\ provider\ i\ in\ Year\ x$

$$P_{ix} = The\ Price\ cleared\ for\ provider\ i\ in\ Year\ x$$

96. As was the case with suppliers the annual charge will be paid in 12 monthly instalments set using the same weighting factor established for supplier monthly charges. This is shown diagrammatically below.

Figure: Payment Flows Structure – Capacity Provider Perspective



Capacity Market penalty charges

97. The Settlement Body will be responsible for monitoring the performance of Capacity Providers through any period of stress and where a Capacity Provider underperforms against its Capacity Obligation it shall calculate the consequential penalty charge. The basis for such charges in described in section 11. The Settlement Body will be responsible for collecting such penalties from the relevant Capacity Providers.

Return of penalties to suppliers

98. Capacity payment penalties will be returned from Capacity Providers to suppliers proportionately. Proportionality will, as is the case with charges, be based upon the suppliers demand at the time of system peak demand.

Credit requirements

99. Suppliers will be required to lodge collateral with the settlement agency so that they are in a position to cover their payment obligations for one month in the event of default. It is

proposed to align the permissible forms of credit with those currently set out in the existing electricity industry code known as the "Connection and Use of System Code". The precise process by which credit requirements will be established together with the process by which credit defaults are identified and subsequently managed will likely follow existing industry precedents and will be developed alongside detailed legal drafting.

100. In the event of a payment default by a Supplier, once that Supplier's collateral was exhausted any residual outstanding amount would be mutualised across the remaining supplier base to ensure the settlement agency is always in a position to pay capacity Providers. This process mirrors the established Balancing and Settlement Code **("BSC").**

101. Capacity Providers will not be required to lodge any credit with the Settlement Body. Cover for any penalty default will be provided by netting against future capacity revenues in the first instance. Any defaulted penalty amounts outstanding at the end of the delivery year will be mutualised across Suppliers, and addressed with the defaulting Capacity Provider via Ofgem's licence breach arrangements where these are applicable.

Section 8: Secondary trading

102. Capacity obligations may be physically traded at any time from a year ahead of the delivery year provided sufficient notice is given to the SO. The SO must consent to these trades must be obtained and this will require an assessment by the SO of the receiving party's eligibility and pre-qualification

103. Parties eligible to take on additional obligations include:

- Plant that was unsuccessful in the CM auction; and
- New plant that had commissioned early
- Capacity that had not participated in the auction or opted out but that has subsequently been verified by the SO as providing eligible physical capacity (for instance new DSR or a de-mothballed plant)

104. Plant that has taken on obligations, opted out or that had declared they would be retiring will not be eligible to take on additional capacity obligations. Plant that has opted out will be able to opt back into subsequent auctions - in which case the SO will increase demand in that auction accordingly.

105. Where parties have traded obligations, the capacity payment goes directly to the plant taking on the obligation and the liability in an event is calculated according to the performance of the party taking on the obligation.

106. The penalties that apply to a new plant that fails to commission (i.e. the loss of the admin fee and the reduction in payment/contract length) will apply to new build even if they physically trade out of their position in the secondary market.

107. Providers that have acquired CO pursuant to the auction will not be permitted to take on further physical obligations (even outside of times of peak demand) though they will be able to hedge their position financially in private markets.

108. The SO will develop an IT System which will serve as a registry for all the COs and can be capable of becoming a platform for financial trading.

Section 9: Definition of system stress events

109. This model focuses on real-time delivery performance with ex-post determination of stress events.

110. Formal system stress events, where a CPs will be penalised for failure to deliver energy/demand reduction, are defined as any settlement periods in which voltage control and/or controlled load shedding are experienced at any point on the system for 15 continuous minutes or longer. Individual settlement periods with voltage control or load shedding lasting less than 15 minutes which are not part of a continuous event that lasts more than 15 minutes across either the proceeding or subsequent period, will not be considered as stress events for the purposes of the Capacity Market. For example load shedding for the last ten minutes of settlement period one and the first 20 minutes of settlement period two would result in both periods being considered as stress events.

111. System stress events are considered to start at the point where the SO issues demand control instructions (e.g. voltage reductions or disconnections) to relevant Distribution Network Operators **("DNO")** – under Operating Code 6 (OC6), or where demand is automatically disconnected by low frequency relays.

112. The stress events are considered to have finished at the point at which the SO instructs the last relevant DNO to reconnect demand (under OC6), rather than the specific point at which all demand is back on the system. This is to account for differences in the timescales between DNOs for re-establishing supply.

113. System warnings such as Notice of Insufficient Margins **("NISM")** will continue to play a vital coordination role in indicating impending system stress. The SO will develop a new procedure to be known as a Capacity Market Warning **("CMW")** and no CP will be liable for penalties until the arrival of the first settlement period after the issue of a warning. In system stress events payments for overdelivery will be available from the moment the warning is issued, to CPs who increase their delivery, relative to their status in the settlement period immediately preceding the warning. Similarly CPs who reduce their delivery, relative to their pre-warning status, will be penalised for their reduced delivery. No load-following adjustments will be made to penalties/payments made in this period. This manner of calculating overdelivery payments and penalties will last for the four hours immediately following the publication of a Capacity Market Warning. If the stress event is still active after four hours the incentive calculation methodology described in section 11 will apply.

114. No distinction is made between stress events resulting from generation adequacy issues and from security/contingency measures (i.e. plant trip and resultant instantaneous system loss); both types count for the purposes of assessing a CP's performance.

115. Periods of voltage control/controlled load shedding will not be classified as stress events where they result from a failure or deficiency in the transmission or distribution systems, for example where a transmission fault trips out several plant. Providers will not have delivery obligations in such periods and will not therefore be penalised for failing to deliver in such circumstances.

116. The CM follows the electricity market rules for dealing with constraints on the system, as well as for dealing with reserve creation by the SO. This implies that in periods where demand is disconnected and the SO has accepted bids for generators to turn down, penalties for the CM would only be triggered if the volume of disconnection was higher than the volume of accepted bids to turn down generation. (For constraints this rule implies that in periods where demand is disconnected whilst at the same time the SO had to turn down a generator due to a constraint, penalties will only apply when the volume of demand disconnection was higher than the amount of output that had to be turned down for constraint reasons.)

Section 10: Capacity Agreement obligations

117. Capacity Providers will be required to be generating electricity or reducing demand, relative to their profiled obligation, in stress periods with only minimal exceptions based around transmission constrained CMUs. A CMU's outputs for the purposes of assessing delivery performance will be capped at the unit's Final Physical Notification **("FPN")**

prevailing at Gate Closure plus the energy contribution of the SO's instructed actions to that unit. The actual delivery performance in MWh will therefore be the lower of metered output or the FPN plus SO instructions.

118. A Provider's raw obligation at the time of stress events is calculated from their obligations acquired in the four-year and year-ahead auctions, plus any secondary traded obligations acquired for the specific settlement periods in which a stress event occurs. This is expressed by the following calculation:

$$\frac{(AACO_{ij} + PTCO_{ij})}{2}$$

Where

$AACO_{ij}$ is the value in MW of the Capacity Obligation taken on by CMU "i" for half-hour "j" in the capacity auctions preceding half-hour "j"

$PTCO_{ij}$ is the value in MW of the Capacity Obligation taken on by CMU "i" for half-hour "j" in the secondary physical capacity markets preceding half-hour "j"

119. This raw obligation is scaled to account for the ex-post outturn demand in the specific settlement period, where the demand that the Capacity Market is expected to supply is the total system demand net of the ex-post contribution from these other sources of capacity. Each unit's settlement period share of the overall capacity procured to meet this demand is then calculated by subtracting the capacity from non Capacity Market sources from the outturn national demand and then dividing the outcome by the total capacity procured. This factor is then applied to the unit's raw capacity obligation to achieve the load-profiled capacity obligation for unit "i" in settlement period "j" known as "$LFCO_{ij}$". Algebraically this is expressed as follows:

$$Load\ Following\ Capacity\ Obligation\ LFCO_{ij} = \frac{(AACO_{ij} + PTCO_{ij})}{2} \times min\left(\frac{(SD_j - NCMCC_j)}{\sum_i AACO_{ij}}, 1\right)$$

Where

SD_j is the outturn System Demand in period "j" as determined by the System Operator in accordance with a pre-defined methodology that will seek to correct metered demand for any instructed load reduction under DSR or Grid Code instructions.

$NCMCC_j$ is the Capacity Contribution of non-CM units in period "j" determined ex-post

$\sum_p$ is the sum over all such units “p”

$\sum_i$ is the sum over all such units “i”

120. The load-profiled capacity obligation of each Provider will also be adjusted to take account of their delivery of a balancing service, BM unit specific trades or, Bid-Offer Acceptances. Further detail on this can be found later in paragraph 156. It is this Adjusted Load Following Capacity Obligation (ALFCO) against which delivery performance is assessed. It is worth noting that the volume of energy delivered will not be adjusted, only their relative load-profiled obligation – against which their delivery will be assessed. For confirmation the capacity obligation for which a Provider is liable to deliver at times of system stress will not be able to exceed 100% of their capacity cleared at auction plus any volume physically traded in advance of the delivery year.

121. It is recognised that Providers need to be aware of their indicative load following obligation at times of potential stress events – particularly when deciding if and how to trade in the secondary market. It is proposed this is achieved through a two-stage process whereby the SO provides a non-binding forecast of aggregated system demand starting a month in advance, however Providers’ exact obligation will be determined ex-post based on actual demand at the time of any stress events. The SO will not provide indicative figures on a CMU specific basis.

122. A system of post-event tagging will be developed, along the lines of the existing P217 tagging process, to identify those Providers which were held off the system by the SO due to transmission constraint issues. Such Providers will be considered to have delivered their load following obligation. Providers not subject to the SO’s constraining instructions would be required to deliver as per their capacity obligation.

123. No acknowledgment will be provided however, for Capacity Providers failing to deliver for any other reason e.g. force majeure or gas emergencies.

124. Any existing CMU that is subject to a Capacity Agreement and which provides formal notification to the System Operator of their intention to decommission or disconnect from the transmission system in advance of a delivery year, without having physically traded their obligation at the time of the notification, would have their the CMU’s Capacity Agreement terminated upon receipt of the notification – i.e. halting their future capacity payments for the duration of their agreement. In addition they would be liable for penalties [of a level to be determined]. If the CMU were to subsequently re-commission in advance of the delivery year it would be eligible to participate in future four year and one year ahead capacity auctions.

Section 11: Incentives

125. This section describes the application of delivery incentives once the notification period post the publication of a Capacity Market Warning (at least four hours) has elapsed. The description of incentives in the period between the warning publication and elapse of the warning is contained in paragraph 113. CPs will not face penalties or receive overdelivery payments where no Capacity Market Warning is issued at least four hours in advance of a stress event, except where their delivery changes with respect to their output at the beginning of the stress event.

126. Delivery performance in periods of stress events preceded by a Capacity Market Warning will be determined on a net basis across all of the CMUs specified in each Provider's Capacity Agreement. The performance of CMUs not participating as part of a wider portfolio structure would be assessed on a standalone basis.

127. Providers with a net under-delivery of energy relative to their aggregated capacity obligations in each settlement period that is treated as a stress event will be required to make a penalty payment in proportion to their deficit. These repayments will be calculated from their deficit and the system-wide penalty rate (PR) which is determined by the VoLL (either the VoLL for voltage reduction or demand control) and the prevailing System Buy Price for each half hourly settlement period meeting the system stress definition.

128. Providers' cumulative penalty exposure in a delivery year will be capped at twice the cost of new entry (CONE) multiplied by their volume (MW) of Capacity Agreements held. A soft cap exists within this framework to ensure Providers have continued incentives to deliver throughout a delivery year.

129. Providers with a net over-delivery from their CMUs, relative to their aggregated obligations, will be paid for their excess volume at the negative penalty rate. The overdelivery provisions do not apply to BM unit's output which is not supported by an equivalent Final Physical Notification or SO instruction. In addition overdelivery payments are only available to CMUs in possession of a Capacity Agreement.

130. The formula for calculating penalty exposure for failing to deliver in stress periods are as follows:

131. System-wide Penalty Rate (PR) in Settlement Period j

$$\text{Penalty Rate } PR_j = Z_{(VR \text{ or } DC)} \times (VOLL_{(VR \text{ or } DC)} - CO_j) \text{ £/MWh}$$

Where Z is a multiplier between 0 and 100%, with potentially separate values for Z according to whether the event resulted in voltage reduction or demand control.

Separate Values of Lost Load will be set for whether an event resulted in voltage reduction or demand control. The Voltage Reduction VoLL ($VoLL_{VR}$) will be applied where the DNOs only apply voltage reduction in the stress event; the Demand Control VoLL ($VoLL_{DC}$) will be applied if any demand control is experienced on the system.

132. The penalty for a CMUi in each Settlement Period j when there is a delivery failure.

$$\text{Settlement Period Penalty } SPP_{ij} = PR_j \times (ALFCO_{ij} - E_{ij}) \times h_j \text{ £}$$

Where ALFCO is the Adjusted Load Following Capacity Obligation (please see paragraph 156) and E_{ij} is the average power delivered by unit i in MW.

'h' will either be 0.5 hours where there is a system stress event in that settlement period, or 0 where there was no system stress event.

133. The portfolio penalty (PP), summed across all settlement periods (j) and CMUis within a portfolio, expressed in £ is:

$$Portfolio\ Penalty\ PP = \sum_{i=1}^{Units\ in\ Portfolio} SPPij$$

134. A Provider's penalty liability would be capped via an annual cap (£) applied at their relevant level of participation (portfolio or individual CMU), calculated with reference to twice the Cost of New Entry at the relevant capacity auction, shown by the following formula:

$$APC = 2 * CONE \sum_{i=1}^{Units\ in\ Portfolio} BMU(i)Capacity$$

Where 'BMU(i)Capacity' is the capacity in MW of the 'BMUi' accepted at auction and CONE is the cost of new entry in £/MW/year.

135. A Soft Annual Portfolio Cap would be applied, in £, to ensure Providers have an incentive to deliver throughout a delivery year.

$$SPC = \left(\frac{PP}{MaxP}\right) Min(Max\ P, APC)$$

Where Max P is the portfolio penalty (PP) with Ei set to zero – to indicate the theoretical maximum penalty exposure.

Different rates of VoLL will be determined and applied depending on whether an event results in voltage reduction or demand control. The event's classification will be determined ex-post, with the Voltage Reduction VoLL being applied for any stress event where only voltage reduction is experienced. The Demand Control VoLL will be applied system-wide whenever demand control is experienced in a stress event – even if implemented by only one DNO. It is recognised the relevant value of VoLL applied may change over the course of a stress event depending on how the load reduction instructions are actioned.

136. The same penalty calculation at times of system stress will be applied irrespective of whether the defaulting Provider is an existing generator or a new Provider that had achieved operational status.

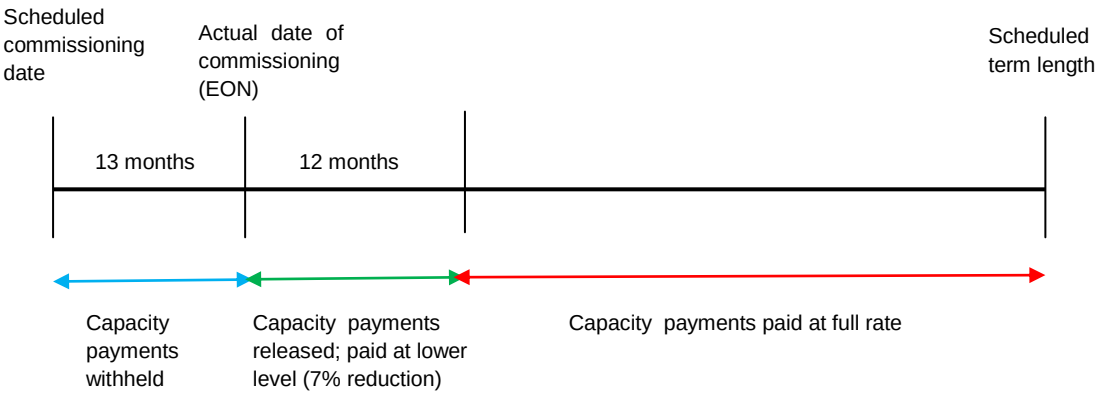
Treatment of new CMUs

137. New CMUs would be required to demonstrate evidence of their Substantive Financial Commitment to their project within a year of being awarded the Capacity Agreement. This is to provide assurance additional to that of the pre-qualification stage that Capacity Agreements have not been provided to speculative projects which fail to progress to commissioning. Failure to provide sufficient evidence of such a commitment would result in the termination of the new CMU's Capacity Agreement. The details of what constitutes such a Substantive Financial Commitment is to be determined.

138. Capacity payments will not be made to new CMUs within a delivery year until they had reached a specific operational milestone – Interim Operational Notification ("**ION**"). Such CMUs would not be liable for testing compliance or to pay performance penalties until this milestone is passed. The term length of their Capacity Agreement would, however, commence as scheduled and would not be pushed back to account for the delay period.

139. In addition CMUs which fail to achieve operational status within six months of their scheduled commissioning date would have their capacity payments reduced by 1% per month for every month they are delayed over six months. The reduction, applied at the level reached at the point of eventual commissioning, would apply to their outstanding deficit of non-operational capacity and have immediate effect from when their payments are released and last for a period of 12 months.

Example: treatment of a new CMU delayed by 13 months



140. CMUs which had achieved partial operational status (e.g. for one of two units) would receive pro-rata capacity payments in respect of their volume covered by the ION certification and would be obligated to deliver this load-adjusted volume at times of system stress or face penalties. Ahead of the delivery year they would only be able to physically trade capacity covered by a valid ION certification.

141. Additionally a Long-Stop Date would be set at 18 months after the new CMU's scheduled commissioning date. Any new CMU not commissioned by this date would have their capacity obligation terminated with immediate effect and be liable to pay a termination fee of a level to be determined. Such CMUs would be eligible to participate in subsequent auctions as a price taker.

142. A Provider would be considered to have met their Long Stop Date if at least 90% of their volume stated in their Capacity Agreement had achieved operational status by this date. Providers having between 50% & 90% of their capacity operational by this date would have another six months (i.e. two years after their scheduled commissioning date) for all their outstanding volume to achieve operational status; failure to do such would result in their Capacity Agreements being reduced to the level of their operational volume. Providers failing to meet the 50% minimum at the 18 month Long Stop Date would have their Capacity Agreements terminated as per paragraph 141 and the termination fee applied.

143. The SO would retain an ability to spot test Providers in the exceptional circumstances of where they had failed to demonstrate their energy delivery commensurate with their Capacity Agreement to the SO's satisfaction over the previous delivery year. Designated Providers subject to a spot test would be required to generate to the volume of their Capacity Agreement at a date and time specified by the SO, with penalties being applied for CMUs not able to demonstrate when tested. Providers would receive advanced notification of the test periods, with the System Operator taking

account of pre-agreed class type plant dynamics when determining each CMU's notification period. The SO would be limited to testing any specific CMU on a maximum of two occasions within any particular delivery year.

144. No specific funding for testing would be provided, with Providers pricing in the risk of such tests into their auction bids.

145. Under this approach capacity payments would be withheld from any CMU which failed a spot test until the CMU passed a subsequent retest. The Provider could request a retest at any time after their initial unsuccessful test. In addition unsuccessful CMUs would be penalised at a rate to be determined.

Section 12: Interaction with low-carbon support

146. Any Provider in receipt of a FiT CfD or RO support is not eligible to bid the capacity covered by the CfD or RO in the Capacity Market, either in the four-year or year-ahead auctions – although there are specific rules for the participation of biomass. The CfD/RO status of plant will be checked by the SO in the pre-qualification stage.

147. Plant that is standard co-firing biomass at the prequalification stage and that takes on capacity obligations must demonstrate to the SO prior to the delivery year that it has ceased co-firing biomass in order to receive capacity payments. Alternatively if it demonstrates that it is co-firing and receiving remuneration through either the RO or CfD then it will not receive capacity payments and its Capacity Agreement terminated.

148. Coal plant that takes on capacity obligations but subsequently chooses to co-fire biomass and to receive RO or CfD support for this will be given a duty to inform the SO prior to the delivery year, at which point the Capacity Agreement will be terminated.

149. The estimated volume of CfD or R*O* capacity (except for the CfD and RO biomass capacity that is already accounted for in the CM auction) is to be deducted from the estimate of capacity needed to meet demand when setting how much capacity to contract for in the auction.

Section 13: Interconnection

150. A key feature of the EU Target Model is that flows across interconnectors are ultimately determined by the outcome of implicit auctions that take place immediately preceding the delivery day. These implicit auctions essentially see a Power Exchange match energy trades in the markets at either end of the interconnector resulting in an interconnector flow that normally flows in the direction of wherever the price of power is

higher. In short the energy flows across an interconnector are largely set according to a set of matching anonymous energy trades.

151. This proves problematic when attempting to directly apply the proposed delivered energy model to non-GB generation capacity. The result is that it cannot be guaranteed that a non-GB generator will provide the same level of security of supply as a GB generator if it is subject to the same arrangements.

152. As part of its policy design DECC had developed an approach that could enable the participation of non-GB capacity within the CM. The method by which we established this was through the provision of a price signal equal to the value of capacity across an interconnector to GB (and correspondingly the charge made should GB capacity be utilised overseas). This model could loosely be characterised as “adding back” in to the interconnector prompt energy price the value of capacity.

153. The model however needs also to be considered against the broader aims of the development of common electricity market arrangements across the EU. We have analysed the model and discussed it with the European Commission. Our conclusion was that the price signals that the model placed on cross-border flows would not be compatible with the broader EU electricity market arrangements.

154. In conclusion while we remain supportive of the principle of allowing non-GB capacity to participate, our work has identified profound difficulties in doing so on equal terms as GB capacity and in a manner consistent with the Target Model as it applies to cross-border trading. We will continue to examine what may be possible within the design of the Capacity Market as it is finalised in the coming months, including exploring possible solutions that might enable participation of interconnected capacity in future years.

155. We may however be in a position where we cannot facilitate the direct participation of non-GB Capacity within the Capacity Market. If this proves to be the case we will take into account the likely contribution of capacity provided across interconnectors at times of GB system stress when setting how much capacity to contract for. This will ensure that we do not “over-procure” GB Capacity if there is statistical evidence that interconnectors will be providing energy to GB at times of system stress.

Section 14: Balancing services and offers made into the Balancing Mechanism

156. Capacity Providers will be eligible to provide the full range of balancing services to the SO without losing Capacity Market payments or facing penalties.

157. The capacity payments will supplement the reserve payments from the SO to such Providers - in effect likely replacing a proportion of the current payments made under Balancing Services Contracts. Where there is a competitive market context for balancing services, it is likely the market price for that service will be reduced, perhaps significantly, to reflect the additional capacity revenue. It is expected the total revenue streams available to the Providers of balancing services will remain broadly constant, with the resultant proportions varying in recognition of Capacity Market revenue.

158. The procurement of balancing services will be aligned with, and informed by, the Capacity auctions, with the bulk of balancing services procurement taking place after the year-ahead capacity auction to limit any overprocurement. However the actual procurement process will be independent of the Capacity Market. In the event that Balancing Services are procured in advance of the auction then these units will be accounted for when determining the overall level of capacity to procure through the capacity auction.

159. Providers who are providing Balancing Services will have this taken into account through adjustments made to their Load Following Obligation, not their delivered volume, as described previously in this document. The making available and delivery of Balancing Services can cover a wide range of circumstances and situations and these need to be accounted for in differing ways.

160. The adjustments fall into two broad categories. Firstly there are those adjustments that need to be made because the SO has instructed the unit to operate at a lower level than it had planned. Secondly there are those adjustments that need to be made because the unit is offering capacity to the SO but which the SO has chosen not to take up due to for operational reasons during a stress event.

161. As a summary the following cases need to be accounted for:

a) An allowance should a unit be operating at reduced output because it has instructed to operate at such output by the SO through a ***Bid-Offer Acceptance***

b) An allowance should a unit be operating at reduced output because it has instructed to operate at such output by the SO through a ***BMU Specific Trade***

c) An allowance should a unit be operating at reduced output because it is doing so through the delivery of a ***Balancing Service*** contracted by the SO

d) An allowance for Capacity “sterilised” for the sole use of the SO because of a Balancing Service Contract

System Operator Instructed Reductions in Output

162. Three adjustments are required to the Capacity Obligation to account for reductions in the output of the generator instructed by the SO through Real Time. These may occur as a consequence of a i) Bid-Offer Acceptance, ii) a BMU Specific Trade or iii) through the delivery of a balancing service (for instance mandatory frequency response) that sees an automatic fall in the output of the unit as a consequence of delivering that service. These three adjustment factors will be included when calculating a unit's 'adjusted' capacity obligation.

163. Bid-Offer Acceptances will be accounted for by use of the factor $QBOA_{ij}$, where

$$QBOA_{ij} = \sum_{n<0} \left(QAO_{ij}^{n} + QAB_{ij}^{n}\right)$$

Where QAO_{ij}^{n} and QAB_{ij}^{n} are as defined in the Balancing and Settlement Code

164. $QBOA_{ij}$, therefore represents the sum of all Bid Acceptance Volumes and Offer Acceptance Volumes associated with negative Bid-Offer Pairs (i.e. those that are designed to be utilised to lower the output of the unit). The inclusion of Offer Volumes in the equation is designed to capture any "unwinding" offer volumes issued to countermand an initial Bid Volume Acceptance.

165. The next adjustment factor will be designed to take account of the delivery of balancing services that result in the reduction of a unit's output. This is a relatively straightforward factor as it already exists within the Balancing and Settlement Code and is the factor "QAS_{ij}". This denotes the "Applicable Balancing Services Volume and would normally capture the energy reductions delivered through (for example) frequency response services, and intertrips. It will be capped at zero to ensure that only reductions in output delivered through this factor feed into the calculation of the adjusted capacity obligation.

166. The final adjustment factor will be a factor calculated by reference to any agreed trades between the operator of the unit and the SO to reduce the output of the specific unit. This value in each Settlement Period shall be denoted as $QBST_{ij}$ and as was the case for the variable "QAS_{ij}" shall be capped at zero so that only instructed reductions in output are captured.

Capacity made available but not utilised by the SO

167. There are two potential avenues when capacity could be offered by a Provider but not utilised by the SO. This may occur through the capacity being effectively sterilised for the sole use of the SO through the operation of a Balancing Services contract but then this capacity is wholly or partially unused by the SO through a stress event. It may also occur through capacity being made available through the Balancing Mechanism by the Provider, but again is either wholly or partially unused by the SO. The proposed treatment for the two cases differs.

Capacity "Sterilised" by Balancing Service Contracts

168. The proposed treatment for capacity "sterilised" as a result of a Balancing Services agreement reflects the fact that this capacity has been removed from the energy market and so only has the SO's instructions available as a means by which it may deliver energy to meet its capacity obligation. There is a risk that the SO may not instruct the unit prior to the stress event and so the unit will not be delivering against its capacity obligation fully in a settlement period simply because it is in the process of ramping up its output in response to a SO instruction. Because this is beyond the control of the operator of the Capacity Market Unit it is proposed to adjust the capacity obligation to fully reflect the contracted sterilised capacity. If the capacity is subsequently utilised wholly or partially then the adjustment will be proportionately reduced. This is shown diagrammatically below.

169. In the example above the Provider has a capacity contract and a STOR contract each for the same number of MW. The existence of a balancing services contract (for which the Provider is eligible for an availability fee – i.e. it is making it available under the terms of the balancing services contract) delivers a capacity "credit" equal to the MW under the balancing services contract. However any utilisation made under this contract is then added back onto the capacity obligation. This ensures that should the unit be called upon by the SO to deliver energy against the balancing service then it is obliged to deliver against that volume else face Capacity Market penalties. However the Provider is "held whole" for the difference between the SO instructed delivery and the full capacity of the balancing service contract.

170. Clearly this treatment would not and is intended to not hold the Provider whole to any capacity it had contracted for in the Capacity Market in excess of the balancing service contract.

171. Translating the above to an equation the load profiled capacity obligation would be amended by subtracting the following term "$QBSCCC_{ij}$" from it:

$$QBSCCC_{ij} = max\left(0, BSCCC_{ij} - \sum_{n>0}\left(QAO_{ij}^{n} + QAB_{ij}^{n}\right) - \max(QAS_{ij}, 0)\right)$$

172. Note that in the above the first use of the "max(…)" construction ensures that only those parties in receipt of a Balancing Services Contract Capacity Credit "$BSCCC_{ij}$" in excess of any accepted Offer volumes will have their overall capacity obligation amended to account for those Offer volumes.

173. The Balancing Services Contract Capacity Credit would be determined by the SO according to pre-defined rules. So for a STOR contract this would be the STOR "Contracted MW", for a constraint contract any volume between a "Capped PN" and the MEL of the unit, for an FFR contract the difference in volume between the agreed de-load point and MEL, and so on.

Capacity offered into the Balancing Mechanism

174. Offers submitted into the Balancing Mechanism that are not utilised by the SO would not be considered as delivery under the Capacity Market's rules. Such capacity, outside of a formal Balancing Services contract, would not be sterilised from the energy market and Providers would be able to self-despatch in response to any Capacity Market Warning. No adjustments would therefore be made in respect of any Capacity Obligations for offers made but not accepted within the Balancing Mechanism.

Defining the "Adjusted Load Following Capacity Obligation"

175. Drawing all of the above together results in the definition of the "Adjusted Load-Following Capacity Obligation" for unit i in settlement period j or "$ALFCO_{ij}$"

$$ALFCO_{ij} = LFCO_{ij} + QBOA_{ij} + min\left(QAS_{ij}, 0\right) + min\left(QBST_{ij}, 0\right) - QBSCCC_{ij}$$

It is this Adjusted Load Following Capacity Obligation against which Providers' delivery performance will be assessed.

Section 15: Demand Side Response (DSR) and small scale storage

176. There are three stages to the DSR programme. Stages 1 and 2 will be reviewed frequently to ensure they are delivering their objectives, to improve design and to provide more information about how DSR is operating.

177. The following sources will be included in the DSR programme:
- Temporary load shifting
- Temporary load reduction
- Behind the meter generation, including generation that exports to the distribution network rather than using the electricity to power the site
- Small scale generation attached to distribution networks and that accrue to a supplier's consumption account rather than having their own production account. A maximum size will be introduced to ensure the providers most in need of the support benefit from the transitional arrangements. Generation that would not be permitted to enter the main Capacity Market would be excluded however and this would include generation in receipt of a FIT.
- Storage that accrues to a consumption account. The intention is to exclude larger scale storage from the programme, but not from the Capacity Market itself

178. **Stage 1: Preparatory auctions**. Specific auctions for DSR (including embedded generation and smaller-scale storage) will be run in 2015 and 2016, each for delivery one year later. The timing of these will be reviewed in light of Ofgem's decision on additional balancing services. In 2017, the first year-ahead auction for the Capacity Market would be run and DSR would move to Stage 2.

179. The SO will hold an auction for time banded products and a load following obligation, with set quantities of capacity to be contracted in each product subject to a demand curve. Over time the capacity procured in the time banding products will plateau and an increasing proportion of capacity will be procured in the load following obligation product.

180. The penalty regime will be less onerous than in the enduring scheme, but reflect the direction of travel. At a minimum, a Provider will lose their total annual payment if they fail to perform in all stress events or tests.

181. Current predictions indicate that there may be stress events in the preparatory auction years, where these occur the SO will dispatch DSR and monitor Providers' performance as in the main Capacity Market. Where stress events do not occur, testing will be carried out in lieu. Performance indicators and penalties for failing to respond will be the same whether DSR is dispatched for a genuine event or for testing.

182. The costs of the capacity payments would be met by energy suppliers, as with the enduring regime, and allocated in the same way. There is a cost control mechanism built in through the use of the demand curve, this should mitigate an illiquid auction if insufficient DSR comes forward.

183. The cost of the settlement agency will be allocated in the same way as for the Capacity Market.

184. **Stage 2: Transitional arrangements in the Capacity Market**. These arrangements will be in place for the first few Capacity Market cycles, for example 3 years and smooth the transition from stage 1 to full assimilation in stage 3. The Capacity Market will retain some of the features of stage 1, for example some of the capacity reserved for the year ahead auction could be ring-fenced for DSR, but the emphasis will be on DSR moving to full integration, for example by moving to a load following obligation.

185. Under this phase there are no time banded products and DSR Providers will need to aggregate with other Capacity Providers, either before they bid into the auction or using the secondary market, to meet their obligations.

186. **Stage 3: Enduring DSR arrangements in the Capacity Market.** Stage 3 is full integration with the enduring Capacity Market arrangements. DSR will have specific rules that govern their participation (such as for pre-qualification checks), but participate on the same terms as other Capacity Providers.

Stage 3 – details of enduring arrangements; volume to contract

187. A proportion of capacity will be held back from the primary/four year ahead auction. This will be slightly less than the amount of DSR expected to be available in the year ahead auction, held the year before the delivery year.

188. Before the year ahead auction, the analysis will be updated to reflect new demand and supply forecasts and the amount to procure in the year ahead auction will be set by DECC.

189. If revised analysis indicates that no new capacity is needed, a minimum amount will still be procured. This will not be set aside for any individual capacity type.

DSR pre-qualification

190. DSR will have two routes to pre-qualify and can choose which to pre-qualify under:
   a) Demonstration of capacity: capacity dispatched to prove relationship between DSR resource and aggregator (does not have to be full capacity if the test is carried out off peak). Evidence of dispatch from previous/other mechanisms is acceptable, e.g. STOR or the transitional arrangements.

b) Provision of meter numbers or business plan with bid bond. The bid bond will be returned following a successful test after the auction or failure to win an agreement.

De-rating DSR

191. De-rating of DSR in the enduring scheme will be based on DSR's performance in STOR and Stage 1 of the transitional arrangements.

Baselining DSR

192. DSR will be baselined using the 'X of Y' method. This involves choosing a proportion of similar previous settlement periods and taking an average of them to determine what DSR is likely to have been taking were it not called off.

193. There is potential for Providers to inflate their baseline if the incentive is high enough and the option to review this decision will be retained.

194. Timeline for stages and moving to permanent integration
- Stage 1: 2014-2016 (final delivery year 2017)
- Stage 2: 2017-2019 year-ahead auction (final delivery year 2020)
- Stage 3: 2020 year-ahead auction onwards.

Section 14: Energy Demand Reduction

195. DECC is examining options for supporting energy demand reduction through the Capacity Market. Advice on this issue will be provided separately.

Section 15: Appeals

196. Providers will be able to utilise an appeals process should they disagree with an enforcement decision or a decision regarding their rights or entitlements (i.e. auction eligibility or de-rating). The process for resolving enforcement related disputes will mirror existing BSC and code-related appeals processes where possible. The process for resolving disputes around rights or entitlements (i.e. pre-qualification) will involve a hierarchical approach starting with informal notification to the SO, being escalated to [Ofgem], who may appoint an independent party to provide recommendations in respect of the appeal. This process should enable pre-qualification related appeals to be resolved in advance of the auction to which they relate. The final recourse for unresolved disputes would be escalation to Court, whereby a process will enable redress to be provided to successful appellants that were not able to re-enter the auction process due to timelines.

Section 16: MiFID/EMIR implications

197. The capacity instruments will most likely not be a financial instrument for the purposes of the Markets in Financial Instruments Directive (2004/39/EC)("MiFID"). Accordingly such instruments would also not be within scope of European Market Infrastructure Regulation (EMIR). The MiFID directive is currently in the process of being updated by the European Commission in light of further developments in the financial markets and so to make MiFID more fit for purpose. Under the proposed MiFID II directive and regulation there are new definitions such as the multilateral trading facility and organised trading facility, it is believed that the capacity instruments will not fall under these new definitions.

198. In addition it is likely that the capacity instruments would not be regarded as falling within any of the categories of specified investments requiring regulation under the Financial Services and Markets Act 2000 (FSMA).

Section 17: Accounting treatment of capacity instruments

199. DECC will commission advice from a firm of specialised accountants to attain an understanding of the accounting treatment of these instruments.

Section 18: Review and Exit

200. There is a statutory review period five years after the introduction of the primary legislation. There will subsequently be periodic reviews of the Capacity Market, with reviews timed to coincide with the five-yearly delivery plan. The reviews will be high-level and strategic, reflecting the fact that the technical detail about the Capacity Market will be enshrined in codes, for which Ofgem will have responsibility for monitoring. The objective of the Capacity Market reviews will be to review the impact of the Capacity Market on DECC's objectives (security of supply, affordability and decarbonisation), whether the design of the Capacity Market is fit for purpose, and whether the Capacity Market remains necessary in the future. DECC can contract out the analysis for the review, for instance to Ofgem, and the final report will be published.

Section 19: Governance

201. Government will establish the framework for the Capacity Market and will continue to take key strategic policy decisions in steady state.

202. The System Operator, as the EMR delivery body, will deliver the operational aspects of the Capacity Market. This includes gathering analysis to inform (but not make) policy decisions for the draft delivery plan.

203. Ofgem will continue to regulate the System Operator to ensure value for money for consumers and incentivise effective performance. Ofgem will also take the lead governance role in overseeing changes to the steady state design, primarily on the basis of greater consistency and alignment with existing market arrangements, reduced regulatory for industry and their existing staff capability and expertise.

Changelog

- Version 1.0 (20120515)
- Version 2.0 (20120529) – strawman updated in light of consultant's feedback and Expert Group views. New methodology for determining capacity detailed, along with new formula and examples of penalty calculation.
- Version 3.0 (20120712) – updated to reflect pay on performance concept.
- Version 4.0 (20120905) – updated to reflect VoLL minus cash out penalty regime and associated details (e.g. definitions of brownouts/blackouts and penalty liability exposure)
- Version 5.0 (20121010) – updated to reflect payment recovery model and associated details (e.g. penalty calculation based on number of expected stress events). Removal of the penalty regime's explicit link to an administratively set VoLL.
- Version 6.0 (20121109) – additional detail on auction design and secondary trading post consultant's visit (Nov 2012)
- Version 7.0 (20130107) – updated in light of workshop discussion with National Grid and Ofgem, December 2012.
- Version 8.0 (20130222) – updated in light of stakeholder representation, Expert Project Board and Expert Group views, the market based penalty regime and associated dependencies.
- Version 9.0 (20130320) – updated in light of further design detail, stakeholder representation, input from DECC Commercial on incentivising new plant and associated dependencies. Inclusion of two VoLLs for voltage control and demand reduction, removal of price stabilisation mechanism and new text on governance, zonal auctions and payment flows.
- Version 10.0 (20130328) – updated to reflect full final design proposals and provide a basis for preparation of detailed implementing regulations and/or codes, and for the SO preparing systems and staff to enable a first auction in 2014 (if required).
- Version 10.1(20130330) – minor updates; version submitted to National Grid as baseline design
- Version 10.2 (20130605) – amendments to auction design text, ref indexation, cancellation arrangements, price-taker threshold and measures to limit gaming potential.
- Version 11 (20130627) – publication as part of Capacity Market detailed design proposals.