

## Stage 02: Workgroup Consultation

Connection and Use of System Code  
(CUSC)

# CMP237

## 'Response Energy Payment for Low Fuel Cost Generation'

What stage is this document at?

01	Initial Written Assessment
02	Workgroup Consultation
03	Workgroup Report
04	Code Administrator Consultation
05	Draft CUSC Modification Report
06	Final CUSC Modification Report

CMP237 seeks to take into account the different costs of generators with low or zero energy costs by setting the Response Energy Payment at £0/MWh for certain types of generation.

This document contains the discussion of the Workgroup which formed in October 2014 to develop and assess the proposal. Any interested party is able to make a response in line with the guidance set out in Section 8 of this document.

**Published on:** 19<sup>th</sup> December 2014  
**Length of Consultation:** 20 Working Days  
**Responses by:** 21<sup>st</sup> January 2015



**Low Impact:**  
Generators

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## About this document

This document is a Workgroup consultation which seeks the views of CUSC and interested parties in relation to the issues raised by the Original CMP237 CUSC Modification Proposal which was raised by National Grid Electricity Transmission Plc and developed by the Workgroup. Parties are requested to respond by **5pm** on **21<sup>st</sup> January 2015** to [cusc.team@nationalgrid.com](mailto:cusc.team@nationalgrid.com) using the Workgroup Consultation Response Proforma which can be found on the following link:  
<http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP237/>

## Document Control

Version	Date	Author	Change Reference
0.1	02/12/2014	Code Administrator	Draft Consultation for Workgroup comment
0.2	12/12/2014	Code Administrator	Final Consultation for Workgroup comment
1.0	19/12/2014	Code Administrator	Workgroup Consultation to Industry



### Any Questions?

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## 1 Summary

- 1.1 This document describes the Original CMP237 CUSC Modification Proposal (the Proposal), summarises the deliberations of the Workgroup and the options for potential Workgroup Alternative CUSC Modifications (WACMs). Prior to confirming any alternative proposals the Workgroup are seeking views on the options they have identified, what is the best solution to the defect and also any other further options that respondents may propose.
- 1.2 CMP237 was proposed by National Grid Electricity Transmission Plc and submitted to the CUSC Modifications Panel (the Panel) for their consideration on 26<sup>th</sup> September 2014. A copy of this Proposal is provided in Annex 1. The Panel decided to send the Proposal to a Workgroup to be developed and assessed against the CUSC Applicable Objectives. The Workgroup is required to consult on the Proposal during this period to gain views from the wider industry (this Workgroup Consultation). Following this Consultation, the Workgroup will consider any responses, vote on the best solution to the defect and aim to report back to the Panel at the February 2015 Panel meeting.
- 1.3 The Workgroup first met on 7<sup>th</sup> November 2014. A copy of the Workgroup Terms of Reference is provided in Annex 2. The Workgroup have considered the issues raised by the CUSC Modification Proposal as part of their discussions, the Workgroup has noted that there are number of potential solutions to the defect CMP237 seeks to address. These potential options for change are highlighted within the Workgroup Alternatives in Section 5 of this document.
- 1.4 The Proposal seeks to take into account the different costs of generators with low or zero energy costs by setting the Response Energy Payment at £0/MWh.
- 1.5 This Workgroup Consultation has been prepared in accordance with the terms of the CUSC. An electronic copy can be found on the National Grid Website, <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP237/>, along with the Modification Proposal Form.

## 2 Background

- 2.1 All licensed generators are obliged under the Grid Code to provide the Mandatory Frequency Response service (an automatic change in a generator's Active Power output in response to an increase/decrease in System Frequency from the Target Frequency of 50Hz). Currently, when instructed to provide Frequency Response, a generator is paid an hourly Holding Payment and then either (i) pays or (ii) is paid a Response Energy Payment (REP) for their net delivery per settlement period.
- 2.2 The Holding Prices vary and are submitted by generators on a monthly basis.
- 2.3 The REP is defined within the CUSC. Conceptually the REP has been designed to reflect the cost of providing the energy. The REP is made for the expected volume of frequency response delivered. It is intended to compensate generators for the Energy Imbalance exposure under the Balancing and Settlement Code (BSC) due to providing frequency response. The mechanism also includes an element to compensate for the cost or avoided cost of energy production; which includes the associated cost of fuel. The REP is based on the Market Index Price (MIP) with different ratios: -0.75 for High Frequency (reduction in Active Power) and 1.25 for Low Frequency (increase in Active Power). The negative ratio for High Frequency indicates that the REP is paid by the generator as it is anticipated that the generator has saved money by not generating, including using less fuel. The positive ratio for Low Frequency Response indicates that the REP is paid to the generator as it is anticipated that the generator will incur additional costs, including by using more fuel.
- 2.4 This methodology was agreed during a time when the majority of generators providing frequency response had fuel costs that made up a reasonable proportion of the cost of providing frequency response; although it was recognised that in implementing the methodology there could be more additional frequency response available from a variety of providers such as non-conventional sources of generation which would add to available supply and liquidity in the mandatory frequency response market. Therefore, the current methodology is tailored to these conventional generators and does not consider the different costs of generators with low or zero energy costs.
- 2.5 An example of this would be a wind farm that has a financial incentive to output at full capacity as they receive ROCs which are paid on a MWh output basis. If this unit were to be instructed to provide High Frequency Response, it would pay REP for any consequent reduction in their energy output, although in this case, the wind farm would have no avoided fuel cost to offset this against. There is a reverse effect for Low Frequency Response; the wind farm would first need to be bid down (its output reduced through acceptance of a bid in the balancing mechanism) in order for it to have the headroom to be able to provide Low Frequency Response. The bid price that the generator submits for this would include their lost ROC revenue, and when the wind farm provides the Low Frequency Response it would also get paid the REP despite having used no additional fuel.
- 2.6 The costs and benefits for Conventional and Low Fuel Cost plant are illustrated in the table below;

Generator type	Response type	Cost	Benefit
Conventional	High Frequency	MIP* -0.75	Avoided fuel
	Low Frequency	Used fuel reduced output (if required)	MIP*1.25 BOA payment (if required)
Low Fuel Cost	High Frequency	MIP* -0.75	-
	Low Frequency	Reduced output	BOA payment MIP *1.25

**Table 1 – Costs and benefits for generators providing Frequency Response**

- 2.7 It should be noted that when a generator has been dispatched for frequency response, they are not subject to imbalance payments (or cashout) as a result of changes in output from their notified position or position post-BOA.
- 2.8 The current methodology therefore provides a measure of cost mitigation for conventional fuel-stock generators by balancing the avoided/used fuel costs against the REP, but does not appropriately reflect the cost for renewable generators. With the increasing installed capacity of these generators, the Proposer believes the calculation of the REP needs to be re-defined to accommodate a diverse range of frequency response service providers.

### 3 Modification Proposal

3.1 CMP237 proposes that the REP calculation be retained for conventional generators or generators that have a fuel cost (e.g. fossil fuel or biomass). For all other generators, the REP would be settled at £0/MWh. This will ensure that the REP better reflects the cost of changing a generator’s energy output in providing frequency response, whether that change involves a fuel cost or not. The effect of this is illustrated in the following table:

Generator type	Response type	Cost	Benefit
Conventional	High Frequency	MIP* -0.75	Avoided fuel
	Low Frequency	Used fuel reduced output (if required)	MIP*1.25 BOA payment (if required)
Low Carbon	High Frequency	MIP* -0.75	-
	Low Frequency	Reduced output	BOA payment

**Table 2 – Costs and benefits for generators providing Frequency Response under Original Proposal**

3.2 The Proposer considers this proposal to be a pragmatic step that should be straightforward to implement at minimal cost. By removing the REP from non-conventional generators the proposal removes the financial penalty as a result of assumed fuel costs, whilst ensuring that there would be minimal impact for existing fossil fuel generators.

## 4 Summary of Workgroup Discussions

### Presentation of Original Proposal

- 4.1 At the first Workgroup meeting, the Proposer presented the background and reasons for raising CMP237. The Original Proposal form can be found in Annex 1 and the supporting presentation can be found on the National Grid Website<sup>1</sup>.
- 4.2 The Proposer noted that the System Operator (SO) has a statutory duty to maintain the secure operation of the National Electricity Transmission System (NETS) and does this by managing the frequency of the network. The system is designed to operate at 50Hz and the SO has set an upper and lower operational limit of 50.2Hz and 49.8Hz. The Proposer stated that, in order to remain within these limits, the SO needs to ensure that generation equals demand at all times; if generation is greater than demand, the frequency increases and if generation is less than demand the frequency decreases.
- 4.3 The Proposer explained that in order to stabilise the frequency to 50Hz, the SO purchases frequency response services from Users. Users must provide prices for Mandatory Frequency Response (which is required from all licenced BMUs in accordance with the Grid Code). Users also have the option of providing Commercial Frequency Response (which is procured through a monthly tender process). One Workgroup member asked whether Generators may be instructed to provide response to a frequency set point higher than 50Hz if there is a significant system loss. The Proposer clarified that Generators were not instructed to do this anymore, but that historically it had happened in order to maintain clock speeds.
- 4.4 Only Generators that are classed as 'large' generators (as defined within the Grid Code) and therefore have a Mandatory Services Agreement (MSA) are required to be able to provide Mandatory Frequency Response (it should be noted that parties can request to sign an MSA if they so wish). One Workgroup member noted that the definition of the different sizes of generators will change with the introduction of the EU Network Codes. The Proposer also clarified that once a generator is dispatched to provide Frequency Response, they are not exposed to Cash Out charges.
- 4.5 The Proposer noted that pricing for Mandatory Frequency Response is made up of two payments; the Holding Payment (which covers the cost of being ready to provide response) and the Response Energy Payment (REP) (which covers the cost of changes in energy production). It was noted that this Modification only deals with the Response Energy Payment. There may be a number of effects of changing the REP, one of which being that it may lead to parties amending their Holding Payments.
- 4.6 The Proposer explained that Holding Payments are posted by individual generators on a monthly basis for Primary, Secondary and High Frequency Response<sup>2</sup>, whereas the REP is based on the Market Index Price (MIP) and is calculated as follows;
  - For an increase in output, a generator will receive the  $MIP \times 1.25$

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<sup>1</sup> CMP237 Workgroup Information on National Grid website <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP237/>

<sup>2</sup> φ Primary and Secondary frequency response: the automatic response to a decrease in system frequency. Primary response must be provided within 10 seconds and be sustainable for at least a further 20 seconds. Secondary response must be provided within 30 seconds and be sustainable for at least a further 30 minutes. High frequency response: the automatic response to an increase in system frequency. High frequency response must be provided within 10 seconds of the frequency change.

- For a decrease in output, a generator will pay the MIP\*0.75

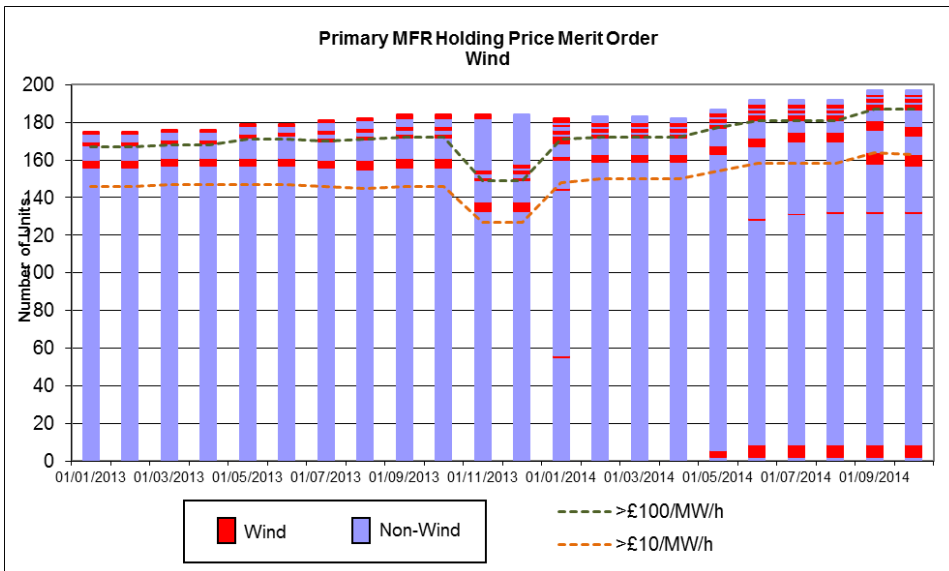
- 4.7 The Proposer explained that the value of these multipliers in the REP (1.25 for low frequency response and 0.75 for high frequency response) were identified from historical analysis undertaken as part of CAP107 'Redefinition of Response Energy Payment (REP) for Mandatory Frequency Response'. They represent the average spread between the System Buy Price (SBP) and System Sell Price (SSP), adjusted to achieve the smallest net monthly REP and were introduced as it was generally agreed at the time that this option would address the degree of risk associated with the exposure of National Grid to the spread between SBP and SSP and generators' exposure to more extreme imbalance prices in any given Settlement Period.
- 4.8 The Proposer noted that, in their view, the purpose of the REP is to cover changes in fuel costs as a result in changing output to provide frequency response and stated that this is not cost reflective for plant that does not pay to generate, e.g. wind, solar and tidal. For a wind generator providing high frequency response, there is a cost to the generator in reducing their output but no fuel saving to balance this cost. For a wind generator providing low frequency response, the generator will increase its output and get paid for the additional fuel it uses, even though the generator did not incur any costs in obtaining that fuel. The Proposer believes that this is deterring participation in the Frequency Response market by members of a growing market segment.
- 4.9 One Workgroup member asked whether the System Operator had ever instructed a wind generator to provide Frequency Response. The Proposer clarified that in the past, wind generation have been bid down in the Balancing Mechanism (BM) for energy reasons, and then have been dispatched for Frequency Response as a secondary measure. The Proposer noted that more recently (7<sup>th</sup> November 2014) several wind plant were placed into Frequency Sensitive mode, however this is the only instance of this happening<sup>3</sup>. Another Workgroup member asked whether it would be possible to determine how many times a wind generator had been given a BOA and then asked to provide Frequency Response. The Proposer noted that it would not be feasible to provide this information as it would require going back through all control room logs and cross-referencing them against every action taken on a wind farm to identify whether there were any secondary actions taken.
- 4.10 The Proposer presented three graphs which showed that the majority of plant providing primary, secondary and high frequency response are pricing themselves at less than £10/MWh. However, a proportion of these are submitting prices higher than £10/MWh and even higher than £100/MWh, the majority of which were identified as being wind plant. One Workgroup member noted that although there is a large amount of wind generation pricing themselves high, there are other (non wind) generation types providing prices as high as wind. These graphs can be seen in figures 1, 2 and 3;

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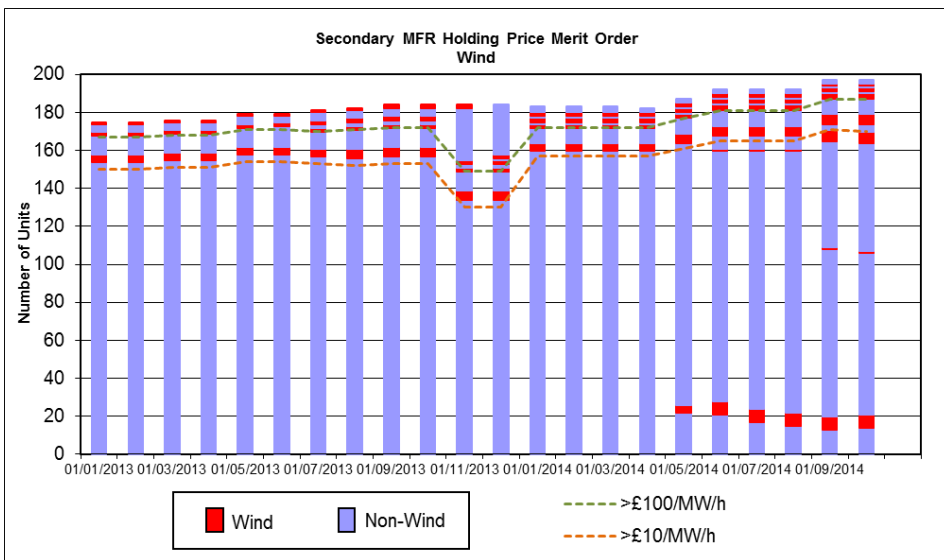
<sup>3</sup> Data for this can be seen in the 2014-15 Frequency Response Volumes D9 spreadsheet:

<http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Data-explorer/Outcome-Energy-Services/>

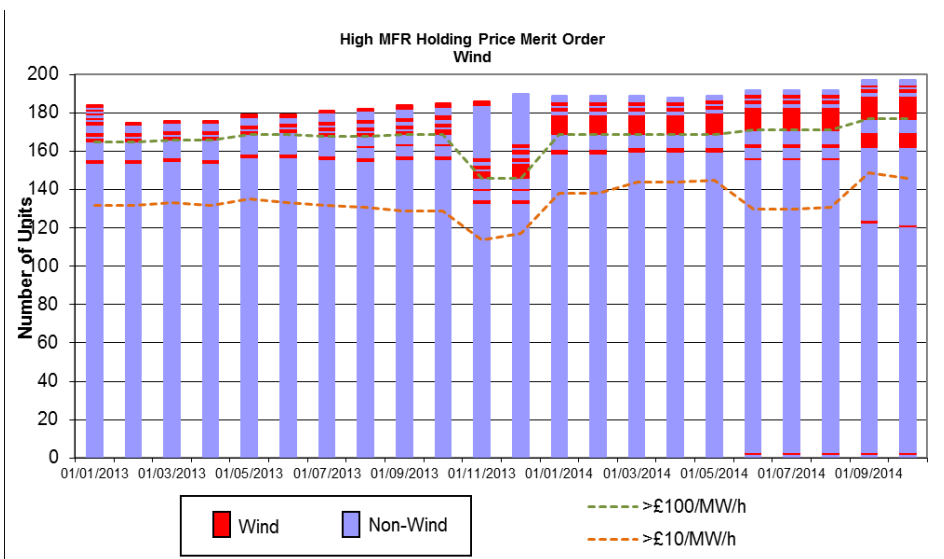




**Figure 1 - Wind holding price for Primary frequency response**

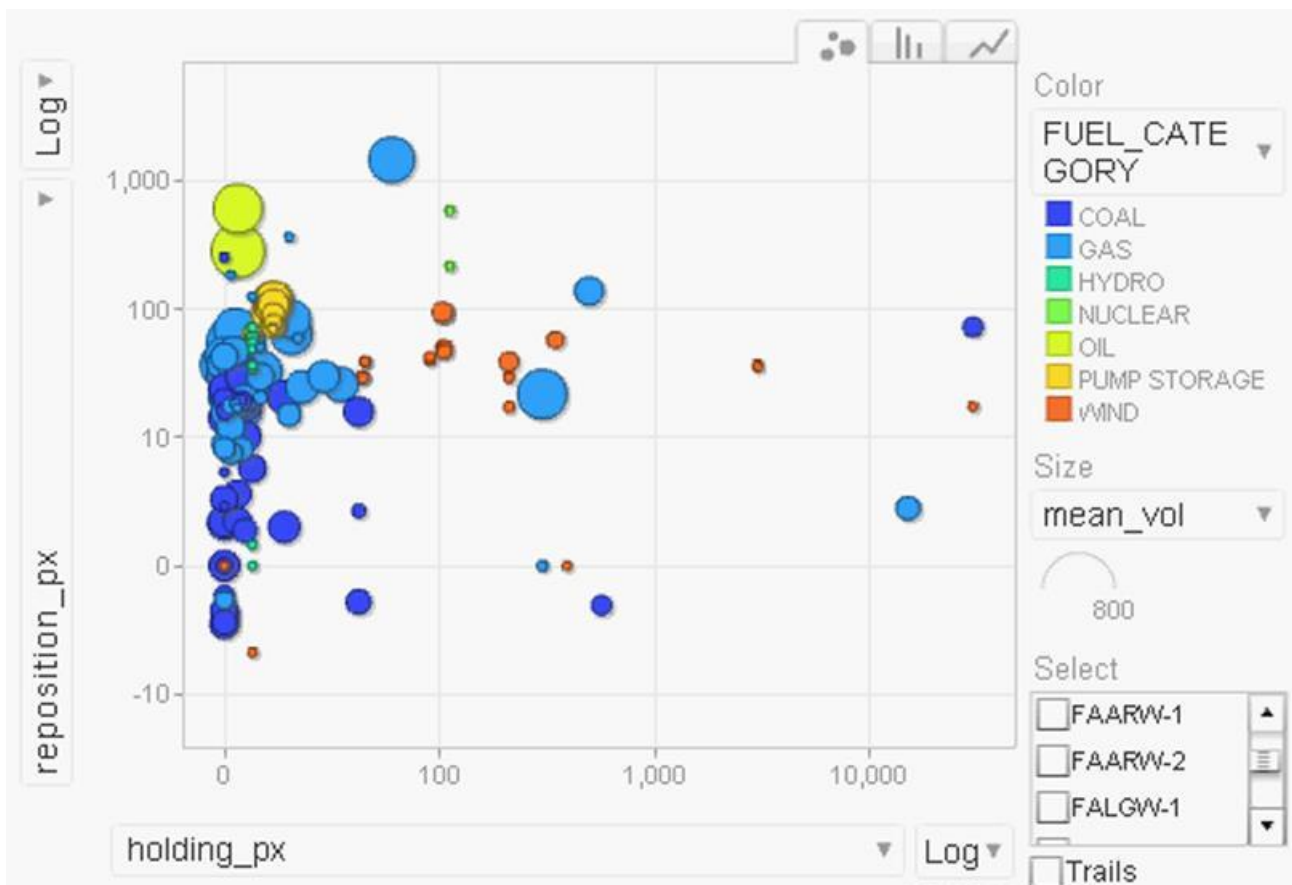


**Figure 2 - Wind holding prices for Secondary frequency response**



**Figure 3 - Wind holding prices for High frequency response**

- 4.11 One Workgroup member noted that on all three graphs presented, there is an anomaly in winter 2013 where a larger proportion of plant submitted prices higher than £100/MWh and asked if there was any reason for this. The Proposer noted that after investigation, no clear reason could be found for the behaviour as the plants involved were CCGT and coal from several different companies in different parts of the country. This is the first year that the behaviour has been exhibited, and therefore it is suspected that the values may have been default inputs into the FRPS system.
- 4.12 The Proposer also presented a graph (Figure 4 below) which illustrated the submitted holding prices per generator against the estimated BM cost to move the generator to the assumed most responsive point for the 30<sup>th</sup> September 2014. The size of the bubbles on the graph represents the available response. This graph can be seen below. The proposer noted that the graph was a snapshot, and the data for the whole year had been created as a video. The Workgroup agreed that this should be available alongside the Workgroup Consultation. If you wish to receive this video, please request this from the Code Administrator (contact details on page 2 of this report).
- 4.13 The proposer noted that the graph was intended to illustrate the total costs associated with instructing wind for response, as they typically have to be bid down in the BM before being instructed to provide response. For consistency, estimated BOA prices have been included for non-wind generation, however care should be taken in comparing wind with non-wind in the chart as instructing non-wind generation does not typically require an associated BOA.



**Figure 4 - submitted holding prices per generator against the estimated BM cost to move the generator to the assumed most responsive point for the 30<sup>th</sup> September 2014**

- 4.14 A Workgroup member suggested that it would be useful to see the difference between high and low wind speeds and how this affects the BOA prices. After investigation it was identified that this would be a significant piece of work as it would require locational wind speed and historical BOA data to be combined per wind farm per settlement period. Whilst

it is technically feasible to do so, the Proposer considers it to be outside the scope of the Workgroup as it is not related to the REP or holding prices (which are submitted on a monthly basis).

- 4.15 One Workgroup member noted that on fig 4 above, the general trend for generation with a fuel cost tended to follow the Y axis, whereas those without a fuel cost tended to follow the X axis. The Workgroup member stated that as hydro generation clearly following the Y axis like other conventional plant, this supported the view that they should be considered as having a fuel cost for the purpose of this Modification. It was noted, however, that there may be other reasons why a group of generators had similar holding prices; e.g. plant with similar construction may have similar sunk costs to recover, and that this was not direct evidence of the existence of a short-term fuel cost.

**Which generators should be classed as low fuel cost generation under CMP237?**

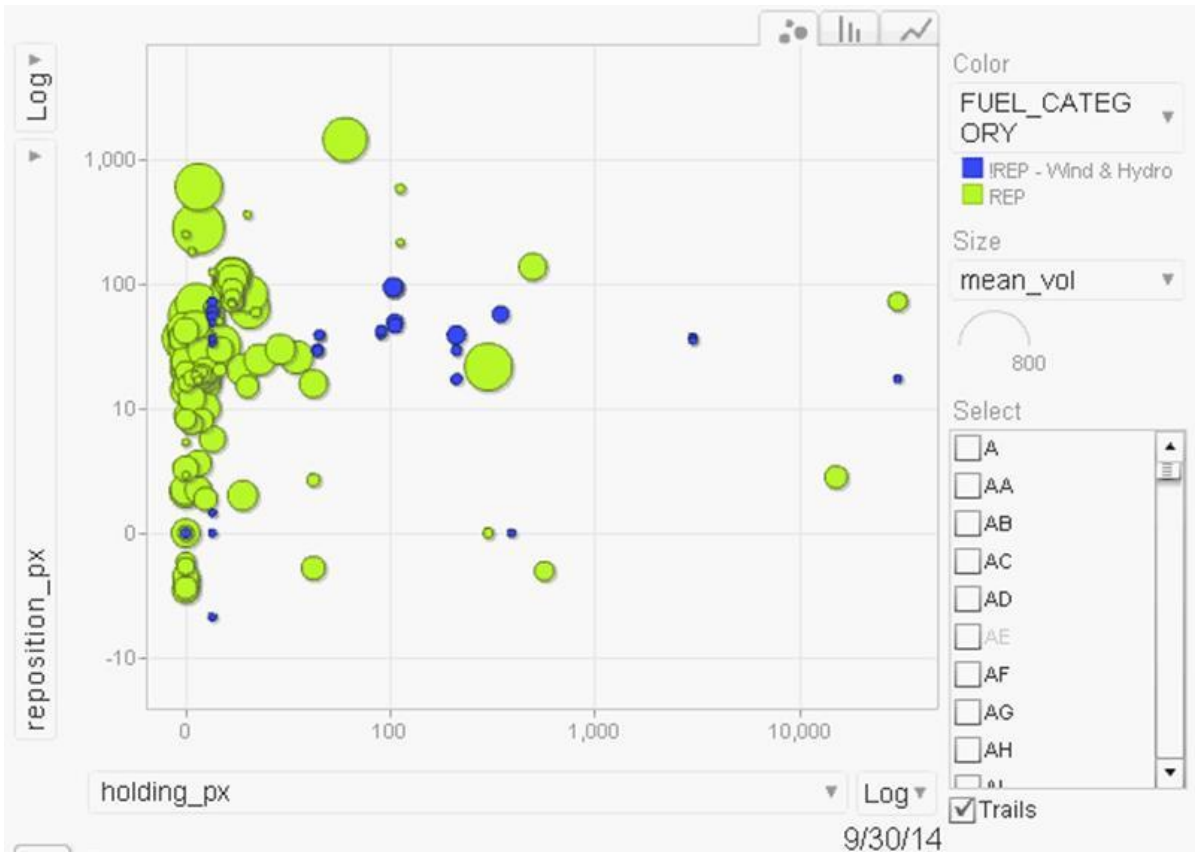
- 4.16 The Proposer had initially categorised all GB generation that are able to provide Frequency Response into two groupings; namely (i) ‘Fuel Cost’ and (ii) ‘No Fuel Cost’; and invited views from the Workgroup on the table 3 below.

Fuel Cost	No Fuel Cost
Gas	Onshore Wind
Coal	Offshore Wind
Oil	Solar
Nuclear	Tidal
Biomass	Wave
Electricity Storage Technologies (inc. pumped storage, batteries)	Hydro

**Table 3 – Fuel cost / no fuel cost categorisation**

- 4.17 Battery technology was originally presented to the Workgroup as having no fuel costs, however a Workgroup member noted that a battery is similar to a pumped storage generator in that there is a cost associated with taking the electricity from the system in the first place in order to be able to provide it back under Frequency Response conditions, and therefore this was equivalent to a fuel cost. The Proposer agreed that under the Original Proposal, battery technology would be classed as having a fuel cost. Another Workgroup member suggested that with new types of generation being introduced within Europe, there could be a situation where there is a wind generator (with no fuel cost) and a battery (with a fuel cost) connected behind the same meter. It was therefore agreed to include ‘battery’ in a new classification in the table above of ‘Electricity Storage Technologies’ for clarification. This would also include pumped storage, and would be limited to storage that is a separate BMU.

4.18 The chart of submitted holding prices per generator against the estimated BM cost was produced which highlights the No Fuel Cost generators as per the Original Proposal.



**Figure 5 – Submitted holding prices per generator against the estimated BM cost – No fuel cost generators under Original proposal.**

4.19 One Workgroup member questioned whether demand should be included within table 3. The Proposer clarified that although there are no demand sites providing mandatory frequency response, they would be included in the no fuel cost group. The Workgroup agreed that there were no other generation types that should be included within the table 3 in paragraph 4.16.

4.20 One Workgroup member suggested that Hydro (storage) generation should be included in the table above as having a fuel cost. The Workgroup member explained that the fuel used to provide Mandatory Frequency Response from a Hydro (storage) unit has both an energy production cost associated with it in terms of its handling and holding as well as a (lost) opportunity cost because if it is not used for providing Mandatory Frequency Response, it can be sold into the energy market at a later date. This is unlike, for example, wind generation where the fuel cannot, per se, be stored. The Proposer agreed that there is a missed opportunity cost with the fuel stored, however this should not be classed as a fuel cost. The Proposer considered that the water collected and stored behind the Hydro station has a value, in that it can be used to generate electricity, but not a cost, in that rain and river water is free to collect.

**Potential options for change**

4.21 Based on discussions within the first meeting (as set out in paragraph 4.17), one Workgroup member suggested that a potential alternative to the Original Proposal should be to have Hydro (storage) being classed as having a fuel cost (with all other generation

types classified as per the Original Proposal) and the Workgroup agreed to consider this as a potential option for change.

4.22 One Workgroup member noted that Table 3 only takes account of current technologies in GB and in order to future proof this Modification, the Workgroup may wish to consider alternative technologies which are being used within Europe but are yet to be used in GB. In order to do this, the Workgroup member suggested a potential option for change which specifically referenced technologies such as tidal barrage and generating plant with batteries as having a fuel cost. Another Workgroup member noted that these technologies are currently being used in France and Germany and could potentially be introduced to GB in coming years. The Workgroup agreed to consult on this potential option for change.

4.23 One Workgroup member also suggested that generators should be allowed to opt-in or opt-out of the REP calculation, therefore deciding themselves whether they have a fuel cost or not. It was clarified that only those generators classified as having no fuel cost in Table 3 would have a choice on how their REP is calculated and that this would be a 'binary' choice of either (i) pay or paid MIP \* -0.75/1.25 (the 'status quo') or (ii) pay or paid £ zero (the CMP237 Original approach). The Workgroup agreed that this could be a potential alternative to discuss. The Workgroup noted that this decision, by the categorised no fuel cost generator, could be made either monthly, yearly or on a one off basis. The Ofgem Representative asked whether there would be a consumer benefit from allowing this choice for generators. The Proposer took an action to provide cost benefit analysis on how optionality may impact prices.

4.24 The Workgroup decided to apply this choice to the three options outlined so far and are consulting on the six options outlined in Table 4 below;

	No option to choose what REP is based on	Option to choose what REP is based on
Original Proposal	X	X
Hydro (storage) has a fuel cost	X	X
Hydro (storage) / Tidal Barrage / any generation with a connected battery has a fuel cost	X	X

**Table 4 – Potential options for change**

4.25 The Workgroup have not included an option on the possible timing of making the REP choice; either (i) monthly, (ii) annual or (iii) on a one off basis; however the Workgroup would like to invite views on these three options.

**Implementation approach**

4.26 The Workgroup considered the Implementation approaches for all potential options and the option to decide what REP is based on as being either (i) a monthly, (ii) annual or (iii) a one off basis.

4.27 The Proposer noted that in terms of process changes there would be a relatively low cost to implementation, and therefore CMP237 could be implemented as soon as reasonably practicable for both the stand alone options and the options with a choice. One Workgroup member suggested that other parties may require system changes that should be taken into account when proposing implementation timescales. The Workgroup agreed to ask industry parties for their views on this.

- 4.28 One Workgroup member noted that there would be a need for a transition period to allow effective communication of the change, if CMP237 were approved and for parties to adjust their prices to reflect those changes. The Workgroup agreed that an appropriate transition would leave a full clear month in between an Authority decision and the effective implementation of the Modification. The Workgroup agreed that this should be the same for all six potential options for change outlined in Table 4.
- 4.29 A Workgroup member asked if the option which included a choice on a one off basis (e.g. when signing a MSA) was implemented, whether existing MSAs would be amended. It was also questioned that, if this was the case, whether one full clear month between an Authority Decision and an effective implementation date would allow sufficient time for National Grid and Users to amend existing MSAs.
- 4.30 The Workgroup noted that there were different stages of a plant lifecycle where an MSA could be changed and that all of these would need to be considered when discussing implementation timescales, these are;
1. New plant – MSA not issued – no offer
  2. New plant – MSA not signed – had offer
  3. New plant – MSA signed - Not commissioning
  4. Existing plant – Commissioning
  5. Existing plant – Operational
- 4.31 It was noted that the first stage would require little to no change, the second stage would require resubmitting (by National Grid, to the User) an amended MSA and the last three stages would require National Grid contacting the User to amend their MSA. The National Grid representative considers that the proposal could be implemented with a side letter to the MSA rather than needing to amend existing MSAs. It is estimated that this process would take a maximum of three months.
- 4.32 A Workgroup member stated that if the Authority implemented an option which included optionality on a monthly basis, this would require a change to the FRBS which would require a short amount of time to implement.
- 4.33 One Workgroup member suggested that if an option where non fuel cost generators choose how they are classed (in terms of fuel type) is implemented, this information should be transparent so competitors can see how generators class themselves. It was suggested that this information could be provided within the Transmission Entry Capacity (TEC) Register. Another Workgroup member disagreed with this approach and thought that this information could be commercially confidential to the Generator.

## 5 Workgroup Alternatives

- 5.1 When developing the CMP237 Proposal the Workgroup have considered potential options for change. These are outlined within paragraphs 4.21- 4.25 of this report.
- 5.2 Once this Workgroup Consultation has closed, the Workgroup will fully consider these options along with any Consultation responses and agree on any Workgroup Alternate CUSC Modifications (WACMs) to present to the CUSC Modifications Panel within the Workgroup Report.

### Impact on the CUSC

6.1 Changes to Section 4

### Impact on Greenhouse Gas Emissions

6.2 None identified.

### Impact on Core Industry Documents

6.3 None identified.

### Impact on other Industry Documents

6.4 None identified.



## 7 Proposed Implementation and Transition

- 7.1 The Workgroup agree that CMP237 should be implemented into the CUSC 10 Working days after an Authority decision, with a transitional period depending on which option is implemented (see paragraphs 4.26-4.33 for further details).

- 8.1 This Workgroup is seeking the views of CUSC Parties and other interested parties in relation to the issues noted in this document and specifically in response to the questions highlighted in the report and summarised below:

### Standard Workgroup Consultation questions;

- Q1:** Do you believe that CMP237 Original proposal or either of the potential options for change better facilitates the Applicable CUSC Objectives?
- Q2:** Do you support the proposed implementation approach?
- Q3:** Do you have any other comments?
- Q4:** Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider? Please see 8.3.

### Specific CMP237 Workgroup Consultation questions;

- Q5:** Do you agree with the proposed classification of generators with or without a fuel cost in Table 3?
- Q6:** If non fuel cost Users were able to choose what their REP is based on, do you think this choice should be made (i) monthly, (ii) annually or (iii) on a one off basis?
- Q7:** Do you consider there to be any changes to your systems / processes required as a result of this modification? If so, would you propose any changes to the suggested transitional period?
- Q8:** How do you think allowing non fuel cost Users to choose how their REP is calculated will affect costs to consumers?
- 8.2 Please send your response using the response proforma which can be found on the National Grid website via the following link: <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP237/>
- 8.3 In accordance with Section 8 of the CUSC, CUSC Parties, BSC Parties, the Citizens Advice and the Citizens Advice Scotland may also raise a Workgroup Consultation Alternative Request. If you wish to raise such a request, please use the relevant form available at the web link below:  
[http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms\\_guidance/](http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms_guidance/)
- 8.4 Views are invited upon the proposals outlined in this report, which should be received by **5pm** on **21<sup>st</sup> January 2015**. Your formal responses may be emailed to: [cusc.team@nationalgrid.com](mailto:cusc.team@nationalgrid.com)
- 8.5 If you wish to submit a confidential response, please note that information provided in response to this consultation will be published on National Grid's website unless the response is clearly marked "Private & Confidential", we will contact you to establish the extent of the confidentiality. A response marked "Private & Confidential" will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the CUSC Modifications Panel or the industry and may therefore not influence the debate to the same extent as a non-confidential response.

8.6 Please note an automatic confidentiality disclaimer generated by your IT System will not in itself, mean that your response is treated as if it had been marked "Private and Confidential".



## Connection and Use of System Code (CUSC)

<b>Title of the CUSC Modification Proposal</b>
Response Energy Payment for Low Fuel Cost Generation
<b>Submission Date</b>
18 September 2014
<b>Description of the Issue or Defect that the CUSC Modification Proposal seeks to address</b>
<p><b>The current Response Energy Payment methodology creates a barrier to competition for low fuel cost generators.</b></p> <p>All licensed generators are obliged to provide the mandatory frequency response service as required by the Grid Code. Currently, when instructed to provide frequency response, a generator is paid an hourly Holding Payment and is paid or pays a Response Energy Payment (REP) for net energy delivery per settlement period.</p> <p>Generators submit individual Holding Prices on a monthly basis whilst the universally-applied REP is defined in the CUSC and is designed to reflect the energy cost incurred or saved from service provision, which includes the associated cost of fuel. The REP is based on Market Index Price (MIP) with different ratios: -0.75 for High Frequency and 1.25 for Low Frequency. The negative sign for High Frequency indicates that the REP is made by generators, as it is anticipated that the generator has saved money by not using as much fuel.</p> <p>This methodology evolved during a period when the majority of generators providing frequency response had fuel costs that made up a reasonable proportion of the cost of providing frequency response. As such, the current methodology is tailored to these conventional generators, and does not consider the different financing approaches of generators with low or negative energy costs or those that receive additional financial incentives, e.g. Renewable Obligation Certificates (ROC) and, in the future, Feed In Tariff incentives.</p> <p>An example of this might be a wind farm for whom there is a financial incentive to output at full capability, as ROCs are earned on a MWh output basis. If this unit were to be instructed to carry High Frequency response, it would pay REP for any consequent reduction in energy output, but would have no avoided fuel cost to offset this against. There is a reverse effect for low frequency response, as the wind farm would first need to be bid down (i.e. its output is reduced through acceptance of a bid in the balancing mechanism) in order for it to have the headroom to be able to provide low frequency response. The bid price for this would include lost ROC revenue, and the wind farm would also get paid REP despite having used no additional fuel.</p>

This is illustrated in the following table:

Generator Type	Response Type	Cost	Benefit
Conventional	High Frequency	MIP*-0.75	Avoided fuel
	Low Frequency	Used fuel [Reduced output if req.d]	MIP*1.25 [BOA payment if req.d]
Low Carbon	High Frequency	MIP*-0.75	-
	Low Frequency	Reduced output	BOA payment MIP*1.25

For clarity it should be noted that when a generator has been dispatched for frequency response they are not subject to imbalance payments (or cashout), and therefore any variations in output from their position as a result of providing response would not affect the amount of ROCs earned.

The current methodology therefore provides a measure of cost mitigation for conventional fuel-stock generators by balancing the avoided/used fuel costs against the REP, but does not appropriately reflect the cost for renewable generators. With the increasing installed capacity of these generators we believe the calculation of the REP needs to be re-defined to accommodate a diverse range of frequency response service providers.

### Description of the CUSC Modification Proposal

It is proposed that the REP calculation be retained for conventional generators or generators that have a fuel cost (e.g. fossil fuel or biomass). For all other generators the REP would be settled at £0/MWh. This will ensure that generators are not penalised by the cost of changing their energy output in providing frequency response, whether that change involves a fuel cost or not. The effect of this is illustrated in the following table:

Generator Type	Response Type	Cost	Benefit
Conventional	High Frequency	MIP*-0.75	Avoided fuel
	Low Frequency	Used fuel Reduced output (if req.d)	MIP*1.25 BOA payment (if req.d)
Low Carbon	High Frequency	-	-
	Low Frequency	Reduced output	BOA payment

NGET considers this proposal to be a pragmatic step that should be straightforward to implement at minimal cost. By removing the REP from non-conventional generators the proposal removes the financial penalty as a result of assumed fuel costs, whilst ensuring that there would be minimal impact for existing fossil fuel generators.

### Impact on the CUSC

Changes would be required to Section 4.

**Do you believe the CUSC Modification Proposal will have a material impact on Greenhouse Gas Emissions? Yes / No**

No. It is envisaged that the new methodology would encourage renewable generators to participate in the frequency response market, however payments for frequency response are not sufficiently large by themselves to drive a material change in either the investment in new generation or the operation of existing generation.

**Impact on Core Industry Documentation. Please tick the relevant boxes and provide any supporting information**

- BSC
- Grid Code
- STC
- Other   
(please specify)

This is an optional section. You should select any Codes or state Industry Documents which may be affected by this Proposal and, where possible, how they will be affected.

**Urgency Recommended: Yes / No**

No.

**Justification for Urgency Recommendation**

N/A

**Self-Governance Recommended: Yes / No**

No.

**Justification for Self-Governance Recommendation**

N/A

**Should this CUSC Modification Proposal be considered exempt from any ongoing Significant Code Reviews?**

N/A

**Impact on Computer Systems and Processes used by CUSC Parties:**

Low impact on:

- Generator frequency response pricing processes

Medium impact on:

- National Grid administration of Frequency Response Price Submission process
- National Grid and Generator Settlement processes

### Details of any Related Modification to Other Industry Codes

No other Codes would be impacted.

### Justification for CUSC Modification Proposal with Reference to Applicable CUSC Objectives:

Please tick the relevant boxes and provide justification:

(a) the efficient discharge by The Company of the obligations imposed upon it by the Act and the Transmission Licence

This modification proposal proposes relatively simple changes that are believed to have modest implementation costs which should be outweighed by the benefit brought by facilitating competition described below.

(b) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.

This modification proposal removes a barrier to competition that the current Response Energy Payment methodology presents to generators that have low fuel costs.

(c) compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency.

These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1.

Objective (c) was added in November 2011. This refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).

### Additional details

Details of Proposer: (Organisation Name)	National Grid
Capacity in which the CUSC Modification Proposal is being proposed: (i.e. CUSC Party, BSC Party or "National Consumer Council")	CUSC Party



<p>Details of Proposer's Representative:</p> <p style="padding-left: 40px;">Name: Adam Sims</p> <p style="padding-left: 40px;">Organisation: National Grid</p> <p style="padding-left: 40px;">Telephone Number: 01926 655292</p> <p style="padding-left: 40px;">Email Address: <a href="mailto:adam.sims@nationalgrid.com">adam.sims@nationalgrid.com</a></p>	
<p>Details of Representative's Alternate:</p> <p style="padding-left: 40px;">Name: Steve Lam</p> <p style="padding-left: 40px;">Organisation: National Grid</p> <p style="padding-left: 40px;">Telephone Number: 01926 653534</p> <p style="padding-left: 40px;">Email Address: <a href="mailto:steven.lam@nationalgrid.com">steven.lam@nationalgrid.com</a></p>	
<p>Attachments (Yes/No): No</p> <p>If Yes, Title and No. of pages of each Attachment:</p>	

## Contact Us

If you have any questions or need any advice on how to fill in this form please contact the Panel Secretary:

E-mail [cusc.team@nationalgrid.com](mailto:cusc.team@nationalgrid.com)

Phone: 01926 655223.

For examples of recent CUSC Modifications Proposals that have been raised please visit the National Grid Website at <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/currenamentmentproposals/>

## Submitting the Proposal

Once you have completed this form, please return to the Panel Secretary, either by email to [jade.clarke@nationalgrid.com](mailto:jade.clarke@nationalgrid.com) and copied to [cusc.team@nationalgrid.com](mailto:cusc.team@nationalgrid.com), or by post to:

Jade Clarke  
CUSC Modifications Panel Secretary, TNS  
National Grid Electricity Transmission plc  
National Grid House  
Warwick Technology Park  
Gallows Hill  
Warwick  
CV34 6DA

If no more information is required, we will contact you with a Modification Proposal number and the date the Proposal will be considered by the Panel. If, in the opinion of the Panel Secretary, the form fails to provide the information required in the CUSC, the Proposal can be rejected. You will be informed of the rejection and the Panel will discuss the issue at the next meeting. The Panel can reverse the Panel Secretary's decision and if this happens the Panel Secretary will inform you.



## Workgroup Terms of Reference and Membership

### TERMS OF REFERENCE FOR CMP237 WORKGROUP

#### Responsibilities

1. The Workgroup is responsible for assisting the CUSC Modifications Panel in the evaluation of CUSC Modification Proposal CMP237 'Response Energy Payment for Low Fuel Cost Generation' tabled by National Grid Electricity Transmission Plc at the Modifications Panel meeting on 26<sup>th</sup> September 2014.
2. The proposal must be evaluated to consider whether it better facilitates achievement of the Applicable CUSC Objectives. These can be summarised as follows:
  - (a) the efficient discharge by the Licensee of the obligations imposed on it by the Act and the Transmission Licence;
  - (b) Facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity;
  - (c) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency.
3. It should be noted that additional provisions apply where it is proposed to modify the CUSC Modification provisions, and generally reference should be made to the Transmission Licence for the full definition of the term.

#### Scope of work

4. The Workgroup must consider the issues raised by the Modification Proposal and consider if the proposal identified better facilitates achievement of the Applicable CUSC Objectives.
5. In addition to the overriding requirement of paragraph 4, the Workgroup shall consider and report on the following specific issues:
  - a) *Which generators should be classed as low fuel cost generation under CMP237?*
  - b) *What is the interaction with subsidy regimes?*
  - c) *Implementation*
  - d) *Review illustrative legal text*
6. The Workgroup is responsible for the formulation and evaluation of any Workgroup Alternative CUSC Modifications (WACMs) arising from Group discussions which would, as compared with the Modification Proposal or the current version of the CUSC, better facilitate achieving the Applicable CUSC Objectives in relation to the issue or defect identified.

7. The Workgroup should become conversant with the definition of Workgroup Alternative CUSC Modification which appears in Section 11 (Interpretation and Definitions) of the CUSC. The definition entitles the Group and/or an individual member of the Workgroup to put forward a WACM if the member(s) genuinely believes the WACM would better facilitate the achievement of the Applicable CUSC Objectives, as compared with the Modification Proposal or the current version of the CUSC. The extent of the support for the Modification Proposal or any WACM arising from the Workgroup's discussions should be clearly described in the final Workgroup Report to the CUSC Modifications Panel.
8. Workgroup members should be mindful of efficiency and propose the fewest number of WACMs possible.
9. All proposed WACMs should include the Proposer(s)'s details within the final Workgroup report, for the avoidance of doubt this includes WACMs which are proposed by the entire Workgroup or subset of members.
10. There is an obligation on the Workgroup to undertake a period of Consultation in accordance with CUSC 8.20. The Workgroup Consultation period shall be for a period of 15 Working days as determined by the Modifications Panel.
11. Following the Consultation period the Workgroup is required to consider all responses including any WG Consultation Alternative Requests. In undertaking an assessment of any WG Consultation Alternative Request, the Workgroup should consider whether it better facilitates the Applicable CUSC Objectives than the current version of the CUSC.

As appropriate, the Workgroup will be required to undertake any further analysis and update the original Modification Proposal and/or WACMs. All responses including any WG Consultation Alternative Requests shall be included within the final report including a summary of the Workgroup's deliberations and conclusions. The report should make it clear where and why the Workgroup chairman has exercised his right under the CUSC to progress a WG Consultation Alternative Request or a WACM against the majority views of Workgroup members. It should also be explicitly stated where, under these circumstances, the Workgroup chairman is employed by the same organisation who submitted the WG Consultation Alternative Request.

12. The Workgroup is to submit its final report to the Modifications Panel Secretary on 22<sup>nd</sup> January 2015 for circulation to Panel Members. The final report conclusions will be presented to the CUSC Modifications Panel meeting on 30<sup>th</sup> January 2015.

## Membership

13. It is recommended that the Workgroup has the following members:

Role	Name	Representing
<i>Chairman</i>	Alex Thomason	Code Administrator
<i>National Grid Representative*</i>	Adam Sims	National Grid
<i>Industry</i>	Lee Taylor	GDF Suez

<i>Representatives*</i>	Garth Graham Paul Mott Bjarne Beck Guy Phillips Yanik Leunen	SSE EDF Energy DONG Energy E.ON Vattenfall
<i>Authority Representatives</i>	Jonathan Bryson	Ofgem
<i>Technical secretary</i>	Jade Clarke	Code Administrator
<i>Observers</i>		

NB: A Workgroup must comprise at least 5 members (who may be Panel Members). The roles identified with an asterisk in the table above contribute toward the required quorum, determined in accordance with paragraph 14 below.

14. The chairman of the Workgroup and the Modifications Panel Chairman must agree a number that will be quorum for each Workgroup meeting. The agreed figure for CMP237 is that at least 5 Workgroup members must participate in a meeting for quorum to be met.
15. A vote is to take place by all eligible Workgroup members on the Modification Proposal and each WACM. The vote shall be decided by simple majority of those present at the meeting at which the vote takes place (whether in person or by teleconference). The Workgroup chairman shall not have a vote, casting or otherwise]. There may be up to three rounds of voting, as follows:
  - Vote 1: whether each proposal better facilitates the Applicable CUSC Objectives;
  - Vote 2: where one or more WACMs exist, whether each WACM better facilitates the Applicable CUSC Objectives than the original Modification Proposal;
  - Vote 3: which option is considered to BEST facilitate achievement of the Applicable CUSC Objectives. For the avoidance of doubt, this vote should include the existing CUSC baseline as an option.

The results from the vote and the reasons for such voting shall be recorded in the Workgroup report in as much detail as practicable.

16. It is expected that Workgroup members would only abstain from voting under limited circumstances, for example where a member feels that a proposal has been insufficiently developed. Where a member has such concerns, they should raise these with the Workgroup chairman at the earliest possible opportunity and certainly before the Workgroup vote takes place. Where abstention occurs, the reason should be recorded in the Workgroup report.
17. Workgroup members or their appointed alternate are required to attend a minimum of 50% of the Workgroup meetings to be eligible to participate in the Workgroup vote.
18. The Technical Secretary shall keep an Attendance Record for the Workgroup meetings and circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the final Workgroup report.

19. The Workgroup membership can be amended from time to time by the CUSC Modifications Panel.

## Annex 3 – Workgroup attendance register

A – Attended  
 X – Absent  
 O – Alternate  
 D – Dial-in

<b>Name</b>	<b>Organisation</b>	<b>Role</b>	<b>07/11/2014</b>	<b>21/11/2014</b>
Alex Thomason	Code Administrator	Independent Chair	A	A
Jade Clarke	Code Administrator	Technical Secretary	A	A
Adam Sims	National Grid	Proposer	A	A
Garth Graham	SSE	Workgroup Member	D	A
Paul Mott	EDF Energy	Workgroup Member	D	A
Bjarne Beck	DONG Energy	Workgroup Member	A	D
Guy Phillips	E.ON	Workgroup Member	A	A
Yanik Leunen	Vattenfall	Workgroup Member	D	X
Lee Taylor	GDF Suez	Workgroup Member	A	D
Jonathan Bryson	Ofgem	Authority Representative	A	D