



WORKING GROUP REPORT

CUSC Amendment Proposal CAP 164

Connect and Manage

Prepared by the Transmission Access Working Group 1

Amendment Ref	CAP164
Issue	1.0
Date of Issue	19/11/08
Prepared by	Transmission Access Working Group 1

Responses to this company consultation should be sent to patrick.hynes@uk.ngrid.com by xx December 2008.

I DOCUMENT CONTROL**a National Grid Document Control**

Version	Date	Author	Change Reference
1.0	19/11/08	Transmission Working Group 1	

b Distribution

Name	Organisation
The Gas and Electricity Markets Authority	Ofgem
CUSC Parties	Various
Panel Members	Various
National Grid Industry Information Website	

II CONTENTS TABLE

I DOCUMENT CONTROL.....2

1.0 SUMMARY AND RECOMMENDATIONS4

2.0 PURPOSE AND INTRODUCTION6

3.0 PROPOSED AMENDMENT8

4.0 SUMMARY OF WORKING GROUP DISCUSSIONS.....8

5.0 WORKING GROUP ALTERNATIVE AMENDMENTS22

6.0 ASSESSMENT AGAINST APPLICABLE CUSC OBJECTIVES28

7.0 IMPACT ON IS SYSTEMS (CAP164)30

8.0 PROPOSED IMPLEMENTATION32

9.0 IMPACT ON THE CUSC.....32

10.0 IMPACT ON INDUSTRY DOCUMENTS.....32

ANNEX 1 – GLOSSARY AND ACRONYMS.....37

ANNEX 2 – PROPOSED LEGAL TEXT TO MODIFY THE CUSC.....38

ANNEX 3 – WORKING GROUP TERMS OF REFERENCE AND MEMBERSHIP ..39

ANNEX 4 – WORKING GROUP ATTENDANCE REGISTER.....45

ANNEX 5 – AMENDMENT PROPOSAL FORM.....46

ANNEX 6 - ASSUMPTIONS FOR COSTING ANALYSIS49

1.0 SUMMARY AND RECOMMENDATIONS

Executive Summary

- 1.1 CAP164 was proposed by National Grid and submitted to the Amendments Panel for their consideration on 25th April 2008. Along with CAP164 National grid raised a number of other access related amendments.
- 1.2 CAP164 seeks to provide any generator who wishes to connect to the transmission system with a fixed date for receiving Transmission Entry Capacity (“TEC”). This date, the ‘TEC effective date’, must be the later of the completion of “local” transmission works or an agreed fixed lead time. The lead time for connection was not specified.
- 1.3 A request for a TEC Effective date under (CAP164) Connect and Manage is optional. The TEC effective date can only be changed through a Modification Application; and if both the Generator and National Grid agree, and other CUSC parties are not unduly affected.
- 1.4 The provision of “local” works will be subject to ‘force majeure’ provisions as currently defined in the CUSC. The definition of “local” works was left to the Working Group to consider and agree i.e. how ‘deep’ and what the consequences of such a definition would be.
- 1.5 Although not part of the CUSC, it is proposed, under CAP164, that TEC granted with a TEC effective date be charged on the same principle as existing TEC, which is long-term incremental investment based (including any changes to local charging arrangements).
- 1.6 There is a symmetrical obligation on the generator associated with the guarantee of a TEC effective date. This requires the generator to pay TNUoS charges for a minimum period irrespective of the readiness of the generator to physically connect. This is intended to encourage the generator to apply only when consents have been granted; i.e. for the purposes of liability to pay TNUoS, force majeure excludes planning permission for the generating station.
- 1.7 The Working Group have carried out a cost benefit analysis on the additional cost Connect and Manage would impose on the operation of the system and the carbon benefit derived from Connect and Manage. This analysis alone suggests that there is no net benefit. The Working Group have also qualitatively discussed a number of other implications, although have not included them as part of a quantitatively assessment.
- 1.8 A request for an alternative from the Working Group consultation has been developed into a WGAA proposal by a sub group. This was subsequently adopted by the Working Group as an WGAA. The WGAA provides connection prior wider works being completed. From date of local connection the Generator can generate up to the agreed local capacity. The suggested consequential change to charging arrangements is that a new tariff is developed and applied for the period between connection and a fixed date (the forecast date for completion of wider works). The new tariff would be set ex ante (in the offer) to reflect the forecast increase in operational costs. Prior to the fixed date the connectee would not pay wider TNUoS, following the fixed date the connectee would stop paying the new charge and revert to

wider TNUoS charging. From connection the connectee would pay local charges and contribute to the residual.

Working Group Recommendation

- 1.9 The Working Group believes its Terms of Reference have been completed and CAP162 has been fully considered. At the final meeting on 18 November 2008 fifteen Working Group members cast votes:

Voting Results	For	Against	Abstain
Original better than Baseline	6	9	0
WGAA better than Baseline	15	0	0

- 1.10 The Working Group also voted on which of the Original or the WGAA better meets the CUSC applicable objectives:

Voting Results	For
Original best	3
WGAA1 best	12

- 1.11 The Working Group recommends to the CUSC Panel that:

- A consultation report containing the CAP164 Original and the WGAA should proceed to wider Industry Consultation as soon as possible.
- The Working Group report is accepted by the CUSC Panel and the Working Group is disbanded once legal text has been agreed.

CUSC panel Recommendation

- 1.12 *The CUSC panel accepted the Working Group report on xxx November 2008 and recommended that National Grid proceed to company consultation as soon as possible in accordance with the CUSC.*

Responses

- 1.13 Parties are requested to respond to this Working Group consultation by the date on the front cover to Patrick Hynes at patrick.hynes@uk.ngrid.com, or send written responses to:

Patrick Hynes
UK Transmission Commercial
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

- 1.14 If you have any queries please do not hesitate to contact Patrick on 01926 656319. All Responses will be published on National Grid's website and included in the final report to the Authority.
- 1.15 Following acceptance of the Working Group report by the CUSC Panel National Grid will carry out a Company consultation.

2.0 PURPOSE AND INTRODUCTION

- 2.1 This Report summarises the deliberations of CUSC Working Group 1 on CUSC Amendment Proposal (CAP) 164 “Connect and Manage”.

The Transmission Access Review Working Groups

- 2.2 In a change from normal practice, CAP164 was one of six Amendment Proposals which the CUSC Amendments Panel divided between two Working Groups under the banner of the Transmission Access Review. Working Group 1 has considered CAPs 161-164 and Working Group 2 CAPs 165 and 166. The Panel also directed the formation of a third Working Group (known as “Working Group 3”) to assess some enabling changes which underpin a number of these CAPs related to transmission charging proposals under the Transmission Charging Methodologies Forum (TCMF).
- 2.3 A combination of two, or more of these six CAPs collectively or, potentially in the case of Connect and Manage, individually, could be considered to constitute a model of transmission access reform. At the time of the original six proposals there were broadly speaking three models: (i) Connect and Manage (CAP164); (ii) Evolutionary Change (CAPs 161, 162, 163 and 165); and (iii) Evolutionary Change with auctions (CAPs 161, 162, 163 and 166). However, the intention is that all six CAPs can be implemented individually or in certain combinations with each other.
- 2.4 The Working Groups have also been constituted to deliberate on related transmission charging proposals under the Transmission Charging Methodologies Forum (TCMF). This consultation is concerned with the CUSC-related issues of CAP164, although references are made to charging where this aids understanding of the proposed Amendment. Charging issues are being consulted on in a parallel pre consultation.
- 2.5 This report is specific to CAP164 and represents the CAP164 related outputs of the Working Groups 1. It summarises the deliberations of the Working Groups, with regard to the Original CAP164 Amendment Proposal and the Working Group Alternatives Amendment. In addition it also includes the discussions of Working Group 3, as they relate to CAP164.
- 2.6 CAP164 was proposed by National Grid and submitted to the Amendments Panel for their consideration on 25th April 2008. The recommendation by the proposer was that the assessment should be divided in to a number undertaken by a Working Group, assisted by a sub-group (known as “Working Group 3”) as of Working Groups, as discussed above. This was agreed by the Panel.
- 2.7 The Amendments Panel agreed that the Working Groups would work towards submitting a report, on CAP164, back to the CUSC Panel within 3 months, inclusive of a period of Working Group Consultation. This was subsequently extended by another 2 months. Furthermore, the Authority’s approval of CAP 160 during the assessment period alters the way in which the Working Group considers Alternatives raised in the consultation process.
- 2.8 The Working Groups 1 and 3 first met on 13 May and 12 May 2008 respectively. At the first meeting the members of each of the Working Groups amended and agreed the Terms of Reference for the Working

- Group. A copy of the Terms of Reference for each of the Working Groups, subsequently accepted by the June CUSC Panel, are provided in Annex 3.
- 2.9 The Working Groups also agreed an initial work plan, which was revised and extended as required during the Working Groups' work.
- 2.10 The CAP164 Working Group considered the issues raised by the Amendment Proposal and considered whether the amendment proposal, and some suggestions for potential Working Group Alternatives, better facilitated the Applicable CUSC Objectives as compared with the current version of the CUSC. The Working Group 1 met 15 times and attendance is recorded in Annex 4. Each Working Group meeting was attended by CUSC Party-nominated members or their alternates, and invited experts.
- 2.11 This Working Group Report has been prepared in accordance with the Terms of the CUSC. An electronic copy can be found on the National Grid Website, www.nationalgrid.com/uk/Electricity/Codes/, along with the Amendment Proposal Form.

3.0 PROPOSED AMENDMENT

- 3.1 The full text of the CAP164 amendment as originally proposed is set out in Annex 5. This Section summarises the original text of the proposed Amendment. The definition of this “original” amendment has been developed by the Working Group and these discussions are summarised in Section 4, as well as discussions on potential Working Group Alternative Amendments.
- 3.2 CAP164 seeks to provide any generator who wishes to connect to the transmission system with a fixed date for receiving Transmission Entry Capacity (“TEC”). This date, the ‘TEC effective date’, must be the later of the completion of “local” transmission works or an agreed fixed lead time. The fixed lead time will be discussed and agreed in the amendment assessment stage and codified in the CUSC. Initial options proposed in the CAP164 original were 3 years (aligns with planning restrictions in Scotland); or 4 years (more consistent with historic performance of providing reinforcements).
- 3.3 The original proposal is silent on whether the fixed lead time is from the date of connection application or signature of the connection offer. The proposer clarified, to the Working Group, that the intention was that it be from the acceptance of the connection offer.
- 3.4 A request for a TEC Effective date under (CAP164) Connect and Manage is optional. The TEC effective date can only be changed through a Modification Application; and if both the generator and National Grid agree, and other CUSC parties are not unduly affected.
- 3.5 The provision of “local” works will be subject to ‘force majeure’ provisions as currently defined in the CUSC. The definition of “local” works was left to the Working Group to consider and agree i.e. how ‘deep’ and what the consequences of such a definition would be.
- 3.6 Although not part of the CUSC, it is proposed, under CAP164, that TEC granted with a TEC effective date be charged on the same principle as existing TEC, which is long-term incremental investment based (including any changes to local charging arrangements).
- 3.7 There is a symmetrical obligation on the generator associated with the guarantee of a TEC effective date. This requires the generator to pay TNUoS charges for a minimum period irrespective of the readiness of the generator to physically connect (to the transmission system). The minimum period, will be agreed, by the Working Group, in the assessment of the proposal, to ensure equitable risk between other Users and the connectee. This is intended to encourage the generator to apply only when consents have been granted; i.e. for the purposes of liability to pay TNUoS, force majeure excludes planning permission for the generating station.

4.0 SUMMARY OF WORKING GROUP DISCUSSIONS

- 4.1 The Working Group acknowledged that CAP 164 was very similar in form to a previous Amendment proposal CAP 148 “Deemed access rights to the GB transmission system for renewable generation” with the fundamental difference being that CAP 164 places no technology-specific restrictions on

the eligibility of a generator for a Connect and Manage connection offer i.e. CAP164 is applicable to all generators, not just renewable energy generators.

- 4.2 The Working Group made use of material available to it from the CAP 148 Working Group, as well as material associated with Ofgem's Impact Assessment for CAP 148 published in July 2008 during the Working Group's deliberations. Ofgem has not yet made a decision on CAP148.

Eligibility to apply

- 4.3 CAP164 should place no restrictions on the rights of a generator or potential generator to apply for TEC; i.e. it is open to all CUSC parties to apply.
- 4.4 The Working Group also agreed that CAP164 should not be mandatory, i.e. when making a Connection Application, a User would choose whether the offer included a fixed wider works lead time. The reason why a party might prefer a "conventional" rather than a "connect and manage" offer is that the former may have a lower level of financial commitment so may be appropriate to ask for further in advance than would be the case for a "connect and manage" offer. One may prefer to apply further in advance in cases where for example there is expected to be a long lead time for the local transmission works.
- 4.5 The Working Group discussed the interaction of CAP164 offers with existing offers and agreed that in making a CAP 64 offer, there should be no adverse effect on the connection date of other offers (made under CAP164 or the existing CUSC process). It noted the potential for there to be stronger pressure on Transmission Licensees to complete works for CAP 164 projects, but assumed that Transmission Licensees would exhibit no bias in their treatment of different applicants and progression of their works under their Licence obligations.
- 4.6 Once made, all CAP164 offers would form part of the contracted background for subsequent offers.
- 4.7 Existing contracted parties may switch to CAP164 arrangements following a CAP164 application.
- 4.8 Given the associated liability to pay TNUoS, it was considered that a prospective generator is only likely to choose to apply for transmission access under CAP164 when it had received planning consents. However, this was a commercial decision and did not need to be a condition of application. Under certain circumstances a generator may choose to apply for a connection prior to consents being granted, for example, if consents could not be granted without consideration of local transmission works, or local works were expected to be the critical path for the project. If this were the case, a generator may choose to apply under existing arrangements to avoid the additional TNUoS liability.
- 4.9 The Working Group noted that CAP 164 would benefit from co-ordination between the consents required for the generation project and its local transmission works. However it was noted that better coordination was a general point with or without CAP164.
- 4.10 The Working Group noted that a User could submit a Modification Application for a fixed date under the CAP164 arrangements, where the User wished to

move over from an existing (pre CAP164) offer to a CAP164 offer. This may be an option for Users who wish to bring forward their connection date having received planning permission for their project. It was envisaged that this is how existing Users would move over to the CAP164 arrangements.

Eligibility of TEC to be granted – completion of local works

- 4.11 Under CAP164 TEC should be granted on the TEC Effective Date, subject to completion of Local Construction Works, (“LCW”). In considering how LCW might be defined the Working Group considered the definition, of LCW, developed under CAP 148, namely:

‘The works associated with the installation or upgrading of the network identified in the Construction Agreement and without which the generator would be unable to export the value of TEC (having disregarded any flows on the system caused by other generation users)’.

- 4.12 There was concern expressed in the Working Group that this definition may be problematic in circumstances in which the transmission constraint boundary capability interacts with the output from connected generation (e.g. where generation on the importing side of a transmission boundary is required to balance flows such that without this generation, the capability of the boundary is reduced). In these circumstances, the LCW definition above may lead to more LCW being identified than is necessary to accommodate the new generator.

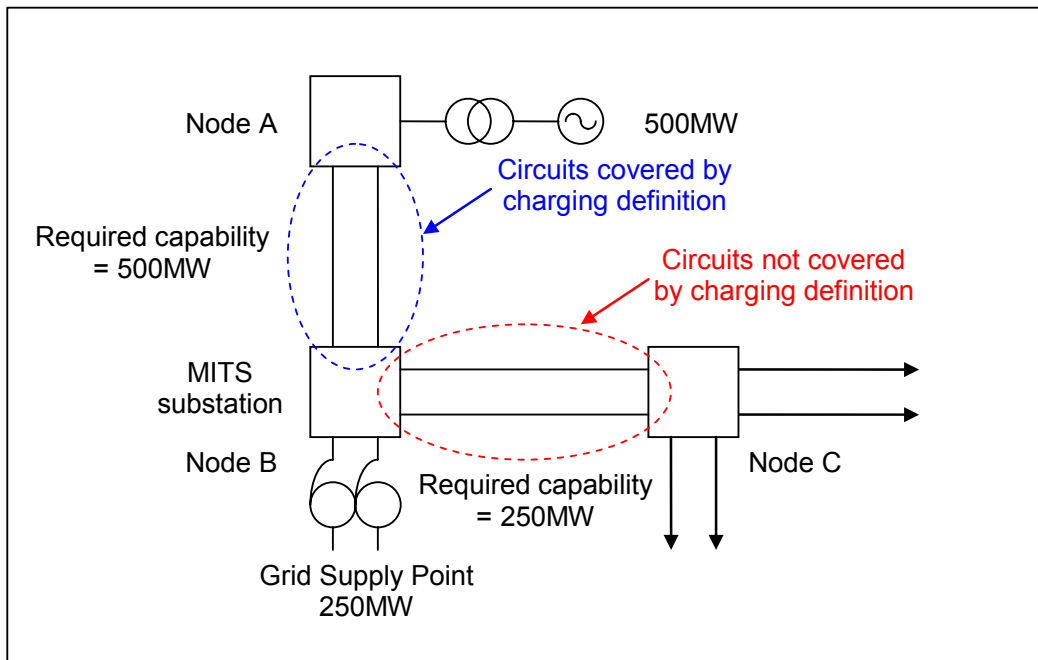
- 4.13 Therefore, a suggested revised definition of LCW was proposed:

‘The works associated with the installation or upgrading of the transmission network identified in the Construction Agreement and without which the generator would be unable to export the value of TEC (having disregarded flows on the system caused by other generators, other than assuming that National Grid can optimise the amount of LCW with the use of balancing generation, at zero cost).’

- 4.14 The Working Group acknowledged that these definitions differ from the “local generation charging” proposals contained in National Grid’s GB ECM-11 Conclusions Report¹, which have been developed alongside the other Transmission Access Review related CAPs on short- and long-term access products in Working Group 3.

- 4.15 In the charging conclusions report, local circuits are defined as those between an entry point and the next Main Interconnected Transmission System (MITS) substations, where a MITS substation is defined as a Grid Supply Point with more than one circuit connected or a substation with more than four circuits connected. The diagram below shows an example of where the CAP 164 definition of LCW could be deeper than the charging definition of local works.

¹ http://www.nationalgrid.com/NR/rdonlyres/27F920CA-C678-4D91-A3D1-701E909BDAFB/28281/GBECMI11ConcReport_final_HR.pdf



- 4.16 In this simplified example, the circuits between node A and the next MITS substation (node B) would be defined as “local” under the charging definition. This means that the generator would only get transmission access once these circuits had been reinforced to provide a secure capability of 500MW. However, the circuits between node B and node C would not be covered by the charging definition of “local”. This would lead to a permanent restriction to the output of the new generator unless these circuits were reinforced to provide a secure capability of at least 250MW.
- 4.17 Working Group 3 noted that an LCW definition which disregards the output from other generators risks there being a permanent output restriction on the generator being connected. This is exemplified by multiple CAP 164 connections to the same local works where each is being disregarded to accommodate the other.
- 4.18 An alternative approach would be to re-define LCW such that it:
- Avoids circumstances in which there would be a permanent output restriction on the generator being connected,
 - Protects the individual generator from the actions of others or the decisions of the Transmission Owner or GBSO.
- 4.19 In any event, the Working Group has not fully explored the consequences of two separate definitions of local works – one definition for LCW under CAP 164 and another for charging purposes. However, Working Group 3 noted that current charging arrangements for charging are not consistent with the incremental works required to accommodate particular generators, nor their nodal transmission access rights. This is because all generators pay the zonal Long-Run Marginal Cost (“LRMC”) derived from a common charging methodology, namely the Investment Cost Related Pricing (“ICRP”) transport and tariff model).
- 4.20 Also as part of the Working Group 3 discussions on charging for local assets, the prospect of shared local assets was raised and discussed. The GB ECM-11 conclusions definition of local works retains some shared or sharable

assets in the definition for some groups of generators. This is most clearly demonstrated for connections in northern Scotland where long sections of shared 132kV transmission assets are classed as local. New transmission connections would similarly be likely to share local connection assets. This has implications for the CAP 148 definition of LCW, namely if a local connection is shared, it would be designed to take the nominated shared capacity rather than the full output of each generator which is normally associated with TEC bookings.

- 4.21 The implication is that the CAP 164 definition of LCW would need to reflect the new concept developed in Working Group 3 of bookings for shared local capacity. For the avoidance of doubt, this means that a CAP 164 generator would have its output restricted under a shared local connection, but that this would be the subject of negotiation between it and the other generators sharing the connection.

Setting of TEC Effective date

- 4.22 Under CAP164 the TEC Effective Date should be the later of:

- The date requested by the generator in their application
- X years from the acceptance of the connection offer
- Completion of LCWs

An earlier TEC Effective Date could be possible by agreement of both the Generator and System Operator (SO). Where additional costs are incurred to provide earlier connection these should be borne solely by the connectee, e.g. additional operational costs etc.

- 4.23 The Working Group discussed the value of X (years). Some members of the Working Group believe that the value of X should be set such that it meets Government policy and Ofgem objectives to provide timely connections. For example, the TAR conclusions report states that *“new generation projects should be offered firm connection dates, reasonably consistent with the development time of their project.”*
- 4.24 The Energy White Paper states that the Government’s *“aim is to connect new renewable generating capacity to the electricity network as quickly and as cost-effectively as possible.”*
- 4.25 The words *“reasonably consistent”* and *“cost effective”* leave room for interpretation and hence members of the Working Group have suggested approaches for deriving a value of X (years) based on quantifiable objective criteria. Other Working Group members noted that the group was limited to only considering whether an Amendment proposal (or Alternative) better met the CUSC Applicable Objectives.
- 4.26 A number of Working Group members support an approach based on setting the value of X to encourage CAP 164 applications from projects only when they are in receipt of planning permission. This would also reduce the GB queue for connections. They advocate setting the value of X at no higher than the number of years for which a planning permission remains valid. This is 5 years in England & Wales and 3 years in Scotland. Some Working Group members noted that 3-or 4 years is may be a reasonable average timeframe in which a project with planning permission, such as a wind farm,

could construct a wind farm, although some could proceed to completion in shorter periods, and some might take even longer.

- 4.27 It was discussed that in order to limit the exposure of all Users, that X should not be set so low that Transmission Owners (TOs) and or the GBSO have insufficient time to reasonably prepare for the new generation. The Working Group noted the analysis undertaken previously as part of CAP131². This presented an average time from receiving the planning consents associated with the (transmission system) to connection of the generator (for whom that transmission work was undertaken) of 46 months. This was believed to represent a reasonable time to construct transmission assets (ignoring consent, and design timescales).
- 4.28 The group discussed that if X is set too long, that the planning consents of the applicant generators may expire before TEC is granted. It was noted that it may be appropriate for the value of X to be lower in Scotland than in England & Wales to reflect the difference in planning consent validity. It was noted also that there is evidence from the past (for example, around the proposed Staythorpe CCGT) that the authorities will normally extend planning consents prior to expiration on request from the developer. It was noted that the planning consent validity period is measured from the granting of that planning permission to the start of construction works. For instance, if a generator project in Scotland takes 2 years to build then it would be allowed a total of 5 years from consent to commissioning. It was noted also that the definition of “start of construction works” is defined in the relevant Planning Laws. It is believed to mean that undertaking some ground preparation works within the term of the planning consent (i.e. within three years of its granting in Scotland and five years in England & Wales) would be likely to be sufficient to keep the planning consent ‘alive’.
- 4.29 The Working Group discussion has, as a consequence of these arguments, focused on whether the value of X should be 3 or 4 or 5 years and the rationale for settling on 3 or 4 or 5 years. The Working Group agreed to consider the results of an impact assessment, for CAP164, on constraint costs versus carbon abatement benefit, which it hoped would assist in reaching a decision.
- 4.30 Qualitatively, some Working Group members consider that a higher value of X (e.g. 5) partially mitigates the risk of an increase in constraint costs which would arise if transmission reinforcement works cannot be completed by the TEC Effective Date. Others believe that a lower value of X (e.g. 3) is more consistent with generator development timescales.
- 4.31 It was also noted that, should the new generation lead to a change in system management costs and hence a change to the levels of BSUoS, that other users should have sufficient time to reflect any estimated changes into their contractual arrangements. In respect of BSUoS changes, the sub group considered that as a minimum the value of X should not be less than 12 months. However, some members of the Working Group considered this ignored the need to balance the benefits to the connectee with the costs imposed on wider Users.

Obligation to pay TNUoS

² Page 24 of <http://www.nationalgrid.com/NR/rdonlyres/DF79A171-683B-49BA-98B1-3E3D13968262/26301/CAP131WGRReport10.pdf>

- 4.32 Under CAP164 the intention is that a new generator should connect to the transmission system and begin generation on the TEC Effective Date. In these circumstances, the generator would be liable to pay any eligible TNUoS charges from this date.
- 4.33 In the event that the generator cannot generate from the TEC effective date, but is not at fault for the delay, either because of a delay by the Transmission Licensee in completing the local works or by force majeure (excluding failure to obtain consents), then, under CAP164, the generator would not be liable to pay TNUoS charges until either those local work have been completed; i.e. it has a physical connection to transmission the system or the conditions that gave rise to force majeure have been reasonably remedied. For the avoidance of doubt, 'force majeure' here does **not** cover the contractual / commercial arrangements between the generator and its equipment provider etc.
- 4.34 Irrespective of whether the generator has commissioned or not, other than due to a delay caused directly as a result of LCWs or force majeure as described above, it will be liable to pay for "TNUoS" charges from the TEC Effective date. It was noted that in these circumstances, the generator would still be liable for any financial securities or User commitment. It was considered that should this situation persist, that the required securities should be reduced by the amount of any Use of System charges that have been paid on an ongoing basis. For example, if the total securities are £1m and the annual charges are £100k then, after two years, the generator would be liable for £800k on termination.
- 4.35 The group noted that in a negative zone, there would be no TNUoS paid and so the liability remained the same as for a pre connection.

Force Majeure for wider works

- 4.36 The original CAP164 Amendment proposal was silent on Force Majeure for wider works. The Working Group discussed that the implication of a fixed TEC Effective date is that failure to gain planning permission for wider works is not a Force Majeure event. The proposer understood that this was preferable for parties wishing a fixed date and clarified that this was the intention of the original proposal. The Working Group accepted this view.

Constraint costs and carbon abatement assessment

- 4.37 To inform the assessment of CAP164 against the CUSC applicable objectives, and mindful of the Ofgem guidance³ to the administrators of industry codes on incorporating, via a carbon price, the carbon abatement benefits of proposed amendments, National Grid undertook some analysis of the constraint costs and the carbon abatement benefits, from CAP164, of advancing the transmission connection dates of queued generators.
- 4.38 A sub group was tasked with reporting back to the Working Group on an assessment methodology.
- 4.39 The sub group agreed the principles of:

3

<http://www.ofgem.gov.uk/Licensing/IndCodes/Governance/Documents1/Open%20letter%20response-%20final%20version%20of%20letter%2030%20June.pdf>

- 1) Establishing an existing baseline scenario for the GB generation mix to 2020 which is assumed to prevail in the absence of CAP164.
 - 2) Establishing a CAP164 scenario where connection dates are brought forward by allowing connection in advance of wider system reinforcement.
 - 3) Subtracting (1) from (2) to derive the additional volume of renewables generation provided by the advancement, and the associated constraint costs and avoided carbon cost.
- 4.40 A list of the detailed assumptions for the impact assessment, for CAP164, is provided in Annex 6. Some key assumptions are:
- The basis of the generation mix for both the baseline and CAP 164 scenarios is the TEC Register, with some assumptions on drop-out rate: a 20% drop out rate⁴ is assumed for wind energy, and 70% for other plant. These are applied uniformly as a percentage reduction in contracted MW.
 - Plant affected by the Large Combustion Plant Directive (“LCPD”) close in 2015. Oil-fired plant also close in 2015. The nuclear AGRs are granted 5 year life extensions, after which they close. No other closures are modelled.
 - Transmission system reinforcements in the Seven Year Statement (“SYS”) are included for both the baseline and CAP 164 scenarios. After 2015, it is assumed that the system can be reinforced to maintain a compliant system and meet currently contracted dates, for the baseline. No 2015+ reinforcements are included for the CAP 164 scenario.
 - The analysis models constraints on six boundaries, none of which are between Scottish zones i.e. the only Scottish boundary modelled is the Scotland-England boundary.
 - Under the CAP 164 scenario, 50% of wind energy plant and 25% of other plant are advanced by 3 years, again, applied as a flat percentage on contracted MW remaining after the assumptions on drop-out and closures.
 - The impact of a fixed lead-time (X years) is that only plant with contracted dates X years or more from the first modelled year (2009) can be advanced.
 - The modelling goes out to 2020 and hence a longer lead-time reduces the period over which the effect of CAP 164 is modelled. Furthermore the TEC Register tails off over time and so the plant available to advance in later years also tails off.
- 4.41 The transmission system constraint costs for each scenario are calculated from first running a model which meets demand from the most economic mix of generation available on an unconstrained network. The model is then re-run with constraint boundaries, and the costs of adjusting generator’s output (reducing output / constraining off generators behind the constraint and increasing / constraining / on generators in front of the constraint) make up the short-run constraint costs.
- 4.42 The analysis is then repeated with a CAP164 generation background. The difference in constraint costs between the baseline and the CAP164 scenarios is attributed as a cost to CAP164. The carbon abatement arising from a reduction in fossil fired plant running is credited to CAP164 as a carbon saving.

⁴ From the contract position in the SYS – the percentage that fails to connect

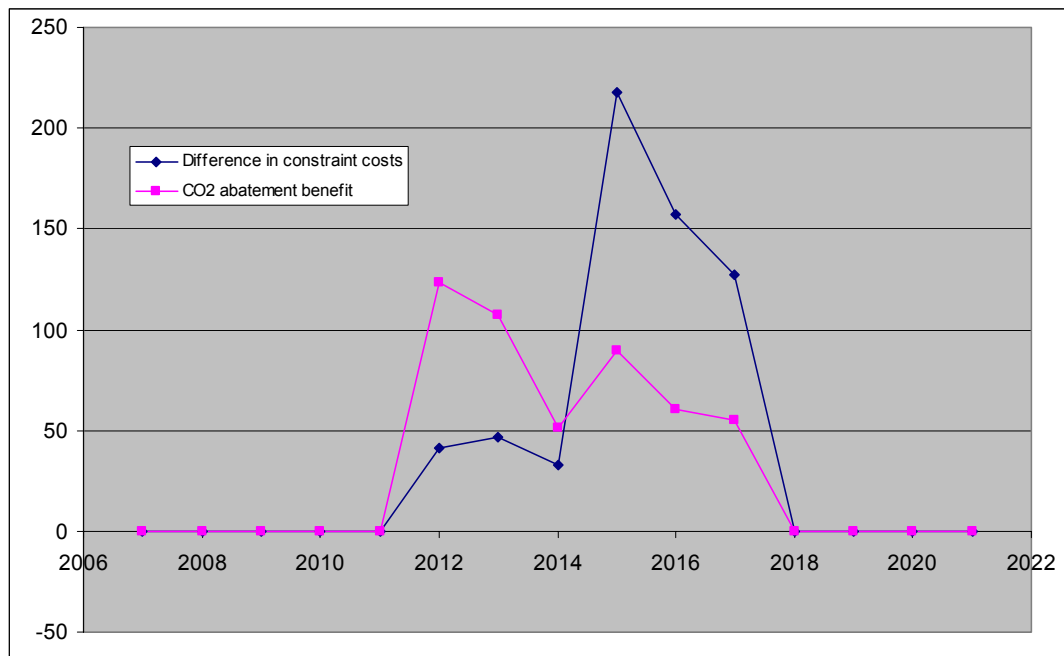
- 4.43 The model does not include any effects on reserve or losses (with the expectation that these costs would be higher in the CAP164 scenario). The Working Group discussed if these costs should be included in the analysis. The group agreed that given time and resource constraints, it was important to focus effort on the principal costs and benefits of CAP164. Other costs should be noted, and either taken into account quantitatively at a later date, or assessed as part of any qualitative analysis.
- 4.44 As well as the aforementioned costs associated with reserve and losses, some Working Group members felt that there were additional benefits of CAP164 which should also fall into the category of “other”. This might include a reduction in wholesale energy costs arising from a low-carbon generation mix, the avoided costs of importing gas over long distances, and the potential for the cost of carbon to rise. These additional items are not included in the CAP164 quantitative impact assessment.
- 4.45 A potential additional income stream from “excess TNUoS” charges that could be used to offset constraint costs was also discussed. As has been stated generators connecting under CAP 164 provisions would expect to pay the same “TNUoS” charges as other generators. However by definition these generators are assumed to be connecting before all appropriate transmission infrastructure is completed. Without going into the detail as to how the Transmission Owner price control may operate, if it is assumed that Transmission Owners are allowed revenue to fund infrastructure actually built and that CAP 164 connecting generators do not pay TNUoS to reduce TNUoS charges to others, then there is potentially a pot of “TNUoS” payments from CAP 164 connectees over and above that required to fund Transmission Owners’ investment in infrastructure that could be diverted to additional “BSUoS” income to offset additional constraint costs. In other words all TNUoS payers are intended to pay for transmission infrastructure “actually built” and CAP 164 connectees, if they paid the same amount as the equivalent standard TNUoS charge would initially pay for the local infrastructure actually built plus a sum that would offset higher constraint costs.
- 4.46 This raises a number of secondary charging issues that will be discussed in a charging pre consultation, particularly whether the ‘additional’ generation would be modelled in the charge setting process. Other members thought that this could be better represented as the parties who connect early pay a short term charge that is fixed at the level of TNUoS. Nevertheless, the income would not offset the additional constraint costs in total. Within the TNUoS model the amount recovered from Generation is fixed to 27% of the allowed revenue of the Transmission Licensees. Therefore if Cap164 recovers more from CAP 164 parties this would normally be returned to all generators to maintain a 27%. Accepting an increase in allowable income from local works for CAP164 generation, using this revenue to fund BSUoS would need changes to the charging and revenue arrangements under the methodologies and the licence. Some Working Group members discussed that a direct charge (e.g. as a balancing service) would achieve the same result as intended, but be more efficient to administer and transparent for users.
- 4.47 The avoided carbon cost is calculated from the overall difference in output from fossil-fuelled generation between the baseline and the CAP164 scenario. This is derived separately for each fossil fuel type and multiplied by

the relevant factor for tonnes of CO₂e per unit of output and the assumed cost of carbon for that year.

- 4.48 The cost of carbon is taken from DEFRA's "Shadow Price of Carbon" ("SPC")⁵ which is an estimate of the marginal cost of mitigating the effects of climate change for a given target reduction in atmospheric carbon levels.; i.e. if the carbon is released into the atmosphere, it will cause damage which will need to be paid for. The Working group also discussed repeating the analysis with the EU ETS price, however this has not been done. The results can be converted to EU ETS assessment by multiplying the abatement cost by the ratio of EU ETS to SPC. The EU ETS price not fixed, so inclusion would increase the subjectivity of the results. Furthermore the EU ETS is generally assumed to be lower than the SPC so would result in a more negative costs benefit.

Constraints versus carbon benefit: results

- 4.49 The graph below shows the first set of results from the analysis for a 3 year lead time for CAP164 connections (based on the DEFRA Shadow Price of Carbon ("SPC").



- 4.50 It shows that:
- The carbon abatement benefit exceeds the transmission system constraint cost in 2012-14.
 - The transmission system constraint costs exceed the carbon abatement benefit in 2015-17.
- 4.51 It is very important to understand the underlying assumptions which lead to these results.

⁵ <http://www.defra.gov.uk/Environment/climatechange/research/carboncost/index.htm>

- 4.52 There is no difference between the baseline and CAP164 scenario in the years up to 2011 because of the fixed lead time of 3 years before the TEC Effective Date. There is no difference from 2018 onwards because the study period looks at the contracted background and does not include any estimation of future generation projects which might advance to the years beyond 2018. In practice it is expected that a percentage of future transmission connections beyond 2018 would select CAP164 arrangements and this would cause an incremental cost and a carbon saving at the same time. Including this would be hugely speculative and given the outcome of the analysis (see the results below) was not considered necessary.
- 4.53 The fact that the carbon abatement benefit exceeds the transmission system constraint costs in early years is due to a combination of relatively high volumes of wind based generation projects being advanced to 2012-14, before the model reaches a point where constraint costs rise quite steeply.
- 4.54 There is a sharp rise in transmission system constraint costs in both the baseline and CAP164 scenarios in 2015. This is when the model starts to constrain off more low carbon intensive generation, and constrain on more relatively expensive generation. At this time the constraint costs are high and the amount of wind based generation projects being brought forward by CAP 164 reduces.
- 4.55 The fact that this sharp rise in costs does not occur earlier suggests that there is some spare capacity in the transfer capabilities of the boundaries that were modelled. National Grid believes that the Scottish transmission system is already more or less 'full' and points to current levels of constraint.
- 4.56 Because National Grid's analysis is at quite a coarse resolution it ignores some of the existing constraints on the transmission system. Nonetheless, National Grid's analysis does seem to show scope for early connection of some contracted capacity where the constraint costs would be offset by the monetised carbon abatement. Further investigation would be required to pinpoint the relevant locations on the GB transmission system.
- 4.57 It should be noted that the CAP 164 scenario also includes advancement of some 125MW of CHP plant in Scotland that would show a lower or zero carbon abatement benefit in return for increased constraint costs. This is not thought to have a significant effect on the results.
- 4.58 The assumptions on lead times and the number of years that the projects will advance affect the total costs and benefits where the study period is fixed.
- 4.59 Assumptions on when and where the transmission network is compliant affect the timing of any tipping point when constraint costs rise more steeply.
- 4.60 Assumptions on the volume of plant connecting and the speed with which the Transmission Licensees can provide reinforcements also affect the timing and extent of any tipping point. If the volume of plant assumed to advance under CAP164 is such that it substantially outstrips the ability of the Transmission Licensees to gain consent and build transmission reinforcements, then this will clearly impact upon constraint costs. The model assumes all planned reinforcements will be built to the timescales scheduled in the SYS. If in practice reinforcements are delayed, this would increase the cost of constraints.

- 4.61 Naturally, constraint costs are higher for a less compliant network, and the CAP 164 scenario is showing the effects of having a lower level of compliance. When the unit transmission constraint costs are high, it shows that the value of carbon abatement using the SPC is not enough to provide a positive net figure. When the transmission constraint costs are lower, and the unit carbon abatement value is higher, or the system has some limited spare capacity available, there could be a positive net value figure in the carbon abatement value. There are other factors complicating these tentative conclusions, but in simple terms this is what the results seem to show.

Lead time

- 4.62 The effect of a 4 year lead time can be shown by simply removing the results for 2012 from the analysis (shown in the table below) i.e. if 3 years brought plant forward until 2012, 4 years would only bring it forward to 2013 and so 2012 can be ignored.

Lead time	Total constraint cost	Total CO2 abatement	Net cost
3 years	£358m	£307m	£51m
4 years	£328m	£217m	£111m

NPV at 2009 with 8% discount

- 4.63 The transmission constraint costs are naturally lower for a 4 year lead time by virtue of removing a year's worth of costs from the total. The net cost is lower for 3 years than for 4, because the 3 year data contains one very net positive year's worth of data in 2012. National Grid explained this is likely to be due to the definition of boundaries in the model. The model does not have internal Scottish constraints and so in practice would **not** have expected to see 2012 as a net benefit.
- 4.64 It is difficult to make any firm conclusions from the analysis on whether 3 or 4 years is preferable, as the results are very much a function of the study design. However, it does seem possible to conclude that:
- A shorter lead time is beneficial in that it captures benefits available during a limited window where the transmission constraint costs are low and the benefits can be high, before a tipping point is reached.
 - A longer lead time is beneficial in bounding constraint costs where plant continue to connect past the tipping point and the system cannot be reinforced in time.
- 4.65 Responses to the Working Group consultation indicated mixed support for 3 or 4 years, with similar arguments to those expressed in the Working Group discussions. Some respondents requested further analysis on 2 and 5 years lead times. The Working Group discussed the interpretation carbon advice in the assessment of an amendment and the interaction with charging. The Working Group did not agree whether once carbon had been used in the overall assessment of the amendment proposals, whether this implicitly followed through to the charging arrangements i.e. whether it should be targeted and socialised.
- 4.66 The working group voted by a majority for a 4 year lead time.

Other Impact assessments

4.67 The Working Group was also cognisant of other Connect and Manage Impact Assessment studies undertaken for CAP 148, and published during the course of the Working Group's deliberations. These were:

- Ofgem's impact assessment of CAP 148, including its consultant's, Brattle, analysis on the costs versus the carbon abatement benefit.
- A renewables industry-commissioned study from CEPA⁶, also on the costs and benefits of CAP 148.

Readers of this document might wish to avail themselves of these studies.

4.68 There are a number of significant differences between these two studies and between each of them and the National Grid analysis. Some key differences are summarised below.

ROC Price

4.69 Brattle's analysis debits CAP 148 with the ROC price for the additional renewable energy generation brought forward by a Connect and Manage policy. It does this because it assumes that by the time Connect and Manage has effect (around 2012-13) there is enough renewables output to trigger a change from the current Renewables Obligation to the government's proposals for a so-called "headroom" based mechanism. The existing Obligation is a fixed cost regardless of the volume of renewable energy generated, and so as long as this mechanism lasts the ROC cost of additional CAP 148 generation could not be attributed to the policy. The proposed headroom mechanism adjusts the cost to the consumer with the actual output of qualifying generation.

4.70 Neither National Grid's nor CEPA's analysis takes account of the ROC price adjustment proposed by the Government. CEPA's omission is deliberate because it does not believe it to be an additional cost attributable to CAP 164. Rather, it is a cost that will be incurred in meeting existing government targets. For it to be an additional cost, it would arguably be necessary to present an alternative approach which achieves the same level of renewables generation as CAP164 at a lower cost.

4.71 National Grid's analysis excludes the impact of ROC adjustment because it is not in the baseline. The Working Group was split as to, even if it was in the baseline, approved and implemented policy, whether it should be part of the cost benefit analysis or not.

Modelling of constraints

4.72 Brattle's approach is based on comparing the results from separate modelling, for the same market assumptions, of generator connections and short term operation both in the absence of CAP148 (the "counterfactual") and with CAP148. In modelling short term operation Brattle first uses plant availability and marginal cost assumptions to derive a merit order from which unconstrained output and wholesale market prices are derived. It then adjusts these outputs to take account of transmission constraints using a

⁶ Assessing the impact of amendment proposal 148, August 2008, A report for the British Wind Energy Association.

simplified zonal flow analysis of SYS boundaries. National Grid's analysis of short run constraint costs is very similar in approach.

- 4.73 CEPA's analysis is based on a financial model. It considers the impact on generation connections by estimating the total volume of generation in the TEC register that could benefit from CAP148, scales this to reflect dropouts and determines the scope for acceleration based on average project timescales. It makes assumptions about load factors, incidence of constraints and the price at which constraints would be resolved in order to calculate incremental operational costs

Constraint boundaries

- 4.74 Brattle's analysis includes within-Scotland boundary constraints. This results in ROC-eligible plant being constrained off in the model where it is behind a Northern Scotland constraint. This tends to make Connect and Manage more expensive sooner than in National Grid's analysis which ignores these boundaries. National Grid indicated that it had reviewed the Ofgem-commissioned analysis and thought that it was more accurate for within-Scotland constraints where Connect and Manage brings forward appreciable volumes of renewable generation in the North of Scotland. It also results in new renewable plant constraining off existing renewable plant.
- 4.75 The Working Group agreed that there was no benefit in new low carbon plant being connected with the result that other low carbon plant was constrained off for much of the time. If this situation could be avoided (see 5.2.1 below), the cost benefit analysis would be expected to become more favourable to the proposal.

Liabilities

- 4.76 The Working Group discussed the commitment / liability required for CAP164. The original proposal indicated that Users should be required to pay TNUoS for a limited period. Under existing final sums arrangements once users connect the majority of the liability falls away, leaving only the liability to TNUoS for that year.
- 4.77 The Working Group discussed the interaction between CAP164 and CAP165 (finite rights). The Working Group noted that under CAP165 Original that there is a minimum booking period of 8 years for new capacity when works are triggered. It was noted that under CAP165 Original that the liability would be 8 years of the local charge.
- 4.78 Some Working Group members and respondents to the Working Group consultation expressed a view that the concept of a rolling 4 year right (CAP165 WGAA3) worked well with a lead time of 4 years under CAP164.

Embedded Generation

- 4.79 The Working Group noted that CAP164 does not cover embedded generation that is not granted TEC through a bilateral agreement. This concerned a number of Working Group members. National Grid indicated that the Original amendment proposal assumed a level of commitment and this is related to TNUoS liability, so was not applicable to generation not liable for TNUoS.

- 4.80 The Working Group also recognised that it would be difficult to implement a cost reflective charge on an embedded unlicensed party under the existing Industry framework.
- 4.81 The Working Group accepted this position recognising that embedded generation arrangements are being discussed elsewhere at the moment and that a more holistic review of embedded arrangements generally is expected following TAR.

5.0 WORKING GROUP ALTERNATIVE AMENDMENTS

- 5.1 Prior to the Working Group consultation a Working Group member tabled a number of suggestions which could form the basis of a candidate for a Working Group Alternative Amendment(s).
- 5.2 The rationale for proposing these variation to (CAP164) Connect and Manage (which the Working Group may or may not consider as a candidate for a CAP164 Working Group Alternatives Amendment) is threefold:
- (1) An unlimited Connect and Manage approach which has no checks or balances could result in some arguably unintended consequences. An example is renewables constraining off renewables (a potential flaw within Ofgem's CAP 148 impact assessment). Or very high transmission constraint costs where large volumes of plant are connecting on the wrong side of a constraint boundary and where there have been unavoidable delays in delivering reinforcement.
 - (2) There are significant benefits in a Connect and Manage approach which are not reflected in the proposals to target costs through the "Evolutionary change" combination of CAPs 161-163 and 165. These are that CAP 164:
 - (i) Is premised on constraining off generation, rather than requiring generation to constrain itself on when it can purchase access, (or incur unpredictable Overrun costs, if CAP162 is implemented). This is an important technical feature for some intermittent generators.
 - (ii) Provides predictability of costs and revenues, for generators, which is essential for securing finance.
 - (3) There is an element of socialised costs in some of the other "evolutionary change" CAPs. Furthermore, transmission constraint costs are traded off against reinforcement costs and should not, *per se*, be a reason to delay connection. It is the level of acceptable costs, and how these compare with other solutions, which is the key point for debate.
- 5.3 With these factors in mind, the suggested variations to CAP164 are intended as a means of reigning in some of the costs of CAP 164 / CAP 148 modelled in the various impact assessments, while retaining the beneficial features of Connect and Manage described above, (in addition to advancing connection dates as far as possible).
- 5.4 It should be noted that the impact of any of the potential variations to CAP164 proposals which follow is linked to the impact on costs of an unlimited Connect and Manage approach. Pending the formal Working Group agreement that one, or more, of these variations is a CAP164

Working Group Alternative Amendment, the impact assessments differ in their assessment of where costs are incurred, it is difficult to say conclusively which proposal would be the most effective in limiting costs. It may be that thresholds could be applied which would be activated should certain conditions be met.

- 5.5 The suggestion approach with these variations (which may or may not form a CAP164 Working Group Alternative Amendment) tabled proposals which might form the basis of one or more Connect and Manage Alternatives are:

An Interim TEC-like approach

- 5.6 A proposal for an “Interim TEC” (ITEC) product was put forward as a previous CUSC Amendment (CAP 143). Its key feature is that it defines in advance a level of non-remunerated constraint (X) of the generators taking advantage of ITEC.
- 5.7 Discussions in the CAP 143 Working Group were around the level of X, and whether it should be a flat rate or be reduced with the level of transmission network non-compliance. With the latter approach there would be a first-come-first-served benefit.
- 5.8 The basic intention of ITEC was to accelerate transmission connection dates in advance of system reinforcement, to provide certainty of revenues via a pre-defined level of X, but to limit constraint costs through an appropriate level of X.
- 5.9 Ofgem rejected ITEC, *inter alia* citing the (then) forthcoming Transmission Access Review work and the possibility of an alternative solution. Given that CAP 164 can be expected to lead to higher costs than an I-TEC product, the Working Group discussed whether it is appropriate to introduce a variation to CAP 164 Alternative which defines an appropriate level of non-remunerated transmission constraint? In addition, should this still be linked to fixed lead time for firm transmission access and remuneration of all constraint, or should firm access be linked to the completion of wider works?
- 5.10 Although under CAP 143 the idea was that the new generator could be constrained off without compensation for X hours per year, a number of people thought that it might make more sense for the new generator to run but to pay for X hours per year for a more expensive / higher carbon emitting generator to be constrained off. If CAP 162 (overrun charging) were implemented this would facilitate this “alternative to CAP 143” i.e. the new generator would have to pay overrun charges for X hours per year if it chose to run for those hours.

Bid Cap

- 5.11 A Bid Cap would limit the amount that generators could bid into the Balancing Mechanism to be constrained on or off. This would in turn limit transmission constraint costs and hence the costs passed through to consumers under CAP164. A Bid Cap could apply just to CAP164 Connect and Manage generators, or to all generators. The latter approach would limit the freedom of existing generators to bid as circumstances dictate, and the majority of the Working Group was not in favour of this option.

- 5.12 The Working Group agreed that any Bid Cap would have consequences for the operation of the Balancing Mechanism, and that as such it would need to be scrutinised in these terms.

Volume cap

- 5.13 A Volume (MW) Cap would limit the amount of generation that would be allowed to connect in advance of wider transmission system reinforcements. This could be applied on a GB-wide basis or there could be different volume (MW) caps for key boundary constraints / zones.
- 5.14 A Volume Cap would have a first-come-first-served benefit i.e. whoever applied for it first would get it.

Planning permission for wider works

- 5.15 The original CAP164 Amendment excludes planning permission for wider works from Force Majeure, and this, in the view of some, is thought to be a defining feature of a Connect and Manage approach. However, a Working Group member asked whether the new more strategic-based approach to infrastructure planning – both in government and through 2020 target-based initiatives – might provide more streamlined planning permissions for strategically planned infrastructure. In this case, would it be appropriate to link a Connect and Manage policy to these strategic plans? For instance by allowing Force Majeure for infrastructure which is not part of any strategic plan? Working Group members noted that the group was limited to only considering whether an Amendment proposal (or Alternative) better met the CUSC Applicable Objectives.

TO and SO Incentives

- 5.16 Some Working Group members questioned whether National Grid's incentives for managing transmission constraint costs and the balance between constraint costs and reinforcements, might be sharpened. The Working Group acknowledged that these comments could be fed into other related workstreams on TO/SO incentives.

Industry views

- 5.17 The Working Group requested views in the Working Group consultation on the possible features of a Working Group Alternative Amendment discussed above.
- 5.18 Whilst some responses supported the concept of Bid Cap recognising its potential to limit costs to third parties, others were concerned about negative effects on competition and the Balancing Mechanism. Respondents also expressed concern about the methodology for setting the Bid Cap level, and also the subjectivity within the methodology and in its application.
- 5.19 The comments on Volume Cap were similar to those on Bid Cap, supporting that it was a reasonable and pragmatic way forward and repeating concern on the negative consequences of a restriction. In addition, concern was expressed over possible discrimination in applying a Volume Cap.
- 5.20 On the issue of an ITEC type restriction responses were split between that this was a reasonable mechanism for mitigating additional costs through to it

would involve additional risk for third parties (e.g. through the SO forecast of hours) and it inherently accepts a level of sharing of costs (when the forecast restriction is less than 8760 hours per annum).

Working Group Alternative Amendment

- 5.21 The Working Group received one request for a Working Group Alternative Amendment. This seeks to mitigate the costs to third parties, yet still provide access on a date in advance of the wider reinforcements. The proposal suggests an ITEC approach to achieve this. The Working Group set up a sub group to discuss the development of the request. The WGAA was presented to the Working Group at the 14th Working Group meeting on 12th November 2008. The Working Group subsequently agreed to take the WGAA, as developed by the sub group, as a formal WGAA.
- 5.22 The WGAA developed provides an ex ante cost reflective price for a firm product which is bankable. The Working Group preferred this approach to options which sought to limit the cost of early connection by restricting the output from newly connected parties. Restricting output from newly connected parties did not appear to provide an efficient overall solution.
- 5.23 This product provides a firm date for long term transmission access and a firm price for the operation costs payable between the completion of the local connection and the firm date for long-term transmission access.

Application for connection

- 5.24 Users submit an application for a connect & manage connection to National Grid which details:
- Local capacity nomination (MW);
 - Requested date for local capacity nomination;
 - Level of wider long-term transmission access rights (MW).

Assessment of applications performed by the System Operator

- 5.25 The System Operator will take the applications for connect & manage connections and determine:
- The reinforcement works required to provide a local connection;
 - The date by which it is anticipated that these local works will be completed;
 - The reinforcement works required to provide wider long-term access;
 - The date by which it is anticipated that these wider works will be complete;
 - The operational costs caused by allowing the user to connect for the period between the completion of the local works and the completion of the wider works. This would be used to derive a fixed cost reflective price which could either be a flat £/kWh figure or profiled on a seasonal/monthly/weekly/daily basis where this could provide improved cost reflectivity.
- 5.26 The Working Group discussed the interaction between the volume of connect & manage generation and the operational costs (and therefore price). The options discussed to deal with this interaction are:
- First come first served
- Treat applications in the order in which they are received, with previously accepted offers providing the only background for the consideration of new

applications. If concurrent applications are received, then the associated offers interact such that the acceptance of one would invalidate the other. This would be handled with arrangements which give priority to the user that accepts first (unless two or more users accept on the same business day, in which case priority is given to the user that was first to apply).

- Batch processing of connection offers

Provide a “window” for applications and treat all applications received in the same window together, i.e. all applications are assumed to be in the background. This will lead to the cost (and therefore price) being calculated based on all users accepting their connections offers. If some users do not accept, then the cost (and therefore price) will be recalculated.

- 5.27 The Working Group agreed that the batch processing option was the preferred option. There are likely to be a number of users seeking a connect & manage simultaneously and therefore the interactivity arrangements associated with first come first served are likely to be prohibitively complex and time consuming.
- 5.28 All applications received in a particular 6 month period up to an “application window closure date” would be treated together and National Grid would be required to make connect & manage connection offers within 3 months of the window close date

Connect & manage connection offer

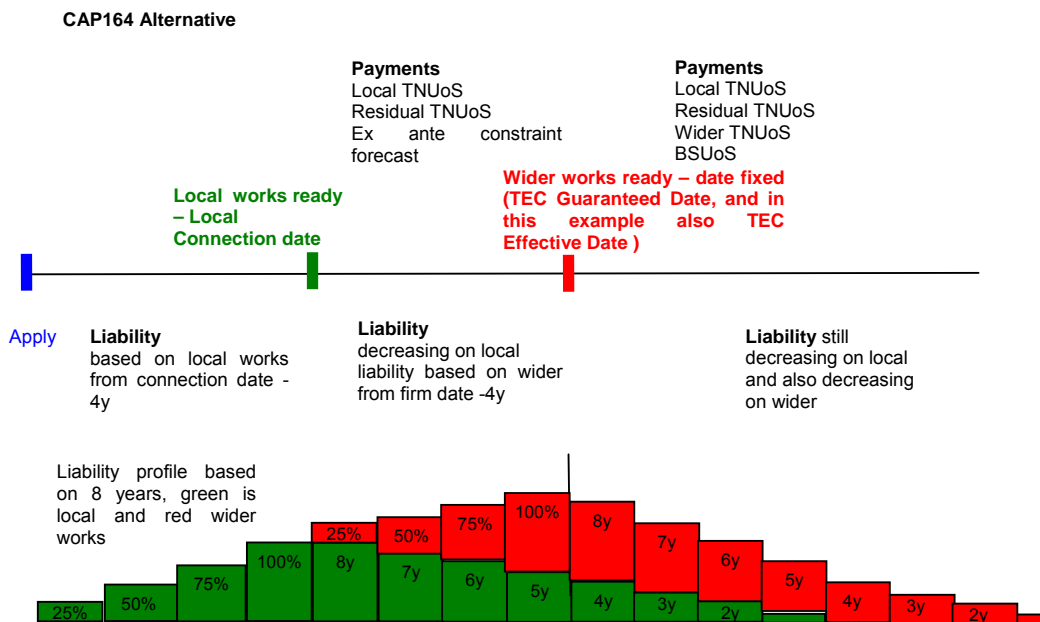
- 5.29 The connect & manage connection offer will include:
- The reinforcement works required to provide a local connection;
 - The date by which it is anticipated that these local works will be completed
 - It should be noted that planning/consent delays to those works listed as local works would result in a delay to the local works completion date;
 - The fixed price associated with short-term access to the transmission system, (£/kWh) which is applicable between connection and the date for the completion of wider works;
 - The date by which it is anticipated that the wider works will be complete
 - This date will be fixed irrespective of any subsequent issues with the planning/consent required for wider works.
- 5.30 The connect & manage connection offer will be open for acceptance for a further period of 3 months. During the 3 month acceptance period, users are free to request delays to the local connection date. This may be particularly useful if the short-term access price is particularly high in the years immediately after the local connection date. The System Operator will accept requests for delays and provide updated offers where possible.
- 5.31 The short-term price will be recalculated based on those users that have accepted their offers.
- 5.32 The process will then be restarted with accepted connect & manage offers in the background for all future batch assessments. It is worth noting that this is likely to mean that prices in future rounds are likely to be higher.

Pre-commissioning and Post-commissioning connect & manage

- 5.33 Pre and post commission liabilities are unaffected by CAP 164. Implementation of CAP165 would impact on the liabilities. Pre-commissioning connect & manage users will be required to face liabilities and securities as today, unless modified by the approval of CAP165 or one of its alternatives. An example of how this could work with generic final sums regime is shown below.
- 5.34 Post-commissioning connect & manage users will be able to submit bid price in to the Balancing Mechanism as any other users (subject to any design variation conditions in the BCA).

Example of liability

- 5.35 This example is based on a 4 stepped 25% pre commission liability and an 8 years from commission liability (similar to Generic Use Commitment and CAP165 Original). Users have a commitment based on local and wider works independently, relating to the Local Connection Date and the TEC Effective Date respectively. i.e. in the period between Local Connection Date and TEC Effective Date users will be liable for local works based on 8 years TNUoS (i.e. post commissioning) and also subject to ramping on wider works (i.e. pre commissioning).
- 5.36 If local works are delayed by the SO the Users liabilities are delayed accordingly. The Working Group discussed that the firm date for wider works should be regard as a backstop date i.e. users could switch to TNUoS charges earlier if wider works were completed earlier than the TEC Guaranteed Date, this earlier date is the TEC Effective Date. This backstop date, Guaranteed TEC Date, would have no force majeure. The TEC Effective Date and TEC Guaranteed Date are both contingent on the Local Connection Date i.e. force majeure on the local connection could delay the TEC Effective Date and TEC Guaranteed Date.



- 5.37 In terms of cost benefit analysis the WGAA avoids passing the cost of additional constraints through to other users, subject to the accuracy of the forecast short term cost and the accuracy of the commission date of wider works. Exposing parties who connect ahead of wider infrastructure to a fixed ex-ante cost allows them to internalise the additional costs and so provide a more efficient outcome for the end consumer.
- 5.38 Whilst it is recognised that these risk do represent an additional cost, when compared to the cost of carbon, the risk associated with an error in the forecast is much less than the actual operational costs. It is also recognised that the forecast may be positive as well as negative and that SO and TO incentives on both of these forecasts are important.
- 5.39 The Working Group agreed for transition that a period of 6 months was appropriate for implementation of the alternative. In this period parties would apply for transition to the new arrangements and transmission licensees to process the initial volume of applications that are expected to be higher than under an enduring process.

6.0 ASSESSMENT AGAINST APPLICABLE CUSC OBJECTIVES

This section includes all of the Working Group views, both for and against. This reflects the largely polarised position with respect to the Original amendment.

Proposed Amendment

- 6.1 The Working Group considered the CAP 164 Original amendment against the CUSC applicable objectives:
- (a) the efficient discharge by the Licensee of the obligations imposed upon it by the act and the Transmission Licence; by

Permitting more generation to connect to the transmission system in areas which are already constrained i.e. North-West Scotland then this may lead to increased constraint costs as the wider transmission system would not be ready to accept the anticipated increases in generation (this was indicated in Ofgem's Regulatory Impact Assessment for CAP148 which allowed only new Renewable generation to connect and showed that the likely Carbon cost savings would be far outweighed by increased constraint costs).

It is likely that generation connecting under CAP164 Original would be Wind and also likely that this would connect in Scotland and possibly constrain off other renewable generation. It is unlikely that the carbon savings from the proposal (especially with a 3-year guaranteed connection period) would outweigh the likely significant increases in constraint and transmission losses costs – this is borne out by an assessment by National Grid for Working Group 1.

The National Grid assessment does not take into account any other potential benefits such as the associated decrease in wholesale electricity prices (not all Working Group members agreed that this saving is demonstrable). Neither does it take account of possible increase in the costs of the ROC mechanism suggested by Government to meet wider environmental policy objectives.

Allowing generators the option of a TEC effective date incentivises Transmission Licensees to provide new connections in an efficient and timely manner. However where the key barrier is outside Transmission Licensees gift, such as planning consents, it may not be efficient for Transmission licensees or consumers to take on this risk. Arguably the commitment to a firm date by a User could improve the planning position.

CAP164 Original is not discriminatory as it provides an option to all generation types but in practice most non-Renewable generation will seek to locate in less constrained areas of the transmission system and will be offered connection timescales commensurate with its build programme for a TEC effective date.

It is unclear whether CAP164 Original would improve investment signals as the requirement to build additional transmission in Scotland is already known but is prevented from happening due to planning and other constraints. These should be removed as soon as possible to allow the necessary transmission investment to be made. In addition, providing incentives to Transmission Licensees to invest is likely to be more difficult under C&M if the management costs are recovered from customers. As all new connections will pay the TNUoS charge from their TEC effective date this may be a sufficient signal to the Transmission Licensees.

CAP164 Original provides improved investment signals in a number of ways. Firstly it allows the SO to plan investments against a smaller number of access requests which each have a high degree of certainty of connection. It encourages and rewards strategic investment by the Transmission Licensees in advance of future access requests. In addition, it encourages the development of new operational management measures (not just constraints) where these are cost effective alternatives to network investment.

- (b) facilitating effective competition in generation and supply of electricity and facilitating such competition in the sale, distribution and purchase of electricity; by

CAP164 Original facilitates competition by allowing for more new connections.

It further facilitates competition by removing the existing barriers to connection of new generation.

The resulting increase and volatility in constraints caused as a direct result of Connect and Manage is borne by the generality of users, increasing instability of charges act as a barrier to entry (supply and generation) and thus frustrate competition. In the context of generation the benefits are likely to outweigh the negatives.

The Generation most expected to use Connect and Manage are heavily subsidised and therefore not competing. The most efficient thermal generation on the system may be prevented from running in favour of less competitive units.

Cap164 Original could be discriminatory as it would provide connection to generators before the necessary wider system reinforcement was completed and socialised the increased constraint costs, inevitably increasing the risks and costs of other market participants through increased constraint and

reserve costs (and hence increasing consumers' costs would be borne by all users.

Working Group Alternative Amendment

6.2 The Working Group considered CAP 164 Working Group Alternative Amendment against the CUSC applicable objectives:

(a) the efficient discharge by the Licensee of the obligations imposed upon it by the act and the Transmission Licence; by

Facilitating early connection through providing a firm connection date and an ex ante charge, based on the forecast wider works completion date and the increase in operational costs prior to the wider works being completed, would better enable projects to gain finance and thus connect, facilitating more efficient use of the transmission system.

Subject to the accuracy of the forecast wider works dates and the ex ante estimate of increase in operational costs third parties would largely be held largely whole. The transmission licensees are better able to forecast and manage the completion of wider works and the impact on operational costs than the new connectees.

CAP164 WGAA provides improved investment signals in a number of ways. Firstly it allows the SO to plan investments against a smaller number of access requests which each have a high degree of certainty of connection. It encourages and rewards strategic investment by the Transmission Licensees in advance of future access requests. In addition, it encourages the development of new operational management measures (not just constraints) where these are cost effective alternatives to network investment.

(b) facilitating effective competition in generation and supply of electricity and facilitating such competition in the sale, distribution and purchase of electricity; by

CAP164 WGAA facilitates effective competition in generation and supply of electricity by facilitating early connection allowing parties to participate in the market earlier than they otherwise would be able to.

Connections facilitated through CAP164 will be charged cost reflectively based on forecast increase in operational cost prior to wider reinforcements, this better facilitate effective competition in generation market.

CAP164 WGAA further facilitates competition by removing the existing barriers to connection of new generation.

7.0 IMPACT ON IS SYSTEMS

7.1 The conclusions of National Grid's initial IS impact assessment for the Original Amendment and the Working Group Alternative Amendments are summarised below. These conclusions are indicative only and are subject to change following further analysis.

- 7.2 Costs are identified as falling into one of three broad categories (less than £500k, £500k to £1m, and £1m to £5m). Timescales are indicated by stating whether or not the necessary systems can be delivered in time (for an assumed “first run” date) given various starting dates for the projects to deliver the systems. This approach has been followed for all of the CAPs in the TAR suite in order to provide consistency.
- 7.3 With the exception noted below, it is not anticipated that CAP 164 (Original or WGAA) will require any new functionality in IS systems. However, it is possible that CAP 164 (Original or WGAA) may lead to an increase in the volumes of data and number of transactions that must be handled by existing systems. To accommodate these increases some changes to existing systems may be required. Such changes are difficult to predict and are excluded from this impact assessment.
- 7.4 The exception is that WGAA may require the introduction of systems to accommodate a daily charging regime.

	Assumed date of decision by the Authority	First run	Months available if work begun after the Authority decision	Months available if work begun in Dec-08	Deliverable if work begun after Authority decision?	Deliverable if work begun in Dec-08?	<£500k	£500k - £1m	£1m - £5m
Original	Jun-09	NO IS IMPACT							
WGAA1	Jun-09	Apr-10	10	16	NO	YES	•		

Where the above table indicates that if work starts in December 2008 it is feasible to deliver the necessary systems in time for the stated first run date, it may be assumed that any delay to the start of work would lead to an equivalent slip in the first run date.

- 7.5 There are many limitations on the scope of this initial IS impact assessment. Examples include:
 1. Only the impact on National Grid’s IS systems has been assessed. The impact on CUSC parties’ IS systems has not been assessed.
 2. Only the costs of the projects required to deliver the necessary systems have been estimated. Additional run-the-business costs relating to IS systems are likely to be incurred, these have not been estimated.
 3. There has been no analysis of any IS effort or systems required during the transition from the existing arrangement to the new arrangements.
 4. Each CAP and each option associated with it has been assessed in isolation. The impact on time and cost of multiple projects running in parallel has been ignored.
 5. National Grid has not assessed the work against its existing IS workload to assess resource availability.
- 7.6 A more accurate IS impact assessment for the Original Amendment and the Working Group Alternative Amendment would require a number of items which are not currently available. These include:
 1. Definition of the business requirements for the Original Amendment and the Working Group Alternative Amendments in more detail than has been discussed by the Working Groups.
 2. Confirmation of certain technical assumptions which have been made during the initial analysis.
 3. Identification of the combination of CAPs 161-166 that is to be implemented and for each CAP that is to be implemented whether the Original Amendment or one of the Working Group Alternative Amendments is to be implemented.

- 7.7 Without prejudicing the decision of the Authority, National Grid intends to undertake further analysis between November 2008 and March 2009. This analysis will attempt to address point 1 above by making assumptions about the most likely detailed business requirements and will attempt to address point 2 by undertaking a number of feasibility studies. To address point 3 the analysis will consider the consequences a variety of possible combinations. The results of the analysis will be made available to CUSC parties and the Authority.

8.0 PROPOSED IMPLEMENTATION

- 8.1 The Working Group proposes CAP164 Original should be implemented 10 days after a decision. The Working Group requested view on this approach in the Working Group consultation and received general support.
- 8.2 The Working Group also discussed transitional arrangements. The Working Group agreed that the application process for CAP164 should be robust enough for transition. Users would apply to switch over to Cap164 arrangements using the enduring application form.
- 8.3 The Working Group considered if any further special arrangements would be required. The general view from the responses and that of Working Group members was that the volume of projects actually able to come forward would be relatively small and therefore should not require additional processes. The Working Group acknowledges that the TOs are reviewing local connection issues in response to the suite of transmission access proposals and understands the STC committee would bring forward any revised arrangements through STC governance.
- 8.4 Implementation of the WGAA would require the development of IS system and changes to charging arrangements that are not expected to be available until April 2010.

9.0 IMPACT ON THE CUSC

- 9.1 This amendment will require changes to sections 2, 3, 6 & 11. There may be a number of minor changes to other sections of the CUSC. It is also envisaged there will be a number of changes to the exhibits and schedules to the CUSC, including those relating to connection applications and offers and construction agreements.
- 9.2 The text required to give effect to the Original Proposal and the WGAA is contained as of Annex 2 of this document.

10.0 IMPACT ON INDUSTRY DOCUMENTS

Impact on Core Industry Documents

- 10.1 Grid Code: This amendment can be implemented without requiring users to contravene existing obligations under the Grid Code. A further review is being carried out and any changes will be indicated in the Company consultation.
- 10.2 STC: New processes and reconfiguration of the outage plan to accommodate early local connection. Most of the new generation connecting under CAP164

is likely to be in Scotland, this will provide significant challenges for the Scottish TOs (especially in building local connections within 3 or 4 years).

- 10.3 The Working Group understands that the STC Committee are currently reviewing the impact and are expected to bring forward proposals to accommodate changes to the access regime shortly after submission of the CUSC amendments proposals to the Authority.
- 10.4 BSC: None envisaged by the Working Group. A respondent to the Working Group consultation expressed the view that an information imbalance charge should be introduced as part of CAP164. The Working Group believed that introducing an information imbalance charge was a more fundamental issue relating to the integration of new technologies and not an issue relating directly to CAP164.
- 10.5 This was subsequently adopted by the Working Group as a WGAA. The WGAA provides connection prior wider works being completed. The suggested consequential change to charging arrangements is that a new tariff is developed to be applied for the period between connection and a fixed date (the forecast date for completion of wider works). The new tariff would be set ex ante (in the offer) to reflect the forecast increase in operational costs. Prior to the fixed date the connectee would not pay wider TNUoS, following the fixed date the connectee would stop paying the new charge and revert to wider TNUoS charging. From connection the connectee would, pay local charges and contribute to the residual.

Impact on other Industry Documents

- 10.6 SQSS: Generation connecting before the wider transmission system was in place would mean the system was non-compliant with the GB SQSS as currently drafted. The current review of the GB SQSS needs to address this issue. Time limited derogations could be put in place to take account of this. SQSS is being reviewed to establish impacts, not expected to delay implementation.
- 10.7 Charging methodologies: The Original amendment proposal may have some implications on charging arrangements, principally on how plant that is connected prior to wider reinforcements is treated in the TNUoS model. Changes are being discussed through the charging methodologies governance arrangements and are expected to be implemented by April 2010. A pre consultation, GB ECM14, has been undertaken.
- 10.8 Charging methodologies: The WGAA provides connection prior wider works being completed. The suggested consequential change to charging arrangements is that a new tariff is developed and applied for the period between connection and a fixed date (the forecast date for completion of wider works). The new tariff would be set ex ante (in the offer) to reflect the forecast increase in operational costs. Prior to the fixed date the connectee would not pay wider TNUoS, following the fixed date the connectee would stop paying the new charge and revert to wider TNUoS charging. From connection the connectee would, pay local charges and contribute to the residual.

11.0 WORKING GROUP VIEW / RECOMMENDATION

11.1 The Working Group believes its Terms of Reference have been completed and CAP162 has been fully considered. At the final meeting on 18 November 2008 fifteen Working Group members cast votes:

Voting Results	For	Against	Abstain
Original better than Baseline	6	9	0
WGAA better than Baseline	15	0	0

11.2 The Working Group also voted on which of the Original or the WGAA better meets the CUSC applicable objectives:

Voting Results	For
Original best	3
WGAA1 best	12

11.3 The Working Group recommends to the CUSC Panel that:

- A consultation report containing the CAP164 Original and the WGAA should proceed to wider Industry Consultation as soon as possible.
- The Working Group report is accepted by the CUSC Panel and the Working Group is disbanded once legal text has been agreed.

12.0 NATIONAL GRID INITIAL VIEW

12.1 National Grid does not support the Original amendment on the basis that it has not been shown to be justified under the analysis on Carbon costs, irrespective of our view that the costs presented for the early years that we have indicated, in our view, are too low. We also note the other work presented in this area related to CAP148, namely the analysis in CAP 148 report, the Ofgem Impact Assessment and the CEPA analysis. Whilst we note the guidance on assessments with respect to carbon, we are unclear that this extends to limiting changes to the charging methodologies which could otherwise be considered as cost reflective and facilitating competition. In order to pursue the suggest charging arrangements for the Original proposal National Grid would seek explicit assurance that this would not be in breach of the transmission licence objectives, although we would regard the Authorities acceptance of the Original as implicit assurance.

12.2 In principle National Grid supports the WGAA on the basis that it better facilitates early connection, promoting effective competition; and facilitating more effective use of the GB transmission system efficiently discharging of the licensees obligations imposed under the Act. We recognise that the WGAA has a number of significant implications for the charging methodologies and a number of implications on revenue flows that will need to be considered before the Authority can make a decision.

13.0 INDUSTRY VIEWS AND REPRESENTATIONS

13.1 Responses to the Working Group Consultation

13.1.1 The following table provides an overview of the representations received. Copies of the representations are contained in Working Group Report Volume 2.

Reference	Company	Supportive
CAP164-WGC-01	Renewable Energy Systems	Yes
CAP164-WGC-02	Scottish Power	Yes
CAP164-WGC-03	Welsh Power	
CAP164-WGC-04	Scottish and Southern	Yes
CAP164-WGC-05	International Power	Yes
CAP164-WGC-06	Fairwind	Yes
CAP164-WGC-07	E.ON	No
CAP164-WGC-08	EDF Energy	No
CAP164-WGC-09	Drax Power	Yes
CAP164-WGC-10	Centrica	No
CAP164-WGC-11	BWEA	Yes
CAP164-WGC-12	British Energy	No
CAP164-WGC-13	Renewable Energy Association	Yes
CAP164-WGC-14	Nuclear Decommissioning Authority	No
CAP164-WGC-15	Wind Energy	Yes
CAP164-WGC-16	Gas de France	No
CAP164-WGC-17	Highland and Islands Partnership	Yes
CAP164-WGC-18	Scottish Renewables	Yes
CAP164-WGC-19	ESN International	Yes
CAP164-WGC-20	RWE	No
CAP164-WGC-21	Immingham CHP	Yes
CAP164-WGC-22	AEP	No

13.1.2 The following table provides an overview of the WG Consultation Requests received. Copies of the representations are contained in Working Group Report Volume 2.

Reference	Company	Details of the proposal	Working Group Comments
CAP164-WGCR-01	SSE	The proposal seeks to mitigate the additional costs of connect and manage on third parties, yet provide firm access at an ex ante price in fixed timescales.	The Working Group developed the request into the WGAA.

13.2 Views of Panel Members

13.3 Views of Core Industry Document Owners

13.3.1 National Grid has been in contact with the directly affected code owners discussed in this report. The most significant of these is the STC. A representative of the STC attended the Working Group as an observer and the STCC are considering the necessary changes.

13.3.2 Other Panels received the Working Group reports and have made no formal representations to the Working Group consultation.

ANNEX 1 – GLOSSARY AND ACRONYMS

Blank

ANNEX 2 – PROPOSED LEGAL TEXT TO MODIFY THE CUSC

This will be agreed with the Working Group and included prior to the company consultation.

Part A - Text to give effect to the Original Proposed Amendment

Part B - Text to give effect to the Working Group Alternative Amendment

ANNEX 3 – WORKING GROUP TERMS OF REFERENCE AND MEMBERSHIP

Working Group Terms of Reference and Membership

TERMS OF REFERENCE FOR CAP161-164 WORKING GROUP 'ACCESS WORKING GROUP 1'

RESPONSIBILITIES

1. The Working Group is responsible for assisting the CUSC Amendments Panel in the evaluation of CUSC Amendment Proposals CAP161, 162, 163 and 164 tabled by National Grid at the Amendments Panel meeting on 25th April 2008.
2. The proposals must be evaluated to consider whether each of them 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; and
 - (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.
3. It should be noted that additional provisions apply where it is proposed to modify the CUSC amendment provisions, and generally reference should be made to the Transmission Licence for the full definition of the term.

SCOPE OF WORK

4. The Working Group must consider the issues raised by the Amendment Proposals and consider if each of the proposals identified better facilitates achievement of the Applicable CUSC Objectives.
5. In addition to the overriding requirement of paragraph 4, the Working Group shall consider and report on the following specific issues:
 - o Impact on bilateral agreements (BCA, BEGAs, CONSAG, Offers etc.)
 - o Impact on core industry documents and other documents (incl. Transmission License)
 - o Impact on computing systems, central and individual CUSC party
 - o Application process and impact on bilateral agreements for short-term access
 - o Implementation and transition requirements, including timescales

- The impact on System Operator costs, internal and external
 - A cost benefit analysis, including market impacts and the cost of carbon⁷
 - Efficient investment signals [generation, transmission & interconnectors]
 - Definitions, including the interaction with other codes and methodologies
 - Offshore arrangements
 - Applicability to embedded generation
 - Credit and security requirement implications
 - Impact on the demand (exit) arrangements
 - Overall revenue recovery (TNUoS, BSUoS and other charges)
 - Impact assessment on all users and licensees
 - The CUSC linkages to the charging methodologies
 - Impact of short term access on existing CUSC Parties long term rights
 - Impact on Security of Supply
 - Impact on Maintenance of the Reliability, Safety & Operation of the Grid
 - Limiting participation to physical players
- 5a. For CAP161, System Operator Release of Short-term Entry Rights, the working group shall also consider and report on the following specific issues:
- Impact on existing short term products, LDTEC and STTEC
 - The auction process
 - Temporal definition of the product(s)
 - Transparency of information required before and after auction
 - The process for recording contractual holding or access rights
 - The payment process [assuming pay as bid is not a charging issue]
 - Requirement for and implications of any restrictions to the product e.g. a buyback price cap
 - Ensuring that the arrangements do not unduly discriminate against any particular plant type or range of plant types
 - Consistency with European regulations
 - The need for a short term baseline for zonal release
 - Economic release criterion
 - Who should run the auction
- 5b. For CAP162, Entry Overrun, the working group shall also consider and report on the following specific issues:

⁷ Taken account of Ofgem guidance with respect to:
<http://www.ofgem.gov.uk/Licensing/IndCodes/Governance/Documents1/Code%20objectives%20letter%20-%20final%20for%20external%20publication.pdf> (note link to CUSC WG established on carbon analysis)

- Local allocation and physical asset capability limits
 - Interaction with the provision of Balancing Services (including services such as frequency response, MaxGen Service and black start)
 - Settlement process, including resolution of settlement (e.g. half hour)
 - Lessons learnt from (and interaction with) cashout in the BSC
 - Ensuring that the arrangements do not unduly discriminate against any particular plant type or range of plant types
 - Additional information transparency
- 5c For CAP163, Entry Capacity Sharing, the working group shall also consider and report on the following specific issues:
- The notification process
 - The transition arrangements for moving towards a sharing product
- 5d For CAP164, Connect and Manage, the working group shall also consider and report on the following specific issues:
- The lead time for connection
 - Consider the transparency of bilateral changes to the connection date, including consideration of pre-defined circumstances by which this would be possible
 - The appropriateness of the symmetry in rights and obligations
 - The transition arrangements for existing contracts
 - Interaction with other short term products
- 5e This working group shall have a sub group, to be known as “Access Working Group 3”. The Terms of Reference for Access Working Group 3 shall be agreed by the Amendments Panel and shall include the consideration of a number of enabling changes, principally:
- Zonal access rights
 - Local only applications
 - Zoning criteria
 - Local asset charging
 - Residual charging
 - Credit requirements for TNUoS charges based on a kWh element.
6. The Working Group is responsible for the formulation and evaluation of any Working Group Alternative Amendments (WGAAs) arising from Group discussions which would, as compared with the Amendment Proposals, better facilitate achieving the applicable CUSC objectives in relation to the issue or defect identified.
7. The Working Group should become conversant with the definition of Working Group Alternative Amendments which appears in Section 11 (Interpretation and Definitions) of the CUSC. The definition entitles the Group and/or an individual Member of the Working Group to put forward a Working Group Alternative Amendment if the Member(s) genuinely believes the Alternative would better facilitate the achievement of the Applicable CUSC Objectives. The extent of the support for the Amendment Proposals or any Working Group Alternative Amendments arising from the Working Group’s discussions should be clearly described in the final Working Group Report to the CUSC Amendments Panel.

8. There is an obligation on the Working Group Members to propose the minimum number of Working Group Alternatives where possible.
9. All proposed Working Group Alternatives should include the proposer(s) details within the Final Working Group Report, for the avoidance of doubt this includes Alternative(s) which are proposed by the entire Working Group or subset of members.
10. There is an obligation on the Working group to undertake a period of Consultation in accordance with CUSC 8.17. The Working Group Consultation period shall be for a period of 4 weeks as determined by the Amendment Panel.
11. Following the Consultation period the Working Group is required to consider all responses including any WG Consultation requests. As appropriate the Working Group will be required to undertake any further analysis and update the Original and/or Working Group Alternatives. All responses including any WG Consultation Requests shall be included within the final report including a summary of the working Groups deliberations and conclusions
12. The Working Group is to submit their final report to the CUSC Panel Secretary on **17th July 2008** for circulation to Panel Members. The conclusions will be presented to the CUSC Panel meeting on **25 July 2008**.

MEMBERSHIP

13. It is recommended that the Working Group has the following members:

Chair	Hëdd Roberts (National Grid)
National Grid	Patrick Hynes (Proposer)
Industry Representatives	James Anderson
	Bob Brown
	Graeme Cooper
	Tony Diccico
	Richard Ford
	Garth Graham
	Paul Jones
	Simon Lord
	Paul Mott
	Rekha Patel
	Rob Rome
	Tim Russell
	Helen Snodin
Merel van der Neut Kolfshoten	
Barbara Vest	
Authority Representative	David Hunt
Technical Secretary	Kathryn Sorrell
	Jeremy Caplin (Technical Advisor)
	STC (Technical Advisor)

NB: Working Group must comprise at least 5 Members (who may be Panel Members)

14. The Chair of the Working Group and the Chair of the CUSC Panel must agree a number that will be quorum for each Working Group meeting. The agreed figure for CAP161, 162, 163 and 164 is that at least 5 Working Group members must participate in a meeting for quorum to be met.
15. A vote is to take place by all eligible Working Group members (for the avoidance of doubt, that is (i) the Proposer (National Grid) and (ii) the Industry representatives listed above) on the proposal and each Working Group Alternative, as appropriate, as to whether it better facilitates the CUSC Applicable Objectives and indicate which option is considered the BEST with regard to the CUSC Applicable Objectives. Working Group Members will be given not less than five business days notice of the meeting at which the vote will take place. The results from the vote shall be recorded in the Working Group Report.
16. Working Group Members or their appointed alternate is required to attend a minimum of 50% of the Working Group Meetings to be eligible to participate in the Working Group vote.
17. The Technical Secretary to keep an Attendance Record, for the Working Group meetings and to circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the Final Working Report.
18. The membership can be amended from time to time by the CUSC Amendments Panel.
19. If any Working Group Member wishes to nominate an Alternate (to act on their behalf in their absence from meetings) then this should be sent to the Working Group Chair once the Working Group is under way who will confirm (to the Working Group Member) that the Alternate is duly designated. For the avoidance of doubt if the Working Group Chair believes the suggested Alternate does not have sufficient expertise in the issues being considered by the Working Group they will ask the Working Group Member to suggest a more suitable Alternate.
20. Observers may be permitted by the Chair to attend any meeting. It should be noted that the observer (i) will not have a vote and (ii) cannot speak unless asked to do so by the Chair. Any CUSC Party wishing to be an observer should agree with the Working Group Chair advance .The Chair may invite - +additional industry experts to any meeting as required to ensure efficient and comprehensive coverage of the agenda.

RELATIONSHIP WITH AMENDMENTS PANEL

21. The Working Group shall seek the views of the Amendments Panel before taking on any significant amount of work. In this event the Working Group Chair should contact the CUSC Panel Secretary.
22. The Working Group shall seek the Amendments Panel advice if a significant issue is raised during the Consultation process which would require a second period of Consultation in accordance with 8.17.17.
23. Where the Working Group requires instruction, clarification or guidance from the Amendments Panel, particularly in relation to their Scope of Work, the Working Group Chair should contact the CUSC Panel Secretary.

24. The working group shall maintain a register of assumptions and issues, which shall be published and reported to the Amendments Panel and other Transmission Access working groups on a regular basis.

MEETINGS

25. The Working Group shall, unless determined otherwise by the Amendments Panel, develop and adopt its own internal working procedures and provide a copy to the Panel Secretary for each of its Amendment Proposals.
26. To ensure an efficient process (and mindful of room logistics) only the Working Group Member or their appointed Alternate can attend a meeting. If an alternate wishes to attend the same meeting as their associated member this will be as an observer (under item 18. above) unless they have previously agreed with the Working Group Chair.

REPORTING

27. The Working Group Chair shall prepare final reports to the **25th July** Amendments Panel responding to the matter set out in the Terms of Reference.
28. A draft Working Group report will be produced individually for each of CAP161, 162, 163 and 164. Each draft working group report will include the relevant information from Access Working Group 3.
29. A draft Working Group Report must be circulated to Working Group members with not less than five business days given for comments.
30. Any unresolved comments within the Working Group must be reflected in the final Working Group Report.
31. The Working Group Chair (or another Working Group member nominated by him) will present the Working Group report to the Amendments Panel as required.

ANNEX 4 – WORKING GROUP ATTENDANCE REGISTER**Working Group 1 attendance**

Working Group members	13	28	10	23	8	18	6	20	3	10	19	23	5	12
	May		Jun		Jul		Aug		Sep			Oct	Nov	
James Anderson	✓	✓	✓	✓	6		✓	✓	✓	✓	✓	✓	✓	✓
Bob Brown	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓
Graeme Cooper		✓		✓	✓	✓					✓		✓	✓
Tony Diccio	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Richard Ford	✓	✓	✓	✓	✓		✓		✓	✓			✓	
Garth Graham	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Paul Jones	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓
Simon Lord	✓	2	✓	✓	✓	✓	✓	2	2	2	✓		2	✓
Paul Mott	✓		✓	✓	✓	✓	✓	8	✓	8	✓		✓	✓
Rekha Patel	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rob Rome	✓	✓	✓	✓	✓	✓	✓	✓		✓	9		9	✓
Tim Russell	✓	✓	✓	✓	7	✓		✓	✓	✓	✓	✓	✓	✓
Helen Snodin	✓	3	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Merel van der Neut Kolschoten	✓	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barbara Vest	✓	✓	5	✓	✓	✓		✓	✓	✓	5	✓		
Patrick Hynes	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
Hëdd Roberts (Chair)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kathryn Sorrell (Tec Sec)	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓

Invitees, alternates and observers	13	28	10	23	8	18	6	20	3	10	19	23	5	12
	May		Jun		Jul		Aug		Sep			Oct	Nov	
Jeremy Caplin (NG)	✓	✓	✓	✓			✓	✓	✓	✓	✓			
David Hunt (Ofgem)		✓	✓	✓	✓	✓	✓	✓			✓	✓		✓
Deborah MacPherson (STC)	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓
Min Zhu (Ofgem)	✓								✓	✓				
Brian Taylor (NG)	✓													
Andy Rimmer		2						2	2	2			2	
Fiona Navesey		4												
Dennis Timmins		1												
Nigel Scott		3												
Ian Moss			5	✓	✓	✓	✓		✓		5			
Emma Luckhurst								8		8				
Stuart Cook (Ofgem)					✓									
Gerry Hoggan					6									
Paul Hurlock (National Grid)					✓	✓								
Gaynor H					7									
Ian Lomas (BERR)							✓							
Kevin Dibble								2						
Louise Schmitz											9		9	

ANNEX 5 – AMENDMENT PROPOSAL FORM

CUSC Amendment Proposal Form	CAP: 164
Title of Amendment Proposal:	
Transmission Access – Connect and Manage	
Description of the Proposed Amendment (mandatory by proposer):	
<p>It is proposed that Generators who wish to connect to the system should have a fixed date for receiving TEC. This date, the 'TEC effective date', will be the later of the completion of "local" transmission works or an agreed fixed lead time. The fixed lead time will be discussed and agreed in the amendment assessment stage and codified in the CUSC. Initial options are 3 years (aligns with planning restrictions in Scotland); or 4 years (more consistent with historic performance of providing reinforcements).</p> <p>The TEC effective date will be subject to 'force majeure' provisions as currently defined in the CUSC.</p> <p>Following the initial offer, the TEC effective date can only be changed through a modification application; and if both the Generator and the Company agree, and other CUSC parties are not unduly affected.</p> <p>The request for a TEC effective date is optional, and is made at the time of application. All types of generation seeking TEC can request a TEC effective date.</p> <p>The definition of 'local' works will be established through the assessment of this proposal i.e. how 'deep' and what the consequences of such a definition would be.</p> <p>Although not part of the CUSC, it is proposed that TEC granted with a TEC effective date be charged on the same principle as existing TEC, which is long-term incremental investment based (including any changes to local charging arrangements consistent with the changing principles).</p> <p>There is a symmetrical obligation associated with the guarantee of a TEC date. This requires the generator to pay TNUoS charges for a minimum period irrespective of readiness of the generator to physically connect, subject to force majeure. The minimum period, will be agreed in the assessment of the proposal, to ensure equitable risk between other users and the connectee. This is intended to encourage the generator to apply only when consents have been granted i.e. for the purposes of this, force majeure excludes planning.</p> <p>The transition arrangements for existing contracts will be agreed in the amendment assessment stage.</p>	
Description of Issue or Defect that Proposed Amendment seeks to Address (mandatory by proposer):	
<p>The current process for connection in the CUSC may not allow generators to connect in timescales for building a power station, thus restricts their timely connection to the transmission system and participation in the energy market.</p>	
Impact on the CUSC (this should be given where possible):	
<p>This amendment will require changes to sections 2, 3, 6 & 11. There may be a number of minor changes to other sections of the CUSC. It is also envisaged there will be a number of changes to the exhibits and schedules to the CUSC, including those relating to connection applications and offers and construction agreements.</p>	
Impact on Core Industry Documentation (this should be given where possible):	
<p>To be identified during assessment.</p> <p>The connection process between National Grid and the Transmission Owners contained in the STC and STCPs should be reviewed. In the short term, transition arrangements may be required to facilitate significant changes to the connection plan.</p>	

Impact on Computer Systems and Processes used by CUSC Parties (*this should be given where possible*):

None identified.

Details of any Related Modifications to Other Industry Codes (*where known*):

Depending on the volume of constraints that are created through take up of early connection, a new constraint management processes may need to be developed. These may have a further impact on computing systems.

It is envisaged that transmission licensees may need to seek derogations for early connection from the Authority, further to this they would be required to review of the Security and Quality Supply Standard.

Justification for Proposed Amendment with Reference to Applicable CUSC Objectives** (**mandatory by proposer**):

The proposed amendment would better facilitate the achievement of Applicable CUSC Objectives (a) and (b), the efficient discharge by the licensee of the obligations imposed upon it under the Acts and by the licence, and facilitating effective competition in generation and, by:

- o Promoting the more efficient use of the transmission system through facilitating connection in advance of wider transmission works.
- o Improving the signals for design of the transmission system by ensuring that only projects that are likely to connect within a defined timescales actually apply for connection.

Details of Proposer: Organisation's Name:	National Grid
Capacity in which the Amendment is being proposed: (i.e. CUSC Party, BSC Party or "energywatch")	CUSC Party
Details of Proposer's Representative: Name: Organisation: Telephone Number: Email Address:	Patrick Hynes National Grid 01926656319 Patrick.hynes@uk.ngrid.com
Details of Representative's Alternate: Name: Organisation: Telephone Number: Email Address:	Duncan Burt National Grid 01926656703 duncan.burt@uk.ngrid.com
Attachments (Yes/No): No If Yes, Title and No. of pages of each Attachment:	

Notes:

1. Those wishing to propose an Amendment to the CUSC should do so by filling in this "Amendment Proposal Form" that is based on the provisions contained in Section 8.15 of the CUSC. The form seeks to ascertain details about the Amendment Proposal so that the Amendments Panel can determine more clearly whether the proposal should be considered by a Working Group or go straight to wider National Grid Consultation.

2. The Panel Secretary will check that the form has been completed, in accordance with the requirements of the CUSC, prior to submitting it to the Panel. If the Panel Secretary accepts the Amendment Proposal form as complete, then he will write back to the Proposer informing him of the reference number for the Amendment Proposal and the date on which 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, then he may reject the Proposal. The Panel Secretary will inform the Proposer of the rejection and report the matter to the Panel at their next meeting. The Panel can reverse the Panel Secretary's decision and if this happens the Panel Secretary will inform the Proposer.

The completed form should be returned to:

Beverley Viney
Panel Secretary
Commercial Frameworks
National Grid
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Or via e-mail to: Beverley.Viney@uk.ngrid.com

(Participants submitting this form by email will need to send a statement to the effect that the proposer acknowledges that on acceptance of the proposal for consideration by the Amendments Panel, a proposer which is not a CUSC Party shall grant a licence in accordance with Paragraph 8.15.7 of the CUSC. A Proposer that is a CUSC Party shall be deemed to have granted this Licence).

3. Applicable CUSC Objectives** - These are defined within the National Grid Electricity Transmission plc Licence under Section C7F, paragraph 15. Reference should be made to this section when considering a proposed amendment.

ANNEX6 - ASSUMPTIONS FOR COSTING ANALYSIS

Carbon costing update - Methodology / Assumptions for Creating Background Generation

- SYS data taken from the TEC Register between 2007/08 to 2021/22
- Consideration of LCPD plants factored in by removing from the background generation at 2015. No consideration taken into the capacity of LCPD affected plants between 2008/09 and 2015 (i.e. assume none reach their 20,000 hour max.)
- Assume all Nuclear AGR Stations are granted 5 year life extensions.
- Assume all Nuclear Plant removed from background generation at end of their lifetime (after including additional 5 years for AGR stations).
- As a result of LCPD plant closure, assume associated GT's also close (Tilbury, Kingsnorth, Didcot A).
- Assume Oil behaves the same as LCPD Plant; dropping out at end of 2015.
- Data split into SYS study zones and then split into constraints model study zones (MZ1 – MZ7)
- Data in each constraints model study zone categorised by generation type
- Generation merit order established by ranking fuel type according to generation fuel, using the merit order published in the GBSQSS Consultation Document (Review for Onshore Intermittent Generation).
- Additional assumptions on the merit order;
 - CHP, Biomass & Thermal categorised with base gas
 - CCGT plant split between base gas and marginal gas based on the year of plant commission (i.e. any plant commissioned after mid-1997 assumed to be base gas)
 - Coal split between base and marginal based on age, all opt out is marginal.
- All other generation types assumed to maintain the same capacity between 2014/15 and 2020.
- Propose to implement multiple drop out rates per zone to “new” plant (i.e. plant not existing in 2007/08 year). This allows us to avoid publishing specific drop out assumptions on individual projects. The initial drop out rate will be for wind is 20%. For non wind the drop out rate is 70%. The drop out rate means that contracted project do not come to fruition.
- The model includes a closure rate for conventional; this is set at 0. Need to be careful does not double count with the specific closures above.
- The drop out and closure assumptions maintain a plant level of slightly less than 25% in 2020, assuming a 30% load factor of renewable.
- Generator pricing will stay at current levels.
- Generator volumes are established using probabilistic analysis techniques as described in the SQSS consultation⁸.
- Analysis is on six boundaries B2, B6, B8, B9, B15, +B1 / B7.
- Boundary capabilities:
 - 'authorised' increases from current 2008 up to 2012 from SYS.
 - Beyond 2014 establish pseudo reinforcements to maintain a near compliant system for the given background.
- Demand: as per SYS to 2015, and extrapolated after 2015.
- For CAP164 scenario, options
 - 1) advance x% of wind by y years starting in 2012 & a % of conventional by b years

⁸ see annex 5 of 'GBSQSS Consultation Document (Review for Onshore Intermittent Generation)'

- Sub group to agree x, y, a & b, propose 50, 3, 25, 3 respectively
- 2) Advance specific projects in the merit order – how do we decide which and by how much

The comparison of pre and post CAP164 scenarios will provide a constrained volume and cost, broken down in to plant type and zone. The model will also provide the running hours for each plant type for each scenario, so derives the volume changes in each plant type i.e. what and how much runs and what it replaces. Combining this with a CO₂/T/MW for each plant type the overall carbon saving can be established. This can then be compared to the constraint cost also presented from the model.