

CONCLUSIONS REPORT

GB ECM-24

**Modification proposal to the Transmission Network
Use of System Charging Methodology to update
charging arrangements associated with Offshore
Transmission Networks**

June 2010

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1. Executive Summary

- 1.1 This conclusions report sets out National Grid's proposals for an update to the charging arrangements for offshore transmission networks.
- 1.2 These updates include clarifications of the methodology and its application in line with modification proposal GBECM-08 (Option 1) which was not vetoed by the Authority in March 2009 and methodology changes associated with charging arrangements for offshore transmission networks. National Grid believes that the proposals set out in respect of both of the above would serve to better meet the relevant transmission licence objectives.
- 1.3 The need for an update has predominately arisen out of the receipt of more detailed information about actual offshore projects by National Grid that was not available at the time of GB ECM-08, difficulties that have arisen in the subsequent practical application of this information and defects within the existing methodology that have come to light as a result.
- 1.4 The clarifications proposed are:
 - Inclusion of interest during construction and project overheads into offshore asset values used to allocate OFTO revenues between chargeable assets in the same proportion as those asset values, unless better information is provided;
 - Inclusion of costs that are not attributable to a recognised asset category within the methodology into recognisable asset components (i.e. transformer, switchgear, etc.) by pro-rating on the basis of asset value, unless better information is provided;
 - Inclusion of text in the methodology that explicitly outlines the previously approved approach (as part of GB ECM-08) that HVDC converter costs will be included as part of the local circuit component of the tariff for those projects utilising HVDC technology.
- 1.5 The changes to the methodology proposed are:
 - Revision of the method utilised for deriving the platform rating used in the offshore substation local tariff calculation from adopting the 'higher' of the switchgear or transformer ratings to the 'lower' of the two;
 - Outline explicitly that the cost of asset spares will be added to the component of offshore revenue with which it is associated for the purposes of calculating the offshore tariff;
 - Revision of the methodology associated with offshore circuit expansion factors in order to introduce harmonic filter equipment into the offshore local circuit revenue;
 - Introduction of a pass through of any historic DNO capital contributions that from part of the OFTO's tender revenue stream through Embedded Transmission Use of System (ETUoS) charges for transitional projects where relevant;
 - Revise the methodology associated with ETUoS charges to allow for the pass through of distribution charges not applied on the basis of a generators capacity (i.e. TEC).
- 1.6 The consultation document published in April also presented options for the treatment of operational costs associated with reactive compensation

equipment provided by the OFTO at the onshore interface point as a condition of Section K of the SO-TO Code.

- 1.7 Whilst National Grid is grateful for the views provided by some respondents, conclusions on this particular issue will not form part of these proposals, as stated in the consultation document. Rather it is National Grid's view that this issue would benefit from further development of options and that this would be better taken forward outside the remit of the charging methodology in the first instance.
- 1.8 National Grid published a consultation report to the industry in April 2010 following discussion of the change proposals at the Transmission Charging Methodologies Forum (TCMF) in March¹. Eight written responses were received, a summary of which can be found in Section 4.
- 1.9 Industry responses were split between those commenting on specific proposals and those making general observations about the charging regime. The most contentious issue for those who did comment was the proposal to revise the method for calculating the platform rating (in kW), leading to an increase in the amount of OFTO revenue targeted at the offshore generator in most instances. Many believed that further analysis and industry consultation was required in this area.
- 1.10 Whilst National Grid understands that stable and predictable charges are important for generators when making investment decisions, these principles must be balanced with those of the need to reflect changes in the transmission business as well as the calculation of tariffs in a transparent and cost-reflective manner.
- 1.11 This document has been published under GB ECM-24 on the National Grid charging website at the following address:

<http://www.nationalgrid.com/uk/Electricity/Charges/modifications/uscmc/>

¹ http://www.nationalgrid.com/NR/rdonlyres/159DA04C-34E7-4B66-AA8C-BB0F4ABDEB56/40500/08_FurtherOffshoreChargingConsultation_TCMF_310310.pdf

2. Introduction

- 2.1 As the transmission licensee, authorised to co-ordinate and direct the flow of electricity onto and across the transmission system within Great Britain, National Grid has duties under the Electricity Act to develop and maintain an efficient, co-ordinated and economical transmission system and to facilitate competition in generation and supply.
- 2.2 Along with these high level duties, National Grid is obliged under its transmission licence:
- (i) to keep the Use of System Charging and Connection Charging Methodologies at all times under review
 - (ii) to make such modifications of the Use of System Charging Methodology as may be requisite for the purpose of better achieving the relevant objectives, which are:
 - (a) to facilitate effective competition in generation and supply;
 - (b) to result in charges which reflect, as far as reasonably practicable, the costs incurred by transmission licensees in their transmission businesses;
 - (c) in so far as is consistent with a) and b) above, as far as reasonably practicable, they properly take account of the developments in transmission licensees' transmission businesses.
 - (iii) to make such modifications of the Connection Charging Methodology as may be requisite for the purpose of better achieving the relevant objectives, which are:
 - (a) to facilitate effective competition in generation and supply;
 - (b) to result in charges which reflect, as far as reasonably practicable, the costs incurred by transmission licensees in their transmission businesses;
 - (c) in so far as is consistent with a) and b) above, as far as reasonably practicable, they properly take account of the developments in transmission licensees' transmission businesses;
 - (d) in so far as is consistent with a), b) and c) above, of facilitating competition in the carrying out of works for connection to the GB transmission system.
- 2.3 In addition to the relevant objectives above, the transmission licence also prohibits National Grid from discriminating against any User or class of Users unless such different treatment reasonably reflects differences in the costs of providing a service.
- 2.4 Before making a modification to the Use of System Charging or Connection Charging Methodology, National Grid is also required by the transmission licence to consult with CUSC Users on the proposed modification and allow

them a period of not less than 28 days within which to make written representations.

- 2.5 The consultation document, GB ECM-24 “Modification proposal to the Transmission Network Use of System Charging Methodology to update charging arrangements associated with Offshore Transmission Networks”, was published in April 2010.
- 2.6 The purpose of that document was to set out for consultation National Grid’s proposals for updates to the charging arrangements for offshore transmission networks, which have applied since the activation of the regulatory regime for offshore transmission in June 2009.
- 2.7 These proposals take the form of both straightforward clarifications to established arrangements in order to ensure transparency in the way they are applied in practice and proposed modifications to the arrangements, both with a view to better meeting the relevant transmission licence objectives set out above.
- 2.8 This report sets out the consultation responses, along with National Grid’s views and recommendation.

3. Terms of the Original Proposed Modification

Background

- 3.1 The introduction of the Offshore Transmission regime will create a number of Offshore Transmission Owners (OFTOs) responsible for building, owning and maintaining offshore transmission assets. The OFTO allowed revenue to fund these activities will be passed to the industry through Transmission Network Use of System (TNUoS) tariffs.
- 3.2 In the development of a competitive offshore regulatory regime Ofgem proposed that the current licence driven approach applied onshore would be an appropriate basis for developing offshore charging arrangements. As the designate offshore system operator National Grid has worked closely with Ofgem in developing the necessary changes to the industry framework to facilitate this regime, including those changes required to include charging for Users connected to offshore transmission networks.
- 3.3 In July 2007 National Grid issued a pre-consultation document² discussing the main issues that would need to be addressed in order to extend the application of the onshore charging regime offshore, followed by a consultation document² in December of that year setting out proposals to modify the Use of System Charging Methodology to implement a charging regime offshore. Subsequently, supplementary development was highlighted as being required and, after additional analysis and impact assessment, a further consultation document² was published by National Grid setting out final proposals in December 2008. This was followed, in the same month, by a conclusions report² to the Authority.
- 3.4 On the 30th of March 2009, Ofgem published their decision² not to veto National Grid's proposals as outlined in the aforementioned conclusions report, considering that the proposals had "a positive competitive effect".
- 3.5 The key features of these proposals included:
 - i) The extension of the concept of transmission 'local' and 'wider system' infrastructure assets, the costs of which are recovered under the TNUoS charging methodology.
 - ii) The extension of the application of existing principles in defining the boundary between 'local' and 'wider' infrastructure assets for the purposes of TNUoS charges, ensuring that an offshore generator is exposed to the incremental cost of both the local substation and local circuit assets on a cost reflective basis.
 - iii) The CUSC and STC will continue to set out 'customer choice' in defining the ownership boundary between generation circuits and the point of connection to the transmission network offshore. Subject to the conditions outlined in the NETS SQSS, this boundary can be set by agreement between NGET and the generator.

² All documents relating to the development of offshore charging arrangements to date are available on National Grid's website under GB ECM-08 at: <http://www.nationalgrid.com/uk/Electricity/Charges/modifications/uscm/>

- iv) The TNUoS charges for both onshore and offshore generation will continue to be levied on the basis of their booked capacity (i.e. currently, Transmission Entry Capacity) and both the offshore and onshore TNUoS tariff are structured to include the four charge elements, shown in Figure 1, below.

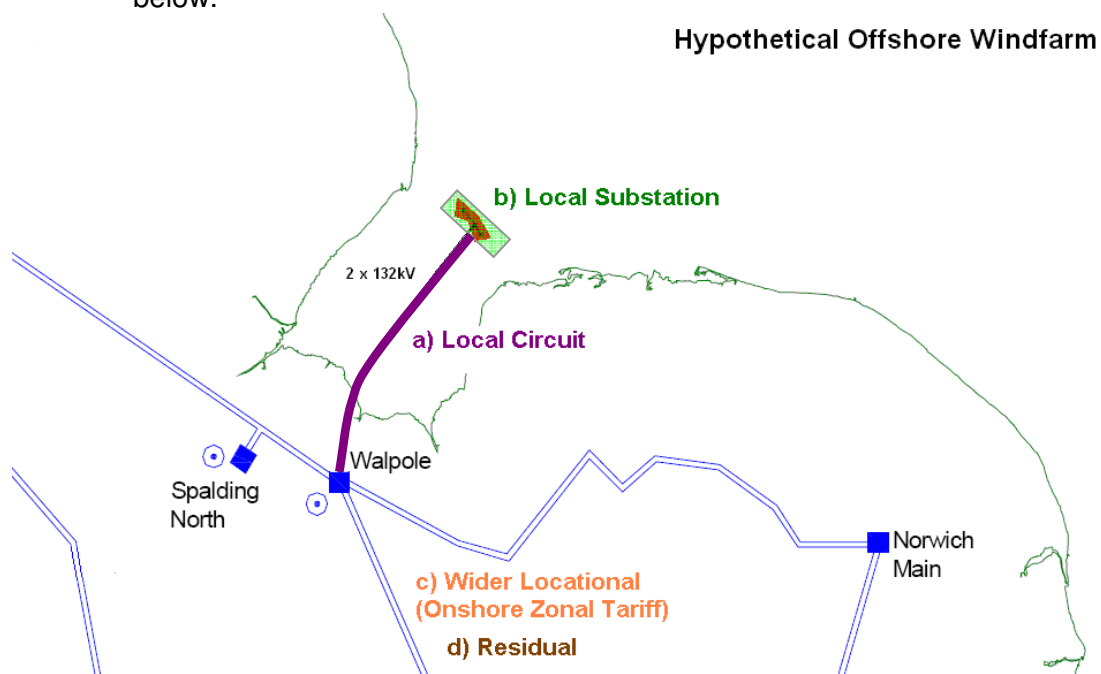


Figure 1 – Elements of Offshore TNUoS Tariff

- a) 'Local' circuit charge – relating to the cost of transmission infrastructure assets used by generators to connect to the MITS that will form part of the calculation of the specific expansion factor (includes the cable, reactive compensation and HVDC converters)
 - b) 'Local' substation charge – relating to the unit costs of the local infrastructure substation assets required for each connection (includes the transformer, switchgear and platform)
 - c) 'Wider' locational charge – calculated on the basis of zonal averaging approaches and the generic cost base for carrying unit power over a unit distance (i.e. the expansion constant)
 - d) Residual charge – comprising the residual non-locational element that ensures that the total income from TNUoS charges recover the relevant allowed revenue for all onshore and offshore transmission licensees (includes all elements of TO revenue not associated with locational assets)
- v) The majority of assets forming part of the offshore transmission network will be categorised as 'local' and recovered from the local circuit and local substation elements of the tariff. This will provide the generator with the appropriate incentive to make decisions that would minimise the overall cost.
- vi) Local elements of the tariff will be derived using the same principles as under the onshore arrangements whilst including the introduction of specific details necessary for calculating offshore tariffs ensuring that all incremental costs, apart from those associated with headroom in capacity, are targeted at the generator.

- a) Local circuit expansion factors and local circuit security factors will be defined for each OFTO.
 - b) The local substation tariff is based on both assets located on each OFTO platform and the platform structure itself, but will contain a discount to reflect the fact that the onshore substation tariff does not include civil costs.
 - c) The wider locational and residual tariffs are based on the existing calculation method.
- vii) Offshore generation will be added into the Transport & Tariff model in order to reflect its impact on the onshore transmission network.
- viii) The current split of revenue recovery between generation and demand (27%/73%) will be unchanged, so that OFTO revenue will be recovered from users of the transmission network as illustrated in Figure 2, below.

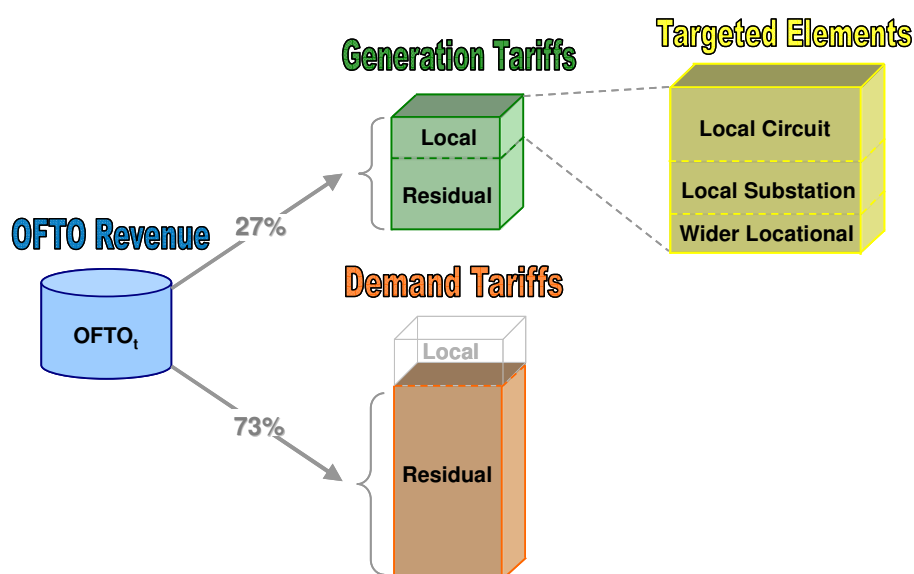


Figure 2 – Revenue Recovery Through TNUoS Tariff

- ix) For offshore transmission networks connecting directly to a distribution network onshore, the NETSO will be responsible for payment of charges for the connection to and use of the distribution network. This cost will be recovered directly from offshore generators through an Embedded Transmission Use of System (ETUoS) charge.
- 3.6 As outlined above, National Grid has previously consulted upon charging arrangements for offshore transmission networks and subsequently modified the methodology upon the non-veto of one of the options within the conclusions report by the Authority.
- 3.7 These arrangements were largely built upon the premise that offshore charging remain consistent with onshore charging as far as practicable and reasonable. Where offshore charging arrangements are not wholly consistent with those onshore, these differences are due mainly to the need to take into account the following physical differences between onshore and offshore transmission:
- Compared with onshore, offshore connections have a higher capital cost; and

- Compared to onshore, there is a wider variation in the size, cost and design of individual projects.
- 3.8 Following receipt of more detailed information about actual offshore projects that was not available at the time GB ECM-08 was developed, assessment of this information coupled with the differences outlined in 3.7, above, has led to the need for further revisions to the Use of System Charging Methodology.
- 3.9 When it has come to applying the methodology and utilising this data in practice, it has become clear that there are some areas that would benefit from clarification and modest revision of the methodology as well as other areas where the existing policy requires revision in order to best meet the relevant objectives.
- 3.10 The following clarifications and modifications are therefore brought forward in line with National Grid's obligation to keep the charging methodology under review.

Description of Proposed Clarifications to the Use of System Charging Methodology

- 3.11 Whilst National Grid believes that the clarifications contained within this section are useful in terms of increasing the transparency of how the charging methodology will be applied offshore, they are believed to be wholly consistent with the policy approved by the Authority on the 30th of March 2009 as outlined in paragraph 3.5 and 3.7, above.
- 3.12 Specifically, in its application of the methodology, National Grid will seek to expose individual users to the cost implications of their decisions as this will enable those parties to make efficient decisions on the location and design of their connection. This is aligned with National Grid's licence obligations as outlined in paragraph 2.2 (b), above.
- 3.13 Consistent with the approach outlined in 3.12 and the remainder of the obligations within the transmission licence, National Grid is proposing to clarify the following elements of how the Use of System Charging Methodology will be applied in practice for offshore users:
- i) The treatment of interest during construction (IDC) and project overheads for the purposes of calculating offshore tariffs;
 - ii) The treatment of offshore asset values and associated costs classified as 'Other' by developers of transitional projects in response to the information request circulated by National Grid;
 - iii) Through a revision of the text associated with offshore expansion factors, explicitly include the cost associated with converter stations into the local circuit component of the offshore tariff for HVDC connections.
- 3.14 The proposed changes to the text of the methodology also take the opportunity to replace the reference to the GBSO with National Electricity Transmission System Operator (NETSO), in order to retain consistency with other framework codes modified in the implementation of the offshore regime. Eight references are to be changed in total.

3.15 These proposals are described in more detail below, and proposed drafting of the required modifications to the Statement of the Use of System Charging Methodology are included as Appendix 1.

i) Treatment of IDC and Project Development Overheads

3.16 The offshore allowed revenue of transitional projects includes project financing costs during construction, as these costs are part of the transfer value of the offshore network and not allowed during construction as is the case for onshore transmission owners. As these costs are part of delivering incremental capacity offshore, it is National Grid's view that they should also be reflected locationally through the offshore tariff.

3.17 As a result, in calculating offshore tariffs, National Grid will include the cost of IDC within the offshore asset values, ensuring that the appropriate proportion is reflected in the locational signal. Where any IDC costs are not specifically attributable to a particular asset category they will be pro-rated across the various categories on the basis of the relative cost of each.

3.18 Project development overheads such as leases, surveys, design, project management and other similar costs will be treated in the same manner as IDC, above, as these costs are project specific and incurred only to provide incremental transmission capacity offshore and therefore should be reflected in the locational signal.

3.19 It is National Grid's view that asset values are a good proxy of how to target both IDC and project development overheads where more specific information is not available and that this approach remains consistent with the Authority's decision on GB ECM-08 and the principle outlined in 3.12, above.

ii) Treatment of Costs Classified as 'Other' by Developers of Transitional Projects

3.20 At the time of going out to consultation National Grid had requested information necessary for calculating charges from developers of transitional projects. After this initial information request it became clear that a greater proportion of cost was being lumped into an 'Other' category in some instances than had been anticipated. Often these costs were largely comprised of IDC and project development overheads.

3.21 This does not align with the intention of this category in the data request, which was simply to allow for a small proportion of the overall costs that were not attributable to a particular asset or category of expenditure by developers to be declared in their submissions. In light of further guidance provided by National Grid on how to value assets and associated costs, National Grid expected that there would be less need to use this category going forward.

3.22 Where some costs remain unable to be more appropriately allocated elsewhere, these will be pro-rated across the various asset categories on the basis of the relative cost of each in accordance with the principle outlined in 3.12, above.

iii) Inclusion of HVDC Converter Stations into Methodology Text

3.23 The conclusions report for GB ECM-08 proposed:

“The cost of offshore HVDC links are to be recovered through specific expansion factors, including the cost of converter stations, consistent with the proposed process for offshore AC circuits.”

3.24 National Grid proposes to revise the text associated with offshore expansion factors so that offshore circuit revenue associated with HVDC connections explicitly includes the revenue of the necessary converter stations, reflecting the position previously consulted upon and endorsed by the Authority under GB ECM-08.

3.25 The necessary revisions to the text of the Methodology are included in Appendix 1.

Description of Proposed Modifications to the Use of System Charging Methodology

3.26 In addition to the clarifications outlined above, National Grid is also proposing the following modifications to the Use of System Charging Methodology:

- i) Revise the method utilised for arriving at the platform rating (in kW) within the offshore substation local tariff calculation;
- ii) Outline explicitly the treatment of asset spares for the purposes of calculating the offshore tariff;
- iii) Include harmonic filter equipment in the offshore local circuit cost used to determine offshore circuit expansion factors;
- iv) Introduce a pass through of any historic DNO capital contributions that form part of the OFTO's tender revenue stream through ETUoS charges for transitional projects where relevant;
- v) Revise the methodology associated with the pass through of distribution charges not calculated by the DNO on the basis of a generators capacity (i.e. TEC) through ETUoS.

3.27 These proposals are described in more detail below.

i) **Platform Rating for Calculation of Offshore Substation Local Tariff**

- 3.28 The substation local tariff targets the incremental asset cost of the generator's local transmission substation. Although potentially sharable, offshore substation assets will only be used by offshore generators (as opposed to demand or for wider system reasons). In such circumstances, wholly consistent with onshore, it is appropriate that costs should be targeted at the relevant generators, rather than socialised over all users.
- 3.29 By reflecting costs through an infrastructure charge rather than connection charge, generators are protected both from the actions of other generators and from OFTO investment made for wider strategic reasons (in that the generator only pays for that proportion of the assets that it is using). The cost of capacity not used by the generator is recovered through the TNUoS residual, as is consistent with onshore arrangements.
- 3.30 The offshore substation tariff is calculated as the sum of transformer, switchgear and platform components. In order to reflect the 'utilisation' of capacity by a given generator each component is made up of the ratio of OFTO revenue (£) and post-fault continuous rating associated with the transformers, switchgear and the platform (kW) to arrive at a £/kW tariff.
- 3.31 As offshore platforms do not generally have an associated rating, GB ECM-08 decided that the transformer or switchgear rating provided a reasonable proxy for calculating a given generators utilisation of a platform.
- 3.32 Currently, the rating of the platform component is determined as the higher of the transformer and switchgear ratings.
- 3.33 National Grid is proposing that the platform rating be determined as the lower of the transformer and switchgear ratings on the basis that this will provide a better indication of platform utilisation than the existing methodology and therefore be more cost-reflective in nature.
- 3.34 Given the nature of switchgear, particularly circuit breakers, and their primary function of dealing with fault currents, it has become clear that utilising the higher of the transformer and switchgear ratings to determine the rating of the platform would be likely to lead to an overstatement of the maximum asset capability and thus unjustifiably increase socialisation of the offshore platform across all users.
- 3.35 This overstatement of the maximum asset capability is evident from analysis undertaken on data provided to NG by offshore project developers. Employing this data, the 'utilisation' (i.e. Generator TEC / Asset Rating) of the components making up the substation element of the tariff for an illustrative offshore generator can be calculated for both the existing and proposed methodology. These are shown in Table 1, below.

Table 1 – Illustrative Local Substation Asset Utilisation

Platform Rating Calculated on:	Average 'Utilisation' (TEC/Rating)		
	Switchgear	Transformer	Platform
<i>Existing Methodology:</i> Higher of Transformer and Switchgear	58%	74%	54%
<i>Proposed Methodology:</i> Lower of Transformer and Switchgear	58%	74%	78%

Note: Platform utilisation percentage numbers may appear counter-intuitive, but are a correct representation of the average effect across the data available to National Grid at the time of writing.

- 3.36 The level of socialisation that results from the existing methodology was not anticipated at the time the Authority decided not to veto GB ECM-08, partly due to the level of information available at that time.
- 3.37 Following receipt of more detailed information about actual offshore projects and subsequent assessment of this information, National Grid believes that the existing methodology could lead to inefficient investment decisions by developers and may at worst provide perverse incentives.
- 3.38 In order to address this concern National Grid's proposed modification would increase the asset utilisation of the platform (as defined in 3.33) by reducing the platform rating in the majority of cases. In turn, this would reduce the amount of headroom that is typically socialised on the offshore platform to a level more representative of actual platform design.
- 3.39 It is National Grid's view that this proposed modification would better meet the relevant objectives. Specifically that a change in the methodology, which applies the lower of the switchgear or transformer ratings to the platform element when calculating the tariff for an offshore generator, would result in charges which better reflect the user's utilisation of the offshore asset and the costs incurred by transmission licensees.
- 3.40 In an attempt to quantify the impact on tariffs of the proposed change in methodology, the same offshore data as referred to above was used to illustrate the average effect on the substation component of the offshore tariff and the overall local tariff. This is shown in Table 2, below.

Table 2 – Illustrative Impact on Local Element of Offshore Tariff

Local Tariff Component	Illustrative Tariff (£/kW)		
	Existing Methodology	Modification Proposal	% Change
Substation			
Switchgear	0.3	0.3	0
Transformers	1.7	1.7	0
Platform	7.9	10.7	35
Onshore Civils Discount	- 0.4	-0.4	0
Total	9.5	12.3	29
Substation + Circuit *			
Total	28.7	32.6	14*

* The nature of the local circuit component means that it is likely to be much more variable than the local substation component. For this reason, the % change will reduce for projects located further from the onshore interface point.

3.41 As a result of an increase in costs targeted to offshore generators (i.e. that are no longer funded by all users of the transmission network through the residual), the local substation element of the tariff of an illustrative offshore generator is likely to increase in the region of 29%, whilst the impact on the overall local tariff component could be in the region of 14% based on the information presented. This percentage increase on the overall local component is highly dependent on the length of the offshore circuit, amongst other assumptions, and both numbers should therefore be treated as illustrative in nature.

ii) Treatment of Asset Spares

3.42 Unlike onshore, many of the asset spares can only be deployed to a particular offshore system due to non-standard specifications. As such, National Grid is proposing to include the OFTO revenue associated with asset spares into the tariff component with which it is associated.

3.43 Therefore in terms of the local substation component, transformer spares would form part of the revenue associated with the transformer element, switchgear spares would form part of the revenue associated with the switchgear element and all remaining offshore substation spares would fall under the platform element.

3.44 It follows that any spares associated with reactive compensation and/or the circuit from the platform to the first onshore substation would be included in the local circuit component. Likewise, OFTO revenue linked to any spares associated with the first onshore substation will be recovered through the residual element of the tariff.

3.45 National Grid notes that, based on data provided by developers of transitional projects, the percentage of the total asset value of these projects associated with asset spares is approximately 0.3%. Whilst this figure may change for enduring projects, the overall impact of the proposed modification is likely to remain relatively small.

3.46 It is National Grid's view that this proposed addition to the methodology would better meet the relevant objectives and result in tariffs that are more reflective of the costs incurred by transmission licensees.

iii) Treatment of Harmonic Filtering Equipment

3.47 Harmonic distortion is a change in the voltage waveform from its ideal sinusoidal form (at 50Hz in Great Britain) due to the connection of non-linear loads to the system. Some of the associated adverse effects include the heating of induction motors, transformers and capacitors. Levels of harmonic distortion must therefore be kept within acceptable levels on the electricity transmission network in order to prevent damage to equipment. This can be achieved through the use of harmonic filtering equipment.

3.48 Inverters used within power electronics to recreate AC waveforms are an example of such a non-linear load, introducing harmonic distortions onto the network.

3.49 The major components of an offshore generation connection that comprise power electronics will generally be the wind turbines themselves (for almost all technologies in use offshore today), HVDC converters when the connection to shore is a DC rather than AC one, and reactive compensation equipment such as SVCs that are thyristor controlled.

3.50 As such, given the location specific nature of the above components and the association of this equipment with assets that already form part of the locational element of the offshore tariff, National Grid proposes to treat all harmonic filtering equipment in a similar manner as reactive compensation equipment and HVDC converter stations.

3.51 This is consistent with the treatment of harmonic filtering equipment onshore, which is normally owned, and therefore funded, by the User.

3.52 It is proposed that all OFTO revenue associated with harmonic filtering would be included in the calculation of the offshore expansion factor for the local circuit component of offshore tariffs.

3.53 It is National Grid's view that this proposed addition to the methodology would better meet the relevant objectives and result in tariffs that are more reflective of the costs incurred by transmission licensees.

iv) Pass Through of Historic DNO Capital Contributions Forming Part of an OFTO's Tender Revenue Stream

3.54 At the time of drafting the charging methodology to accommodate the offshore regulatory regime, it was not envisaged that distribution charges would form part of the OFTO's tender revenue stream at any point. Therefore, the methodology is unable to deal with this situation.

3.55 In order to amend this, National Grid proposes to alter the methodology to ensure that all distribution charges are passed through to the offshore generator in the manner that was originally intended through GB ECM-08.

3.56 National Grid believes that this is consistent with charging cost-reflectively and bringing forward amendments to reflect developments.

v) ETUoS for Single DNO Charge Relating to Multiple Generators

3.57 The current text of the methodology indicates that:

“Where a DNO’s charge relates to more than one offshore generator, the related ETUoS charge will be pro-rated based on the TEC of the relevant offshore generators connected to that offshore network.”

3.58 The charging and access framework for electricity transmission does not currently distinguish between different generation technologies. However, in developing common distribution charging methodologies, it is likely that a DNO’s tariff will differ for generators with distinctive load factors.

3.59 Therefore, pro-rating ETUoS on the basis of TEC is unlikely to achieve the intended outcome due to differences in between the nature of transmission and distribution tariffs.

3.60 Although the distribution charging methodologies have not been finalised at the time of writing, National Grid believes that it is prudent to establish how distribution charges relating to two generators of different technologies can be passed through from the NETSO to the offshore generator in the manner that was originally intended through GB ECM-08.

3.61 From discussion with DNOs, it is likely that they will be able to provide the NETSO with sufficient information to distinguish each charge by generator so that a straight pass through should be possible.

3.62 National Grid is proposing to alter the text within the methodology to reflect this straight pass through to the relevant offshore generators. Pro-rating based on the TEC will continue to form the backstop method for pass through where no better information is available to the NETSO.

3.63 National Grid believes that this is consistent with charging cost-reflectively and bringing forward amendments to reflect developments.

Operational Costs Associated with Reactive Power Provision at the Onshore Interface Point

3.64 The consultation document published in April presented options for the treatment of operational costs associated with reactive compensation equipment provided by the OFTO at the onshore interface point as a condition of Section K of the SO-TO Code.

3.65 At a high level, the consultation considered the options of remunerating these costs through either a balancing services payment or a relevant discount to the offshore use of system tariff. The document also presented National Grid’s current thinking that the TNUoS discount approach was preferable due, largely, to the contractual difficulties surrounding the alternative.

3.66 Whilst National Grid is grateful for the views provided by some respondents, conclusions on this particular issue will not form part of the proposals within this conclusions report, as stated in the consultation document. Rather it is National Grid’s view that this issue would benefit from further development of potential options and that this would be better taken forward outside the remit of the charging methodology in the first instance.

Implementation Date

3.67 Subject to the Authority's power to veto this modification proposal, National Grid intends to make the proposed changes to the Transmission Network Use of System Charging methodology 28 days after the submission of this report to the Authority, unless the Authority has either:

- directed National Grid that the modification shall not be made; or
- notified National Grid that it intends to undertake an impact assessment, in which case implementation will be a date three months after having been provided that notification, unless the Authority has directed National Grid not to implement the modification.

Proposed Changes to the Charging Methodology

3.68 All required changes to the Use of System Charging Methodology as a result of the proposals contained within this report are provided in Appendix 1.

Impacts on Other Industry Documents

3.69 The proposed modification will not require amendments to other industry documents.

4. Responses to the Proposed Modification

4.1 National Grid published a consultation document in April 2010 setting out proposals to modify the charging arrangements for offshore transmission networks across the following 8 broad categories:

- Treatment of IDC and Project Overheads
- Treatment of Assets Classed as 'Other'
- Inclusion of HVDC text
- Calculation of the Platform Rating for the Local Substation Component
- Treatment of Asset Spares
- Treatment of Harmonic Filtering Equipment
- Treatment of Historic DNO Contributions for Transitional Projects
- Calculation of Embedded Transmission Use of System

4.2 National Grid received 8 written responses to this consultation document, which can be found on the National Grid charging website along with industry responses.

<http://www.nationalgrid.com/uk/Electricity/Charges/modifications/usmc/>

Summary of Responses

4.3 Of the 8 responses received, the general sentiment was split between constructive feedback on the proposals put forward and high level comments on the principles upon which the offshore regime and TNUoS charges in particular are constructed.

4.4 A summary of the overall sentiment of each respondent towards the proposals consulted upon is shown in Table 3. Where general support for proposals was conditional (for example, on the provision of additional information), this is indicated in the table by a grey, rather than a green or red, mark and addressed in the discussion below.

Table 3 – Summary of Responses

Proposal	Respondent							
	Renewable UK	RES	SP Renewables	Vattenfall	Dong	Centrica	Eon	RWE
IDC & Overheads	-	-	-	✗	✗	✓	✓	✓
Treatment of 'Other'	-	-	-	-	✓	✓	✓	✓
HVDC text	-	-	-	-	✓	✓	✗	✓
Platform Rating	-	✗	-	✗	✗	✗	✓	✗
Asset Spares	-	-	✗	-	✗	✓	✓	✓
Harmonic Filtering	-	-	✗	-	✓	✓	✓	✓
Historic DNO Contributions	-	-	-	-	✗	✓	✓	✓
ETUoS for multiple Generators	-	-	-	-	✓	✓	✓	✓

- 4.5 Of those who expressed concerns about the overall principles of how tariffs are put together, one respondent believed that the principle of targeting costs seemed more important to National Grid than consistency with onshore or reflecting the costs of generators decisions. In addition, this respondent indicated concern that the offshore regime – including the charging regime – continues to be dismissive of the risks and uncertainties being placed on generators.
- 4.6 Another respondent, although unable to comment on specific points raised in the consultation, noted that the charging methodology was one of the key factors in enabling the Government’s ambitions of maximising offshore renewable generation. This respondent also noted that the existing regime led to very high charges for offshore generators compared with onshore and may not be appropriate for more complex Round 3 projects. To address this, the respondent has indicated that they are currently in the process of an industry wide consultation to establish a single preferred solution.
- 4.7 A further respondent questioned whether the existing TNUoS charging methodology was still appropriate, citing the importance of realistic, sustainable and transparent charging signals to the generation market and the impact of charges on investor confidence.
- 4.8 Four of the eight respondents indicated that further analysis on the potential impact of the proposed changes and additional industry engagement was required before changes could be implemented, whilst two respondents commented that changes to the methodology late in the process were unwelcome.

National Grid’s Response

- 4.9 The GB Use of System Charging Methodology has a range of objectives as set out in Licence Condition C5 and outlined in paragraph 2.2. In making modifications to the methodology National Grid must take all the relevant objectives into account, including charging cost reflectively and promoting effective competition. As the former seeks to facilitate the latter, National Grid does not believe it is possible to favour one over the other.
- 4.10 National Grid understands that stable and predictable charges are important for generators when making investment decisions given the uncertainty already inherent in such a decision. However, for the benefit of all electricity consumers, these principles must be balanced with those of the need to reflect changes in the transmission business as well as the calculation of tariffs in a transparent and cost-reflective manner to ensure parties make efficient investment decisions. This does not change National Grid’s modification proposal.
- 4.11 Whilst National Grid is keen to engage and help facilitate the government’s policy objectives around renewable and low carbon generation technology, it is not clear that TNUoS charges are the optimum vehicle for providing incentives for investment in this area due to the non-targeted way in which benefits would fall onto users of the transmission network who are both renewable and non-renewable. Ultimately, the provision of incentives is an issue for Government and a change in the direction alluded to by one respondent is likely to require a change to National Grid’s Transmission Licence. National Grid is happy to discuss and engage in any ‘industry wide consultation’ but has not yet been

approached on this matter. This representation does not change National Grid's view in regards to this modification proposal.

- 4.12 The electricity industry is currently going through a period of significant change. It is necessary for TNUoS charges to change along with wider industry developments to remain effective and relevant. Increased uncertainty is an unavoidable element of change which must be managed by all parties. In making changes to the charging methodology, National Grid makes every effort in an attempt to balance the need for change versus the benefits of stability and certainty for investors. National Grid does not agree it is necessary to alter the proposals outlined within this report as a result.
- 4.13 National Grid does not believe that further analysis and industry engagement are necessary in order to progress the modification proposals put forward in this report, which were originally discussed at a high level in the Transmission Charging Methodologies Forum (TCMF)³ in March 2010, albeit not in a great amount of detail. It is National Grid's view that these proposals are consistent with the principles established under GB ECM-08 and that the level of analysis presented within the consultation was sufficient given the quantity of representative data available, the commercial sensitivity of this data (resulting in the use of averages) and impact of the proposed changes on tariffs. Using average data for representative transitional projects, the local substation + local circuit element of the charges would increase from £32.5 per kW to £35.3 per kW; an increase of ~9% as illustrated in Table 4, below.

Treatment of IDC and Project Overheads

- 4.14 All but one of the respondents who addressed this issue agreed with the proposed treatment of project overheads and four of the five were also broadly supportive of the treatment of interest during construction (IDC) as a pragmatic approach. Two of the five indicated that further evidence was required of the treatment of IDC and project overheads onshore.
- 4.15 The one respondent who was unsupportive of the proposed treatment of IDC believed that this cost should be socialised as they understood that this occurs onshore. This respondent went on to note that they believed these proposals to be discriminatory and failing to promote effective competition between onshore and offshore generators.
- 4.16 Another respondent, who was unsupportive of the proposed treatment of project overheads, appeared to misunderstand the intention behind National Grid's clarification on this matter as they believed that all these costs would be included in the revenue associated with the local circuit component. This respondent indicated that they believed National Grid was being "too hasty in allocating these costs".
- 4.17 One respondent, who was supportive of the proposal, suggested that sufficient flexibility should be applied in the application of the proposed methodology such that these costs could be rationalised across more than one OFTO network. Another, who was also supportive, believed that the proposals should be incorporated into the text of the Statement of the Use of System Charging Methodology.

³ http://www.nationalgrid.com/NR/rdonlyres/159DA04C-34E7-4B66-AA8C-BB0F4ABDEB56/40500/08_FurtherOffshoreChargingConsultation_TCMF_310310.pdf

National Grid's Response

- 4.18 National Grid is pleased to be able to provide additional clarity of how costs will be treated for offshore tariff setting within the existing agreed methodology and believes in the principle of transparency. Should these clarifications not be vetoed by the authority, they will be included within the methodology text as suggested by one respondent in order to maximise transparency for users.
- 4.19 Onshore the allowed rate of return is a component of the annuity factor, which is used to convert the cost of capital projects into expansion factors representing the annual marginal cost of network expansion⁴. As the respondent who disagreed with the clarification correctly points out, the allowed rate of return is decided at each price control review period and is primarily based on a company's Weighted Average Cost of Capital (WACC). This respondent went on to outline their view that this process is not related to the Transmission Owner's (TO) investment profile and that the proposal is therefore not consistent with onshore. National Grid does not agree with this view as TOs will generally finance their activities through funds sourced from either the debt or equity markets. The premiums required by these investors, which are borne by TOs during construction (i.e. before assets form part of their regulatory asset base and attract a rate of return), are therefore akin to IDC and directly related to the WACC assumptions and rate of return agreements reached at each price control.
- 4.20 Therefore, National Grid is of the view that the targeting of IDC onto the various asset categories to which they relate is neither discriminatory nor introducing a disparity between offshore and onshore generators in a way that is unrelated to the differences in the cost of providing the service. This representation does not change National Grid's view in regards to this element of the modification proposal.
- 4.21 National Grid also does not agree that the proposals for the treatment of project development overheads were conceived in a "hasty" manner. As these are specific costs associated with providing incremental capacity offshore, National Grid believes that allocating these to all OFTO assets is appropriate and consistent with the relevant licence objectives.

Treatment of Costs Classified as 'Other'

- 4.22 Further information has been received from developers of transitional projects since the publication of the consultation document, within which a much smaller proportion of cost has been allocated to 'other' for the vast majority of projects. Unavoidably, a small proportion of cost is likely to continue to fall into this category and a clarification on this issue is therefore useful in promoting transparency of how National Grid will use information to set tariffs.
- 4.23 All of the respondents who addressed this issue specifically, agreed with National Grid's proposal in this area. Again, the fact that a change to the methodology text may be prudent for this issue was highlighted by one respondent.

⁴ As outlined in paragraph 2.36 of the The Statement of the Use of System Charging Methodology

- 4.24 In addition, one respondent noted that it was important to allow shared costs to be put forward in a different category if expenditure had benefited other users.

National Grid's Response

- 4.25 National Grid has received no convincing representations indicating that the treatment of costs categorised as 'other' should not be treated as per the clarification outlined within this report.
- 4.26 As with IDC and project overheads, above, these proposals will also be included in the methodology text subject to a non-veto by the Authority and are included in Appendix 1 for reference.
- 4.27 It is National Grid's view that where shared costs have benefited other users the proposed treatment of costs classified as other, by pro-rating across the various asset categories used in the calculation of tariffs, would sufficiently account for this.

Inclusion of the Treatment of HVDC Converter Stations into Text

- 4.28 Three of the four respondents who addressed this issue specifically agreed with the inclusion of the treatment of HVDC converter stations into the text of the methodology.
- 4.29 The one respondent who did not agree with the proposal noted that they continued to disagree with the treatment of HVDC converters as they believed it to be inconsistent with the treatment of different technologies onshore (such as 275kV and 400kV).

National Grid's Response

- 4.30 National Grid continues to believe that different operating voltages of HVAC technology onshore are not directly comparable to HVDC technology. Whilst the per unit £/MWkm cost of an HVDC cable is lower compared to an AC circuit, this has to be considered alongside the additional cost of the converter stations that are required to convert from an AC waveform to DC transmission. Consequently without the full signal being reflected upon the user, the 'break even' circuit length, at which HVDC becomes the most efficient and economic technology will be artificially distorted and shortened.
- 4.31 Consequently, National Grid believes that the original policy of including HVDC converter stations within the local circuit component of the offshore tariff should remain and be included in the methodology text as proposed.

Calculation of Offshore Platform Rating

- 4.32 Of the representations received, one respondent agreed with the proposals, five explicitly disagreed whilst two did not comment.
- 4.33 The respondent supporting the proposed modification indicated that they agreed that the existing method is likely to overstate the capability of the platform.

4.34 Of those who did not support the modification proposal, the reasons given for this included:

- i) The proposals could have a material impact on charges for offshore transmission upon which investment decisions have already been made with further analysis and industry consultation required as a result;
- ii) Further analysis required due to significant impact on Round 3 projects;
- iii) The utilisation of switchgear and transformer ratings to calculate platform utilisation is arbitrary in nature;
- iv) The methodology does not take into account the benefits a third party would receive through spare platform capacity when connecting at a later date;
- v) Adjustments to the amount of costs reflected in the offshore generator's tariff represents a 'windfall gain' to generators located onshore;
- vi) The illustrative percentage increase in tariffs of 14% may be understating the increase for individual projects significantly;
- vii) Example tariffs given are highly speculative at this stage since NGET does not yet know the required revenue streams of the OFTOs to be appointed;
- viii) The decrease in the level of socialisation of the local substation element would not alter consumer's exposure to OFTO revenues due to the 27%/73% revenue split;
- ix) For transitional projects Ofgem will be making the decision on whether the developer has made an economic and efficient investment decision and for enduring projects the developer cannot decide on the amount of spare capacity;

National Grid's Response

4.35 Since the publication of the consultation it has come to National Grid's attention that there was a discrepancy in the illustrative tariff numbers for overall impact on the local component (Substation + Circuit) which would result in a knock-on effect to the % change in this element. This discrepancy was in relation to the local circuit element only and therefore has an effect on the overall impact for comparison, but not the platform element in isolation. The updated figures are shown in Table 4, below.

Table 4 – Revised Illustrative Impact on Local Element of Offshore Tariff

Local Tariff Component	Illustrative Tariff (£/kW)		
	Existing Methodology	Modification Proposal	% Change
Substation			
Switchgear	0.3	0.3	0
Transformers	1.7	1.7	0
Platform	7.9	10.7	35
Onshore Civils Discount	- 0.4	-0.4	0
Total	9.5	12.3	29
Circuit			
Total	23	23	0
Substation + Circuit *			
Total	32.5	35.3	9*

* The nature of the local circuit component means that it is likely to be much more variable than the local substation component. For this reason, the % change will reduce for projects located further from the onshore interface point.

4.36 The updated figures (in Table 4) show a reduction in the average percentage increase in the local component of the tariff when compared to those presented within the consultation published on April 2010 (in Table 2). However, given the indicative nature of the data available to National Grid and the sensitivity of the percent increase to the size of the circuit component this change does not change the original proposal within the April 2010 consultation outlined in 3.33.

4.37 Although Table 4 shows the average percentage increase in the local component of the tariff as 9%. In considering this illustrative impact on tariffs, it is also informative that the median, of the transitional projects utilised in this analysis, is a 7% increase.

4.38 National Grid will address the points raised by respondents in turn, below. Due to the number of individual concerns, each are addressed in a succinct manner:

- i) A significant amount of industry debate and consultation took place during the implementation of the offshore regime, including on issues related to charging. The modification proposal is, in National Grid's view, consistent with the Authority's determination on GB ECM-08. Therefore it is our belief that the level of industry discussion and consultation undertaken on this proposal was appropriate.
- ii) National Grid has a licence obligation to keep the methodology under review and will continue to monitor developments in Round 3 and assess whether any changes are required, as and when the nature of the required changes becomes clear. In National Grid's view, this should not stop the implementation of changes that have been identified and are well defined.
- iii) Inherently any method that attempts to calculate the rating of a platform will require a pragmatic approach. The calculation of platform rating based on consideration of the switchgear and transformer ratings is an example of such an approach and was endorsed by the Authority through GB ECM-08. In the majority of cases switchgear ratings will be used under the existing methodology. As National Grid believes that the nature of switchgear

ratings (due to the function of switchgear) will over estimate the capacity available to another user on the platform, the proposed modification alters the implementation of the existing method in order to facilitate greater cost-reflectivity.

- iv) The purpose of utilising the OFTO revenue associated with the platform, dividing by an asset rating and subsequently multiplying this by the TEC of the generator is to allow any spare capacity available to be socialised across all generation users of the system. Any generator utilising this spare capacity in future will also be required to pay their proportion of the OFTO revenue associated with the platform based on their TEC and the initial user would be unaffected. This is consistent with the relevant objectives of the transmission licence.
- v) Whilst it is true that an increase in the locational element of offshore generators charges will reduce the generation residual paid by all generators (due to the 27%/73% split as illustrated in Figure 1), it is erroneous to suggest that this represents a windfall gain for onshore generators. All generators, both offshore and onshore, pay the residual in equal proportions based on their TEC value. In other words, the locational differential between generators is not effected by the resultant reduction in the residual, so effective competition between generators is increased as a result of this proposal due to increased cost-reflectivity.
- vi) The consultation noted an illustrative average increase in the local tariff component (i.e. substation + cable costs) of 14% across a sample set of transitional projects. Upon revision of the figures to correct an inconsistency noted after the consultation was published (related only to the cable costs), this average figure is now 9%. It is true that for a very small number of projects the percentage increase in the local portion of the tariff may be greater than this. As projects locate further from shore in future, this percentage will decrease further because the circuit is a greater proportion of the local cost. National Grid believes the possible range in tariff increases, due to the increased cost reflectivity of the proposal, do not change the proposed recommendation.
- vii) National Grid has taken a view of OFTO revenue requirements in undertaking this analysis. This is one of the reasons that potential tariff increases were presented as “illustrative”. It is not believed that these assumptions have a material impact on the proposed modification to increase cost reflectivity.
- viii) Although a decrease in socialisation would not alter the TNUoS paid by demand users, parties operating in a market with effective competition will pass through their costs onto consumers through the price of their product. Therefore, in the end, the consumer is likely to benefit from increased cost-reflectivity resulting from the proposed modification.
- ix) As with onshore, Ofgem will decide whether a transmission owner’s expenditure (or proposed expenditure in the case of an OFTO) is economic and efficient. This effectively sets the allowed revenue of the TO, but does not impact on the allocation of this revenue to users of the network in the form of tariffs. If the developer cannot decide on the level of spare capacity on the platform, National Grid believes it is prudent that they should not pay for that spare capacity through their use of system tariff. The modification

proposed, simply ensures that the portion that is recovered through the tariff more accurately reflects the capacity that is likely to be spare and is therefore an incremental improvement in cost-reflectivity.

Treatment of Asset Spares

- 4.39 Of the five respondents who commented specifically on this issue, three were supportive and two were against the proposed modification.
- 4.40 Those supportive indicated that it was important for offshore asset spares to be ring-fenced so that they could not be utilised elsewhere on the transmission system whilst others that did support the proposal considered that the treatment of asset spares should remain flexible in future when it was more likely that an OFTO could hold spares for use across multiple offshore networks.
- 4.41 Of those who were not supportive of the proposals, there was an indication that some developers had taken care to ensure common designs were utilised which would result in cost savings. This respondent considered that the way in which OFTOs are appointed, coupled with National Grid's proposals on asset spares, undermines this benefit.

National Grid's Response

- 4.42 National Grid understands, as one respondent pointed out, that in future OFTOs may choose to keep spares to cover more than one project. Notwithstanding this National Grid continues to believe that the proposed modification is pragmatic and cost reflective for existing designs and will continue to keep the methodology under review in line with the obligation to do so under the transmission licence.
- 4.43 It is National Grid's view that the proposal for the treatment of asset spares would actually increase, rather than undermine, the benefit to developers of ensuring common design elements. Generally, the purchase of standardised assets is accompanied by prices reflective of the increased availability of these products. Under the proposals put forward in this report, the impact of these savings will be reflected back to the developer due to their increased cost reflectivity. In addition National Grid believes that, in bringing forward the proposed modification, transparency is improved. Therefore, the proposal for the treatment of asset spares has not been altered as a result of this representation.

Treatment of Harmonic Filtering Equipment

- 4.44 Five respondents addressed this issue in total. Three of these indicated they were supportive of the modification proposal, one commented their support was conditional on the provision of further information relating to the locational nature of harmonic filtering, whilst one respondent did not support National Grid's proposal.
- 4.45 The respondent who did not support National Grid's proposal believed that the need for harmonic equipment, and therefore the costs, could vary significantly across projects and may also be dependent on the actions of other developers in the area.

National Grid's Response

- 4.46 It is National Grid's view that the need to include harmonic filtering equipment into the local circuit element of the tariff is reinforced by the fact that costs could vary significantly across projects. Reflecting these costs onto the generator should lead to more efficient investment decisions.
- 4.47 Incremental distortions to the voltage waveform at the onshore interface point are a direct result of the power electronics contained within the wind turbines and OFTO network where HVDC is utilised. It is true that projects connecting at different substations in a similar area of the network can have an effect on each other in terms of the impact on the background level of harmonic distortion on the system and the proximity to the overall limit.
- 4.48 The spread of harmonic distortion across the network is dependent on the characteristics of the network and the nature of the distortions introduced by a particular project. Despite this, onshore generators directly own any harmonic filtering equipment required in order to maintain Grid Code compliance. Therefore, National Grid believes it is cost reflective and consistent that these costs should be targeted at the offshore generator through the local circuit element of the tariff.

Historic DNO Capital Contributions

- 4.49 Of the 4 respondents who addressed this issue, three were supportive and one did not believe that the proposed modification was correct as currently proposed.
- 4.50 The respondent who did not agree, accepted the logic of National Grid's approach to 'pass through' all (or part of) the cost associated with historic DNO capital contributions, but did not agree with the way the OFTO's tender revenue stream would potentially be pro-rated to the DNO capital asset values. The basis of this disagreement stemmed from the fact that the OFTO's rate of return included the OFTO's profit, overhead and maintenance costs as well as the financing cost. This respondent believed that only the later should feature in the calculation of the ETUoS portion of the offshore generators tariff.

National Grid's View

- 4.51 Whilst, in theory, National Grid can see why it may not be appropriate to levy the OFTO's overheads and maintenance costs onto the ETUoS portion of the offshore generators tariff for generators connected to embedded transmission, the materiality of this issue is questionable.
- 4.52 Relative to the gross asset value (GAV) of the offshore network, the proportion accounting for historic DNO capital contributions of a representative project is minimal (typically 5%). Therefore, if in addition one assumes that approximately 5% of the OFTO's allowed revenue is associated with operational costs, the materiality of the issue can be illustrated at 5% of 5% of the OFTO's annual revenue requirement. For an illustrative project with a GAV

of £100m and an assumed cost of capital of 9%⁵, this would amount to an impact on tariffs of approximately 0.17 £/kW.

- 4.53 To achieve this small change National Grid would need to receive a disaggregated figure of the various components of the revenue stream so that overheads and maintenance could be removed from the revenue associated with historic capital contributions when calculating the ETUoS portion of the tariff.
- 4.54 It is National Grid's view that, given the materiality of this issue, the original proposed modification should remain. This allows for the passing through of the relevant costs to the generator by introducing a methodology for doing so that is cost-reflective in nature.
- 4.55 Nevertheless, National Grid will continue to review the relevance of the representation made as more data is available in future.

ETUoS for Single DNO Charge Relating to Multiple Generators

- 4.56 All four of the respondents who addressed this issue, were broadly supportive of the proposed modification as a pragmatic approach to this issue.
- 4.57 Two respondents indicated that further clarification on the nature of the ETUoS charges was required. In particular that National Grid and DNOs should be able to justify any charge to be levied on offshore generators.

National Grid's View

- 4.58 National Grid believes that the existing methodology (paragraph 5.25) is quite clear that the ETUoS charge "reflects the charges levied by the DNO for the costs of any works on and use of the DNO network *in accordance with the DNO's charging statements...*". As the DNO's charging statements are produced in accordance with the distribution licences and are regulated by the Authority, National Grid does not believe this to be an issue. The original proposed modification should not change as a result.

⁵ The assumed cost of capital of 9% utilised here is simply an estimate utilised by National Grid as one possible value out of a range of possible outcomes. 9% is equivalent to the mid-range figure used in the assessment of GB ECM-21 "Changing Tariffs Mid-year", available on National Grid's website.

5. Changes to the Proposals in Light of Representations Made

- 5.1 As a result of recommendations made through responses to the consultation, National Grid considers that it is appropriate to include clarifications on the treatment of IDC and project overheads, as well as the treatment of costs classified as 'other' in developer data submissions, into the text of the methodology.
- 5.2 Inclusion into the text will increase transparency in how tariffs are calculated. These changes are included in Appendix 1.

6. How the Proposals Better Meets the Licence Objectives

- 6.1 National Grid's proposal to modify the TNUoS Charging Methodology for offshore generators connecting onto the offshore transmission network better meets the relevant objectives in Licence Conditions C5 5(a), C5 5(b) and C5 5(c). Namely to ensure National Grid applies charges which facilitate effective competition in generation and supply, to reflect, as far as reasonably practicable, the costs incurred by transmission licensees in their transmission businesses and properly takes account of the developments in transmission licensees' transmission businesses.
- 6.2 The nature of how each separate element of the proposed modification better meets the relevant objectives is outlined in some detail in both Section 3 'Terms of the Original Proposed Modification' and Section 4 ' Responses to the Proposed Modification', above. More generally, these are outlined below.

C5 5(a) Facilitating Competition

- 6.3 It is National Grid's view that the proposed modification better facilitates competition in generation and supply. The following paragraphs address each of the proposed modifications in turn.
- 6.4 Transparency in how charges will be calculated is increased for clarifications put forward on the treatment of interest during construction (IDC), project overheads and costs classified as 'other'. This increased transparency will allow users to better factor these costs into their decision making and therefore lead to an improvement in competition.
- 6.5 The inclusion of the previously approved methodology for the treatment of HVDC converters will have the same benefits as those outlined above for the treatment of IDC, project overheads and costs not attributable to specific asset categories.
- 6.6 Improvements are made through altering the methodology by which offshore platform ratings are calculated, resulting in an increase in the cost reflectivity of the local substation element of offshore tariffs, thereby promoting efficient behaviour and better facilitating competition;
- 6.7 Transparency and predictability of offshore tariffs are increased by providing an explicit methodology for the treatment of asset spares and the calculation of ETUoS for multiple generators, thus better facilitating competition between users;

- 6.8 Levelling the playing field between offshore and onshore generators by alignment of the treatment of harmonic filtering equipment, through targeting associated costs directly at offshore generators in the local circuit element of the tariff, with arrangements onshore;
- 6.9 Finally, effective competition is also promoted by the introduction of a methodology for passing historic DNO capital contributions, caused by the generator, through the ETUoS element of the offshore tariff.

C5 5(b) Cost Reflectivity

- 6.10 In addition to better facilitating effective competition, it is National Grid's view that the proposed modification also increases the cost reflectivity of the extant arrangements to charge for assets local to generation connections. As above, the following paragraphs address each of the proposed modifications in turn.
- 6.11 In outlining that OFTO costs not easily attributable to a given asset category would be apportioned on a pro-rated basis for IDC, project overheads and costs classified as 'other', these proposals represent a more cost-reflective methodology;
- 6.12 Through the inclusion of the previously approved treatment of HVDC converters as part of the local circuit element of offshore tariffs into the methodology text, the benefits of cost-reflectivity can be realised by allowing users to better incorporate the associated cost signals into investment decisions.
- 6.13 The proposed revision to the methodology for calculating the rating of the offshore platform will have the effect of producing tariffs that are more reflective of actual utilisation, and therefore incremental impact on capacity required taking into account spare capacity available for other users;
- 6.14 By allocating the cost of spares to the asset category with which they are associated, this proposal will ensure that costs are targeted more appropriately;
- 6.15 Increased cost reflectivity is achieved in recognising that harmonic filtering equipment is specific to a given project and should therefore be recovered through the local circuit element of TNUoS as occurs onshore;
- 6.16 As historic DNO capital contributions are actual costs previously incurred by generators, cost reflectivity is improved by reflecting these actual costs in the ETUoS portion of the offshore tariff;
- 6.17 Through recognising that DNO charges may vary depending on generator technology and that transmission charges (based on Transmission Entry Capacity) currently do not, the ETUoS portion of the offshore tariff would be more cost reflective by mirroring any variable treatment of generators of a different technology in DNO charges.

C5 5(c) Developments in Transmission Business

- 6.18 The modification proposed takes account of developments in the Transmission Licensees' transmission business as it represents an update to the method for calculating use of system tariffs for offshore generators based on additional information gathered from developers and a review of the actual designs of offshore projects since the approval of GB ECM-08.

7. Timetable for Implementation

7.1 Subject to the Authority's power to veto this modification proposal, National Grid intends to make the proposed changes to the Transmission Network Use of System Charging methodology 28 days after the submission of this report to the Authority, unless the Authority has either:

- directed National Grid that the modification shall not be made; or
- notified National Grid that it intends to undertake an impact assessment, in which case implementation will be a date three months after having been provided that notification, unless the Authority has directed National Grid not to implement the modification.

Appendix 1: Proposed drafting of the Statement of the Use of System Charging Methodology for Clarifications and Changes

Amend the 'Offshore Circuit Expansion Factors' section of Chapter 2 of the Statement of the Use of System Charging Methodology, inserting the red coloured underlined text and deleting the red coloured struck through text, as shown below. Text altered as a result of clarifications only is marked in blue for reference.

Offshore Circuit Expansion Factors

2.50 Offshore expansion factors (£/MWkm) are derived from information provided by OFTOs for each offshore circuit. Offshore expansion factors are OFTO and circuit specific. Each OFTO will periodically provide, via the STC, information to derive an annual circuit revenue requirement. The offshore circuit revenue shall include revenues associated with the OFTO's reactive compensation equipment, harmonic filtering equipment, asset spares and HVDC converter stations.

2.51 In the first year of connection, the offshore circuit expansion factor would be calculated as follows:

$$\frac{CRevOFTO1}{L \times CircRat} \div \text{Onshore 400kV OHL Expansion Constant}$$

Where:

CRevOFTO1	=	The offshore circuit revenue in £ for Year 1
L	=	The total circuit length in km of the offshore circuit
CircRat	=	The continuous rating of the offshore circuit

2.52 In all subsequent years, the offshore circuit expansion factor would be calculated as follows:

$$\frac{AvCRevOFTO}{L \times CircRat} \div \text{Onshore 400kV OHL Expansion Constant}$$

Where:

AvCRevOFTO	=	The annual offshore circuit revenue averaged over the remaining years of the onshore <u>GBSO National Electricity Transmission System Operator (NETSO)</u> price control
L	=	The total circuit length in km of the offshore circuit
CircRat	=	The continuous rating of the offshore circuit

2.53 Prevailing OFTO specific expansion factors will be published in this statement. These shall be re-calculated at the start of each price control when the onshore expansion constants are revisited.

Amend the 'Offshore substation local tariff' section of Chapter 2 of the Statement of the Use of System Charging Methodology, inserting the red coloured underlined text and deleting the red coloured struck through text, as follows:

Offshore substation local tariff

- 2.73 All offshore chargeable generation is subject to an offshore substation tariff. The offshore substation tariff shall be the sum of transformer, switchgear and platform components.
- 2.74 Each tariff component, expressed in £/kW, shall be the ratio of the OFTO revenue (£) and rating associated with the transformers, switchgear or platform (kW) at each offshore substation. The OFTO revenue of each tariff component shall include that associated with asset spares. In the case of the platform component, the relevant rating shall be the ~~higher~~ lower of the transformer or switchgear ratings. As with the offshore circuit expansion factors, the OFTO revenue associated with each tariff component shall be averaged over the remaining years of the GBSO NETSO price control.
- 2.75 OFTO revenue associated with interest during construction and project development overheads will be attributed to the relevant asset category with which it is associated. If these or any other costs included in the OFTO revenue are not readily attributable to a given asset category, they will be pro-rated across the various asset categories based on their relative cost.
- 2.76 For 2010/11 a discount of £0.345590/kW shall be provided to the offshore substation tariff to reflect the average cost of civil engineering for onshore substations. This will be inflated by RPI each year and reviewed every price control period.
- 2.77 Offshore substation tariffs shall be inflated by RPI each year and reviewed every price control period.
- 2.78 The revenue from the offshore substation local tariff is calculated by:

$$SLTR = \sum_{\text{All offshore substations}} \left(SLT_k \times \sum_k Gen_k \right)$$

Where:

SLT_k = the offshore substation tariff for substation k
 Gen_k = the generation connected to offshore substation k

Renumber existing paragraphs 2.79 onwards accordingly.

Amend the 'Embedded Transmission Use of System Charges "ETUoS" ' section of Chapter 5 of the Statement of the Use of System Charging Methodology, inserting the coloured underlined text and deleting the coloured struck through text, as follows:

Embedded Transmission Use of System Charges "ETUoS"

- 5.24 The ETUoS charges are a component of Use of System charges levied on offshore generators whose offshore transmission connection is embedded in an onshore distribution network. The charge relates to the provision and use of the onshore distribution network.
- 5.25 The main purpose of ETUoS charges is to pass through the charges that are levied by the DNO on the GBSO NETSO to the offshore generator(s). This charge reflects the charges levied by the DNO for the costs of any works on and use of the DNO network in accordance with the DNO's charging statements and will include, but is not limited to, upfront charges and capital contributions in respect of any works as well as the ongoing and annual Use of System charges for generation connected to the distribution network.
- 5.26 In the case of some relevant transitional offshore generation projects, ETUoS will also be used to pass through historic DNO capital contributions forming part of the OFTO tender revenue stream.
- 5.27 The specific nature of the ETUoS charge and the payment profile for these will depend upon the charging arrangements of the relevant DNO and reference should be made to the relevant DNO's charging statement. In terms of applicable transitional offshore generation projects the ETUoS payment profile will be consistent with the recovery of the OFTO revenue stream.
- 5.28 Where a DNO's charge relates to more than one offshore generator, the related ETUoS charge will represent a straight pass through of the distribution charge specific to each relevant offshore generator. Where specific information is not available, charges will be pro-rated based on the TEC of the relevant offshore generators connected to that offshore network.
- 5.29 Invoices for ETUoS charges shall be levied by the GBSO NETSO on the offshore generator as soon as reasonably practicable after invoices have been received by the GBSO NETSO for payment such that the GBSO NETSO can meet its payment obligations to the DNO. The initial payments and payment dates will be outlined in a User's Construction Agreement and/or Bilateral Agreement.
- 5.30 As the ETUoS charges reflect the DNO charges to the GBSO NETSO, such charges will be subject to variation when varied by the DNO. Where the User disputes regarding the ETUoS charge please note that this will result in a dispute between the GBSO NETSO and DNO under the DCUSA.

Renumber existing paragraphs 5.31 onwards accordingly.