PRE-CONSULTATION DOCUMENT

GB ECM-05

For the modification to the Use of System charging methodology to cater for manifest data errors in the calculation of TNUoS tariffs

June 2006

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1 Executive Summary

This pre-consultation document identifies the main options available for modifying the TNUoS charging methodology to provide a mechanism by which Transmission Network Use of System (TNUoS) tariffs can be reconciled in the event that a manifest error results in a material change to a User's annual TNUoS charge.

The options identified in this document are by no means exhaustive and National Grid welcomes all industry views. The document has been published on the National Grid charging website at the following address:

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

2 Introduction

National Grid is obliged under its Transmission Licence:

(i) to make revisions to the Charging Statements in order that the information set out in the statements shall continue to be accurate in all material respects;

(ii) to keep the Use of System Charging Methodology at all times under review;

(iii) 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 the generation and supply of electricity and (so far as is consistent therewith) to facilitate competition in the sale, distribution and purchase of electricity;

  (b) to result in charges which reflect, as far as reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and in accordance with the STC) incurred by transmission licensees in their transmission businesses; and

  (c) that, so far as is consistent with sub-paragraphs (a) and (b), the Use of System charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses.

Before making a modification to the Use of System 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.

The purpose of this document is to set out for pre-consultation the options available to modify the Statement of the Use of System Charging Methodology to cater for manifest errors in the calculation of TNUoS tariffs, considering the relevant objectives in Standard Licence Condition C5 5(b) of calculating charges which reflect the costs incurred by the transmission licensees in their transmission businesses and of Condition C5 5(c) of taking account of the developments in the transmission licensees' transmission businesses.

3 Background

The 2005/06 charging year saw the implementation of the British Electricity Trading and Transmission Arrangements (BETTA) and the calculation of TNUoS tariffs for Great Britain (GB) for the first time, based on a network dataset provided by each of the three Transmission Licensees.

Some time following the publication of TNUoS tariffs for 2005/06, it was brought to the attention of National Grid that the data used in the Direct Current Load-Flow (DCLF) Transport Model used to calculate the tariffs contained a significant error.

The DCLF Transport Model used to calculate tariffs contained two composite 275kV circuits between Dalmally and Cruachan, comprising 8.1km of 275kV cable and 0.4km of 275kV overhead line per circuit. Further data was subsequently provided by the relevant TO however, which indicated that the two circuits are actually made up of 8.1km of 275kV overhead line per circuit, and 0.4km of cable per circuit.

The impact of including cable lengths in the DCLF Transport Model instead of overhead line is to effectively 'stretch' the length of the circuit by the higher expansion factor used for 275kV cable and this results in a significantly higher marginal km figure for the relevant node. In this instance, the effect was so significant that generation at Cruachan was allocated a TNUoS generation charging zone of its own for 2005/06 in order to meet the generation zoning criteria set out in the Statement of the TNUoS Charging Methodology.[1] Had the correct data been used, Cruachan would have been incorporated into an alternative TNUoS generation charging zone with a lower £/kW TNUoS generation tariff.

The current TNUoS charging methodology does not provide a mechanism by which TNUoS charges can be reconciled in the event that a manifest error such as that described above, is identified and results in TNUoS charges that may no longer be viewed as cost reflective and in accordance with National Grids relevant licence obligations. This pre-consultation document seeks industry views on the most appropriate way forward for developing and implementing such a mechanism.

4 Issues for discussion

TNUoS generation and demand tariffs are calculated on an annual basis using the DCLF Investment Cost Related Pricing (ICRP) Transport and Tariff Model. Using MWkm as the measure, the Transport Model calculates the marginal costs of investment in the transmission system which would be required as a consequence of an increase in demand or generation at each connection point or node on the transmission system, based on a study of peak conditions. Hence, marginal costs are estimated initially in terms of increases or decreases in units of kilometres (km) of the transmission system for a 1MW injection to the system.

[1] http://www.nationalgrid.com/uk/Electricity/Charges/chargingstatementsapproval/

The Transport Model requires a set of inputs representative of peak conditions on the transmission system including:

- nodal generation information;
- nodal demand information;
- electrical parameters of transmission circuits between nodes; and
- the associated lengths of these routes and the proportion of which is overhead line or cable.

The nodal generation data for the Transport Model is derived from the GB interim Seven Year Statement (SYS) published by National Grid, which will contain the contracted generation Transmission Entry Capacity (TEC) and include all notification of changes in generating capacity received by the end of October 2005. The contracted TECs in the GB SYS include all plant belonging to generators who have a Bilateral Agreement with the TOs. For example, the nodal generation data for 2006/07 charges is based on the forecast for 2006/07 in the 2005 GB SYS plus any data included in the quarterly updates to October 2005.

Nodal demand data will be based on GSP demand that Users have forecast to occur at the National Grid Peak Average Cold Spell (ACS) demand.

Transmission circuit data is based on data taken from National Grid's GB SYS complemented with October updates. If certain circuit information is not explicitly contained in the GB SYS, National Grid uses the best information available.

National Grid believe that the use of GB SYS data in the DCLF Transport Model to calculate nodal marginal km provides a high level of transparency for Users in identifying how TNUoS tariffs are calculated and consequentially, this increases the likelihood that any errors in the data will be identified.

The implementation of BETTA represented a significant change to the TNUoS charging methodology and resulted in the transfer of large volumes of data between National Grid and the TOs. Considering that the Cruachan-Dalmally circuit example appears to be the first error of its kind which has resulted in a material impact on a Users annual TNUoS charge, National Grid believe that errors of this nature are likely to be very much the exception rather than the rule as the implementation of BETTA and the associated data requirements should be considered as unique circumstances.

Nevertheless, National Grid feel that it is appropriate that a transparent mechanism is developed and implemented which would ensure that the charging methodologies facilitate appropriate reconciliation in the event of any further manifest errors that result in material changes to the annual TNUoS charge of a User. In order to establish the most appropriate mechanism, National Grid invites views from the industry on the following issues:

1. Definition of a manifest error.
2. Materiality.
3. Period eligible for reconciliation.
4. Mechanics of reconciliation.

4.1 Definition of a manifest error

In developing a modification to the charging methodology to cater for manifest errors in the calculation of TNUoS tariffs, it must first be determined what exactly constitutes a manifest error.

As the data required to calculate TNUoS tariffs using the DCLF Transport Model is taken from the October update to the GB SYS, a manifest error could take the form of any of the following:

1. An error in the contracted TEC of a generator provided by the relevant TO.
2. An error in a Users GSP demand forecast.
3. An error in the transmission circuit data provided by the relevant TO.
4. An error in the subsequent input of GB SYS data into the Transport Model.

TNUoS tariffs are calculated to be effective from 01 April in any charging year based on data included in the October update to the GB SYS of the preceding year. It is therefore foreseeable that both the contracted TEC of a generator and a Users GSP demand forecast could change between these dates. In order to comply with National Grid's licence obligations of providing sufficient notice of changes to a User's TNUoS tariff however, there has to be a cut off point where tariffs are calculated based on the best view of the demand and generation backgrounds for the forthcoming charging year. In consideration of this, it might be inappropriate to consider either of these circumstances as constituting a manifest error as this could create perverse incentives on a User to manipulate the information that they disclose in the preparation of the GB SYS.

Considering the specific circumstance which has driven this pre-consultation, it is clearly appropriate to consider that the provision of circuit data between TOs could result in a manifest error. As has previously been highlighted however, these circumstances should be considered very much a one-off as a complete dataset of circuit information was required in full in preparation for BETTA. Any subsequent changes to circuit data are likely to be only incremental and will not involve the communication of similar volumes of data. In the calculation of TNUoS tariffs for future years, it is therefore anticipated that manifest errors in the determination of transmission circuit data are much less likely to occur.

As the GB SYS is used as the basis for data used in the DCLF Transport Model, it is clear that any mistake in populating the Transport Model with GB SYS data by National Grid should be considered as a manifest error. National Grid believe that the only circumstance in which the data contained in the Transport Model should differ from that contained in the GB SYS is when National Grid are aware of a discrepancy in the GB SYS which would have a detrimental impact on the cost reflectivity of TNUoS tariffs. Where this is the case, National Grid seek to ensure that future publications of the GB SYS are subsequently updated to reflect the data used in the calculation of tariffs.

In addition to the DCLF Transport Model, the tariff model used to calculate annual TNUoS tariffs for a User has a number of inputs including the global locational security factor, expansion constant, maximum allowed revenue and the revenue split between Generation and Demand. National Grid believes that any error in the input of these figures should be considered as a manifest error.

4.2 Materiality

The issue of materiality could be considered in the following ways:

1. As an absolute value of a Users annual TNUoS charge.
2. As an absolute value of a Users TNUoS tariff.
3. As a percentage of a Users annual TNUoS charge.
4. As a percentage of a Users TNUoS tariff.

Section 11.3 of the CUSC defines a "material effect" as:

> *An effect causing **The Company** or a **Relevant Transmission Licensee** to effect any works or to alter the manner of operation of **Transmission Plant** and/or **Transmission Apparatus** at the **Connection Site** or the site of connection or a **User** to effect any works or to alter the manner of operation of its **Plant** and/or **Apparatus** at the **Connection Site** or the site of connection which in either case involves that party in expenditure of more than £10,000.*

In the case of reconciling TNUoS charges as a result of a manifest error, National Grid does not believe that £10,000 as set out in the CUSC, should be the basis for determining whether or not the impact of a manifest error is sufficiently material to undergo a reconciliation process.

The example below identifies the scale of the error involved in the measurement of a 275kV cable which would result in a £10,000 error in the annual TNUoS charge of a 100MW generator, whilst the table identifies similar lengths involved for generators with various levels of TEC.

Example

Materiality:	£10,000
Generator TEC:	100MW
275kV Cable Expansion Factor:	20.701
Global Locational Security Factor:	1.8
Expansion Constant (£/MWkm):	10.069080/MWkm

£10,000 / 100MW	=	£100.00/MW
(£100.00/MW / 1.8 / 10.069080)	=	5.517 Marginal km
5.517 / 20.701	=	0.266km
	=	266.53 metres

TEC (MW)	**100**	**500**	**1000**	**1500**	**2000**
Error in Length of measurement of 275kV cable (metres)	266.5	53.3	26.7	17.8	13.3

The table illustrates that an error of only 26.7 metres in the measurement of a 275kV cable, could result in a £10,000 error in the calculation of the annual TNUoS charge for a 1000MW generator. Hopefully this demonstrates that the CUSC definition of material is clearly inappropriate in determining whether a manifest error is material, as the margins for error involved are so small.

Clearly, the greater the volume of generation capacity involved, the greater will be the impact of a manifest error in the calculation of tariffs on a generators annual TNUoS charge. The determining of an absolute value of a Users annual TNUoS charge may therefore not be the most appropriate criteria when determining whether a manifest error is material. The use of this criteria alone, might be considered as discriminating between Users on the grounds of the volume of TEC and thus contravene National Grid's License Condition C7 regarding discriminating between Users.

It might be more appropriate to consider materiality in terms of a percentage of a Users TNUoS tariff, although this approach also has its downfalls. The setting of an arbitrary percentage of a Users TNUoS tariff could result in the reconciliation of very small values for those Users with only marginally positive or negative TNUoS tariffs. The use of an arbitrary percentage of a Users annual TNUoS charge as a measure of materiality has similar downfalls, although a possible solution for both approaches would be to use the additional criteria of a de minimis level of a Users annual TNUoS charge.

Perhaps the most appropriate criteria for determining whether a manifest error is sufficiently material to trigger the requirement for reconciliation, is that of using an absolute value of a Users TNUoS tariff. This approach could be applicable for all demand and generation TNUoS charging zones and would not discriminate against a User on the grounds of the volume of TEC. Admittedly, the determination of an appropriate absolute value would be somewhat arbitrary, but National Grid believes this to be the most appropriate option available and welcomes industry views on what might be an appropriate method of calculating a value which minimises the level of arbitrariness. As a starting figure for discussion, National Grid believes that an absolute value of +/- £1.00/kW should be considered as material in line with the current generation zoning criteria.

It is the view of National Grid that the issue of materiality should be considered on the same grounds regardless of whether a manifest error impacts on the TNUoS tariff of a User positively or negatively.

4.3 Period eligible for reconciliation

Having determined that a manifest error has resulted in a material change to a Users annual TNUoS charge/tariff, it is necessary to consider the duration over which this should be eligible for reconciliation.

National Grid believe that the transparency which results from the use of publicly available GB SYS data in the DCLF Transport Model significantly enhances the probability that a manifest error will be identified within the charging year in which it occurs. National Grid therefore believe that for a reconciliation of TNUoS tariffs to be undertaken due to a manifest error, the manifest error should be identified within the

same charging year and any subsequent identification beyond this period will not be eligible for reconciliation retrospectively.

National Grid also believe that it would be inappropriate to undertake a process of reconciliation for any manifest errors which are not identified within the relevant charging year due to the revenue recovery implications involved, but welcome the views of the industry on this subject.

4.4 Mechanics of reconciliation

Having identified a manifest error in the calculation of TNUoS tariffs that has a material impact on a User, it is necessary that an appropriate mechanism for a reconciliation process is considered. Such a mechanism might take the form of any of the following options:

1. Within-year reconciliation of TNUoS tariffs.
2. Post-year reconciliation in line with the current TNUoS reconciliation mechanisms used for generation and demand.
3. Post-year reconciliation as a one-off payment.

In accordance with Standard Licence Condition C4, except where the Authority consents to a shorter notice period, National Grid are required to give 150 days notice to the Authority of any proposals to change Use of System charges. Considering this, and the timescales that would be involved in identifying a manifest error and the consequential impact on all affected Users, National Grid do not believe that a within-year reconciliation option would be achievable in most circumstances. Additionally, National Grid believes that it is in the interest of Users for TNUoS tariffs to remain stable throughout a charging year and as such, a post-year reconciliation process would be more suitable.

For post-year reconciliation, National Grid believe that the most appropriate option would be to undertake a reconciliation process similar to that which currently prevails for demand Users and generation Users in negative TNUoS generation zones, where this is practicable. The process for this is set out in the Statement of the TNUoS Charging Methodology and Section 3 of the CUSC. It is anticipated that an amendment to the CUSC will be required to facilitate reconciliation as a result of the identification of a material manifest error.

For affected demand Users, this would involve an initial reconciliation stage for both HH and NHH demand, followed by a final reconciliation using the final demand reconciliation data taken from the final reconciliation settlement run or the final reconciliation volume allocation run. For materially affected generation Users, as TNUoS tariffs are calculated based on TEC, not metered volumes, a single reconciliation could take place in line with the timescales involved in the current reconciliation process for generation located in negative TNUoS generation charging zones.

Where reconciliation due to a manifest error within the framework of the current TNUoS reconciliation process is not practicable, a post-year reconciliation in the form of a one-off payment may be the most suitable solution.

Regardless of the mechanism for reconciliation, National Grid believe that it will be appropriate for all variances in allowed revenue resulting from the reconciliation of TNUoS tariffs as a result of a manifest error, to be passed through and recovered via the 'K_t' term contained in section AA5A of National Grid's Transmission licence, which represents the correction factor to deal with the over/under recovery of maximum allowed revenue.

5 Responses to this pre-consultation

Comments and views are invited on all of the issues raised in this pre-consultation document. To ensure that your comments and views are considered as part of National Grid's forthcoming consultation document, responses must be received by close of business on Friday 14 July 2006.

If you wish to provide comments on this pre-consultation document, responses are welcome via email to: Craig.Maloney@uk.ngrid.com

Alternatively, Users can send their comments in writing, addressed to:

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