

GB Transmission Charging: Initial Thoughts

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1 Executive Summary

This document provides a preliminary view of the transmission charging methodologies to be proposed for Great Britain (GB) following implementation of the British Electricity Trading and Transmission Arrangements (BETTA). This consultation forms part of the ongoing BETTA project of work being undertaken to establish the contractual arrangements for a GB wholesale electricity market. BETTA is proposed to be implemented no later than April 2005.

National Grid is undertaking this consultation in its role as initial GB system operator (GBSO). The process by which National Grid was assigned this role and its nature is described in Section 2 below.

It is not the aim of this consultation document to provide a full GB transmission charging methodology for consultation. Rather, this consultation aims to provide an initial overview of the issues to be discussed and resolved in the development and finalisation of the charging methodologies. As such the initial indicative TNUoS Charges set out in the Appendix to this document merely represent the effects of extending the England and Wales principles to GB.

National Grid intends to provide indicative GB connection charges to relevant Users and further indicative TNUoS tariffs and generation zoning in 2004, following this consultation and discussions with Users.

National Grid is seeking views on the issues contained in this document. The deadline for responses is 30 January 2004.

2 Introduction

The rationale for the reforms proposed for BETTA is set out in Ofgem's December 2001 consultation paper¹ and an Ofgem/DTI May 2002 report². There have been a number of additional consultations since these initial papers that have focussed on the development of GB versions of major industry documents and associated required changes to the relevant electricity licences. Details of all of the aforementioned consultations are available on Ofgem's website³.

2.1 Legislation

In addition to the changes proposed to industry documents, new legislation is required in order to implement BETTA. The relevant legislation is contained within the Energy Bill, which must pass through the parliamentary process and be granted Royal Assent before implementation. The Queen's Speech on 26 November 2003 announced the Government's intention to ring forward a bill on energy matters in the coming session of Parliament. The Energy Bill was subsequently introduced to Parliament in the House of Lords on 27 November 2003 and received its first reading (and publication on the UK Parliament website)⁴. A second reading of the Bill took place on 11 December 2003 in the House of Lords after which, should approval be granted, it should pass to the House of Commons for a similar approval process. Implementation of the legislation relating to BETTA within the Energy Bill is subject to the Energy Bill being approved by both Houses and granted Royal Assent in its entirety. The timing of implementation will be subject to parliamentary timescales and the granting of Royal Assent by July 2004, but the published intention is to implement BETTA no later than April 2005⁵.

2.2 Role of GBSO

One of the key features of the BETTA reforms is the appointment of a GB system operator (GBSO). In August 2002, Ofgem/DTI invited applications for the role of GBSO and received one application from National Grid. On 17 December 2002, Brian Wilson, Minister for Energy and Construction, stated that he was minded to accept the recommendation that National Grid's application for GBSO should be accepted⁶. Henceforth and until such time that the Energy Bill is given Royal Assent, within this document National Grid is referred to as "initial GBSO", meaning that National Grid is the GBSO designate.

In August 2003, Ofgem/DTI published a consultation⁷ (the August 2003 consultation), in which they indicated that it would be the responsibility of the GBSO to develop charging proposals in light of the proposed transmission licence obligations, which

¹ The Development of British Electricity Trading and Transmission Arrangements (BETTA): A consultation paper, December 2001

² The Development of British Electricity Trading and Transmission Arrangements (BETTA): Report on consultation and next steps, May 2002

³ www.ofgem.gov.uk

⁴ Energy Bill available at <http://www.publications.parliament.uk/pa/ld200304/ldbills/002/2004002.htm>

⁵ See Hansard, HC Deb 15 January 2003, C646W at www.publications.parliament.uk/pa/cm200203/cmhansrd/vo030115/text/30115w11.htm#30115w11.html_sbhd2

⁶ See Hansard, HC Deb, 17 December 2002, C46WS at http://www.publications.parliament.uk/pa/cm200203/cmhansrd/vo021217/wmstext/21217m02.htm#21217m02.html_spm1

⁷ Transmission Charging and the GB Wholesale Electricity Market: Part 1: An Ofgem/DTI consultation on changes to transmission licences to implement GB transmission charging under BETTA, August 2003

would be subject to approval by Ofgem prior to implementation. This was confirmed in Ofgem/DTI's conclusions to Part 1 of the August 2003 consultation⁸ (the Part 1 conclusions document November 2003). It is therefore in its role as initial GBSO that National Grid is undertaking this first GB transmission charging methodologies consultation.

2.3 Framework for Transmission Charging

In the August 2003 consultation, Ofgem/DTI set out their views on the framework that should be adhered to in order to provide a consistent basis for charging that will facilitate competition across GB. The framework centres on the usage of the Transmission Licence as a tool to ensure transparency and flexibility of the charging methodologies on a GB basis. Ofgem/DTI believe that usage of the Transmission Licence obligations in this manner will be an appropriate model for setting charges on a GB basis as it has a proven track record of creating such transparency and flexibility in England and Wales.

As mentioned in the previous section, Ofgem/DTI propose that the GBSO should be responsible for setting charges on a GB basis and maintaining the GB charging methodologies and statements. In line with the current framework, Ofgem will be responsible for approving the initial set of charging methodologies under BETTA. Ofgem/DTI also propose, in the August 2003 consultation, that the licence obligations currently in force for National Grid under the terms of its licence should form the basis for the regulation of the GBSO's transmission charges. Ofgem/DTI restate their support for this proposal in the Part 1 conclusions document⁹. The relevant licence obligations were included in Appendix 1 to Part 1 of Ofgem/DTI's August 2003 consultation document, available on Ofgem's website¹⁰. The main elements of the obligations would require the GBSO to:

- have in place a use of system charging methodology statement approved by the Authority, and ensure that all use of system agreements accord with the approved methodology
- keep its use of system charging methodology under constant review and make such changes as may be required for the purpose of better achieving the relevant objectives. Proposed changes must be consulted upon by the licensee and approved by the Authority
- publish a statement of use of system charges approved by the Authority in sufficient detail to enable any person to make a reasonable estimate of the charges they would face, and give the Authority not less than 150 days notice of proposals to change its published charges together with a reasonable assessment of the effect of the proposals (if implemented) on those charges
- ensure that its use of system charges are non-discriminatory, and do not have the effect of restricting, preventing or distorting competition in generation, supply, transmission or distribution

⁸ Transmission Charging and the GB Wholesale Electricity Market – Ofgem/DTI conclusions on Part 1: Changes to transmission licences to implement GB transmission charging under BETTA, December 2003

⁹ See paragraph 4.40 on page 20 of the Part 1 conclusions document

¹⁰ www.ofgem.gov.uk

- have in place a connection charging methodology statement approved by the Authority, and ensure that all connection agreements accord with the approved methodology
- keep its connection charging methodology under constant review and make such changes as may be required for the purpose of better achieving the relevant objectives. Proposed changes must be consulted upon by the licensee and approved by the Authority
- publish a statement approved by the Authority in sufficient detail to enable any person to make a reasonable estimate of the charges they would face and setting out charges for various types of connection work
- offer terms for connection to any party and to offer terms for use of system to any authorised electricity operator
- ensure that charges for connections made after 30 March 1990 are set at a level that enables the GB system operator to recover an appropriate proportion of the costs incurred and a reasonable rate of return, and to ensure that charges for connections made before 30 March 1990 are set, as far as practicable, on the same basis, and
- where disputes in respect of connection or use of system agreements have been referred to the Authority for determination, to modify the agreement where necessary in line with any determination.

National Grid believes that Ofgem/DTI's proposal to use the obligations contained within its existing Transmission Licence as a basis for a framework for regulating GB charging is appropriate. National Grid will therefore bear in mind its existing licence obligations contained in Supplementary Standard Conditions C7, C7A, C7B, C7C, C7D and C7E when developing the initial GB charging methodologies.

As noted by Ofgem/DTI in its August 2003 consultation and Part 1 conclusions document, National Grid is currently undertaking a review of its connection and use of system charging methodologies. In the aforementioned documents, Ofgem/DTI propose that the initial basis for consultation on GB charging methodologies should be the charging arrangements that are currently in place in England and Wales. National Grid agrees with Ofgem that the England and Wales methodologies would be an appropriate basis for consultation on the GB charging methodologies. National Grid also welcomes Ofgem/DTI's decision not to curtail the England and Wales consultation process on the grounds that it does not conflict with the principles or the timescale for developing GB charging arrangements.

Although a decision has not yet been reached on the outstanding transmission charging methodology modification proposals for England and Wales (CCM-M-07 and UoSCM-M-10), National Grid has assumed their implementation in its baseline for the GB methodologies, in line with the Ofgem/DTI statement in the Part 1 conclusions document¹¹. Further information on the proposals and the assumptions made is provided in Section 3 of this document.

¹¹ See paragraph 5.13 on page 31 of the Part 1 conclusions document

2.4 Impact of associated BETTA Consultations

In the drafting of this consultation document, National Grid has been mindful of ongoing consultations in other key areas of the BETTA development project that might impact on this consultation. The relevant consultations are described below.

In August 2003, Ofgem/DTI published a consultation on Transmission charging and the GB Wholesale Electricity Market. Part one of the consultation set out requirements for implementing the transmission charging element of the BETTA reforms and considered relevant changes to transmission licences. This consultation closed on 3 October 2003 and Ofgem/DTI published its conclusions on Part 1 of the consultation in December 2003. In the consultation document, Ofgem/DTI outlined the framework within which a charging regime should be developed and a number of issues to be considered in the development of proposals for GB charging methodologies. The conclusions document detailed responses to the matters raised in Ofgem/DTI's August 2003 consultation and revealed overall support for the framework proposed. At the time of writing the DTI have yet to publish their conclusion on Part 2 of the consultation that specifically invited comments on transmission charging in the context of the Government's policy objectives for growth in renewables. However, the eventual conclusions will be taken into account in the Initial Charging Methodologies Consultation, planned for publication in March 2004.

In November 2003, Ofgem/DTI published a consultation on issues pertaining to small generators under BETTA¹² (the Small Generators consultation). The document discusses different ways in which the implementation of BETTA might impact on small generators and sets out proposals in certain key areas. The consultation is due to close on 15 January 2004. In the document, Ofgem/DTI set out a number of issues and proposals which they state will be reflected in National Grid's initial charging consultation document.

National Grid has reviewed the consultation and conclusions documents, particularly those elements which might impact on the development of GB transmission charging methodologies, with the intention of including relevant issues within this consultation. Section 3 of this document contains further detail on the issues and proposals for their treatment within the GB charging methodologies.

¹² Small Generator Issues under BETTA: An Ofgem/DTI Consultation Document, November 2003

3 Implementation of E&W Methodologies for GB

In the August 2003 consultation and Part 1 conclusions document, Ofgem/DTI propose that the initial basis for consultation on GB charging methodologies should be the charging arrangements that are currently in place in England and Wales. National Grid agrees that the England and Wales methodologies would be an appropriate basis for consultation on the GB charging methodologies.

In line with this guidance, this section of the consultation provides a high level guide to the existing charging methodologies in place in England and Wales and summarises recent modifications proposed to these charging methodologies for implementation from 1 April 2004. It should be noted that these proposals are currently under consideration by the Authority and remain subject to Ofgem veto.

In addition, this section provides an initial view of how the existing/proposed England and Wales methodologies could be implemented on a GB basis. It also highlights relevant issues raised by Ofgem/DTI in their August 2003 and Small Generators consultations, in line with the recommendation that these issues be reflected in National Grid's GB transmission charging initial thoughts consultation in order to inform debate.

3.1 Connection Charging Methodology

3.1.1 Existing Connection Charging Methodology

The existing Connection Charging methodology for E&W was approved by the Authority for implementation from 1 April 2003. The methodology is described in the Statement of the Connection Charging Methodology, Issue 3, Revision 1, published on National Grid's Charging website¹³. A high level overview of the methodology is provided below.

Connection charges are designed to recover the costs incurred in providing assets which afford connection of one or a group of Users to the transmission system, with a reasonable rate of return. The existing methodology sets out the principles for defining the boundary between connection and infrastructure charges, which are levied through Transmission Network Use of System (TNUoS) charges, described in the following section. As a general guideline, National Grid's substation assets will fall within the connection category and spur circuits will fall outside. The exception to this rule is where the spur is only required to connect generation or in the case of multiple spurs, which serve to connect both generation and demand, and where not all these circuits are required by security standards to serve DNO demand, then the more costly circuits are classed as connection for charging purposes. This type of connection is referred to as a generation only spur. The exact charge will depend on the type of connection, but a User may pay for the local substation and some of the costs of the substation assets at the system end of the spur.

The connection charge is an asset based charge which comprises two components – a capital component and a non-capital component. The capital component involves the calculation of a Gross Asset Value (GAV), which represents the initial total cost of an asset to National Grid and is inflated annually. The GAV includes the costs of purchase, engineering and design, transport and installation and interest during construction (IDC). A Net Asset Value (NAV) is also calculated and represents the average (mid year) depreciated GAV and is used for charge calculation. The capital

¹³ www.nationalgridinfo.co.uk/charging/mn_charging.html

component of the connection charge is split between a depreciation charge, based on the GAV and a return on the NAV.

The non-capital component of the charge is split between site specific maintenance charges and transmission running costs. Site specific maintenance charges recover the costs associated with the maintenance at a site and a proportion of the associated overheads. Maintenance charges are calculated on forecasts of site costs derived from a three year rolling average of historic actual costs. Any new assets are assigned a surrogate charge which is based on a fixed maintenance factor derived from a sample of costs of maintaining new sites.

Transmission running costs are charged by the application of a transmission running cost factor to the GAV of an asset. The factor reflects an appropriate amount of running costs including rates, operation and indirect overheads that should be attributed to connection assets and is calculated by taking total running costs for the TO function and dividing by the total business GAV. The formula for standard connection charges is contained in Chapter 2 of the Statement of the Connection Charging Methodology.

Parties liable for connection charges are Directly Connected Generators, Distribution Network Operators (DNOs), Directly Connected Industrial Customers and Interconnector Asset Owners.

Dependent on the timing of the connection, different options are available to customers regarding standard terms. Customers with connections that were made post-Vesting, that is after 30 March 1990, have the option of making a capital contribution to their assets, either in part or full, and can choose a different indexation method from the standard RPI method. There is also the option of annuity based charging.

The existing methodology incorporates the concept of sharing of assets and of the charges incurred by those assets. In the case of shared connection assets, individual Users' charges are calculated in accordance with a set of allocation rules, laid out in the connection charging methodology. Charge allocations are reviewed if circumstances at a connection site change, for example, a new party joins the site or an existing party leaves.

The methodology includes a number of other connection charges which exist to deal with specific areas of connection charging. For example, one-off charges for works associated with a connection, but which do not give rise to additional connection assets and land charges to recover a reasonable rate of return on the cost of purchase of any land required to facilitate a connection. In addition, National Grid may levy, where appropriate, miscellaneous charges, which will be specific to each User and detailed in the User's bilateral connection agreement, Final Metering Scheme (FMS) charges, rental site charges and termination charges. There are two types of termination charge, which are levied on the event of a User disconnecting from the transmission system, either wholly or in part. The type of charge levied will depend on whether the assets are made redundant as a result of the termination or whether the assets remain in use.

3.1.2 Proposed Changes to the Connection Charging Methodology

In September 2003, National Grid undertook a consultation on proposed changes to the Connection Charging Methodology for implementation in April 2004¹⁴. A Report to the Authority, recommending implementation of the proposals was sent to Ofgem on 21 November 2003 for a decision. Full details of the proposals are published in the Consultation Document and the Report to the Authority, which are both available from National Grid's charging website¹⁵.

The main elements of the modification proposal are summarised below.

Movement of the Connection Boundary

National Grid proposes to redefine the connection/infrastructure boundary so that all assets which are shared or which could be shared move from connection into infrastructure. This would result in substations and associated site infrastructure and land, generation only spurs and shared transformer circuits moving into infrastructure.

Site Specific Maintenance

National Grid proposes to change the method of site specific maintenance calculation to use a cost pass through methodology, whereby indicative charges are levied across all sites, based on an average apportionment of the GAV, and would be reconciled in the July of year N+1, resulting in an additional charge or refund.

Land Charges

Due to the proposed change to the connection/infrastructure boundary, site infrastructure and land costs would move to be within infrastructure. National Grid therefore proposes to remove land charges from the Connection Charging Methodology.

Termination Charges

Due to the proposed change to the connection/infrastructure boundary, there would no longer be any shared connection assets. "Type B" termination charges relating to shared assets not made redundant would therefore be obsolete. National Grid therefore proposes to remove this type of termination charge from the Connection Charging Methodology.

3.1.3 Implementation of Connection Charging Methodology for GB

In the Ofgem/DTI Part 1 conclusions document, it is stated in paragraph 5.13 that:

"For the avoidance of doubt, in the present circumstances where NGC has brought forward change proposals but the time period within which Ofgem can veto either or both of the proposals has not yet expired, it is Ofgem/DTI's view that the initial GB consultation should be based on the methodology incorporating the proposed changes."

¹⁴ CCM-M-07 Implementation of Plugs: Change to Connection Boundary & associated removal of Land Charges & Type B Termination Charges AND Change to Calculation of Site Specific Maintenance Charges, 12 September 2003

¹⁵ www.nationalgrid.com/uk/indinfo/charging/mn_modifications.html

A number of issues would arise if the current England and Wales connection methodology, including those changes currently being considered by Ofgem is applied on a GB basis. These issues are set out in the following section.

Ownership Boundary

In line with the shallow connection boundary planned for implementation in England and Wales from 1 April 2004, the connection/infrastructure boundary would normally fall at the first transmission owned substation, with all shared or shareable assets falling outside of the connection boundary.

The initial connection charges would be based on the assets in situ on 1 April 2005.

Gross Asset Values

The basis of a connection charge is the Gross Asset Value (GAV) of the connection asset. The basis of the GAV differs in England and Wales between those assets commissioned since 30 March 1990 (Post Vesting) and those commissioned on or before 30 March 1990 (Pre Vesting).

The GAV represents the initial total cost of an asset which for a Post Vesting asset relate to the costs incurred for the provision of the asset. For Pre Vesting assets the GAV is based on a modern equivalent valuation of the asset made in 1996/97, subsequently indexed by RPI.

In order to deliver consistent connection charges across GB, we would need to derive GAVs for all Scottish connection assets on the same basis as currently undertaken in England and Wales. This would require a modern equivalent asset valuation for all Pre Vesting connection assets, and the derivation of GAVs for Post Vesting connection assets based on the cost to the Transmission Owner of providing the asset. If detailed asset level cost data is not available for post vesting assets, this may require the prorating of higher level project costs or potentially the use of an appropriate modern equivalent valuation.

Annual GAV Revaluation

Under the England and Wales connection charging methodology, all GAVs are revalued annually from their initial level. Pre Vesting GAVs are indexed using the six monthly average Retail Price Index change over the months May to October. Users with Post Vesting connection assets can opt for the same RPI indexation as for Pre Vesting assets, or alternatively they can select revaluation by comparison with a modern equivalent asset (MEA). Currently for connection assets indexed by RPI a rate of return of 6% is applied or 7.5% if MEA is selected.

Making the same revaluation options available under the GB connection charging methodology as are currently available under the England and Wales methodology would mean RPI indexation for Post Vesting assets being part of the standard charging terms for a connection. In these circumstances RPI indexation will form the standard terms for Scottish connectees with Post Vesting connection assets. Users would be given an opportunity to discuss selection of non-standard terms as part of the process to establish the bilateral connection agreement.

Site Specific Maintenance

One element of the connection charge is the site specific maintenance charge. This charge recovers the site specific cost, including a proportion of overheads, associated with the maintenance activity.

Under the connection charging methodology planned for implementation in England and Wales from 1 April 2004, this charge will have two components. A direct asset cost and an overheads element. The charge will be based on actual costs which will not be known until after the event, so it will be necessary to charge an indicative maintenance charge initially. The indicative charge will then be reconciled once the final costs are known in July to October the following year.

The indicative charge is based on an average maintenance factor. In England and Wales an indicative factor of 0.5% has been calculated, which is applied to the connection asset GAV to produce the indicative site specific maintenance charge.

Seeking to implement a comparable site specific maintenance charging regime on a GB basis, would require appropriate information and it being made available to the GBSO. Should consistent maintenance data be unavailable across GB then the options would be:

- (i) absorbing the site specific maintenance charge within the transmission running cost charge (equivalent to charging as a flat non-locational percentage of GAV), or
- (ii) regional site specific maintenance charges.

Concerns regarding discrimination could preclude regional site specific maintenance charging variations.

The initial GBSO will be working with each of the Transmission Licensees to determine what information is available or could be made available in the necessary timescales, in order to establish whether such an approach is feasible.

Transmission Running Costs

Another element of the connection charge is the transmission running cost. This component reflects a proportion of the non maintenance operating expenditure of the transmission owner activity.

Under the England and Wales charging methodology the non-maintenance transmission costs are apportioned across assets by GAV. This is done by calculating a transmission cost factor each year, by dividing a forecast of the operating costs (excluding maintenance) by the GAV of all transmission connection and infrastructure assets. The transmission cost charge for an individual connection asset is then the product of the factor and the connection asset's GAV. Currently the England and Wales factor is 1.6%.

If the apportionment by GAV is considered to remain an appropriate mechanism, then with a GB charging methodology it would be necessary to establish a process to include the transmission costs of three separate TOs.

At a high level there are two options for a transmission cost factor:

- TO specific transmission cost factors
- A single GB transmission cost factor

The methodology for either of these options should be based on consistent data and apportionment mechanisms across each TO.

The apportionment of general costs and overheads such as those included within the transmission cost factor will always be relatively coarse, and there is probably little

benefit from calculating separate TO specific cost factors. Furthermore TO specific factors would be more complex to administer.

At this stage, therefore, it may be more appropriate to utilise a single GB transmission cost factor based on an assessment of costs across GB.

In this context, consideration will need to be given to basing the GB factor on published price control information as this would be more transparent and would avoid data inconsistencies across TOs. The use of published price control information would also avoid the transfer of potentially commercially sensitive information between transmission licensees. If price control data is used then it may be possible to provide improved connection charge stability by fixing the factor for a price control period.

The final GB factor will need to take account of any review of allocation of costs between the TO and SO activities

Customer Choice

The England and Wales connection charging methodology allows customer choice in a number of areas for new connection assets including:

- Capital Contributions
- Reduced Depreciation Periods
- Firm Price agreements

The initial GBSO is proposing to make the same options available for post vesting connection assets within the GB connection charging methodology.

The initial GBSO is also considering making the options for Users to contest construction and maintenance of certain connection assets available under the GB connection charging methodology.

The provision of customer choice and contestability would require appropriate price control revenue mechanisms for all transmission licensees and also suitable provisions in the SO-TO Code.

3.2 Use of System Charging Methodology

3.2.1 Existing Use of System Charging Methodology

The existing Use of System charging methodology for E&W was approved by the Authority for implementation from 1 April 2003. The methodology is described in the Statement of the Use of System Charging Methodology, Issue 3, Revision 1, published on National Grid's Charging website¹⁶. A high level overview of the methodology is provided below.

National Grid levies two types of Use of System charge: Transmission Network Use of System (TNUoS) charges and Balancing Services Use of System (BSUoS) charges. TNUoS charges recover the costs of installing, operating and maintaining the infrastructure of the transmission system for the Transmission Owner activity of the Transmission Business. BSUoS charges recover the costs incurred in the System Operator activity including the operation of the transmission system and the

¹⁶ www.nationalgridinfo.co.uk/charging/mn_charging.html

procurement and usage of Balancing Services for the purpose of balancing the transmission system.

TNUoS Charges

TNUoS charges are set to recover the Maximum Allowed Revenue (MAR) set by National Grid's TO Price Control, net of the revenue from pre vesting connection charges. The underlying methodology for the locational element of the TNUoS tariffs uses the Investment Cost Related Pricing (ICRP) transport model. This model calculates the marginal costs of investment in the transmission system required as a result of an increase in demand or generation at each node on the transmission system, based on a study of peak conditions with generation scaled to match demand. The resultant marginal kilometres are then grouped into zonal marginal km for ease of administration and stability. The marginal km are converted into costs by the application of an expansion constant which represents the annuitised value of the transmission infrastructure capital investment and includes an allowance for operating costs required to transport 1MW over 1km, which gives the initial transport tariff.

Once the initial locational transport tariff has been calculated, a correction factor is applied to achieve the defined split between generation and demand charges established by the 1996/97 balance of overall revenues (approx. 25:75). In order to achieve the appropriate split across both connection and TNUoS charges, a factor must be applied just to the TNUoS element, which is approximately 27:73 to generation and demand respectively. Once this split has been reached through the application of a correction factor, a flat security and residual tariff is added to reach the target revenue for TNUoS charges.

TNUoS charges are applicable to both generation and demand and are levied on suppliers, generators and interconnector asset owners. An exception to liability for charges is for embedded generators (i.e. those connected to a distribution network) who are not capable of exporting 100MW or more to the total system. Due to the nature of the transport model, generation and demand TNUoS tariffs can be both positive and negative. Generation TNUoS charges in positive tariff zones are calculated by multiplying a User's Transmission Entry Capacity (TEC) by the relevant £/kW zonal tariff to produce an annual charge. Generation TNUoS charges in negative tariff zones are calculated by multiplying a User's Chargeable Capacity by the relevant £/kW zonal tariff. This Chargeable Capacity is calculated from the power station's average of the three highest meter volumes between November and February, separated by 10 clear days, for the relevant financial year.

Demand charges are split into those levied for half hourly and non-half hourly demand. Half hourly demand charges are levied on a capacity basis and are calculated by multiplying a User's average demand over the Triad, by the relevant £/kW zonal demand tariff. The Triad is the three settlement periods of highest transmission system demand, which are separated by 10 clear days between November and February of the relevant financial year. Non half hourly demand charges are levied on a consumption basis and are calculated by multiplying a User's demand between 16:00 and 19:00 over every day of the year by the relevant p/kWh zonal energy consumption tariff. The p/kWh energy consumption tariff is derived from the £/kW demand tariff.

TNUoS tariffs are published by National Grid in its Statement of Use of System Charges, available on National Grid's Charging website.

BSUoS Charges

BSUoS charges are set to recover revenue in respect of the Balancing Services Activity, incorporating total costs of the Balancing Mechanism, total Balancing Services contract costs, payments/receipts from the National Grid incentive schemes, internal operating costs, costs associated with Balancing Services contracts and developments, adjustments and costs associated with manifest errors and special provisions.

BSUoS charges are levied on Generators, Suppliers and Interconnector Users, based on the metered energy taken from or supplied to the transmission system in each half hour settlement period. BSUoS charges are non-locational and split equally between generation and demand and are calculated in accordance with the methodology set out in the Statement of the Use of System Charging Methodology.

3.2.2 Proposed Changes to the Use of System Charging Methodology

In September 2003, National Grid undertook a consultation on proposed changes to the Use of System Charging Methodology for implementation in April 2004¹⁷. A Report to the Authority, recommending implementation of the proposals, was sent to Ofgem on 21 November 2003 for a decision. Full details of the proposals are published in the Consultation Document and the Report to the Authority, which are both available from National Grid's charging website¹⁸.

The main elements of the modification proposal are summarised below.

DC Loadflow Model

Implementation of a DC loadflow algorithm in place of the existing basic transport model.

Expansion Constants

Replacement of the existing GAV based expansion constant with multi-voltage circuit expansion constants based on expected future costs and removal of the substation asset costs from the derivation of the expansion constant which includes an allowance of operating cost.

Locational Security

Introduction of a "security factor" to represent the incremental investment in capacity required to provide security for transmission outages on a locational basis.

In addition to the fundamental changes proposed to the methodology, National Grid has proposed that generation rezoning could potentially occur more than once per price control period in order to retain appropriate cost signals.

¹⁷ UoS-10: Proposal to Amend the TNUoS methodology for Calculation of Locational TNUoS Tariffs, 12 September 2003

¹⁸ www.nationalgrid.com/uk/indinfo/charging/mn_modifications.html

3.2.3 Implementation of Use of System Charging Methodology for GB

In the Ofgem/DTI Part 1 conclusions document, it is stated in paragraph 5.13 that:

“For the avoidance of doubt, in the present circumstances where NGC has brought forward change proposals but the time period within which Ofgem can veto either or both of the proposals has not yet expired, it is Ofgem/DTI's view that the initial GB consultation should be based on the methodology incorporating the proposed changes.”

In this section of the document, National Grid as the initial GBSO has set out the implementation issues that would arise from implementing the proposed England and Wales Use of System Charging methodology on a GB basis.

DCLF Transport Model

The starting point in the derivation of Transmission Network Use of System (TNUoS) tariffs in England and Wales is the DCLF Transport Model. This model uses published Seven Year Statement (SYS) network data, including nodal generation and demand.

In this context it would be appropriate for the initial GBSO to continue to use SYS data. However, depending on the timescales for the publication of the first GB SYS, it may be necessary to use information from the three existing separate statements, published by each of the TO businesses, in the calculation of the first GB TNUoS tariffs.

Multi-voltage Expansion Factors

It is proposed to implement multi-voltage expansion factors based on forward looking costs in England and Wales from 1 April 2004. These factors would be used to reflect the varying incremental capacity costs across the two transmission voltages of 400kV and 275kV, and also to cost differentials between overhead line and transmission cable. The expansion factors are applied to each circuit in the DCLF transport model.

Under a GB methodology, with 132kV included as a transmission voltage, it would be necessary to determine the appropriate expansion factors to be applied for this voltage. The options include new expansion factors based on incremental 132kV cable and overhead line cost, or factors which reflect the likelihood of incremental capacity being provided at a higher voltage. It should be noted however that should a change of voltage occur e.g. a 132kV circuit being uprated to operate at 275kV, then this would be reflected in the TNUoS tariffs via the network data Seven Year Statement that is used in the DCLF transport model.

The initial GBSO will be assessing these options further and will publish the conclusions, which will take account of responses to this consultation, in the Initial Charging Methodologies consultation. The outcome could have a material impact on the final GB TNUoS generation zones.

Circuits with Spare Capacity

Circuits which are identified as having spare capacity can be assumed to be less costly to invest in as there is a buffer before new investment is required. This is modelled by reducing the relevant expansion factor to 75% for such circuits. It would seem appropriate to continue to apply this approach on a GB basis.

Generation Charging Base

In England and Wales the generation charging base includes transmission connected generation and interconnectors and also other generation or interconnectors capable of exporting more than 100MW. The 100MW level is set with reference to the level at which a generation licence is required. The initial GBSO believes these criteria would also be appropriate under a GB methodology.

The initial GBSO also believes that consideration should be given to embedded generation below 100MW. Currently, for practical purposes, in England and Wales such generation is treated as negative demand for the calculation of TNUoS tariffs. From a transmission investment perspective, 1MW of embedded generation has the same impact on the transmission system as 1MW of directly connected generation. However, the relative impact of generation differs at each transmission voltage. An 80MW generator would normally have a significant impact on a 132kV system compared with a 400kV network, and conversely, it may be straightforward to accommodate a 1000MW power station at 400kV, but it would be infeasible to connect such a plant at 132kV.

A licence exemptable embedded generator with an output in the range 50-100MW, connected at 66kV or below could clearly have a significant impact on the 132kV network, and it may not be appropriate therefore for it to be excluded from the TNUoS charging base.

The initial GBSO notes that this issue has been considered within the Ofgem/DTI Small Generators consultation. Until such time as the relevant conclusions have been reached, the initial GBSO will utilise the existing England and Wales relevant generation criteria for the purposes of assessing the generation charging base. For the avoidance of doubt this assumption results in the inclusion of all 132kV transmission connected generation in establishing the generation charging base.

Zoning

In order to achieve relatively stable cost messages from the ICRP methodology, and also for administrative simplicity, nodes are grouped into zones for the purposes of tariff calculation.

Demand zones are aligned with the ex Public Electricity Supply areas, and the initial GBSO proposes to continue this approach for the GB methodology, which would result in 14 demand TNUoS zones.

In England and Wales, three criteria are currently used to derive the generation zones:

- Zones should contain relevant nodes whose marginal costs are all within +/- £1/kW
- The nodes within zones should be geographically and electrically proximate
- Relevant nodes are considered to be those with chargeable generation connected (directly or embedded)

The £2/kW spread is applicable to the England and Wales transmission voltages of 400kV and 275kV. The use of the same spread under a GB methodology with 132kV included and also with 132kV expansion constants may result in a relatively higher number of zones in areas of 132kV transmission compared with areas operating at a higher transmission voltage. Under these circumstances it would be appropriate to review this element of the zoning criteria, both in terms of the level at which it is set

and its implementation. Such a review must also take account of the licence requirement for the charges to be cost reflective and not to discriminate. Consideration must also be given in any such review to the impact on all GB generation.

If the 132kV expansion factors are based on incremental capacity being provided at 275kV or above, then the £2/kW spread may be appropriate and no review of the zoning criteria would be necessary.

The relevant nodes for the purposes of generation zoning are those in the generation charging base.

Once the GB zoning criteria have been established, the initial GBSO believes that for the purposes of calculating the initial GB TNUoS tariffs, the criteria should be applied to the whole GB system and not just to the additional nodes in Scotland. This could result in generation zones which straddle the borders between the Transmission Owners.

After the establishment of the initial GB TNUoS generation zones, a rezoning exercise would normally only occur at the start of a regulatory price control period. In exceptional circumstances it may be necessary to undertake an additional rezoning exercise as a result of a particular system development. Under such circumstances, the rezoning would be done with the objective of minimal change to the existing zones.

Security Factor

It is planned to implement a locational security factor in England and Wales from 1 April 2004. This factor is multiplied by the nodal marginal costs calculated by the DCLF transport model.

A methodology that includes a security factor is more cost reflective than one that does not and therefore it would seem appropriate to include such a factor in the GB charging methodology. The initial GBSO will, however, undertake analysis to confirm an appropriate GB security factor multiplier. In England and Wales it is proposed to implement a locational security factor of 1.9 from 1 April 2004.

Generation and Demand Split

In England and Wales TNUoS tariffs are set to recover 73% of the TNUoS revenue from demand and the remaining 27% from generation. The percentages were established in 1996 and were calculated to maintain the 1996/97 balance of overall transmission revenue.

This split has a fundamental effect on the levels of use of system charges produced by this methodology, which the GBSO will maintain unless otherwise directed to do so by the Authority. It will therefore be necessary to calculate a GB G:D TNUoS split taking account of GB connection charges, prior to the publication of the final GB TNUoS tariffs. The GB TNUoS G:D split will be published and would normally only be reviewed at the start of a regulatory price control period.

Substation and residual

With the planned implementation of a locational security factor, and the removal of substation costs from the locational element of the tariff calculation, the flat non-locational element of the TNUoS tariffs relates primarily to the cost of substations and adjustments to ensure the appropriate revenues are recovered.

In the Ofgem/DTI Small Generators consultation, a proposal was made to restrict the amount of the flat element of the tariff for small (<100MW) 132kV transmission connected generation. It should be noted that the Ofgem/DTI consultation refers to this portion of the tariff as the "Security and Residual". As noted above, the cost of providing a secure network would effectively be included within the locational element of the TNUoS tariffs, and therefore a more appropriate description would be "Substation and Residual".

In the Small Generators consultation Ofgem/DTI request that the initial GBSO identify the residual element of the indicative GB TNUoS tariffs. Such a breakdown is provided in Appendix 1 of this document.

The Small Generators consultation closes on 15 January 2004 and the conclusions are expected to be published in February 2004. There are a number of issues raised in the Ofgem/DTI consultation, and National Grid will be responding formally. The response will include many areas which would impact on a GB charging methodology and National Grid will take account of the conclusions drawn from this consultation in the Initial Charging Methodologies Consultation, planned for publication in March 2004.

Renewables in the Highlands and Islands

In the August 2003 consultation, Part 2 "A DTI consultation on transmission charging, in the context of the Government's policy objectives for growth in renewables", there are various principles which are still subject to debate.

Similar to the issues relating to the treatment of 132kV transmission connected small generation, there are some implementation issues to be resolved including:

- How the regulatory direction will be implemented without conflicting with the licence objectives and the requirement to set charges which do not discriminate
- How any unrecovered revenues will be reallocated

At the time of writing there are no conclusions published for the above consultation, however, we will be working with Ofgem and the DTI and will take account of the conclusions in the Initial Charging Methodologies Consultation, planned for publication in March 2004.

Hydro Benefit

In November 2003 Ofgem announced that it intends to end the hydro benefit subsidy scheme in Scotland, which protected consumers from the significantly higher costs of distribution in the north of Scotland compared with any other distribution area. The hydro benefit subsidy amounts to approximately £40m each year.

On the 11 December 2003, the Government announced that distribution costs in the north of Scotland should continue to be subsidised at the same level, but that that subsidy should be recovered from all suppliers in Great Britain. The subsidy will be collected from all suppliers via their transmission charges paid to the GB System Operator. The Government intends to take an order-making power so that the Secretary of State can enable the GB System Operator to give a subsidy to the distributor with the highest distribution costs per customer, when the distribution costs in that area are significantly higher than in any other area, by adjusting the transmission charges paid by suppliers.

We will be working with Ofgem and the DTI to discuss the implementation of this subsidy with the aim of publishing the implications for the GB TNUoS charging

methodology in the Initial Charging Methodologies Consultation planned for publication in March 2004.

For indication only, to recover an additional £40m from a non-locational capacity based demand TNUoS charge, demand tariffs would increase by approximately £0.70/kW.

Negative demand charges

There is a possibility that in its current form based on the England and Wales charging regime, the GB TNUoS charging methodology could produce negative demand TNUoS tariffs. The initial GBSO is concerned by the prospect of such negative charges as they would encourage inefficiencies in the affected areas, such as the perverse incentive of paying users to consume electricity at times of peak system demand.

We will be considering the appropriateness of negative demand tariffs and exploring ways to place a de-minimus limit on demand charges e.g. a lower limit at £0/kW. Whatever mechanism is adopted to achieve such an aim, it will also be necessary to determine how the additional revenues will be allocated. It should be noted, however, that the level of revenue requiring reallocation is likely to be less than 0.5% of the total GB TNUoS revenue.

The initial GBSO believes there are two main options to facilitate the removal of negative demand tariffs:

- Revise the overall split of generation and demand charges in the TNUoS model currently set at 27/73 in England and Wales
- Allow the TNUoS tariffs to be calculated normally, and subsequently override the values to the de-minimus level in the relevant zones

The first option would be self correcting from a revenue reallocation perspective. The second option would require an additional iteration to apportion the residual revenue. If the Generation/Demand split is to be retained for the second option, the additional iteration would be to re-allocate the non-locational residual element of the tariff for all zones above the de-minimus level. In the unlikely event that at the end of the initial reallocation processes an additional zone was created below the de-minimus level, then a further reallocation exercise could be undertaken. For indicative purposes only the reallocation of £4M across zones with total demand of 50GW results in £0.08/kW reduction in all demand tariffs.

Ownership Boundary

The TNUoS charging methodology sets charges associated with transmission infrastructure. The boundary between connection and infrastructure will be influenced by the ownership boundary between the GB Transmission System and Users, and also by the boundary between connection and infrastructure.

Whilst the rules defining the connection/infrastructure boundary will be set down in the GB Connection Charging Methodology, the exact detail of the boundary between the GB Transmission System and the User's equipment in Scotland is less visible to the GBSO at this time.

It will be necessary to determine the exact boundary for all connections before final connection and use of system charges can be calculated. A major piece of work is therefore required potentially involving all Users, the Transmission Owners, the GBSO and Ofgem to determine the exact ownership boundary at each connection

site. This will ultimately be captured in the bilateral connection agreements between the GBSO and each connectee.

Rights

In England and Wales a generator has rights to generate up to their station's Transmission Entry Capacity (TEC), and up to their Connection Entry Capacity (CEC) for each unit within the power station. The TEC drives the investment in the transmission system and therefore the TNUoS charges for generation in England and Wales are based on the TEC. There is no differentiation between different types of chargeable generation.

National Grid believes that there may be issues regarding quantity and quality of access rights in Scotland, which are mentioned in the Ofgem/DTI Part 1 GB charging conclusions document. If, during the development of BETTA, different rights are determined for different generators, then it may be necessary to consider developing the GB charging methodology to take account of such variations.

BSUoS Charging

National Grid believes that the BSUoS charging methodology proposed for implementation in GB would be broadly comparable with the current methodology in England and Wales. However, as changes to the methodology will be driven by the System Operator Incentives in place, it is not possible for National Grid to comment on the exact nature of a BSUoS methodology for GB until the SO scheme at the time of BETTA implementation is known. Ofgem is currently consulting on the SO incentives to apply from 1 April 2004.

4 Transitional Issues

It is assumed that the GBSO will contract directly with Users for connection to and use of the GB Transmission System. The GBSO will also calculate and levy charges for connection to and use of the GB Transmission System in accordance with the GB charging methodologies. These arrangements will be effective for BETTA Go-live, and it is assumed that the Transmission Owners will have the liabilities for charges and charging arrangements in place pre-BETTA.

The transition of pre-BETTA charging arrangements form part of the wider transition process for transmission related agreements.

5 Illustrative Connection Charging Examples

This section of the document provides illustrative examples of connection site configurations for GB using the proposed England and Wales charging methodology.

The first year connection charges were calculated using the following assumptions:

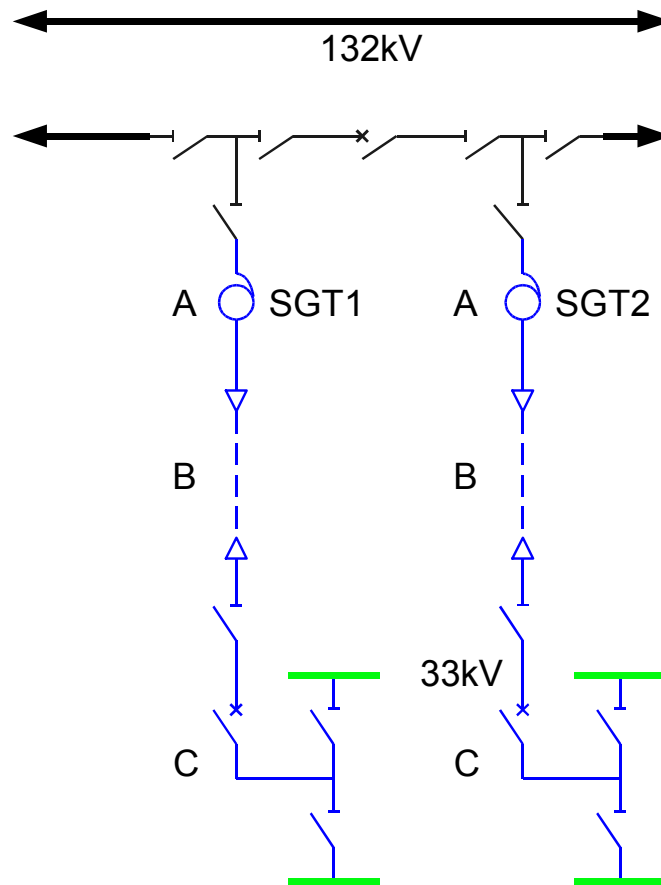
- The assets are new
- The assets are depreciated over 40 years
- The rate of return is assumed to be 6% for RPI indexation
- The connection charges include maintenance costs
- The connection charges include Transmission Running Costs at a rate of 1.60% of the GAV

The GAV figures used in the calculation were calculated using the following assumptions:

- Each asset is new
- The GAV includes estimated costs of construction, engineering, Interest During Construction and liquidated Damages premiums

Please note that actual charges will depend on the specific assets at a site.

NEW 132/33kV SUPERGRID CONNECTION SINGLE SWITCH MESH TYPE

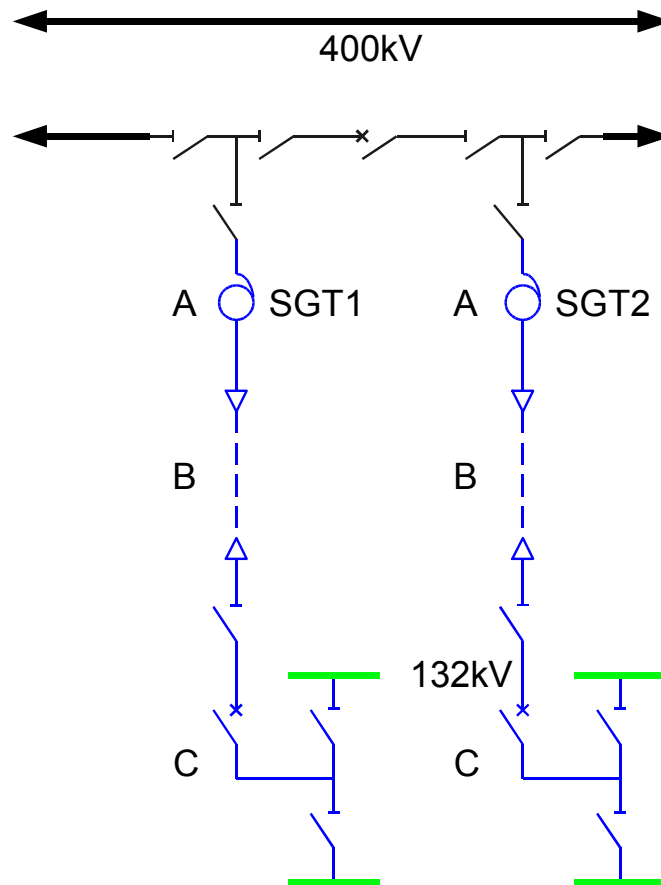


KEY:

- Existing Transmission Assets
- Proposed GB connection assets
- Customer Assets

SCHEDULE FOR NEW CONNECTION				
Ref	kV	No	Description	First Year Charges (£000s)
A	132//33	2	90MVA Transformers	178
B	33	2	100m(eg) 90 MVA Cables	16
C	33	2	Double Busbar Transformer Bays	18
Total				212

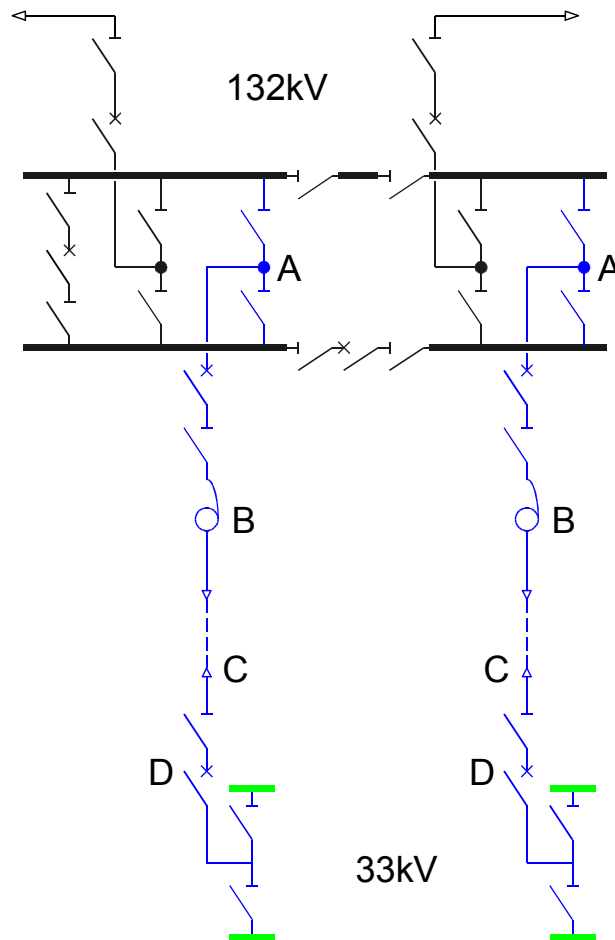
NEW 400/132kV SUPERGRID CONNECTION SINGLE SWITCH MESH TYPE



KEY:	
	Existing Transmission Assets
	Proposed GB connection assets
	Customer Assets

SCHEDULE FOR NEW CONNECTION				
Ref	kV	No	Description	First Year Charges (£000s)
A	400/132	2	240MVA Transformers	364
B	132	2	100m(eg) 240 MVA Cables	52
C	132	2	Double Busbar Transformer Bays	106
Total				522

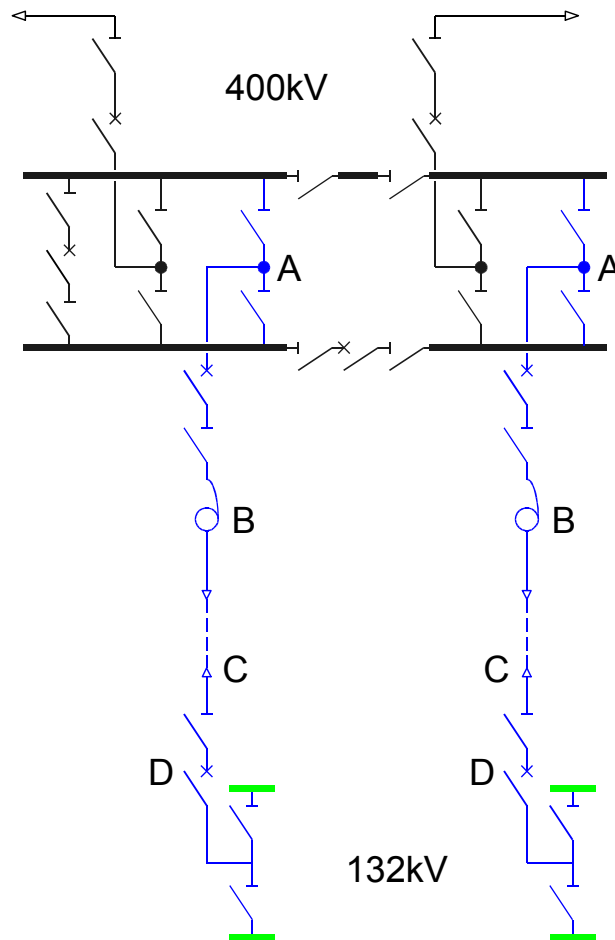
NEW 132/33KV SUPERGRID CONNECTION DOUBLE BUSBAR TYPE



KEY:	
—	Existing Transmission Assets
—	Proposed GB connection assets
—	Customer Assets

SCHEDULE FOR NEW CONNECTION				
Ref	kV	No	Description	First Year Charges (£000s)
A	132	2	Double Busbar Transformer Bays inc. breaker	106
B	132/33	2	90 MVA Transformers	178
C	33	2	100m(eg) 90MVA Cables	16
D	33	2	Double Busbar Transformer Bays inc. breaker	18
Total				318

NEW 400/132KV SUPERGRID CONNECTION DOUBLE BUSBAR TYPE



KEY:

- Existing Transmission Assets
- Proposed GB connection assets
- Customer Assets

SCHEDULE FOR NEW CONNECTION				
Ref	kV	No	Description	First Year Charges (£000s)
A	400	2	Double Busbar Transformer Bays inc. breaker	402
B	400/132	2	240 MVA Transformers	364
C	132	2	100m(eg) 240MVA Cables	52
D	132	2	Double Busbar Transformer Bays inc. breaker	106
Total				924

6 Indicative TNUoS tariffs and generation zoning

In line with the guidance provided in Ofgem's August 2003 and Small Generators consultations, this section of National Grid's consultation provides background information to the DC Loadflow model and assumptions used in the calculation of the indicative GB TNUoS tariffs and generation zones provided in Appendix 1 to this document.

6.1 Assumption used in the GB DCLF model & Tariff Setting

The DCLF model must be considered in light of the following information.

The basis for the formation of a GB DCLF model is the connection boundary defined in Connection Charging modification proposal CCM-M-07 and the indicative generation zones established in Use of System modification proposal UoSCM-M-10. It should be noted that both these proposals remain subject to a decision by the Authority.

All network data is derived from the 2003/04 Seven Year Statements of Scottish Power, Scottish & Southern and National Grid Transco using winter 2003/04 datasets. All nodal data (the generation and demand at each node) has been derived from the winter 2003/04 datasets except for the demand data within the Scottish Hydro area. In this case the winter 2002/03 peak demand was used. Additional correspondence with Scottish Power and Scottish & Southern has been used to refine the level of detail concerning the nodal data to enable the model to function.

For indicative purposes, there has not been a rezoning exercise on a GB basis, the Scottish generators have been grouped into a Scottish Hydro zone, and a Scottish Power zone. The indicative England & Wales generation zones used in the Use of System Charging Modification Proposal UoSCM-M-10 have not been altered except that the "Scots Border" zone has been annexed to the North East & North West zones as there is effectively no longer any generation in that zone. Further analysis of the GB network will be required following the development of the GB generation zoning criteria.

The locational security factor for England & Wales of 1.9 has been used to provide these indicative tariffs.

For the purpose of formulating indicative tariffs, the percentage of lines in England & Wales that have spare capacity has been applied to Scotland. This percentage of Scottish lines with the lowest utilisation as a proportion of the line limit are assumed to have spare capacity. Consideration of lines, which have spare capacity, will be confirmed following further analysis of the GB network.

The expansion constant for 400kV overhead lines of £9.29/MWkm has been used in the model to calculate the tariffs.

A voltage specific expansion factor has been applied to each circuit, and the values used in the model are shown below. These are based on England and Wales information, which will be reviewed to produce GB expansion factors..

400kV cable factor	24.9
275kV cable factor	26.0
132kV cable factor	33.2
400kV line factor	1.0
275kV line factor	1.9
132kV line factor	3.6

The current Generation/Demand split of TNUoS revenue recovery for England and Wales (27/73) has been applied to Scotland. The Generation Demand split in the TNUoS model will be reviewed as discussed in Section 3.2 .

By using information provided by all Transmission Licencees, the figure of £950M has been selected as total allowed revenue for use in the tariff model. The final figure used to set GB TNUoS tariffs for 1 April 2005 may vary significantly from this initial estimate.

The indicative demand tariffs have been collared at zero with the residual revenue adjusted across the remaining demand zones. If however the demand tariffs were unrestricted the value for zone 1 would be £-5.07/kW.

7 Next Steps

National Grid welcomes comments on the issues raised in this Initial Thoughts document, in line with the timescales detailed below. As mentioned in Section 2 of this document, there are a number of BETTA consultations running simultaneously to the GB transmission charging development process. It should therefore be noted that the initial thoughts provided in this document are subject to change as a result of additional information provided by the relevant conclusions documents, when published.

In line with the process and timescales published by Ofgem/DTI in the August 2003 and Small Generators consultation documents, National Grid intends to produce an Initial Charging Methodologies proposals document, subsequent to this Initial Thoughts document, in March 2004. The proposals document will include indicative Use of System tariffs resulting from the proposed methodology.

7.1 Views Invited

Comments are invited on any of the issues raised in this consultation document to National Grid by 30 January 2004. Please send any responses to Stuart Easterbrook by email to stuart.easterbrook@ngtuk.com or in writing to:

Stuart Easterbrook
Transmission Charging Manager
Commercial
National Grid Company plc
NGT House (Floor C3)
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

National Grid intend to publish all responses to this consultation. If you do not wish your response to be made public, please clearly mark the response as confidential.

7.2 GB Transmission Charging Circulation List

National Grid has an established process for consultation with Users and industry participants in England and Wales, including the Transmission Charging Methodologies Forum (TCMF). The TCMF is an industry forum that discusses National Grid's charging methodologies and principles behind them. The aim of the forum is to allow Users to become involved in the development of National Grid's charging methodologies and enable National Grid to keep the methodologies under constant review. In recognition of the wider audience of the GB consultations, National Grid would like to ensure that all those parties across GB who might be impacted by the revised transmission charging arrangements are aware of the proposals and have an opportunity to respond to the consultations.

Therefore, National Grid requests that any party who believes that they may not currently be included on National Grid's circulation list for transmission charging issues and would like to be, send their contact details to Richard Lavender at richard.lavender@ngtuk.com. Please include your name, title, representation (company or organisation name), email address and a contact telephone number.

7.3 Indicative Connection Charges

National Grid intends to prepare indicative connection charges to be sent to impacted Users with the Initial Charging Methodologies consultation in March 2004. As this information is commercially confidential it cannot be made generally available, and must be dealt with on a bilateral basis.

In order to correspond with relevant Users, National Grid will request that those Users wishing to receive their indicative charges contact National Grid formally in writing, including their contact details and an email address so that the indicative charges can be sent electronically. This will ensure confidentiality is maintained and that the relevant information is sent directly to the most appropriate individual.

Please write to:

Richard Lavender
Transmission Charging Development
Commercial
National Grid Company plc
NGT House (Floor C3)
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

7.4 DCLF model

National Grid intends to make available the transport model used to calculate the GB tariffs shown in Appendix 1. If you are interested in receiving the model please contact Richard Lavender at richard.lavender@ngtuk.com or in writing at the above address.

Appendix 1: Indicative GB TNUoS Tariffs and Zonal Mappings

This appendix contains indicative GB TNUoS tariffs and zonal mappings based on the methodology described in Section 6 of this consultation. The tariffs originally provided with the England and Wales Use of System Charging Modification (UoS-CM-M-10 with Plugs) consultation document are included here for illustrative purposes only. Please note that direct comparisons may not be made, as the revenue numbers used in the models are different. In addition, it is not possible to provide comparison numbers for the Scottish zones due to differences between Connection and Use of System Methodologies. For example, connection charges in Scotland are likely to vary significantly due to the proposed shallower connection boundary. Furthermore, specific charges for the use of the Scottish Interconnector will disappear.

*** The Scottish generation TNUoS zones are based on the Scottish Hydro & Scottish Power areas and are not derived by the application of the existing England & Wales zoning criteria. For information only the range of nodal tariffs for Zone 1 is £10.06/kW to £25.64/kW and for zone 2, £7.53/kW to £12.54/kW.**

The indicative residual charge contained in the indicative GB tariffs below has been calculated as £2.70 /kW for generation and £9.30 /kW for demand.

GENERATION TARIFFS

Zone	Zone Name	Generation GB Zonal Tariff (£/kW)	E&W UoS-CM-M-10 Zonal Tariffs
1	Scottish Hydro	*20.69	N/A
2	Scottish Power	*11.28	N/A
3	North East	8.03	9.17
4	North West	4.76	5.10
5	Anglesey	5.12	6.63
6	Dinorwig	8.51	10.02
7	N Wales, Mersey & S Yorks	2.17	3.65
8	Humberside & Aire Valley	3.84	5.45
9	Midlands	0.41	1.97
10	South Wales & Gloucs	-4.95	-3.38
11	Seabank	-3.46	-1.93
12	Oxon & Bucks	-1.45	0.08
13	East Anglia	1.64	3.18
14	NE London & Thames Estuary	-0.01	1.56
15	Central & SW London	-7.05	-5.52
16	South Coast	-1.65	-0.07
17	Wessex	-6.16	-4.59
18	Peninsula	-8.69	-7.12

DEMAND TARIFFS

Zone	Zone Name	Demand Zonal Tariff (£/kW)	E&W UoSCM-M-10 Zonal Tariffs
1	Scottish Hydro	0.00	N/A
2	Scottish Power	2.57	N/A
3	Northern	6.22	3.49
4	North West	9.98	7.99
5	Yorkshire	9.37	7.32
6	N Wales & Mersey	9.96	7.89
7	East Midlands	11.91	9.77
8	Midlands	13.58	11.45
9	Eastern	12.07	9.91
10	South Wales	17.54	15.39
11	South East	15.59	13.44
12	London	17.74	15.71
13	Southern	16.75	14.60
14	South Western	19.15	17.00

Generation Zonal Map

