

Scottish Hydro Electric Transmission plc

Basis of Transmission Owner Charges

Effective 1 April 2017

The Gas and Electricity Markets Authority is still to approve this statement



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1 Introduction and Principles

- 1.1. This statement is produced by Scottish Hydro Electric Transmission plc (SHE Transmission), the Transmission Owner (TO), which sets out the basis of charges for the provision by SHE Transmission to National Grid Electricity Transmission plc (NGET), the System Operator (SO) of transmission services as specified in the Transmission Licence and System Operator Transmission Owner Code (STC).
- 1.2. This Statement is effective from 1 April 2017.
- 1.3. The charges shall consist of the General System Charge, Site Specific Charges and Other Charges. The methodology for calculating these three classes of charges is set out in parts one, two and three of this statement.
- 1.4. The **General System Charge** recovers all costs for providing, replacing and/or refurbishing SHE Transmission's infrastructure assets, and all costs associated with the replacement and/or refurbishment of Pre-Vesting Transmission Connection Assets (TCA).
- 1.5. **Site Specific Charges** relate to Post Vesting connection assets and recover all costs for providing, replacing and/or refurbishing these connection assets. Three types of connection assets are referred to in this statement: Pre Vesting (installed before 31 March 1990); Post Vesting Pre BETTA (installed between 1 April 1990 and 31 March 2005); and Post BETTA (installed after 31 March 2005).
- 1.6. In general, connection assets are defined as those assets solely required to connect an individual User to the SHE Transmission system, which are not and would not normally be used by any other connected party (i.e. "Single User Assets"). For the purposes of this statement, all connection assets at a given location shall together form a connection site.
- 1.7. Connection assets are defined as all those Single User Assets which:
 - a. For Double Busbar type connections, are those Single User Assets connecting the User's assets and the first SHE Transmission owned substation, up to and including the Double Busbar bay;
 - b. For teed or mesh connections, are those Single User Assets from the User's assets up to , but not including the HV disconnector or the equivalent point of isolation; and
 - c. For cable and overhead lines at a Transmission Voltage, are those Single User connection circuits connected at a Transmission Voltage equal to or less than 2km length that are not potentially shareable.
- 1.8. Shared assets at a banked connection arrangement will not normally be classed as connection assets except where both legs of the banking are Single User Assets under the same TO Connection Agreement. Other definitions of connection assets might apply.
- 1.9. Indicative Gross Asset Values ("GAVs") of connection assets for illustrative purposes are given in Appendix 1.
- 1.10. SHE Transmission may at the request of NGET carry out other work, which is not covered by General System Charge or Site Specific Charges, including, for example, outage rescheduling, dealing with

applications for connection, or obtaining consents. The principles for calculating such Other Charges are also set out in this statement and, where absent, charging treatment will defer to the Connection and Use of System Code (CUSC).

2 Transmission Owner Revenue Restriction

- 2.1. The Transmission Price Control review sets a restriction on SHE Transmission’s charges for the General System Charge and Site Specific Charges, as described below.
- 2.2. Special Condition (SC) 3A of SHE Transmission’s Licence established the charge restriction that determines the Allowed TO Revenue (TO_t) that SHE Transmission may earn from its TO services:

$$TO_t = BR_t + PT_t + OIP_t + NIA_t + TIRG_t + SHCP_t - K_t$$

TO_t	Allowed Transmission Owner Revenue in Relevant Year t
BR_t	Base Transmission Revenue in Relevant Year t as derived in accordance with the formula set out in Part C of SC 3A
PT_t	Allowed pass-through items revenue adjustment made in Relevant Year t as derived in accordance with Special Condition 3B (Calculation of allowed pass-through items)
OIP_t	Outputs incentive revenue adjustment made in Relevant Year t as derived in accordance with the formula set out in Part D of SC 3A
NIA_t	Revenue adjustment made in Relevant Year t in respect of the Network Innovation Allowance as derived in accordance with SC 3H (The Network Innovation Allowance)
$TIRG_t$	Aggregate of the annual revenue allowances, for each Relevant Year t for each transmission investment project specified in Schedule C of SC 3J (Transmission Investment for Renewable Generation), as derived in accordance with that condition
$SHCP_t$	Compensatory Payments Adjustment made in Relevant Year t as derived in accordance with Part D of SC 3C (Reliability Incentive Adjustment in Respect of Energy Not Supplied)
K_t	Correction term in Relevant Year t as derived in accordance with the formula set out in Part E of SC 3A

- 2.3. The Allowed TO Revenue includes the costs associated with Pre Vesting connection assets and Post Vesting, Pre BETTA connection assets.
- 2.4. SC 2N of SHE Transmission’s Licence establishes the charge restriction that determines SHE Transmission’s charges for the provision of transmission services (TSht) to NGET:

$$TSH_t = TO_t - EXS_t$$

TO_t	Allowed TO Revenue for Relevant Year t
TSH_t	General System Charge
EXS_t	Site Specific Connection Charges for Post Vesting, Pre BETTA sites

2.5. The methods by which these are calculated are detailed in parts one and two of this statement.

Retail Price Index (RPI)

2.6. RPI will be adjusted in accordance with the rules set out in SHE Transmission's Licence as defined in Special Licence Condition 3A.

Excluded Services Charges

2.7. Part C of SC 8B of SHE Transmission's Licence establishes charging provisions for Excluded Services. These are Other Charges in addition to those specified in Standard Licence Condition 2N (described above).

2.8. In addition to the charges arising from SHE Transmission's charges for the provision of transmission services (TSht) to NGET, SHE Transmission will also invoice Excluded Services Charges monthly to NGET.

2.9. These Excluded Services Charges are for Post BETTA connection assets; and for assets at Pre Vesting sites which have replaced time-expired assets, or have replaced non-time expired Pre Vesting assets at the User's request (i.e. as the result of a modification application). These Excluded Services Charges consist of (1) Capital charges, and (2) Transmission Operation and Maintenance charges as defined in part two.

2.10. The methods by which Other Charges are calculated are detailed in part three of this statement.

PART 1: General System Charge (TSH_t)

The General System Charge reflects the cost of installing, operating, replacing, developing and maintaining SHE Transmission's infrastructure assets and all costs associated with the replacement and/or refurbishment of Pre Vesting Transmission Connection Assets. These activities are undertaken to the standards prescribed by SHE Transmission's licence, to provide the capability to allow the flow of bulk transfers of power between connection sites and to provide transmission system security.

The General System Charge will be set to recover the Allowed TO Revenue (TO_t) for 2017-18 net of Site Specific Charges for Post Vesting, Pre BETTA connections (EXSt).

No service provided by SHE Transmission shall be treated as an Excluded Service in so far as it relates to the provision of services remunerated under the General System Charge as set out in the STC and associated procedures. In accordance with the STC and associated procedures, SHE Transmission will invoice one twelfth of the General System Charge (which may be subject to amendment) to NGET.

PART 2: Site Specific Charges

The Site Specific Charges are set to recover costs associated with Post Vesting connection assets specified in the TO Construction Agreement (TOCA) and/or STC for the relevant connection site. In accordance with the STC and associated procedures, SHE Transmission will invoice one twelfth of the Site Specific Charges for each connection site (which may be subject to amendment) to NGET.

Site Specific Charges for the Post Vesting connections consist of: (1) Capital Charges and (2) Transmission Operation and Maintenance Charges. These are explained further below.

3 Capital Charges

3.1. The basis of Capital Charges is outlined in this section and within section five of this statement.

Capital Charges for Post Vesting Pre BETTA Connections

3.2. For Post Vesting Pre BETTA connections commissioned before 1 April 2005 (BETTA Go-Live Date), where the capital costs are recovered through annual connection charges, these charges are based on a rate of return on the Net Asset Value (NAV) plus a depreciation charge based on an expected 40 year life. The rate of return that will be applied to the NAV is 6.65%. For connection assets where NGET has paid 100% (full) capital contribution towards the purchase and installation of the assets, there are no annual capital charges. For partial or post commissioning capital contributions, see paragraph 3.5 below.

Capital Charges for Post BETTA Connections

3.3. For assets installed after 1 April 2005, SHE Transmission will recover the cost of connection from NGET by means of either:

- Option (a) A full capital contribution charge;
- Option (b) Annual capital charge, over the lifetime of the assets; or
- Option (c) A partial capital contribution charge with reduced annual charge.

3.4. Where NGET has elected Option (a) or Option (c), SHE Transmission will require the relevant capital contribution charge to be paid either in advance of commencement of connection works (which may be phased over the construction period according to a payment schedule as set out in the TOCA) or based on the allocated and depreciated NAV of a commissioned asset.

3.5. NGET could elect to make a capital contribution based on the allocated and depreciated NAV of a commissioned asset. For a capital contribution to take account at the start of the charging year, n , NGET may, at most once per year, make a full or partial capital contribution of at least 10% of the NAV prevailing as of 31 March in year $n-1$. NGET shall notify SHE Transmission of the capital contribution amount no later than 1 September in year $n-1$, and pay the capital contribution 45 days prior to the start of the charging year n which will be applied to the NAV prevailing at the start of year n .

- 3.6. For Option (a) where NGET has requested and paid full capital contribution there will be no annual capital connection charges (i.e. no depreciation and rate of return charges).
- 3.7. For Option (a) the sum quoted in the construction agreement for the connection assets at the relevant site will become the Gross Asset Value (GAV) of the connection assets for the purposes of calculating the annual Transmission Operation and Maintenance Charges for the site.
- 3.8. For Option (c) where NGET has requested and paid partial capital contribution, either pre or post asset commissioning, the annual capital connection charge will recover the remaining capital cost. The annual capital connection charge will become payable the day after commissioning of the connection assets or from the day the connection assets become available for use.
- 3.9. Where NGET has elected Option (b) or (c) the capital costs recovered through annual charges are based on a rate of return on the Net Asset Value (NAV) plus a depreciation charge based on a 40 year life. The rate of return that will be applied to the NAV is 6.65%. The depreciation period for Post BETTA connection assets may, by mutual agreement, be less than 40 years but never more than 40 years.

Connection Agreements

- 3.10. SHE Transmission's connection offer to NGET will be based on one of the following price bases and payment terms will reflect either Option (a), (b) or (c) above.
 - (i) Fixed Price Agreement
 - 3.10.1. Upon receipt of NGET's formal application for a connection, SHE Transmission will submit a fixed price offer within three months of the effective application date. The fixed price offer option is available for a connection application where the planned connection completion date is generally within 18 months from the offer date. Typically with this option the charges to be incurred, and any indexation, are agreed between SHE Transmission and NGET and connection charges are not recalculated once outturn costs are known. A fixed price agreement may include a risk margin to allow for possible variances above the estimate, which might occur for any reason.
 - (ii) Indicative Price Agreement
 - 3.10.2. Upon receipt of NGET's formal application for a connection, SHE Transmission will submit an indicative price offer within three months of the effective application date. When SHE Transmission has obtained sufficient information to determine the price, SHE Transmission will confirm or amend the indicative price to a fixed price. This will be at least six months prior to date of commencement of any works (as stated in the indicative offer). The indicative price offer will, in practice, only become a fixed price offer when SHE Transmission is in a position to forecast with reasonable accuracy what the total costs of the project will actually be. This may be, for example, when the scope of works has been finalised and prices from sub-contractors have been obtained.
 - (iii) Indicative Price Agreement with Outturn Price Reconciliation
 - 3.10.3. Once the works required to provide a new or modified connection are completed and the costs finalised, the connection scheme is "outturned". SHE Transmission reconciles the monies paid by NGET on the indicative charge basis against the charges that would have been payable based upon the actual costs incurred in delivering the project along with any relevant interest charges. This

process requires a new charging GAV (the initial asset cost) to be agreed with NGET in line with the “Calculation of the Gross Asset Value” (as shown in section five).

- 3.11. NGET will indicate in its formal application for a connection to SHE Transmission which price agreement and payment Option (a), (b) or (c) it requires.
- 3.12. SHE Transmission reserves the right to make an offer of terms on a different price basis if SHE Transmission is aware that the choice exercised by NGET is not the same choice being exercised by the party requesting the connection (“the User”) in its relationship with NGET.
- 3.13. Where SHE Transmission installs assets of greater size and/or capacity than the minimum that would be required for that connection using standard equipment ratings, the costs in excess of that minimum normally shall be borne by SHE Transmission.
- 3.14. If SHE Transmission considers that assets require to be replaced prior to the end of their normal economic lifetime (normally 40 years), the replacement costs will be borne by SHE Transmission within the remaining economic life of the original assets. On expiry of the expected lifetime of the original assets, the connection capital charge will be recalculated taking account of the NAV of the replacement connection assets, together with the normal provision for depreciation.
- 3.15. Pre Vesting sites will be charged in accordance with this charging statement and the CUSC.
- 3.16. Where a modification to the existing connection occurs at NGET’s request or due to developments to the transmission system, the connection charges will reflect any additional connection assets that are necessary to meet NGET’s requirements. Charges will continue to be levied for existing assets that remain in service. Termination charges as described in section fifteen will be charged for any existing connection assets made redundant as a result of the modification.

4 Transmission Operation and Maintenance Charges

- 4.1. The Transmission Operation and Maintenance Site Specific Charges in respect of connections provided by SHE Transmission is not limited to the routine maintenance of assets in accordance with specified maintenance frequencies, but also includes the following:
 - a proportion of the cost of operating the transmission business;
 - total site care, covering site safety, security and environmental protection, local liaison, notably with statutory authorities, wayleave grantors and members of the public;
 - payment of local authority charges, electricity, water and telephone charges associated with the connection site; and
 - standby and out-of-hours service throughout the year.
- 4.2. For Options (a), (b) or (c) (section three above) as relevant and for Post Vesting Pre BETTA connections, the Transmission Operation and Maintenance annual charges will be calculated as set out below.
- 4.3. The Transmission Operation and Maintenance annual charges are divided into two parts:

- Site Specific Maintenance Charge

4.3.1. The Site Specific Maintenance annual charge recovers the on-going maintenance (including repairs) of the connection asset and is based on forecast total site specific maintenance for NETS divided by the total GAV of SHE Transmission's connection assets to arrive at a percentage of total GAV. The annual Site Specific Maintenance charge is 0.5% of the connection asset GAV. For the avoidance of doubt, there will be no reconciliation of the Site Specific Maintenance charge.

- Transmission Running Cost Charge

4.3.2. The Transmission Running Cost (TRC) factor is calculated each year to reflect the appropriate amount of other transmission operation costs (rates, operation, indirect overheads) incurred by SHE Transmission that should be attributed to connection assets. This charge is based on a percentage of the GAV of the connection asset. The Transmission Running charge is 1.5% of GAV. For the avoidance of doubt, there will be no reconciliation of the Transmission Running charge.

5 Calculation of Gross Asset Value (GAV) and Net Asset Value (NAV)

5.1. The GAV represents the initial total cost of a connection asset to SHE Transmission. For a new connection asset it will be the costs incurred by SHE Transmission in the provision of that connection asset, as defined in the Transmission Owner Connection Agreement (TOCA). Typically the GAV is made up of the following components:

- Construction costs – costs of materials and bought in services;
- SHE Transmission engineering – allocated equipment and engineering costs including overheads;
- Interest during construction – financing cost; and
- Liquidated damages premiums – premiums required to cover Liquidated Damages, if applicable.

5.2. The GAV of an asset is re-valued each year using the Retail Price Index (RPI) as defined in Special Licence Condition 3A and noted in paragraph 2.6. The formula for this revaluation is therefore as follows:

$$GAV_n = GAV_{n-1} * RPI_n$$

5.3. RPI will be adjusted in accordance with the rules set out in SHE Transmission's licence as defined in Special Licence Condition 3A.

5.4. The NAV of each asset for year n, used for charge calculation, is the average (mid year) depreciated GAV of the asset. The following formula calculates the NAV of an asset with a 40 year life, where A_n is the age of the asset (number of completed charging years old) in year n:

$$NAV_n = GAV_n * [40 - (A_n + 0.5) / 40]$$

PART 3: Other Charges

Over and above the General System Charge and Site Specific Charges, SHE Transmission may incur other costs, including, but not limited to:

- costs associated with processing applications for connection to the system;
- one-off costs associated with new connections; and
- cost of rearranging outages at NGET's request.

Any costs incurred by SHE Transmission as a result of NGET's requirements that are not otherwise recoverable through the General System Charge or Site Specific Charges will be charged to NGET according to the following principles.

6 Application Fees

- 6.1. SHE Transmission will charge NGET an application fee at the time of each application for a new or modified connection to SHE Transmission's transmission system. This fee is intended to cover engineering costs and other expenses involved in preparing an offer of terms.
- 6.2. NGET can opt to pay a fixed price application fee in respect of their application or pay a variable application fee, which is based on the actual costs incurred. The fixed price fees for applications are detailed in Appendix B.
- 6.3. If NGET chooses to pay a variable application fee, SHE Transmission will charge NGET the fixed price fee in the appropriate table detailed in Appendix B and carry out reconciliation once the actual engineering and out-of-pocket expenses have been established. Actual costs will be based on the SHE Transmission charge-out rates detailed in Appendix C. Where actual costs exceed the advance, SHE Transmission will issue an invoice for the excess. Conversely, where SHE Transmission does not use the whole of the advance, the balance will be refunded.
- 6.4. Should NGET notify SHE Transmission of changes in the planning assumptions after receipt of an application fee, SHE Transmission may levy an additional charge.
- 6.5. In exceptional circumstances where NGET has requested an application which involves significant costs over and above normally expected (e.g. substantial system studies, specialist surveys, investigations) to process an offer of terms then SHE Transmission reserves the right to vary the applicable fixed fee quoted in Table A and Table B of Appendix B. Under these circumstances, SHE Transmission will, following discussion with NGET, advise the appropriate indicative applicable fee. Such an application fee will be treated as a variable application fee, and reconciled in the manner detailed above once the actual costs are known.
- 6.6. SHE Transmission will refund application fees and consent payments either on commissioning or against the charges payable in the first three years of the new or modified agreement. The following conditions apply:
 - The refund will be net of external costs;

- Where a new or modified agreement is signed and subsequently modified at NGET's request before any charges become payable, SHE Transmission will refund the original application fee. SHE Transmission will not refund fees in respect of the subsequent modification; and
- SHE Transmission will not refund application fees for applications to modify a new agreement or modified existing agreement at NGET's request before any charges become payable.

7 Feasibility Studies

- 7.1. If NGET requests a feasibility study in connection with alterations to or extension of the SHE Transmission network a fee is payable based on an advance of SHE Transmission engineering and out-of pocket expenses. The fee payable by NGET will vary according to the size of the study and the amount of work involved. Where actual engineering and out-of pocket expenses exceed the advance, SHE Transmission will issue an invoice for the excess. Conversely, where SHE Transmission does not use the whole of the advance, the balance will be refunded.
- 7.2. A schedule of charge-out rates for different classes of SHE Transmission staff is attached at Appendix C.

8 One-Off Works

- 8.1. To provide or modify a connection, SHE Transmission may need to carry out works on the transmission system that, although directly attributable to the connection, may not give rise to additional connection assets. These works are defined as "one-offs". Liability for one-off works charges is established with reference to the principles laid out below:
- Where a cost cannot be capitalised into either a connection or infrastructure asset, typically a revenue cost;
 - Where a non-standard incremental cost is incurred as a result of NGET's request, irrespective of whether the cost can be capitalised; and
 - Termination charge associated with the write-off of connection assets at the connection site.
- 8.2. The one-off works charge is a charge equal to the cost of the works involved, together with a reasonable return.
- 8.3. The calculation of the one-off works charge for write-off of assets is outlined below:
- Write-off Charge = 100% of remaining NAV of redundant assets**
- 8.4. The costs of diversion of transmission lines or cables, in connection with an application for a new or modified connection, including removal or relocation of towers will be recovered as one-off charge.
- 8.5. The costs of Category 1 and 3 inter-tripping schemes for generator connections (as defined in the Grid Code and the CUSC) will be recovered as one-off works charges.
- 8.6. The costs of abortive transmission construction works will be recovered as one-off works charges as set out in this statement.

- 8.7. One-off works charges are payable upon alteration or completion of the works and are paid on an agreed date.

9 Miscellaneous Site Specific Charges

- 9.1. Other contract specific charges may be payable by NGET for a specific site. These will be set out in the TOCA and/or STC where appropriate.

10 Abortive Works

- 10.1. Following a User's modification application, if in SHE Transmission's reasonable opinion, the User has required SHE Transmission to make the amendment to the transmission construction works and SHE Transmission has previously carried out transmission construction works, some or all of which are now no longer required ("Abortive Works"), NGET shall be required to make a payment to SHE Transmission in respect of all fees, expenses and costs, of whatever nature, reasonably and properly incurred by SHE Transmission in respect of the Abortive Works.

11 Contestable Connection Works

- 11.1. The above principles are relevant for transmission connections where SHE Transmission procures and installs all necessary transmission connection assets on behalf of the User. However, it is also possible for the User themselves to procure and install certain transmission connection assets as contestable connection works. Such arrangements would be subject to the assets being designed and installed to SHE Transmission's technical standards to ensure the ongoing security and operability of the transmission system. SHE Transmission may also require other agreements and indemnities to ensure that there are no adverse consequences for other Users of the transmission system that may arise as a result of a User's decision to "self-build".
- 11.2. We advise that SHE Transmission's self-build arrangements are under development and are subject to modification to reflect the requirements of a particular self-build scheme. In the event a User should wish to consider the option of their self-building certain transmission connection assets and works, they should advise NGET of this intention when making their formal application to NGET. Following such indication of intent SHE Transmission will provide the User with the necessary specifications and agreements covering the self-build works.
- 11.3. SHE Transmission would adopt the User's self-build transmission connection assets, free of charge, subject to the User complying with the requirements and obligations of a Transmission Adoption Agreement ("TAA") in respect of the transmission connection assets and other requirements. The TAA shall be between SHE Transmission and the User.
- 11.4. The TO construction agreement would contain an estimated GAV for the new or replacement connection assets for charging purposes. The GAV would be estimated by SHE Transmission as though it was carrying out the full works.

12 Energy Metering Systems

- 12.1. The charges to NGET for the provision of energy metering systems will be on a similar basis as other SHE Transmission connection assets. The electronic components of the energy metering system

have a 10 year replacement and depreciation period whilst the non-electronic components retain a 40 year replacement and depreciation period.

13 Outage Services

- 13.1. Where pre-arranged outages are re-arranged at NGET's request or where NGET require additional services for planned or unplanned outages over and above the normal service provided under General System Charge, NGET will be liable for outage service charges. These charges reflect the costs incurred by SHE Transmission in accommodating NGET's request. They include, but are not limited to:
- Costs (including where appropriate, liquidated damages) of standing down contractors until outage starts. Costs will be derived from contractors' invoices and, in the case of liquidated damages, from the relevant agreement(s);
 - Costs of overtime working to reduce outage time such as to reduce NGET's costs in maintaining system security. Cost will be based on overtime hours worked on the particular outage; and
 - Costs of installing additional equipment, such as bypass arrangements.
- 13.2. Where an outage is re-arranged at NGET's request, SHE Transmission will use all reasonable endeavours to minimise the charge to NGET by redeploying staff onto other work.
- 13.3. Charge-out rates to assess indicative costs for overtime working are given at Appendix C.

14 De-energisation and Disconnection

- 14.1. Where NGET wishes a supply to be permanently de-energised, a minimum of two business days notice (or such other period as may be specified in the TOCA and/or STC) to that effect should be given to SHE Transmission. SHE Transmission will arrange to de-energise the supply and read the metering equipment, where appropriate, for billing purposes. An additional charge will be made for this service if undertaken outside normal working hours.
- 14.2. Temporary de-energisation (and subsequent re-energisation) resulting from the failure by NGET to comply with the terms of the relevant TOCA agreement, or carried out at the request of NGET will be at the expense of NGET.
- 14.3. Where it becomes necessary to disconnect a customer (at the request of NGET), that is to have SHE Transmission's equipment removed from site, for any reason, any payments outstanding in first providing that connection will become due forthwith.
- 14.4. If NGET requests disconnection, this should be requested in writing. On receipt of such a request SHE Transmission will take all reasonable steps to remove the equipment in accordance with the NGET's reasonable requirements. SHE Transmission should be consulted at an early stage and a programme for the removal of equipment will be subject to individual assessment.

- 14.5. On termination SHE Transmission retains the right to remove its equipment. Where it is cost effective to do so SHE Transmission will remove such equipment, and no charge will be made to NGET.
- 14.6. For those assets where removal is not cost effective (e.g. buried cables), SHE Transmission will ensure such assets are made safe and that conditions allow them to be left on site. If NGET, or general planning conditions, requires SHE Transmission to remove them, the cost of removal will be payable by NGET. All such equipment will remain the property of SHE Transmission until otherwise agreed in writing with SHE Transmission.

15 Termination Fees

- 15.1. Where NGET decides prior to the expiry of the normal 40 year replacement period of the assets involved, that all or part of a connection is no longer required and either applies to modify the agreement, or serves notice of a termination, a termination amount is payable to SHE Transmission, except where the full capital charge has been paid in advance, excluding reasonable costs of removing such assets. The termination charge is calculated on the basis of the Net Asset Value (NAV) of the assets involved, with due allowance for any financing contribution made by NGET plus all reasonable costs associated with removal of the assets.
- 15.2. Where the connection assets are made redundant as a result of the termination or modification to the TOCA and/or STC, NGET will be liable to pay an amount equal to the NAV of such assets as at the end of the financial year in which termination or modification occurs, reflecting the following:
- The reasonable costs of removing such assets. These costs being inclusive of the costs of making good the condition of the connection site.
 - If a connection asset is terminated before the end of a financial year, the connection charge for the full year remains payable.
 - For assets which SHE Transmission has determined to replace upon the expiry of the relevant replacement period in accordance with the provisions set out in the STC and in respect of which a notice to disconnect or terminate has been served in respect of the connection site at which the assets were located; and due to the timing of the replacement of such assets, no Site Specific Charges will have become payable in respect of such assets by NGET by the date of termination; the termination charges will include the reasonable costs incurred by SHE Transmission in connection with the installation of such assets.
 - Previous capital contributions will be taken into account.

15.3. The calculation of termination charge for financial year n is as follows:

$$\text{Termination charge}_n = \text{UoS}_n + \text{C}_n + \text{NAV}_{an} + \text{R} - \text{CC}$$

UoS_n Outstanding Use of System Charge for year (TNUoS and BSUoS)

C_n Outstanding connection charge for year

NAV_{an} NAV of the relevant assets as at 31 March of financial year n

R Reasonable costs of removal of redundant assets and making good

CC An allowance for previously paid capital contributions

15.4. Examples of reasonable costs of removal for terminated assets and making good the condition of the site include the following:

- If SHE Transmission terminates a circuit breaker as a result of a User leaving a site, this may require modifications to the protection systems.
- If an asset were terminated and its associated civils had been removed to 1m below ground then the levels would have to be made up. This is a common condition of planning consent.

16 Re-use of Connection Assets

16.1. If any assets in respect of which a termination charge was made to SHE Transmission are re-used at the same site or elsewhere on the system, including as infrastructure assets, SHE Transmission will make a payment to NGET to reflect the fact that the assets are being re-used.

16.2. The arrangements for such repayments for re-use of assets are that SHE Transmission will pay NGET a sum equal to the lower of:

- The Termination Amount paid in respect of such assets; or
- The NAV attributed to such assets for charging purposes upon their re-use.

16.3. The above payments are less any reasonable costs incurred in respect of storage of re-used assets.

16.4. The definition of re-use is set out in the Connection and Use of System Code (CUSC).

16.5. Where SHE Transmission decides to dispose of a terminated asset where it is capable of re-use, SHE Transmission will pay NGET an appropriate proportion of the sale proceeds received.

17 Early Termination of Transmission Reinforcement Works

- 17.1. When a TO Construction Agreement for a connection is terminated by NGET prior to completion of the works then, in addition to the costs incurred at the time of termination for connection assets, NGET must pay to SHE Transmission the costs incurred at the time of termination for any transmission reinforcement works which were required as a direct consequence of NGET's application for a connection.

18 Early Replacement

- 18.1. If SHE Transmission considers that a connection asset requires to be replaced prior to the end of its normal economic lifetime, the replacement costs will be borne by SHE Transmission within the remaining economic life of the original connection asset. On expiry of the expected lifetime of the original connections asset, the connection charge will be recalculated taking account of the NAV of the replacement connection asset, together with the normal provision for depreciation.

19 Miscellaneous

- 19.1. If NGET request any other work by SHE Transmission not covered by General System Charge, Site Specific Charges or other charges specified above, SHE Transmission will provide terms for the requested work.

GLOSSARY

Affected TO	A TO who owns or operates a transmission system which is electrically impacted by a User's connection to a Host TO's transmission system
Allowed TO Revenue	As set out in the TO's Transmission Licence
Authority	The Gas and Electricity Markets Authority (Ofgem)
BETTA	British Electricity Trading and Transmission Arrangements
BETTA Go-Live Date	1 April 2005
Bilateral Connection Agreement	An agreement between the SO and the User covering the connection to SHE Transmission's transmission system
Consents	In relation to any transmission system and/or connection works: <ul style="list-style-type: none">a) all such planning (including Public Inquiry) and other statutory consents;b) all wayleaves, easements, rights over or interests in land or any other consent; or for commencement and carrying on of any activity proposed to be undertaken at or from such works when completed; andc) permission of any kind as shall be necessary for the construction of the works.
CUSC	Connection and Use of System Code
Entry	A point of connection at which electricity may be exported from a User's installation onto the transmission system i.e Generation
Excluded Services Charges	As defined in Special Condition 8B of the TO's Transmission Licence
Exit	A point of connection at which electricity may flow from the transmission system to the User's installation i.e. Demand
Host TO	The TO which will electrically connect the User to a transmission system which is owned or operated by that TO
NGET	National Grid Electricity Transmission plc
Post BETTA	On and after 1 April 2005
Post Vesting	1 April 1990 to 31 March 2005
Retail Price Index	Table 36: RPI: All items index 1947 – "CHAW" published by the Office for National Statistics and as amended monthly. Calculated in accordance with SC 3A.

SO	System Operator (NGET)
STC	The System Operator Transmission Owner Code
TO	An onshore or offshore Transmission Owner (SHE Transmission)
Transmission Interface Point	The electrical point of connection between the offshore transmission system and onshore transmission system
Transmission Interface Site	The site at which the Transmission Interface Point is located.
Transmission Licence	Transmission licence granted or treated as granted under section 6(1)(b) of the Act
Transmission Voltage	In Scotland usually voltages at 132kV or above
User	A generation or demand customer connected to the TO's transmission system and party to SO's bilateral agreement(s)

Appendix A Indicative Connection Asset Charges

The schedule below gives typical costs excluding VAT for additions to SHE Transmission’s transmission system. The costs shown are current at the time of publication, are subject to change without notice and may vary upon system configuration, consents, site conditions etc.

Description	£000s		
	275kV	132kV	33kV
Single Busbar bay	1,363	1,132	215
Double Busbar bay	1,463	1,263	220
Single circuit Trident £/km	-	388	-
Double circuit Steel Tower £/km	1,566	1,185	-
Transformer Cables per km (inc terminations)	2,470	1,074	-
275/132kV 240MVA transformer	6,108	-	-
275/33kV 120MVA transformer	3,681	-	-
132/33kV 90MVA transformer	-	2,574	-
132/33kV 60 MVA transformer	-	2,425	-

Calculation of Gross Asset Value (GAV)

The GAV figures in the above table were calculated using the following assumptions:

- Each asset is new.
- The GAV includes estimated costs of construction, engineering and liquidated damages premiums.

Notes on Assets

Busbar Bays – Assumptions:

- Plant – the bay is constructed from SHE Transmission standard bay drawings and tendered prices provided for protection, cabling, auxiliary systems, earthing are based on various assumptions.
- Everything is based on an assumed value per bay.
- Civil – nominal base sizes & dimensions of concrete footings, good ground condition, includes landscaping. Access works and drainage costs elsewhere.

Busbar Bays – Exclusions:

- Plant – overall substation protection, main control and SCADA systems.
- Auxiliary supplies including LV AC & DC systems.
- Electrical design costs.
- Local authority/statutory planning consents.

Transformer Cables – Assumptions (All based on 1 circuit of 1 core per phase,1000m circuit length on a flat and unimpeded route):

- XLPE lead/ali sheathed cable supply, install, commission.
- High voltage AC and sheath testing.
- Earth Continuity Cable (ECC) & link boxed supply, installation and connection included.
- Fibre optic including terminal boxes – installed with cable only.
- Cable installed in ducts/trenching.
- Connection and modifications to earth mat.
- Excavation waste disposal, site establishment/prelims, security and access costs included.
- Cable installation will be treated as a standalone installation project.
- Costs do not allow for any small quantity/MOQ surcharge that may be levied by cable supplier.
- Others – VAT and inflation.

Transformers – Assumptions:

- Plant – costs include for procurement, delivery and commissioning of Grid and SG transformers.
- Civil – nominal base sizes with good ground conditions, include for a bund. Access, oil containment.
- Transformer protection, control, cabling, auxiliary systems varies based on site specifications and requirements.
- Earthing is based on an assumed value per bay.

Transformers – Exclusions:

- HV & LV switchgear.
- Bay protection, control and SCADA system, (considered under part of the busbar bay costs).
- Auxiliary supplies including LV AC & DC systems.

- Civil – piling.
- Site drainage.
- Electrical design costs.
- Fire protection systems.
- Local authority/statutory planning consents.
- Others – VAT and Inflation.

Factors Which Can Influence Costs and Charges:

- Standards governing the system.
- Special security of supply requirements.
- Length of cable/line required from existing system.
- Size of Exit point / Entry point capacity requirements in relation to available capacity of existing network, including the age of the assets and the condition of the network.
- Whether any extension or reinforcement of the existing network is by underground cable or overhead lines.
- Type of ground requiring excavation; type and extent of reinstatement necessary, including New Roads and Street Works Act requirements; need for road crossings.
- Availability of wayleaves/easements for cables and lines including any planning consents.
- Availability of suitable substation sites including any necessary planning consents.
- Necessity of overtime working.

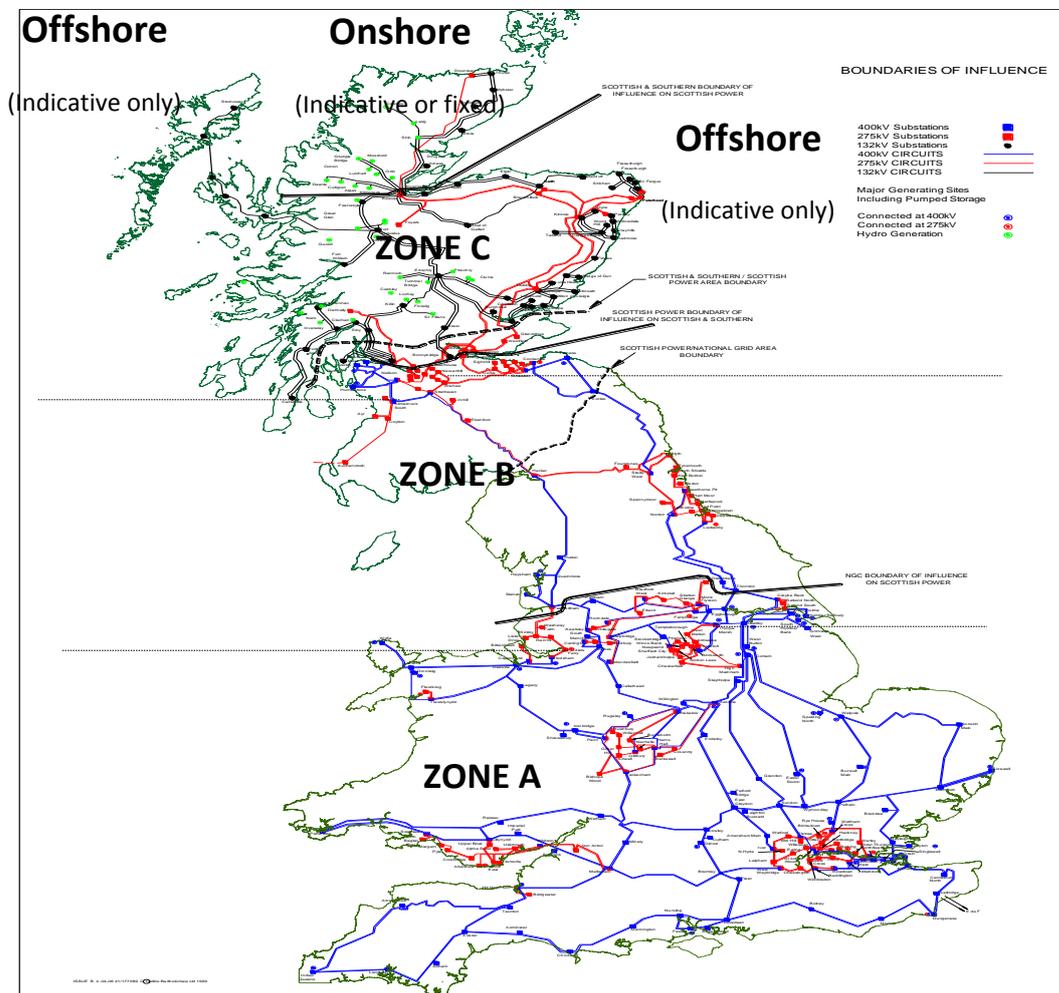
Illustrative list of Abnormal Services which may be reflected in the Site Specific Charges

Illustrative list of abnormal services which may be reflected in the connection charge:

- progression of work required other than in an orderly fashion in accordance with normal engineering policies and practices thus imposing additional costs.
- transformer/substation sites not provided to the Company in suitable locations at normal prices or rents, taking account both of cable access and access by personnel.
- loads with abnormal characteristics, which affect the security and standard of service on the system, for example, arc welders and large motors.

Appendix B Application Fees

Transmission Licensees' Boundaries of Influence Map



Fees will be applied depending on which zone the connection will be constructed. See Table A or B on pages 24 and 25. The boundaries of influence are set out in detail in the NGET's Electricity Ten Year Statement.

All Fees subject to other additional costs covering any other special design requirements e.g. subsea survey, advance wayleaving etc being payable or underwritten by NGET.

All fees are subject to the addition of VAT.

No application fee is payable for SHE Transmission initiated works.

The MW value is the final value applied for.

Table A – Application Fees in Zone C, where SHE Transmission is Host TO

Application Type	MW	Base Fee (£)	Rate £/MW
New Onshore Application (Entry)	<100	25,964	193
	100 – 1320	40,805	94
	>1320	118,708	41
New Onshore Supply Point (Exit)	<100	24,730	-
	>100	49,460	-
New Offshore Application (<i>Indicative Only</i>)	-	35,000	-
Statement of Works (Exit)	-	510	-
Modification Application following Statement of Works (Project Progression) (Exit)	-	2,346 or 10,200	-
TEC Increase	<100	25,964	193
	100 – 1320	40,805	94
	>1320	118,708	41
Application Type	MW	Base Fee	Factor
Onshore Modification Application (Entry)	<100	25,964	0.75
	100 – 1320	40,805	
	>1320	118,708	
Onshore Modification Application to Existing Supply Point (Entry)	<100	19,115	-
	>100	24,730	-
Offshore Modification Application (Entry)	<100	25,964	0.75
	100 – 1320	40,805	
	>1320	118,708	
Embedded Generation Application (Entry)	<100	25,964	0.3
	100 – 1320	40,805	
	>1320	118,708	
Embedded Modification Generation Application (Entry)	<100	25,964	0.2
	100 – 1320	40,805	
	>1320	118,708	
Design Variation in addition to Standard Offer (Entry)	<100	25,964	1.5
	100 – 1320	40,805	
	>1320	118,708	

Table B – Application Fees in Zone C, where SHE Transmission is Affected TO

Application Type	MW	Base Fee (£)	Rate £/MW
New Onshore Application (Entry)	<100	6,691	49
	100 – 1320	10,511	23
	>1320	30,580	9
New Onshore Supply Point (Exit)	<100	11,240	-
	>100	24,730	-
New Offshore Application (Indicative Only)	-	35,000	-
Statement of Works (1) (Exit)	-	510	-
Modification Application (2) following Statement of Works (Project Progression) (Exit)	-	2,346 or 10,200	-
TEC Increase	<100	6,691	49
	100 – 1320	10,511	23
	>1320	30,580	9
Application Type	MW	Base Fee (£k)	Factor
Modification Application (Entry)	<100	6,691	0.75
	100 – 1320	10,511	
	>1320	30,580	
Modification Application to Existing Supply Point (Entry)	<100	7,874	-
	>100	11,240	-
Offshore Modification Application (Entry)	<100	6,691	0.75
	100 – 1320	10,511	
	>1320	30,580	
Embedded Generation Application (Entry)	<100	6,691	0.3
	100 – 1320	10,511	
	>1320	30,580	
Embedded Modification Generation Application (Entry)	<100	6,691	0.2
	100 – 1320	10,511	
	>1320	30,580	
Design Variation in addition to Standard Offer (Entry)	<100	6,691	1.5
	100 – 1320	10,511	
	>1320	30,580	

Notes for Tables A and B:

Application fees are calculated on the following basis:

New Onshore Application	= Base Fee + (MW * Rate/MW)
TEC Increase	= Base Fee + (TEC Increase MW * Rate/MW)
New Offshore Application	= Number of offshore connection sites * Base Fee
Onshore Modification Application	= Base Fee * Factor
Offshore Modification Application	= Base Fee * Number of Transmission Interface Sites * Factor
Embedded Generation Application	= Base Fee * Factor
Embedded Generation Modification App	= Base Fee * Factor

Notes:

1. In response to any Statement of Works request, SHE Transmission will provide a Statement of Works response which will inform only whether there are any transmission system works required. No formal terms of offer will be provided.
2. In the event the Statement of Works response provided by SHE Transmission to NGET show that the transmission works are required by the embedded distribution connection, NGET will be required to submit a formal Modification Application.
 - a) For in area offers where SHE Transmission is the Host TO and where no significant network assessment is required the fee applicable for this Modification Application is £2,300. Where significant network assessment is required the applicable fee for this Modification Application is £10,000.
 - b) For out of area offers where SHE Transmission is the Affected TO and where no significant network assessment is required, the applicable fee for this Modification Application is £2,300. Where there is significant network assessment required, the applicable fee for this Modification Application is £10,000.

Appendix C Charge-Out Rates

Grade	Rate (£/day)
Section manager or Internal Solicitor	990
Principal Power Systems Engineer	833
Senior Power Systems Engineer, Project Manager or Senior Wayleave Officer	695
PS Engineer or Draughtsman	554
Graduate Engineer	468
Craftsman (linesman, cable jointer, substation fitter)	419
Admin support	366

All fees are subject to the addition of VAT.