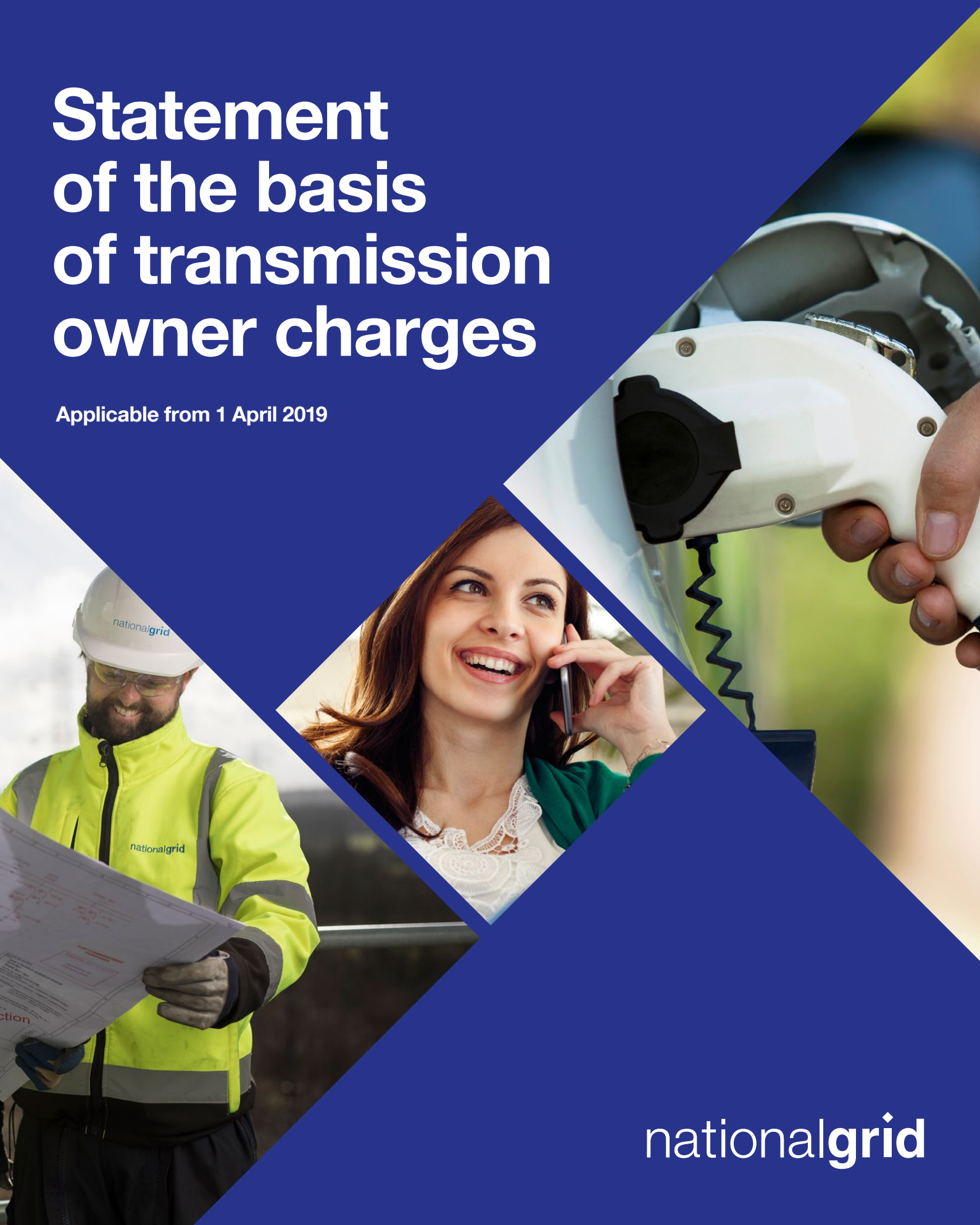
Electricity Transmission

Statement of the basis of transmission owner charges

Applicable from 1 April 2019



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Contents

Our charging statement

This statement is produced by National Grid Electricity Transmission plc (NGET), the Transmission Owner (TO).

It sets out the basis of charges for NGET's provision of transmission services to National Grid Electricity System Operator (NGESO), as specified in the System Operator Transmission Owner Code (STC).

Subject to Ofgem approval this statement is effective from 1 April 2019.

The charges consist of a General System Charge, Site Specific Charges and Other Charges as set out in Parts 1, 2 and 3 respectively.

Introduction

NGET is obliged, under Special Condition (SC) 8C of its electricity Transmission Licence, to prepare a statement approved by the Authority setting out the basis upon which charges will be made for the provision of transmission services.

The statement is to be in such form and detail as is necessary to enable NGESO to make a reasonable estimate of charges to which it would become liable for the provision of NGET's services.

These services include the planning, development, construction, maintenance and operation of new and modified connections to the licensee's transmission system.

Special Condition 8C requires that the statement shall in respect of connection to the licensee's (NGET) transmission system include:

a. a schedule listing those items (including the carrying out of works and the provision and installation of electric lines or electrical plant or meters) of significant cost liable to be required for the purpose of connection (at Entry or Exit Points) to the licensee's transmission system for which Site Specific Charges may be made or levied and including (where practicable) indicative charges for each such item and (in other cases) an explanation of the methods by which and the principles on which such charges will be calculated;

b. the methods by which, and the principles on which, Site Specific Charges will be made in circumstances where the electric lines or electrical plant to be installed are (at the licensee's discretion) of greater size or capacity than that required;

c. the methods by which, and the principles on which, any charges (including any capitalised charge) will be made for maintenance, replacement and repair required of electric lines, electrical plant or meters provided and installed for making a connection to the licensee's transmission system;

d. the methods by which, and the principles on which, any charges will be made for disconnection from the licensee's transmission system and the removal of electrical plant, electric lines and ancillary meters following disconnection; and

e. such other matters as shall be specified in directions issued by the Authority from time to time for the purpose of this condition.

Principles

This statement sets out NGET's charges for the provision of transmission services to NGESO.

In order to calculate the charges of providing these services, NGET must apportion its assets to one of three charging categories, General System Charge, Site Specific Charges and Other Charges.

The General System Charge recovers all costs for providing, replacing and/or refurbishing NGET's transmission infrastructure assets, and all costs associated with the replacement and/or refurbishment of Pre-Vesting transmission connection assets.

Site Specific Charges recover all costs for providing, replacing and/or refurbishing connection assets. These charges enable NGET to recover, with a reasonable rate of return, the costs involved in providing the assets, installed solely for and only capable of use by an individual User, that afford connection to the transmission system.

These costs may include civil costs, engineering costs, and land clearance and preparation costs associated with the connection assets. No land purchase costs are included.

NGET may, at the request of NGESO 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.

Connection and use of system boundary

In general, connection assets are defined as those assets solely required to connect an individual User to the NGET 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.

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 NGET 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;

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 in length that are not potentially shareable.

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 connection agreement.

Where a single User asset becomes shared by two or more Users the relevant assets will be recategorized as infrastructure and connection charges for those assets shall cease whilst so categorised.

Where a previously shared use asset ceases to be shared following permanent disconnection of Users, leaving a sole User, recategorization of the relevant infrastructure asset to be a single User asset will be made upon replacement at the end of the asset's book life.

Indicative Gross Asset Values ("GAVs") of connection assets for illustrative purposes are given in Appendix 1.

Transmission owner revenue restriction

Special Condition 3A of NGET's Transmission Licence establishes the charge restriction that determines the Allowed TO Revenue ($NGETTO_t$) that NGET may earn from its TO services:

$$NGETTO_t = BR_t + PT_t + OIP_t + NIA_t + TIRG_t - FIN_t - K_t$$

Where:	
$NGETTO_t$	means the amount of Allowed Transmission Owner Revenue in Relevant Year t.
BR_t	means the amount of Base Transmission Revenue in Relevant Year t as derived in accordance with the formula set out in Part C of Special Condition 3A.
PT_t	means the 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	means the outputs incentive revenue adjustment made in Relevant Year t as derived in accordance with the formula set out in Part D of Special Condition 3A.
NIA_t	means the revenue adjustment made in Relevant Year t in respect of the Network Innovation Allowance as derived in accordance with Special Condition 3H (The Network Innovation Allowance).
$TIRG_t$	means, for each Relevant Year t, the aggregate of the annual revenue allowances for each transmission investment project specified in Schedule C of Special Condition 3J (Transmission Investment for Renewable Generation), as derived in accordance with that condition.
FIN_t	means the amount set out against the NGET's name in Appendix 2 of Special Condition 3A and represents the costs relating to the NGESO financial facilities in Relevant Year t as agreed with the Authority to be transferred from NGET's Allowed TO Revenue to NGESO.
K_t	means the correction term in Relevant Year t as derived in accordance with the formula set out in Part E of Special Condition 3A.

The Allowed TO Revenue includes the costs associated with Pre-Vesting connection assets.

Special Licence Condition 2N of NGET's Licence establishes the charge restriction that determines NGET's charges for the provision of transmission services ($TNGET_t$) to NGESO.

$$TNGET_t = NGETTO_t - EXS_t$$

Where:	
$TNGET_t$	= General System Charge
$NGETTO_t$	= Allowed TO Revenue for Relevant Year t
EXS_t	= Site Specific Connection Charges for Pre-Vesting connection assets.

The methods by which these are calculated are detailed in Part 1 and Part 2 of this statement.

Retail price index (RPI)

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

Excluded services charges

Part C of Special Condition 8B of NGET's Transmission Licence establishes charging provisions for Excluded Services. In addition to the charges arising from NGET's provision of transmission services (Allowed TO Revenue) to NGESO, referred to as Other Charges, NGET will also invoice Excluded Services charges monthly to NGESO for Post-Vesting connection assets, including asset replacement.

These Excluded Service charges consist of capital charges and maintenance charges relating to Post-Vesting connections assets that have not otherwise been recovered under Allowed TO Revenue.

Part 1

General system charges

The General System Charge recovers all costs for providing, replacing and/or refurbishing NGET's transmission 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 NGET'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 is set to recover the Allowed TO Revenue, taking account of any connections charges, if any, which are remunerated under Special Condition 3A.

No service provided by NGET 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, NGET will each month invoice one twelfth of the General System Charge (which may be subject to amendment) to NGESO.

Part 2

Site specific charges

Site Specific Charges are set to recover costs associated with Post-Vesting connection assets specified in the TO construction agreement and/or the connection site specification for the relevant connection site. In accordance with the STC, the capital costs of providing new connections or modifying existing connections to NGET's transmission system and the non-capital maintenance costs of connection assets will be recovered from NGESO.

Capital charges

Capital charges reflecting purchase and installation cost of connection assets comprises two parts:

Depreciation

This is the charge recovering a fixed fraction of the Gross Asset Value, for example 1/40th of a 40-year book life asset charged each year for 40 years. The Gross Asset Value is uplifted by RPI inflation or Modern Equivalent Asset value change prior to the current year's depreciation being determined.

Rate of return

The capital employed by NGET earns a rate of return of 6% upon RPI indexed assets and a rate of return of 7.5% upon Modern Equivalent Asset indexed assets, in accordance with industry codes. The rate of return is applied to the inflated Net Asset Value, i.e. the amount of the original Gross Asset Value that has not yet been depreciated or otherwise reduced by capital contributions from NGESO.

Non-capital charges

Non-capital charges cover maintenance costs applicable to connection assets provided by NGESO and also include;

- A proportion of costs of operating NGET's 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.

These costs are charged across two component charges:

Site specific maintenance (SSM)

The current SSM factor is 0.47%

This is a percentage factor applied to the RPI inflated Gross Asset Values of the connection assets to recover a fair proportion of NGET's maintenance costs. The SSM factor is derived in accordance with the STC and is based on the cost of NGET planned maintenance of connection assets divided by NGET's total connection asset Gross Asset Value.

Transmission running cost (TRC)

The current TRC factor is 1.47%

The TRC factor is calculated at the beginning of each price control to reflect the appropriate amount of other Transmission Running Costs (rates, operation, indirect overheads) incurred by the transmission licensees attributable to connection assets. The TRC factor is calculated by NGESO by taking a proportion of the forecast Transmission Running Costs for the transmission licensees (based on operational expenditure figures from the latest price control) that corresponds with the proportion of the transmission licensees' total connection assets as a function of their total business GAVs. This cost factor is therefore expressed as a percentage of an asset's GAV. For the avoidance of doubt, there will be no reconciliation of the Transmission Running Cost charge component.

Part 2

Basic annual charge calculation

Annual charges, for a given year n from date of connection asset commissioning, are calculated as follows:

Annual Connection Charge$_n$ = PCCF x (DEPGAV$_n$ + (Rn x NAV$_n$)) + (SSM$_n$ x RPIGAV$_n$) + (TRCn x GAV$_n$)

Where:	
Gross Asset Value$_n$ (GAV$_n$)[1]	= Gross Asset Value for year n either RPI indexed OR Modern Equivalent Asset Value indexed.
RPIGAV$_n$	= RPI indexed Gross Asset Value for year n, as utilised for the Site Specific Maintenance charge component for both RPI and MEA indexed assets.
Depreciation Charge (DEPGAV$_n$)	= GAV$_n$/asset book life
Net Asset Value$_n$ (NAV$_n$)[2]	= $GAV_n \times \frac{(\text{asset book life} - 0.5 - \text{Asset Age})}{\text{asset book life}}$
Return Charge	= Return x NAV$_n$
Return (R$_n$)	= 6% for RPI indexed connection assets 7.5% for MEA indexed connection assets.
Partial Capital Contribution Factor (PCCF)	= A factor applied to the Depreciation and Rate of Return charge components to reflect any capital contribution payment made by NGESO to NGET for the connection assets deployed, being calculated as follows; $= \frac{(GAV_n - \text{capital contribution payments from NGESO})}{GAV_n}$
Asset Age	= Age at 1 April each year, rounded up to the nearest year.
RPI$_n$	$= \frac{\text{(May to October average RPI Index in year n-1)}}{\text{(May to October average RPI Index in year n-2)}}$
SSM$_n$	= Site Specific Maintenance factor as previously described.
TRC$_n$	= Transmission Running Costs factor as previously described.

The depreciation period for Post-Vesting connection assets may, by mutual agreement, be less than 40 such as for electronics and metering but not more than 40 years.

[1] Indexed annually by RPI$_n$ if RPI indexed asset or by MEA revaluation if MEA indexed asset.
[2] NAV$_n$ is based on a revalued GAV$_n$

Part 2

Calculation of the gross asset value (GAV) and net asset value (NAV)

The GAV represents the initial total cost of a connection asset to NGET. For a new connection asset it will be the costs incurred by NGET in the provision of that connection asset. Typically the GAV is made up of the following components:

- Construction costs – costs of bought in services
- NGET Engineering – Allocated equipment and direct engineering costs
- Interest During Construction – Financing Cost
- Liquidated damages premium – an optional premium providing additional cover to NGESO from NGET for delays caused by NGET.

The GAV of an asset is re-valued each year normally using the average of the Retail Price Index (RPI) between May and October, i.e. $GAV_n = GAV_n\text{-}1 \times RPI_n$

Where RPI_n $\frac{\text{(May to October average RPI Index in year n–1)}}{\text{(May to October average RPI Index in year n–2)}}$

Where the asset is indexed as a Modern Equivalent Asset, the year n GAV is set as the relevant MEA value for year n. RPI is not used in the indexation of the capital components of the connection charge for MEA indexed connection assets, but a separate RPI indexed GAV value is recalculated for the purposes of determining the RPI indexation of site specific maintenance, including for MEA indexed connection assets.

The NAV of each asset for year n, used for charge calculation, is the average (mid-year) depreciated GAV of the asset and is calculated as shown below.

Where $NAV_n = GAV_n \times \frac{\text{(asset book life – 0.5 – Asset Age)}}{\text{asset book life}}$

Part 2

Payment options

The capital cost of constructing or modifying connection assets, including overheads can be paid in one of two ways as set out below, with the option to pay for the connection assets' capital value to reduce annual capital charges.

NGET will consider on a case-by-case basis a combination of the options. It should also be noted that all offers made by NGET, in response to a new or modified connection application by NGESO, will initially be made on an indicative basis. Should a firm price offer be requested, a fixed connection charge will only be provided at a later date after tender returns for major plant items and other material expenditure have been received.

The following two options are NGET's standard basis of offers. NGESO may require charges to be based on alternative basis such as;

- depreciation periods other than the standard 40 years or 15 years in the case electronic metering assets;
- annuity based charging;
- indexation of GAVs based on principles other than MEA revaluation and RPI indexation.

Should NGESO wish to agree to one or more of the options detailed above, instead of the standard connection terms, the return elements charged by the transmission licensee may also vary to reflect the re-balancing of risk between NGET and NGESO. For example, if NGESO choose a different indexation method, an appropriate rate of return for such indexation method will be derived.

Option 1 annual charges, indicative price

The Annual Connection Charges are based upon forecast Gross Asset Values for the cost of construction up to the requested connection date. Calculations are based on the planned investment profile. This is called Indicative Charging.

After completion of construction and delivery of the connection, the actual out-turned costs of construction will be assessed and revised Gross Asset Values and revised Annual Connection Charges advised to NGESO. A reconciling adjustment will be made as necessary, in the form of invoicing or credit noting of NGESO, in respect of the difference between Indicative Charges already levied to NGESO compared to the revised Annual Charges that would have been levied based on actual out-turned Gross Asset Values along with any relevant interest.

Option 2 annual charges, firm price

The Connection Price is based on a firm price estimate of the costs of the connection works, and is calculated as in Option 1, except that the firm price may include a risk margin to allow for possible variances above the estimate, which might occur for any reason.

Due to the potential for lead times for new connections (e.g. the transmission outage programmes and the expected time to obtain planning Consents), it may not be feasible for NGET to offer firm prices and NGET reserved the right to decline to offer on this basis.

Part 2

Capital contribution

NGESO may elect to pay in advance for the connection assets required for a connection and can do so for either an Indicative Price offer or a Firm Price offer.

For connections where NGESO elects to pay for the installation costs either partially or in full, NGESO will make milestone payments, based on fair and reasonable estimate of the value of work to be done at each stage, with the final payment made, following a reconciliation of the actual costs incurred in completing the connection assets and paid in advance of commissioning the connection.

The capital contribution will comprise construction costs plus NGET's rate of return.

The Gross Asset Value to be recovered through depreciation and the Net Asset Value will be reduced by applying the calculated Partial Capital Contribution Factor (PCCF) previously described.

Where NGESO pays fully in advance for the connection assets and the related rate of return, the depreciation and rate of return components within the annual charge will be zero.

Capital contributions may also be made after commissioning in subsequent years. For a capital contribution to take account at the start of the relevant charging year n, NGESO may, at most once per year, make a full or partial capital contribution of at least 10% of the NAV prevailing as of 31st March in year n-1. NGESO shall notify NGET 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.


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Part 3

Other charges

Over and above the General System Charge and Site Specific Charges mentioned above, NGET may incur other costs, which include amongst other things:

- Costs associated with processing applications for connection to the system
- One-off Costs whether associated with connections assets or infrastructure
- One-off charge associated with User instigated delays to connections assets or infrastructure works, so-called "Delay Charges"
- One-off charges associated with delivery of connection assets or infrastructure at a User's request earlier than the timeframe in which NGET would efficiently chose to deliver, so-called "Backfeed Charges"

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

Application fee

Application fees are payable in respect of NGESO applications received for new or modified connections to NGET's transmission system. The application fee is intended to cover engineering costs and other expenses involved in preparing an offer of terms and is dependent upon the size, type and location of the User's scheme as shown on the map in Appendix 2.

With the exception of offshore applications, NGESO can elect to pay a fixed price application fee in respect of their application. Alternatively, onshore applications can elect to pay a variable application fee which is based on the actual costs incurred.

The fixed price fees for applications are detailed in Appendix 2.

If NGESO chooses to pay a variable application fee, NGET will charge NGESO the fixed price fee in the appropriate table detailed in Appendix 2 and carry out reconciliation once the actual engineering and out-of-pocket expenses have been established. Actual costs will be based on the NGET charge-out rates detailed in Appendix 3. Where actual costs exceed the advance, NGET will issue an invoice for the excess. Conversely, where the whole of the advance is not used the balance will be refunded.

Should NGESO notify NGET of changes in the planning assumptions after receipt of an application fee, NGET may levy an additional charge.

NGET 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 NGESO's request before any charges become payable, NGET will refund the original application fee. NGET will not refund the fees in respect of the subsequent modification(s).

Feasibility studies

If NGESO requests a feasibility study in connection with alterations to or extension of the NGET network a fee is payable based on an advance of NGET engineering and out-of-pocket expenses. The fee payable by NGESO 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, NGET will issue an invoice for the excess. Conversely, where NGET does not use the whole of the advance the balance will be refunded.

A schedule of charge-out rates for different classes of NGET staff is attached at Appendix 3.

Part 3

One-off costs and additional works requested

To provide or modify a connection NGET may need to carry out works on the transmission system which, although directly attributable to the connection, may not give rise to additional connection assets. NGET may also be requested to install connection assets that differ or are enhanced above minimum standard scheme design requirements, or to incur revenue expense or write off asset value as a result of User requirements. Such costs, falling within the criteria set out below, are defined as one-off costs.

- 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 a User's request, irrespective of whether the cost can be capitalised
- Termination Charges associated with the write-off of connection assets at the connection site.

Where these costs cannot be justified by planning standards and are incurred as a direct result of NGESO's construction application, they will be included in the TO Construction Offer and charged accordingly.

The incremental costs of additional infrastructure related works above the minimum scheme required to connect a User would always be recovered as a One-Off Charge or subject to NGET agreement charged as a Transmission Charge.

The calculation of the one-off works charge for asset write-off is outlined below:

Write-off Charge =
100% of remaining NAV of redundant assets

Requests for diversions of transmission lines or cables in connection with an application for a new or modified connection, including removal or relocation of towers, will be treated as one-off costs.

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 costs.[3]

The calculation of One-off Charges is as follows:

One-off Charge =
(Construction Costs + Engineering Charges) x (1 + Return %) + IDC + LD Premium

Where:	
Engineering Charges	= "Engineering Charge" x job hours
Return %	= 6%
IDC	= Interest During Construction
LD Premium	= The Company Liquidated Damages Premium (if applicable)

[3] Category 1 schemes are those which have been initiated by the User, either as a result of a variation to the design or to allow early connection of generation, which would otherwise be delayed until infrastructure works can be completed. Category 3 are schemes which the User has elected as an alternative to reinforcement of a distribution network affected by the generation connection.

Part 3

Delay charges

Where a User's Request, via NGESO, necessitates a change of their required Charging Date and costs arise in comparison to our otherwise efficient delivery programme, a "Delay" Charge may apply in respect of these inefficient costs.

The "Delay" charge reflects the incremental cost incurred as a result of a User's request irrespective of whether the cost can be capitalised.

Delay costs will normally comprise;

- the additional financing of assets being constructed, over the longer time period to the revised Charging Date,
- changes to incremental costs include, for example, expenditure related to de-mobilisation and re-mobilisation, additional consents, re-working engineering, re-design, abortive costs etc.

Whilst a User can request changes at any point in a programme it should be recognised that any charges, especially those related to transmission investment, can be more effectively mitigated if NGET is informed of the required change as soon as possible, enabling NGET to minimise any increase in likely costs arising from the User requested delay.

The Delay charges will be detailed in the offer of connection.

Backfeed charges

NGET deliver works a short period ahead of full use to allow reasonable time for User commissioning. Where Users, via NGESO, require works to be delivered far earlier than NGET would otherwise efficiently deliver them for the required Charging Date, a "Backfeed" charge may apply in respect of consequential inefficient costs.

The "Backfeed" charge reflects the incremental cost incurred as a result of a User's request irrespective of whether the cost can be capitalised.

Backfeed costs will normally comprise;

- a charge based on the Gross Asset Value of assets that are planned to be completed at the User's request ahead of required Charging Date, reflecting the depreciation and rate of return.

The charges will be based on the relevant asset's life, its gross asset value, the duration between the User's earlier required date and the Charging Date and NGET's rate of return.

The gross asset values of assets to be constructed earlier, may also incorporate;

- increases in costs of building the assets at an earlier or accelerated rate,
- changes to incremental costs include, for example, expenditure due to changes in resource mobilisation, additional consents, re-working engineering, re-design, abortive costs etc.

The Backfeed charges will be detailed in the offer of connection.

Part 3

Transmission charges

Arrangements may be agreed between NGET and NGESO to pay for One-off works over a longer period. If one-off works are paid over a longer period, they are termed a Transmission Charge

Transmission Charges are usually a depreciating finance charge or annuity based charge with a rate of return element and a maintenance element and may include agreement on a schedule of termination payments if the agreement is terminated before the end of the agreed charge recovery period. The charge is usually inflated annually by the same RPI figure that is used to inflate GAVs, though NGESO can request alternative indexation methods.

Miscellaneous site specific charges

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

Abortive works charges

If as a result of a modification application, received after commencement of the transmission construction works, NGET is required to make amendment to the transmission construction works and NGET has previously carried out some or all of the said works which are now no longer required ("Abortive Works") NGESO shall be required to make a payment to NGET in respect of all fees, expenses and costs of whatever nature reasonably and properly incurred or due by NGET in respect of the Abortive Works for which NGET is responsible or has or may otherwise become liable in respect of the Abortive Works.

Contestable connection works

NGESO's Users may also elect to carry out certain contestable areas of connection works. Such arrangements would be subject to the assets being designed and installed to NGET's technical standards to ensure the ongoing security and operability of the transmission system. NGET may also require other agreements and indemnities with NGESO to ensure that there are no adverse consequences for other NGESO's Users of the transmission system as a result of the NGESO's User's decision to "self-build".

A User wanting to make use of the self-build option should make this clear in their formal application to NGESO. NGET will work with NGESO and the User to facilitate this option.

The scope of contestable works will be agreed before the application is deemed competent. Infrastructure works are non-contestable to avoid any potential impact on other Users.

NGET will charge NGESO on an indicative basis for any non-contestable items such as design approval, inspection and testing of the contestable works to establish that the assets are suitable for adoption by NGET.

NGET will agree, via NGESO, the adoptable indicative Gross Asset Value of the User's self-build connection assets. This will be documented in the relevant construction agreement. NGET will, via NGESO, agree the out-turned Gross Asset Value of the adoptable assets following commissioning and NGET will revise its connection charges accordingly.

Subject to these arrangements, NGET will adopt the self-build assets at the relevant Gross Asset Value and assume responsibility for their ongoing maintenance and will levy annual connection charges for the adopted assets.

Any wish on the part of the User to contribute, fully or partly, to the capital cost of the self-built connection assets should be declared to NGET, via NGESO, in advance.

Part 3

De-energisation and disconnection charges

Where NGESO 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 TO construction agreement and/or STC) to that effect should be given to NGET. NGET 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.

Temporary de-energisation (and subsequent re-energisation) resulting from the failure by NGESO to comply with the terms of their relevant agreement, or carried out at the request of NGESO will be at the expense of NGESO.

Where it becomes necessary to disconnect a User (at the request of NGESO) that is to have NGET's equipment removed from site, for any reason, any payments outstanding in first providing that connection will become due forthwith.

If NGESO requests disconnection, this should be requested in writing. On receipt of such a request NGET will take all reasonable steps to remove the equipment in accordance with the NGESO's reasonable requirements. NGET should be consulted at an early stage and a programme for the removal of equipment will be subject to individual assessment.

On termination NGET retains the right to remove its equipment. Where it is cost effective to do so NGET will remove such equipment, and no charge will be made to NGESO. For assets where it is not cost effective to recover (e.g. buried cables) NGET will ensure such assets are made safe and left on site, but if NGESO requires NGET to remove them, the cost of removal, will be payable by NGESO. All such equipment will remain the property of NGET until otherwise agreed in writing with NGET.

Part 3

Termination charges

Early Termination of Commissioned Connections

Costs of new connections will be fully recoverable from NGESO in all circumstances, including the liability to pay a termination amount where a connection agreement is terminated by NGESO.

If a connection charge is paid by annual charges and NGESO gives notice of termination of the connection agreement prior to the expiry of the economic life of the connection assets, NGET will require NGESO to pay a Termination Amount. This will recover the Net Asset Value (NAV) of the connection assets plus the cost of removing the connection assets if required.

The Termination Amount will be calculated as follows:

NGESO will be liable to pay an amount equal to the NAV of such connection assets as at the end of the financial year in which termination or modification occurs, plus:

- The reasonable costs of removing such connection assets. These costs being inclusive of the costs of making good the condition of the connection site; and
- If a connection asset is terminated before the end of a financial year, the connection charges for the full year remains payable.

The calculation of termination amounts for financial year n is as shown below:

Re-use of connection assets after early termination

Should connection assets be re-used from a previously terminated connection, such that NGET receives connection charges as a result of their use, part of the termination charge will be refunded to NGESO. The amount refunded will depend on the proportional extent to which the original income stream is replaced. The refund will be based on the NAV at the time the asset is brought back into use, less the cost of maintaining and storing the asset whilst out of service.

A partial refund of the termination payment will be made provided clear financial evidence of payment of such termination amount is provided by NGESO.

Early termination of transmission reinforcement works

When a TO construction agreement for a connection is terminated by NGESO prior to completion of the works then, in addition to the costs incurred at the time of termination for connection assets, NGESO must also pay to NGET the costs incurred at the time of termination for any transmission works which were required as a direct consequence of the NGESO Construction Application.

Termination Charge$_n$ = Cn + (NAVn x PCCF) + R where:

Where:	
C_n	= Outstanding Connection Charge for year n
NAV_n	= NAV of connection assets at 31 March of financial year n
Partial Capital Contribution Factor (PCCF)	= A factor applied to the Gross Asset Value to reflect any capital contribution payment made by NGESO to NGET for the connection assets deployed, being calculated as follows; $PCCF = \frac{(GAV_n - \text{capital contribution payments from NGESO})}{GAV_n}$
R	= Reasonable costs of removal of redundant connection assets and making good

Part 3

Early replacement

If NGET considers that connection assets require to be replaced prior to the end of their normal economic lifetime, the replacement costs will be borne by NGET within the remaining economic life of the original connection assets. On expiry of the expected lifetime of the original connection assets, the connection charge will be recalculated taking account of the NAV of the replacement connection assets, together with the normal provision for depreciation.

Transmission operation and maintenance costs

Operating and Maintenance charges for all standard transmission assets, (i.e. excluding connection assets, one-off works and transmission charged assets) will be collected through General System Charges and are not addressed in this statement.

Operation and Maintenance costs related to connection assets, one-off works and transmission charged one-off works are recovered through the Site-Specific Maintenance (SSM) factor and the Transmission Running Cost (TRC) factor in the non-capital component of the connection charge.

Charges for land purchase, consents and wayleaves

Any capital costs incurred in providing a new or modified connection relating to planning and other statutory Consents; all wayleaves, easements, servitude rights, rights over or interests in land or any other consent; and permission of any kind as required for the construction of the connection shall be paid to NGET by NGESO. These costs will cover all of NGET's engineering charges and out-of-pocket expenses incurred.

These out-of-pocket expenses may include planning inquiries or appeals; the capital costs together with reasonable legal and surveyors' costs of landowners or occupiers in acquiring permanent easements, or other rights over land, in respect of any electric line or underground cable forming part of the new transmission connection.

Charges for legal costs associated with land purchase or access Consents would be due under the TO construction agreement for connection applications. Costs of this work will be charged in accordance with the charge-out rates in Appendix 3.

For the avoidance of doubt no land purchase costs will be included in Connection Charges.

Civil engineering costs of connection sites

Where a substation site may accommodate infrastructure assets in one area of the building or outdoor compound, and sole-use connection assets for one or more Users in another area of the same substation site, the civil engineering costs including that share of the costs of preparing a level, drained site for the accommodation of the sole-use connection assets would be included in the connection costs. This share of civil engineering costs will be allocated based on the "substation footprint" of the sole-use connection assets at the substation site.

Energy metering systems

The charges to NGESO for the provision of metering systems will be on a similar basis as other NGET connection assets. The electronic components of the energy metering system normally have a 15-year replacement and depreciation period whilst the non-electronic components normally retain a 40-year replacement and depreciation period.

Appendix 1: indicative connection asset charges

This schedule provides an indication of typical costs, exclusive of VAT, for additions to NGET's transmission system. The costs shown are current at the time of publication only and are subject to change without notice and may also vary depending upon system configuration, Consents, site conditions etc.

Illustrative Connection Asset Gross Asset Values and Annual Connection Charges

	£k					
	400kV		275kV		132kV	
	GAV	Annual Charge	GAV	Annual Charge	GAV	Annual Charge
Double Busbar Bay	2679	278	2222	230	1379	143
Single Busbar Bay	2358	244	1919	199	1257	130
Transformer Cables 100m (incl. Cable sealing ends)						
120MVA			2030	210	1205	125
180MVA	2172	225	2030	210	1212	126
240MVA	2180	226	2041	212	1220	126
750MVA	2262	234	2096	217		
Transformers						
45MVA 132/66kV					2110	219
90MVA 132/33kV					2110	219
120MVA 275/33kV			3670	380		
180MVA 275/66kV			4356	451		
180MVA 275/132kV			4739	491		
240MVA 275/132kV			4663	483		
240MVA 400/132kV	4935	512				

Factors which can affect these charges are:

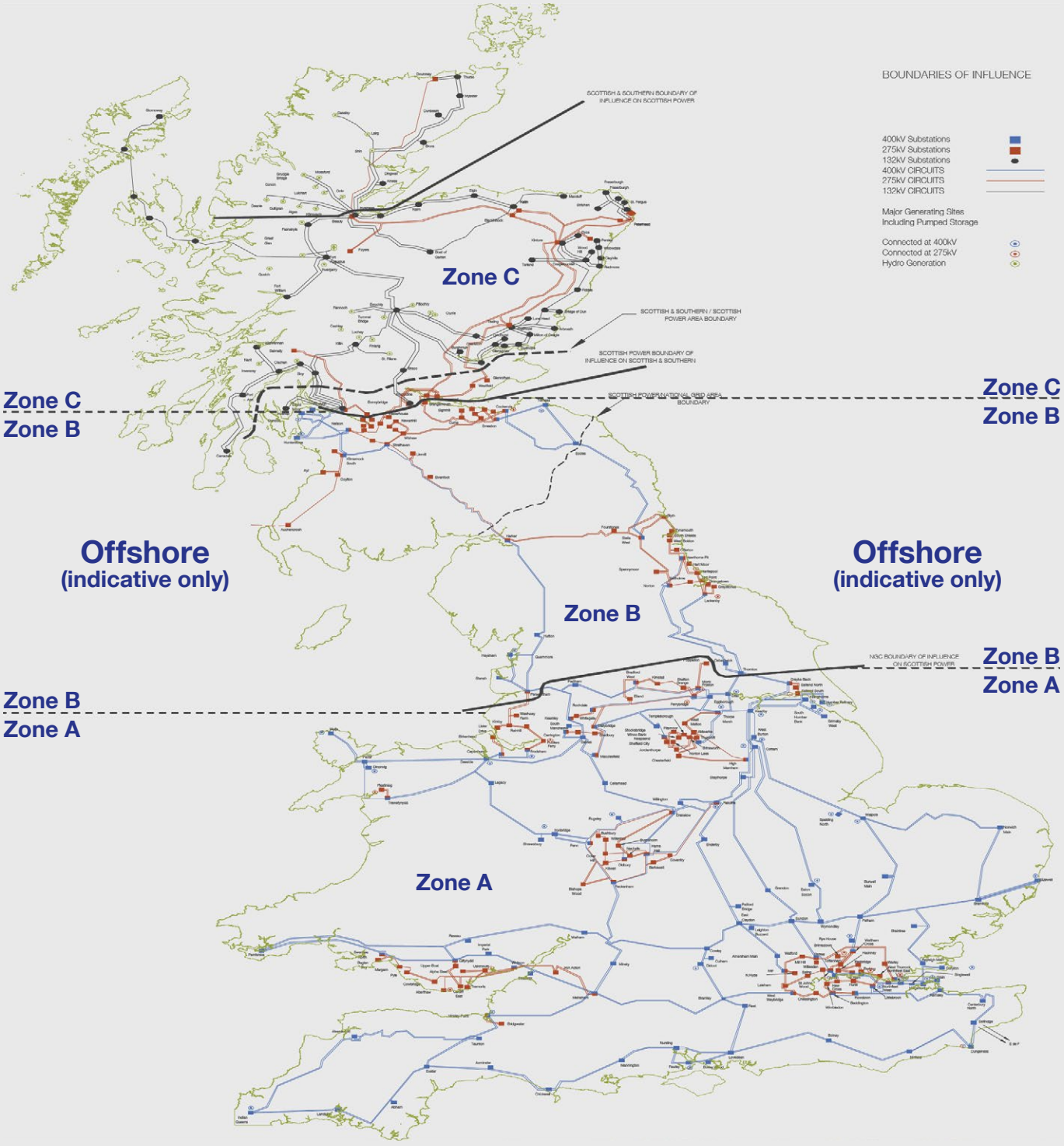
- Standards governing the system,
- Length of cable/line required from existing system,
- Exit Point/Entry Point capacity requirements in relation to available capacity of existing network, including the age of the assets and the condition of the network,
- Whether any extension or reinforcement of the 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,
- Generation capacity characteristics,
- Exit Point demand and characteristics,
- Special security of supply requirements – greater or less than NGET licence standards,
- Availability of wayleaves/easements for cables and lines including planning Consents,
- Availability of suitable substation sites including any necessary planning Consents,
- Circuit routing difficulties, substation site conditions and access to routes and sites, and
- Necessity of overtime working

Notes on Assets:

Busbar Bays Assumptions	**Plant** the bay is considered from NGET standard bay drawings and tendered prices provided for protection, cabling, auxiliary systems, earthing are based on various assumptions. **Civil** Normal base sizes & dimensions of concrete footings, good ground condition, includes landscaping but access works and drainage costs elsewhere.
Busbar Bays Exclusions	**Plant** Overall Substation Protection, Main Control and SCADA systems. Auxiliary supplies such as AC/DC system and electrical design costs.
Transformer Cables Assumptions	**Assumptions - All based on 1 circuit of 1 cable per phase, 100m straight, flat and unimpeded route** XLPE Lead/Ali sheathed cable supply, install, commission with High Voltage AC & Sheath Testing Earth Continuity Cable (ECC) & Link Boxes supply, Installation & Connection included. DTS c/w terminations into Fibre Optic Terminal boxes on AIS support - on 275kV only. Cable installed in ducts/trenching Connection & Modifications to earth mat. P&C Duct (1x90mm) included (Max 100m excluding cable(s)) Excavation waste disposal, site establishment/preliminary works, security & access costs included. Standalone project(s) with its own design/project team. Costs do not allow for any small quantity/MOQ surcharge that may be levied by cable supplier. Others - VAT and inflation
Transformers Assumptions	1) Costs include supply & installation of: – Auto/Grid Transformer – Auxiliary/Earthing Transformer (where applicable) – Neutral Earthing Resistor (where applicable) – HV Disconnector Bay (c/w associated equipment) – LV Circuit Breaker (c/w associated equipment) – Protection Upgrade Modifications – LV Cabling Works (where applicable) 2) Civil Works to include the following: – Transformer Plinth/Bund – Disconnector Bay Civils – Earthing Upgrade Works
Transformers Exclusions	**Plant** Bay protection, control and SCADA system, (considered under part of the Busbar Bay costs) auxiliary supplies such as AC/DC system (considered under part of the Busbar Bay Costs) **Civil** Piling **Others** VAT and Inflation

Appendix 2: application fees

Transmission licensees' boundaries of influence map



Fees will be applied depending on which zone the connection will be constructed. See Tables A, B, C and D. The boundaries of influence are set out in detail in the STC – Criteria for Assessing Those Transmission Systems Affected by a Construction Project.

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 NGESO. All fees are subject to the addition of VAT. No application fee is payable for any NGETTO initiated works.

The MW (Mega-Watt) value is the final value applied for.

Table A – application fees in zone A, when NGET south is host TO

Application Type	MW	Base Fee (£)	Rate (£/MW)
New Onshore Application	<100MW 100-1320MW >1320MW	13,800 23,200 75,000	110 59 16
New Onshore Supply Point	<100MW >100MW	31,800 36,000	– –
New Offshore Application (Indicative Only) (Per connection site)	–	32,450	–
Onshore Modification Application to Existing Supply Point (Exit)	<100MW >100MW	27,800 33,650	–
Statement of Works (Exit)	–	2,500	–
Modification Application Following Statement Of Works (Project Progression) (Exit)	–	7,500 or 18,300	–

Application Type	Factor: Fraction of New Application Fee
Onshore Modification Application (Entry)	0.75
Offshore Modification Application (Entry)	0.75
Embedded Generation New Application (Entry) BEGA/BELLA	0.5
Embedded Generation Modification Application (Entry) BEGA/BELLA	0.4
Design Variation in addition to Standard Offer (Entry)	1.5

Appendix 2: application fees

Table B – application fees in zone B, when NGET north is host TO

Application Type	MW	Base Fee (£)	Rate (£/MW)
New Onshore Application (Entry)	<100MW 100 – 1320MW >1320MW	14,200 22,750 68,550	118 57 23
New Onshore Supply Point (Exit)	<100MW >100MW	17,400 32,900	– –
New Offshore Application (Indicative Only) (Per connection site)	–	42,750	–
Onshore Modification Application to Existing Supply Point (Exit)	<100MW >100MW	14,400 28,500	–
Statement of Works (Exit)	–	2,500	–
Modification Application Following Statement Of Works (Project Progression) (Exit)	–	7,500 or 18,300	–

Application Type	Factor: Fraction of New Application Fee
Onshore Modification Application (Entry)	0.75
Offshore Modification Application (Entry)	0.75
Embedded Generation New Application (Entry) BEGA/BELLA	0.5
Embedded Generation Modification Application (Entry) BEGA/BELLA	0.4
Design Variation in addition to Standard Offer (Entry)	1.5

Table C – application fees in zone B, when SPT south is host TO

Application Type	MW	Base Fee (£)	Rate (£/MW)
New Onshore Application (Entry)	<100MW 100 – 1320MW >1320MW	4,850 7,800 23,600	49 26 10
New Onshore Supply Point (Exit)	<100MW >100MW	13,400 20,300	– –
New Offshore Application (Indicative Only) (Per connection site)	–	34,750	–
Onshore Modification Application to Existing Supply Point (Exit)	<100MW >100MW	13,400 20,300	–
Statement of Works (Exit)	–	2,500	–
Modification Application Following Statement Of Works (Project Progression) (Exit)	–	5,850 or 14,250	–

Application Type	Factor: Fraction of New Application Fee
Onshore Modification Application (Entry)	0.75
Offshore Modification Application (Entry)	0.75
Embedded Generation New Application (Entry) BEGA/BELLA	0.5
Embedded Generation Modification Application (Entry) BEGA/BELLA	0.4
Design Variation in addition to Standard Offer (Entry)	1.5

Table D – application fees in zone C, when Scottish Hydro is host TO

Application Type	MW	Base Fee (£)	Rate (£/MW)
New Offshore Application (Indicative Only) (Per connection site)	–	34,750	–

Application Type	Factor: Fraction of New Application Fee
Offshore Modification Application (Entry)	0.75

Appendix 2: application fees

Notes:	
Application fees are calculated on the following basis:	
New Onshore Application	= Base Fee + (MW x Rate/MW)
CEC Increase	= Base Fee + (CEC Increase MW x Rate/MW)
New Offshore Application	= Number of offshore connection sites x Base Fee
On-Shore Modification Application	= Base Fee x FACTOR
Off-Shore Modification Application	= Base Fee x number of Transmission Interface Sites x FACTOR
Embedded Generation Application	= Base Fee x FACTOR
Embedded Generation Modification Application	= Base Fee x FACTOR

Statement of works

In response to any Statement of Works request, NGET 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.

In the event the Statement of Works response provided by NGET to NGESO show that transmission works are required by the embedded distribution connection, NGESO will be required to submit a formal Modification Application as follows.

a. For in-area offers where NGET are the Host TO and where no significant network assessment required, the applicable fee for this Modification Application is £7,500. Where there is significant network assessment required, the applicable fee for this Modification Application is £18,300.

b. For out-of-area offers where NGET are the Affected TO and where no significant network assessment required, the applicable fee for this Modification Application is £5,850. Where there is significant network assessment required, the applicable fee for this Modification Application is £14,250.

Appendix 3: charge-out rates

Grade	Rate (£/day)
Section Manager Internal Solicitor	997
Principal Power System Engineer	815
Senior Power System Engineer Project Manager Account Manager Senior Wayleave Officer	691
Power System Design Engineer Draughtsman	548
Graduate Engineer	473
Administrative support	373

All fees are subject to the addition of VAT.

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 TO's Transmission Licence.
Authority	The Gas and Electricity Markets Authority (GEMA) established under Section 1 of the Utilities Act 2000.
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 the TO's transmission system.
CEC	Connection Entry Capacity as defined in the CUSC.
Connection Site Specification	As defined in Section D, Part One, sub-paragraph 2.6.1 of the STC.
Consents	In relation to any transmission system and or connection works: a) all such planning (including Public Inquiry) and other statutory consents; and 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; and c) permission of any kind as shall be necessary for the construction of the works
CUSC	Connection and Use of System Code
Entry Point	A point of connection at which electricity may be exported from a User's installation onto the Transmission System i.e. Generation.
Exit Point	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.
MEA	Modern Equivalent Asset
NGESO	National Grid Electricity System Operator Ltd
NGET	National Grid Electricity Transmission Plc
Pre-BETTA	Before 1 April 2005
Pre-Vesting	Means on or before 31 March 1990
Price Control	As set out in the TO's Licence
Post-Vesting	Means after 31 March 1990
Retail Price Index (RPI)	Table 36: RPI: All items index 1947-2013 "CHAW" published by the Office for National Statistics and as amended monthly.
Scottish Hydro	Scottish Hydro Electric Transmission Plc
SO	System Operator. This being NGESO.
SPT	SP Transmission Plc
STC	The System Operator – Transmission Owner Code.
TO	An onshore or offshore Transmission Owner. This being National Grid Electricity Transmission plc
Transmission Interface Site	the site at which the Transmission Interface Point is located.
Transmission Interface Point	means the electrical point of connection between the Offshore Transmission System and an Onshore Transmission System.
Transmission Licence	Transmission Licence granted or treated as granted under section 6(1)(b) of the Act.
Transmission Voltage	In England and Wales usually voltages above 132kV.
User	A generation or demand customer or Distribution System Operator connected to NGET's transmission system and party to NGESO's bilateral agreement(s).

Revision history

Issue	Description	Modifications
1.0	01/04/2019 Publication	Initial statement and methodology following licence separation of National Grid's transmission owner and system operator undertakings.

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