nationalgrid

Stage 05: Draft CUSC Modification Report

Connection and Use of System Code (CUSC)

CMP 203 TNUoS Charging Arrangements for Infrastructure Assets Subject to One-Off Charges

Proposed Legal Text Annex 1

Published on: 09th July 2012

What stage is this document at?

01	Initial Written Assessment
02	Workgroup Consultation
03	Workgroup Report
04	Code Administrator Consultation
05	**Draft CUSC Modification Report**
06	Final CUSC Modification Report

Contents

About this document

This document forms the Proposed Legal Text Annex 1 to the CMP203 TNUoS Charging Arrangements for Infrastructure Assets Subject to One-Off Charges draft CUSC Modification Report. CMP203 TNUoS Charging Arrangements for Infrastructure Assets Subject to One-Off Charges draft CUSC Modification Report can be found on the National Grid website

Document Control

Version	Date	Author	Change Reference
1.0	09th July 2012	Code Administrator	Version to the Industry

Any Questions?

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Annex 1 - Proposed Legal Text

CUSC v1.2

Draft Legal Text CMP203 original

Add the following new CUSC paragraphs 14.4.7, 14.15.12-14.15.20 and 14.15.62 and amend the CUSC paragraph numbers accordingly.

14.4 Other Charges

14.4.7 Where an infrastructure asset has been subject to One-off Works, and a generator has paid a relating charge, calculated in accordance with paragraph 14.4.4, The Company may adjust the treatment of the assets within the TNUoS transport model as set out in paragraphs 14.15.12 to 14.15.20.

14.15 Derivation of the Transmission Network Use of System Tariff

14.15.8 Subject to paragraphs 14.15.12 to 14.15.20, Transmission circuits for charging year "t" will be defined as those with existing wayleaves for the year "t" with the associated lengths based on the circuit lengths indicated for year "t" in the April NETS Seven Year Statement for year "t-1" plus updates to October of year "t-1". If certain circuit information is not explicitly contained in the NETS Seven Year Statement, The Company will use the best information available.

Adjustments to Model Inputs associated with One-Off Works

14.15.12 Where, following the implementation of CUSC Modification CMP203, a generator has paid a One-Off Charge that related to One-off Works carried out on an onshore circuit identified as a local asset, and such One-off Works would affect the value of a local circuit tariff paid by the generator, the transport model inputs associated with the onshore circuit shall be adjusted by The Company to reflect the asset value that would have been modelled if the works had been undertaken on the basis of the original asset design rather than the One-off Works.

14.15.13 Subject to paragraphs 14.15.14 to 14.15.17, where, prior to the implementation of CUSC Modification CMP203, a generator has paid a One-Off Charge (or has paid a charge to the relevant TO prior to 1st April 2005 on the same principles as a One-Off Charge) that related to works equivalent to those described under paragraph 14.15.12, an adjustment equivalent to that under paragraph 14.15.12 shall be made to the transport model inputs as follows.

14.15.14 Such adjustment shall be made following a generator's request, which must be received by The Company no later than the second occurrence of 31st December following the implementation of CUSC Modification CMP203.

14.15.15 The Company shall only make an adjustment to the transport model inputs, under paragraph 14.15.13 where the charge was paid to the relevant TO prior to 1st April 2005 where evidence has been provided by the generator that satisfies The Company that works equivalent to those under paragraph 14.15.12 were funded by the generator.

14.15.16 Where a generator has sufficient reason to believe that adjustments under paragraph 14.15.15 should be made in relation to specific assets that affect a local onshore circuit tariff that applies to one of its sites and outlines its reasoning to The Company, The Company shall (upon the generator's request and subject to the generator's

payment of reasonable costs incurred by The Company in doing so) use its reasonable endeavours to assist the generator in obtaining any evidence The Company or a TO may have to support its position.

14.15.17 Where a request is made under paragraph 14.15.13 on or prior to 31st December in a charging year, and The Company is satisfied based on the accompanying evidence provided to The Company under paragraph 14.15.14 that it is a valid request, the transport model inputs shall be adjusted accordingly and taken into account in the calculation of TNUoS tariffs effective from the year commencing on the 1st April following this and otherwise from the next subsequent 1st April.

14.15.18 The following table provides examples of works for which adjustments to transport model inputs for onshore circuits identified as local assets would typically apply:

Ref	Description of works	Adjustments
1	Undergrounding - A User requests to underground an overhead line at a greater cost.	As the cable cost will be more expensive than the overhead line (OHL) equivalent, the circuit will be modelled as an OHL.
2	Substation Siting Decision - A User requests to move the existing or a planned substation location to a place that means that the works cannot be justified as economic by the TO.	As the revised substation location may result in circuits being extended. If this is the case, the originally designed circuit lengths (as per the originally designed substation location) would be used in the transport model.
3	Circuit Routing Decision - A User asks to move an existing or a planned circuit route in a way in which the works cannot be justified as economic by the TO.	As any circuit route changes that extend circuits are likely to result in a greater TNUoS tariff, the originally designed circuit lengths would be used in the transport model.
4	Building circuits at lower voltages - A User requests lower tower height and therefore a different voltage.	As lower voltage circuits result in a higher expansion factor being used, the circuits would be modelled at the originally designed higher voltage.

14.15.19 The following table provides examples of works for which adjustments to transport model inputs for circuits identified as local assets typically would not apply:

Ref	Description of works	Reasoning
1	Undergrounding - A User chooses to have a cable installed via a tunnel rather than buried.	Cable expansion factors are applied in the transport model regardless of whether a cable is tunnelled and buried, so there is no increased TNUoS cost.

2	Additional circuit route works - A User asks for screening to be provided around a new or existing circuit route.	Circuit expansion factors are applied in the transport model irrespective of these works, so there is no increased TNUoS cost.
3	Additional circuit route works - A User requests that a planned overhead line route is built using alternative transmission tower designs.	Circuit expansion factors are applied in the transport model irrespective of these works, so there is no increased TNUoS cost.
4	Additional substation works - A User asks for screening to be provided around a new or existing substation.	The additional substation works will not affect the User's TNUoS charge as there is no effect on power flows or circuit costs within the transport model.
5	Additional substation works - Changes to connection assets (e.g. HV-LV transformers and associated switchgear), metering, additional LV supplies, additional protection equipment, additional building works, etc.	The additional substation works will not affect the User's TNUoS charge as there is no effect on power flows or circuit costs within the transport model.
6	Diversion - A User asks to temporarily move an existing or a planned circuit route in a way in which the works cannot be justified as economic by the TO.	The temporary circuit changes will not be incorporated into the transport model.
7	Connection Entry Capacity (CEC) before Transmission Entry Capacity (TEC). A User asks for a connection in a year prior to the relating TEC; i.e. physical connection without capacity.	No additional works are being undertaken, works are simply being completed well in advance of the generator commissioning. The One-Off Charge reflects the depreciated value of the assets prior to commissioning (and any TNUoS being charged).
8	Early asset replacement - An asset is replaced prior to the end of its expected life.	As the asset is simply replaced, no data in the transport model is expected to change.
9	Additional Engineering/ Mobilisation costs - A User requests changes to the planned works, that results in additional operational costs.	The data in the transport model is unaffected.
10	Offshore (Generator Build) - Any of the works described above or under paragraph 14.15.15.	The value of the works will not form part of the asset transfer value therefore will not be used as part of the offshore tariff calculation.

11	Offshore (Offshore Transmission Owner (OFTO) Build) - Any of the works described above or under paragraph 14.15.15.	As part of determining the TNUoS revenue associated with each asset, the value of the One-Off Works would be excluded when pro-rating the OFTO's allowed revenue against assets by asset value.

14.15.20 The Company shall publish any adjusted transport model inputs that it intends to use in the calculation of TNUoS tariffs effective from the year commencing on the following 1st April in the NETS Seven Year Statement October Update. Any further adjustments that The Company makes shall be published by The Company upon the publication of the final TNUoS tariffs for the year concerned.

Offshore Circuit Expansion Factors

~~14.15.50~~14.15.59 Offshore expansion factors (£/MWkm) are derived from information provided by Offshore Transmission Owners for each offshore circuit. Offshore expansion factors are Offshore Transmission Owner and circuit specific. Each Offshore Transmission Owner will periodically provide, via the STC, information to derive an annual circuit revenue requirement. The offshore circuit revenue shall include revenues associated with the Offshore Transmission Owner's reactive compensation equipment, harmonic filtering equipment, asset spares and HVDC converter stations.

~~14.15.51~~14.15.60 In the first year of connection, the offshore circuit expansion factor would be calculated as follows:

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

Where:

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

~~14.15.52~~14.15.61 In all subsequent years, the offshore circuit expansion factor would be calculated as follows:

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

Where:

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

14.15.62 For the avoidance of doubt, the offshore circuit revenue values, $CRevOFTO1$ and $AvCRevOFTO$ shall be determined using asset values after the removal of any One-Off Charges.

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Draft Legal Text CMP203 WACM1

Add the following new CUSC paragraphs 14.4.7, 14.15.12-14.15.20 and 14.15.62 and amend the CUSC paragraph numbers accordingly.

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Draft Legal Text CMP203 WACM3

Add the following new CUSC paragraphs 14.4.7, 14.15.12-14.15.20 and 14.15.62 and amend the CUSC paragraph numbers accordingly.

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11	Offshore (Offshore Transmission Owner (OFTO) Build) - Any of the works described above or under paragraph 14.15.15.	As part of determining the TNUoS revenue associated with each asset, the value of the One-Off Works would be excluded when pro-rating the OFTO's allowed revenue against assets by asset value.

14.15.20 The Company shall publish any adjusted transport model inputs that it intends to use in the calculation of TNUoS tariffs effective from the year commencing on the following 1st April in the NETS Seven Year Statement October Update. Any further adjustments that The Company makes shall be published by The Company upon the publication of the final TNUoS tariffs for the year concerned.

Offshore Circuit Expansion Factors

~~14.15.50~~14.15.59 Offshore expansion factors (£/MWkm) are derived from information provided by Offshore Transmission Owners for each offshore circuit. Offshore expansion factors are Offshore Transmission Owner and circuit specific. Each Offshore Transmission Owner will periodically provide, via the STC, information to derive an annual circuit revenue requirement. The offshore circuit revenue shall include revenues associated with the Offshore Transmission Owner's reactive compensation equipment, harmonic filtering equipment, asset spares and HVDC converter stations.

~~14.15.51~~14.15.60 In the first year of connection, the offshore circuit expansion factor would be calculated as follows:

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

Where:

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

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Where:

AvCRevOFTO	=	The annual offshore circuit revenue averaged over the remaining years of the onshore National Electricity Transmission System Operator (NETSO) price control
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14.15.62 For the avoidance of doubt, the offshore circuit revenue values, *CRevOFTO1* and *AvCRevOFTO* shall be determined using asset values after the removal of any One-Off Charges.

~~14.15.53~~14.15.63 Prevailing OFFSHORE TRANSMISSION OWNER specific expansion factors will be published in this statement. These shall be re-calculated at the start of each price control when the onshore expansion constants are revisited.

The Locational Onshore Security Factor

~~14.15.54~~14.15.64 The locational onshore security factor is derived by running a secure DCLF ICRP transport study based on the same market background as used in the DCLF ICRP transport model. This calculates the nodal marginal costs where peak demand can be met despite the Security and Quality of Supply Standard contingencies (simulating single and double circuit faults) on the network. Essentially the calculation of secured nodal marginal costs is identical to the process outlined above except that the secure DCLF study additionally calculates a nodal marginal cost taking into account the requirement to be secure against a set of worse case contingencies in terms of maximum flow for each circuit.

~~14.15.55~~14.15.65 The secured nodal cost differential is compared to that produced by the DCLF ICRP transport model and the resultant ratio of the two determines the locational security factor using the Least Squares Fit method. Further information may be obtained from the charging website[1].

~~14.15.56~~14.15.66 The locational onshore security factor derived for 2010/11 is 1.8 and is based on an average from a number of studies conducted by The Company to account for future network developments. The security factor is reviewed for each price control period and fixed for the duration.

Offshore substation local tariff

~~14.15.73~~14.15.83 All offshore chargeable generation is subject to an offshore substation tariff. The offshore substation tariff shall be the sum of transformer, switchgear and platform components.

~~14.15.74~~14.15.84 Each tariff component, expressed in £/kW, shall be the ratio of the Offshore Transmission Owner revenue (£) and rating associated with the transformers, switchgear or platform (kW) at each offshore substation. The Offshore Transmission Owner revenue of each tariff component shall include that associated with asset spares. In the case of the platform component, the relevant rating shall be the lower of the transformer or switchgear ratings. As with the offshore circuit expansion factors, the Offshore Transmission Owner revenue associated with each tariff component shall be averaged over the remaining years of the NETSO price control.

~~14.15.75~~14.15.85 Offshore Transmission Owner revenue associated with interest during construction and project development overheads will be attributed to the relevant asset category with which it is associated. If these or any other costs included in the Offshore Transmission Owner revenue are not readily

1 http://www.nationalgrid.com/uk/Electricity/Charges/

attributable to a given asset category, they will be pro-rated across the various asset categories based on their relative cost.

~~14.15.76~~14.15.86 For 2010/11 a discount of £0.345590/kW shall be provided to the offshore substation tariff to reflect the average cost of civil engineering for onshore substations. This will be inflated by RPI each year and reviewed every price control period.

~~14.15.77~~14.15.87 Offshore substation tariffs shall be inflated by RPI each year and reviewed every price control period.

~~14.15.78~~14.15.88 The revenue from the offshore substation local tariff is calculated by:

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

Where:

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

Prior Year One-Off Works Adjustment Generation Tariff

14.15.89 Where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such an adjustment relates to assets for which Generation TNUoS charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203, then The Company shall calculate the Prior Year One-Off Works Adjustment Generation Tariff (PYAGT) for year t for each affected generator as follows:

$$PYAGT_t = \sum_{i \in PY} \frac{PYAGC_i}{Gen_t}$$

Where:

i	=	each given year i in the set of prior years, PY for which Generation TNUoS charges have been levied in relation the asset(s) subject to adjustments under paragraph 14.15.13.
$\sum_{i \in PY}$	=	the sum for all prior years i
$PYAGC_i$	=	the level of additional Generation TNUoS paid by the affected generator in year i that has not already been subject to charge calculated in accordance with this paragraph 14.15.89 (or equivalent) in a prior year.
Gen_t	=	the forecast maximum level of contracted generation associated with the affected generator in year t.

14.15.90 The total revenue adjustment relating to the Prior Year One-Off Adjustment Tariff in relation to year t is calculated by:

$$PYGRR_t = \sum_{\substack{All\ affected \\ Generation}} \left(PYAGT_t \times Gen_t \right)$$

Prior Year One-Off Works Adjustment Demand Tariff

14.15.91 Where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such an adjustment relates to assets for which Demand TNUoS charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203, then the company shall calculate the Prior Year One-Off Works Adjustment Demand Tariff (PYADT) for year t for each affected User as follows:

$$PYADT_t = \sum_{i \in PY} \frac{PYADC_i}{Dem_t}$$

Where:

i = each given year i in the set of prior years, PY for which Demand TNUoS charges have been levied in relation the asset(s) subject to adjustments under paragraph 14.15.13.

$\sum_{i \in PY}$ = the sum for all prior years i

$PYADC_i$ = the level of additional Demand TNUoS charges paid by the affected User in year i that has not already been subject to charge calculated in accordance with this paragraph 14.15.89 (or equivalent) in a prior year.

Dem_t = the forecast average level of demand associated with the affected User over the three triads in year t.

14.15.92 The total revenue adjustment relating to the Prior Year One-Off Adjustment Tariff in relation to year t is calculated by:

$$PYDRR_t = \sum_{\substack{All\ affected \\ Demand\ Users}} \left(PYADT_t \times Dem_t \right)$$

The Residual Tariff

~~14.15.79~~14.15.93 The total revenue to be recovered through TNUoS charges is determined each year with reference to the Transmission Licensees' Price Control formulas less the costs expected to be recovered through Pre-Vesting connection charges. Hence in any given year t, a target revenue figure for TNUoS charges (TRR_t) is set after adjusting for any under or over recovery for and including, the small generators discount is as follows:

$$TRR_t = R_t - PVC_t - SG_{t-1}$$

Where

TRR_t = TNUoS Revenue Recovery target for year t

R_t = Forecast Revenue allowed under The Company's RPI-X Price Control Formula for year t (this term includes a number of adjustments, including

for over/under recovery from the previous year). For further information, refer to Special Condition D2 of The Company's Transmission Licence.

PVC_t = Forecast Revenue from Pre-Vesting connection charges for year t

SG_{t-1} = The proportion of the under/over recovery included within R_t which relates to the operation of statement C13 of the The Company Transmission Licence. Should the operation of statement C13 result in an under recovery in year t – 1, the SG figure will be positive and vice versa for an over recovery.

~~14.15.80~~14.15.94 In normal circumstances, the revenue forecast to be recovered from the corrected transport tariffs will not equate to the total revenue target. This is due to a number of factors. For example, the transport model assumes, for simplicity, smooth incremental transmission investments can be made. In reality, transmission investment can only be made in discrete 'lumps'. The transmission system has been planned and developed over a long period of time. Forecasts and assessments used for planning purposes will not have been borne out precisely by events and therefore some distinction between an optimal system for one year and the actual system can be expected.

~~14.15.81~~14.15.95 As a result of the factors above, in order to ensure adequate revenue recovery, a constant non-locational **Residual Tariff** for generation and demand is calculated, which includes infrastructure substation asset costs. It is added to the corrected transport tariffs so that the correct generation / demand revenue split is maintained and the total revenue recovery is achieved.

$$RT_D = \frac{(p \times TRR) - CTRR_D + PYDRR_D}{\sum_{Di=1}^{14} D_{Di}}$$

$$RT_G = \frac{[(1-p) \times TRR] - CTRR_G - LCRR_G + PYGRR_G}{\sum_{Gi=1}^{21} G_{Gi}}$$

Where

RT = Residual Tariff (£/MW)

p = Proportion of revenue to be recovered from demand

Final £/kW Tariff

~~14.15.82~~14.15.96 The effective Transmission Network Use of System tariff (TNUoS) can now be calculated as the sum of the corrected transport wider tariff, the non-locational residual tariff and the local tariff:

$$ET_{Gi} = \frac{CTT_{Gi} + RT_G}{1000} + LT_{Gi} - PYAGT_{Gi}$$ ——————and

$$ET_{Di} = \frac{CTT_{Di} + RT_D}{1000} - PYADT_{Di}$$

Where

ET = Effective TNUoS Tariff expressed in £/kW

~~14.15.83~~14.15.97 Where tariffs do not change mid way through a charging year, final demand and generation tariffs will be the same as the effective tariffs.

$FT_{Gi} = ET_{Gi}$ and $FT_{Di} = ET_{Di}$

14.17 Demand Charges

Parties Liable for Demand Charges

14.17.1 The following parties shall be liable for demand charges:

- The Lead Party of a Supplier BM Unit;
- Power Stations with a Bilateral Connection Agreement;
- Parties with a Bilateral Embedded Generation Agreement

14.17.2 14.25 Classification of parties for charging purposes provides an illustration of how a party is classified in the context of Use of System charging and refers to the paragraphs most pertinent to each party.

Basis of Demand Charges

14.17.3 Demand charges are based on a de-minimus £0/kW charge for Half Hourly and £0/kWh for Non Half Hourly metered demand.

14.17.4 Chargeable Demand Capacity is the value of Triad demand (kW). Chargeable Energy Capacity is the energy consumption (kWh). The definition of both these terms is set out below.

14.17.5 If there is a single set of demand tariffs within a charging year, the Chargeable Demand Capacity is multiplied by the relevant demand tariff, for the calculation of demand charges.

14.17.6 If there is a single set of energy tariffs within a charging year, the Chargeable Energy Capacity is multiplied by the relevant energy consumption tariff for the calculation of energy charges..

14.17.7 If multiple sets of demand tariffs are applicable within a single charging year, demand charges will be calculated by multiplying the Chargeable Demand Capacity by the relevant tariffs pro rated across the months that they are applicable for, as below,

$$Annual\ Liability_{Demand} = Chargeable\ Demand\ Capacity \times \left(\frac{(a \times Tariff\ 1) + (b \times Tariff\ 2}{12} \right.$$

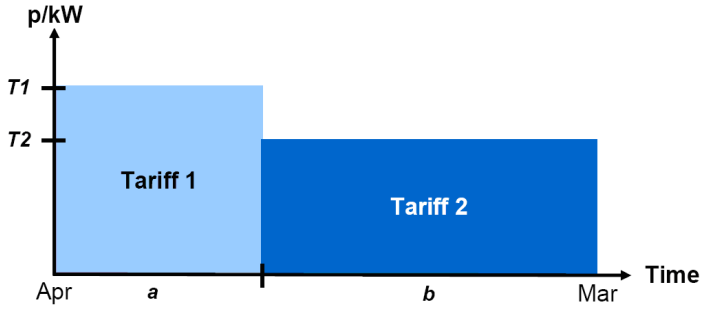
where:

Tariff 1 = Original tariff,

Tariff 2 = Revised tariff,

a = Number of months over which the original tariff is applicable,

b = Number of months over which the revised tariff is applicable.



14.17.8 If multiple sets of energy tariffs are applicable within a single charging year, energy charges will be calculated by multiplying relevant Tariffs by the Chargeable Energy Capacity over the period that that the tariffs are applicable for and summing over the year.

$$Annual\ Liability_{Energy} = Tariff\ 1 \times \sum_{T1_S}^{T1_E} Chargeable\ Energy\ Capacity$$
$$+ Tariff\ 2 \times \sum_{T2_S}^{T1_E} Chargeable\ Energy\ Capacity$$

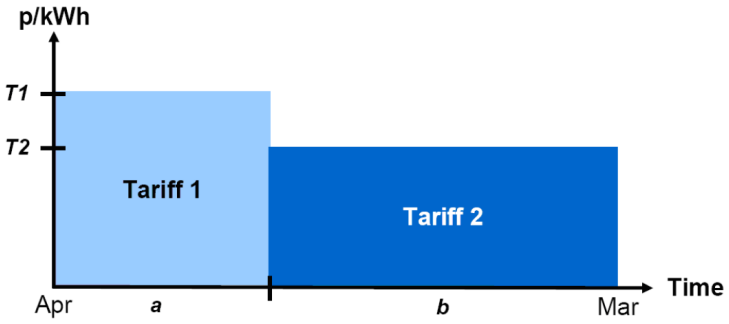
Where:

$T1_S$ = Start date for the period for which the original tariff is applicable,

$T1_E$ = End date for the period for which the original tariff is applicable,

$T2_S$ = Start date for the period for which the revised tariff is applicable,

$T2_E$ = End date for the period for which the revised tariff is applicable.



14.17.9 In addition to the charges for Chargeable Demand and Energy Capacity, a Prior Year One-Off Works Adjustment shall be applied to a User's charge where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such adjustment relates to assets for which TNUoS charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203. For the avoidance of doubt, such an adjustment will only be made once per User, and is intended to reimburse the User for any additional charges paid prior to the introduction of the adjustments made under 14.15.13 as a result of such adjustments not being made under previous arrangements.

14.17.10 The Chargeable Capacity for Demand Users to which a Prior Year One-Off Works Adjustment applies is the forecast Demand applicable to that User for the Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Demand Tariff under paragraph 14.15.91. The total annual adjustment shall be the product of the Chargeable Capacity and the applicable Prior Year One-Off Adjustment Demand Tariff.

Monthly Charges

~~14.17.16~~14.17.18 Throughout the year Users' monthly demand charges will be based on their forecasts of:

- half-hourly metered demand to be supplied during the Triad for each BM Unit, multiplied by the relevant zonal £/kW tariff; and

- non-half hourly metered energy to be supplied over the period 16:00 hrs to 19:00 hrs inclusive every day over the Financial Year for each BM Unit, multiplied by the relevant zonal p/kWh tariff

Users' annual TNUoS demand charges are based on these forecasts and are split evenly over the 12 months of the year. Users have the opportunity to vary their demand forecasts on a quarterly basis over the course of the year, with the demand forecast requested in February relating to the next Financial Year. Users will be notified of the timescales and process for each of the quarterly updates. The Company will revise the monthly Transmission Network Use of System demand charges by calculating the annual charge based on the new forecast, subtracting the amount paid to date, and splitting the remainder evenly over the remaining months. For the avoidance of doubt, only positive demand forecasts (i.e. representing an import from the system) will be accepted.

~~14.17.17~~14.17.19 Users should submit reasonable demand forecasts in accordance with the CUSC. The Company shall use the following methodology to derive a forecast to be used in determining whether a User's forecast is reasonable, in accordance with the CUSC, and this will be used as a replacement forecast if the User's total forecast is deemed unreasonable. The Company will, at all times, use the latest available Settlement data.

For existing Users:

i) The User's Triad demand for the preceding Financial Year will be used where User settlement data is available and where The Company calculates its forecast before the Financial Year. Otherwise, the User's average weekday settlement period 35 half-hourly metered (HH) demand in the Financial Year to date is compared to the equivalent average demand for the corresponding days in the preceding year. The percentage difference is then applied to the User's HH demand at Triad in the preceding Financial Year to derive a forecast of the User's HH demand at Triad for this Financial Year.

ii) The User's non half-hourly metered (NHH) energy consumption over the period 16:00 hrs to 19:00 hrs every day in the Financial Year to date is compared to the equivalent energy consumption over the corresponding days in the preceding year. The percentage difference is then applied to the User's total NHH energy consumption in the preceding Financial Year

to derive a forecast of the User's NHH energy consumption for this Financial Year.

For new Users who have completed a Use of System Supply Confirmation Notice in the current Financial Year:

iii) The User's average weekday settlement period 35 half-hourly metered (HH) demand over the last complete month for which The Company has settlement data is calculated. Total system average HH demand for weekday settlement period 35 for the corresponding month in the previous year is compared to total system HH demand at Triad in that year and a percentage difference is calculated. This percentage is then applied to the User's average HH demand for weekday settlement period 35 over the last month to derive a forecast of the User's HH demand at Triad for this Financial Year.

iv) The User's non half-hourly metered (NHH) energy consumption over the period 16:00 hrs to 19:00 hrs every day over the last complete month for which The Company has settlement data is noted. Total system NHH energy consumption over the corresponding month in the previous year is compared to total system NHH energy consumption over the remaining months of that Financial Year and a percentage difference is calculated. This percentage is then applied to the User's NHH energy consumption over the month described above, and all NHH energy consumption in previous months is added, in order to derive a forecast of the User's NHH metered energy consumption for this Financial Year.

~~14.17.18~~14.17.20 14.27 Determination of The Company's Forecast for Demand Charge Purposes illustrates how the demand forecast will be calculated by The Company.

14.17.21 Where Demand User is applicable for a Prior Year One-Off Works Adjustment, under paragraph 14.17.9, this shall be made uniformly across the year in monthly instalments based upon the forecast Demand applicable to that User for the Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Demand Tariff under paragraph 14.15.91.

14.18 Generation charges

Parties Liable for Generation Charges

14.18.1 The following CUSC parties shall be liable for generation charges:

i) Parties of Generators that have a Bilateral Connection Agreement with The Company.

ii) Parties of Licensable Generation that have a Bilateral Embedded Generation Agreement with The Company.

14.18.2 14.25 Classification of parties for charging purposes provides an illustration of how a party is classified in the context of Use of System charging and refers to the relevant paragraphs most pertinent to each party.

Structure of Generation Charges

14.18.3 Generation Charges are comprised Wider and Local Charges, the latter of which contains a substation element and may also contain a circuit element. Specifically, all transmission connected generation will be liable to pay a local substation charge, with some of these also being liable to pay a local circuit charge. For the avoidance of doubt, embedded generation has a zero local tariff.

14.18.4 The intention of the charging rules is to charge the same physical entity only once.

14.18.5 The basis of the generation charge for Power Stations is the Chargeable Capacity and the short-term chargeable capacity (as defined below for positive and negative charging zones).

14.18.6 If there is a single set of Wider and Local generation tariffs within a charging year, the Chargeable Capacity is multiplied by the relevant generation tariff to calculate the annual liability of a generator.

14.18.7 If multiple sets of Wider and Local generation tariffs are applicable within a single charging year, the Chargeable Capacity is multiplied by the relevant tariffs pro rated over the entire charging year, across the months that they are applicable for.

$$Annual\ Liability = Chargeable\ Capacity \times \left(\frac{a \times Tariff\ 1 + b \times Tariff\ 2}{12} \right)$$

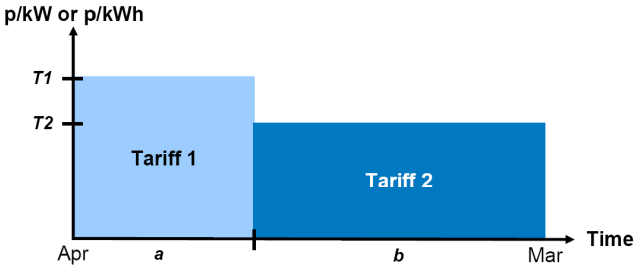
where:

Tariff 1 = Original tariff,

Tariff 2 = Revised tariff,

a = Number of months over which the original tariff is applicable,

b = Number of months over which the revised tariff is applicable.



14.18.8 For the avoidance of doubt if there are multiple sets of Wider and Local generation tariffs applicable within a single charging year and a tariff changes from being positive to negative or vice versa, the Chargeable Capacity for the entire charging year will be determined based on the net position of the pro rated tariffs for each affected generator.

14.18.9 In addition to the Wider and Local Charges, a Prior Year One-Off Works Adjustment shall be applied to a generator's charge where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such adjustment relates to assets for which TNUoS charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203. For the avoidance of doubt, such an adjustment will only be made once per generator, and is intended to reimburse the generator for any additional charges paid prior to the introduction of the adjustments made under 14.15.13 as a result of such adjustments not being made under previous arrangements.

Basis of Wider Generation Charges

Generation with positive wider tariffs

~~14.18.9~~14.18.10 The Chargeable Capacity for Power Stations with positive wider generation tariffs is the highest Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year. A Power Station should not exceed its TEC as to do so would be in breach of the CUSC, except where it is entitled to do so under the specific circumstances laid out in the CUSC (e.g. where a User has been granted Short Term Transmission Entry Capacity, STTEC). For the avoidance of doubt, TNUoS Charges will be determined on the TEC held by a User as specified within a relevant bilateral agreement regardless of whether or not it enters into a temporary TEC Exchange (as defined in the CUSC).

~~14.18.10~~14.18.11 The short-term chargeable capacity for Power Stations situated with positive generation tariffs is any approved STTEC or LDTEC applicable to that Power Station during a valid STTEC Period or LDTEC Period, as appropriate.

~~14.18.11~~14.18.12 For Power Stations, the short term chargeable capacity for LDTEC with positive generation tariffs referred to in Paragraph 14.18.11 will be the capacity purchased either on a profiled firm[2] or indicative[3] basis and shall be assessed according to the capacity purchased on a weekly basis. The short-term chargeable capacity for LDTEC in any week may comprise of a number of

[2] where an LDTEC Block Offer has been accepted (Profiled Block LDTEC) and a firm profile of capacity has been purchased.

[3] where an LDTEC Indicative Block Offer has been accepted (Indicative Profiled Block LDTEC) and a right to future additional capacity up to a requested level has been purchased, the availability of which will be notified on a weekly basis in accordance with the CUSC.

increments, which shall be determined by considering LDTEC purchased previously in the Financial Year (whether or not in the same LDTEC Period). For example, if in a given week the LDTEC is 200MW but in a previous week the LDTEC had been 150MW, the short-term chargeable capacity in the latter week would comprise of two increments: one of 150MW and a second of 50MW. Further examples are provided in 14.16.6.

Generation with negative wider tariffs

~~14.18.12~~14.18.13 The Chargeable Capacity for Power Stations with negative wider generation tariffs is the average of the capped metered volumes during the three settlement periods described in 14.18.14 below, for the Power Station (i.e. the sum of the metered volume of each BM Unit associated with Power Station in Appendix C of its Bilateral Agreement). A Power Station should not exceed its TEC as to do so would be in breach of the CUSC, except where it is entitled to do so under the specific circumstances laid out in the CUSC (e.g. where a User has been granted Short Term Transmission Entry Capacity). If TEC is exceeded, the metered volumes would each be capped by the TEC for the Power Station applicable for that Financial Year. For the avoidance of doubt, TNUoS Charges will be determined on the TEC held by a User as specified within a relevant bilateral agreement regardless of whether or not it enters into a temporary TEC Exchange (as defined in the CUSC).

~~14.18.13~~14.18.14 The three settlement periods are those of the highest metered volumes for the Power Station and the two half hour settlement periods of the next highest metered volumes which are separated from the highest metered volumes and each other by at least 10 Clear Days, between November and February of the relevant Financial Year inclusive. These settlement periods do not have to coincide with the Triad.

Example

If the highest TEC for a Power Station were **250MW** and the highest metered volumes and resulting capped metered volumes were as follows:

Date	19/11/08	13/12/08	06/02/09
Highest Metered Volume in month (MW)	**245.5**	**250.3**	**251.4**
Capped Metered Volume (MW)	**245.5**	**250.0**	**250.0**

Then, the chargeable Capacity for the Power Station would be:

$$\left(\frac{245.5+250+250}{3}\right) = 248.5 \text{ MW}$$

Note that in the example above, the Generator has exceeded its TEC on 13 December 2007 and 6 February 2008 and would therefore be in breach of the CUSC unless the generator had an approved STTEC or LDTEC value. (The STTEC and LDTEC charge for negative zones is currently set at zero).

~~14.18.14~~14.18.15 The short-term chargeable capacity for Power Stations with negative generation tariffs is any approved STTEC or LDTEC applicable to that Power Station during a valid STTEC Period or LDTEC Period, as applicable.

~~14.18.15~~14.18.16 For Power Stations with negative generation tariffs, the short-term chargeable capacity for LDTEC referred to in Paragraph 14.18.14 will be the capacity purchased either on a profiled firm or indicative basis and shall be assessed according to the capacity purchased on a weekly basis. The short-term chargeable capacity for LDTEC in any week may comprise of a number of increments, which shall be determined by considering LDTEC purchased previously in the Financial Year (whether or not in the same LDTEC Period). For example, if in a given week the LDTEC is 200MW but in a previous week the LDTEC had been 150MW, the short-term chargeable capacity in the latter week would comprise of two increments: one of 150MW and a second at 50MW.

~~14.18.16~~14.18.17 As noted above, a negative LDTEC tariff in negative generation charging zones is set to zero. Accordingly no payments will be made for use of LDTEC (in any of its forms) in these zones.

Basis of Local Generation Charges

~~14.18.17~~14.18.18 The Chargeable Capacity for Power Stations will be the same as that used for wider generation charges, except that each component of the local tariff shall be considered separately as to whether it is a positive or negative tariff component. This means that where a local circuit tariff is negative, the final charging liability for this element will be based on actual metered output as described in Paragraph 14.18.12.

Small Generators Charges

~~14.18.18~~14.18.19 Eligible small generators' tariffs are subject to a discount of a designated sum defined by Licence Condition C13 as 25% of the combined residual charge for generation and demand. The calculation for small generators charges is not part of the methodology however, for information the designated sum is included in **The Statement of Use of System Charges.**

Prior Year One-Off Works Adjustments

14.18.20 The Chargeable Capacity for Power Stations to which a Prior Year One-Off Works Adjustment applies is the Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Generation Tariff under paragraph 14.15.89. The total annual adjustment shall be the product of the Chargeable Capacity and the applicable Prior Year One-Off Adjustment Generation Tariff.

Monthly Charges

~~14.18.19~~14.18.21 ~~Initial~~Subject to paragraph 14.18.23, initial Transmission Network Use of System Generation Charges for each Financial Year will be based on the Power Station Transmission Entry Capacity (TEC) for each User as set out in their Bilateral Agreement. The charge is calculated as above. This annual TNUoS generation charge is split evenly over the months remaining in the year. For positive final generation tariffs, if TEC increases during the charging year, the party will be liable for the additional charge incurred for the **full** year, which will be recovered uniformly across the remaining chargeable months in the relevant charging year (subject to Paragraph 14.18.~~20~~22 below). An increase in monthly charges reflecting an increase in TEC during the charging

year will result in interest being charged on the differential sum of the increased and previous TEC charge. The months liable for interest will be those preceding the TEC increase from April in year t. For negative final generation tariff, any increase in TEC during the year will lead to a recalculation of the monthly charges for the remaining chargeable months of the relevant charging year. However, as TEC decreases do not become effective until the start of the financial year following approval, no recalculation is necessary in these cases. As a result, if TEC increases, monthly payments to the generator will increase accordingly.

~~14.18.20~~14.18.22 The provisions described above for increases in TEC during the charging year shall not apply where the LDTEC (in any of its forms) has been approved for use before the TEC is available, which will typically mean the LDTEC has been approved after the TEC increase has been approved. In such instances, the party shall commence payments for TEC during the LDTEC Period for LDTEC purchased up to the future level of TEC and LDTEC Charges will only apply to LDTEC that is incremental to the TEC increase. For the avoidance of doubt, where TEC has been approved after LDTEC in a given year, these provisions shall not apply and the LDTEC shall be considered additional to the TEC and charged accordingly.

14.18.23 Where generator is applicable for a Prior Year One-Off Works Adjustment, under paragraph 14.18.9, this shall be made uniformly across the year in monthly instalments based upon the Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Tariff under paragraph 14.15.89.

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14.4 Other Charges

14.4.1 In addition to the basic annual connection charges set out above, the User may pay The Company for certain other costs related to their connection. These will be set out in the Bilateral and Construction Agreements where appropriate and are described below.

One-off Works

14.4.2 To provide or modify a connection, the transmission licensee may be required 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 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 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.

Consistent with these principles and in accordance with Connection Charging Methodology modification GB ECM-01, which was implemented on 1 December 2005, a one-off charge will be levied for a **Category 1 Intertripping Scheme** or a **Category 3 Intertripping Scheme**. A one-off charge will **not** be levied for a **Category 2 Intertripping Scheme** or a **Category 4 Intertripping Scheme**.

14.4.3 The one-off charge is a charge equal to the cost of the works involved, together with a reasonable return, as shown in 14.4.4 below.

14.4.4 For information, the general formula for the calculation of the one-off charge for works is outlined below.

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)

14.4.5 The calculation of the one-off charge for write-off of assets is outlined below:

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

14.4.6 One-offs are normally paid on an agreed date, which is usually upon completion of the works. However, arrangements may be agreed between the transmission licensee and the User to pay the charge over a longer period. If a one-off is paid over a longer period it is termed a Transmission Charge. It is usually a depreciating finance charge

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

14.4.7 Where an infrastructure asset has been subject to One-off Works, and a generator has paid a relating charge calculated in accordance with paragraph 14.4.4, The Company may adjust the treatment of the assets within the TNUoS transport model as set out in paragraphs 14.15.12 to 14.15.20.

Miscellaneous Charges

~~14.4.7~~14.4.8 Other contract specific charges may be payable by the User, these will be set out in the Bilateral and Construction Agreements where appropriate.

Rental sites

~~14.4.8~~14.4.9 Where The Company owns a site that is embedded within a distribution network, the connection charge to the User is based on the capital costs and overheads but does not include maintenance charges.

Final Metering Scheme (FMS)/Energy Metering Systems

~~14.4.9~~14.4.10 Charges for FMS metering are paid by the registrant of the FMS metering at the connection site. It is charged on a similar basis as other Connection Assets. The electronic components of the FMS metering have a replacement and depreciation period in line with those advised by the transmission licensees, whilst the non-electronic components normally retain a 40 year replacement and depreciation period (or a User specified depreciation period as appropriate).

14.15 Derivation of the Transmission Network Use of System Tariff

14.15.1 The Transmission Network Use of System (TNUoS) Tariff comprises two separate elements. Firstly, a locationally varying element derived from the DCLF ICRP transport model to reflect the costs of capital investment in, and the maintenance and operation of, a transmission system to provide bulk transport of power to and from different locations. Secondly, a non-locationally varying element related to the provision of residual revenue recovery. The combination of both these elements forms the TNUoS tariff.

14.15.2 For generation TNUoS tariffs the locational element itself is comprised of three separate components. A wider component reflects the costs of the wider network, and the combination of a local substation and a local circuit component reflect the costs of the local network. Accordingly, the wider tariff represents the combined effect of the wider locational tariff component and the residual element; and the local tariff represents the combination of the two local locational tariff components.

14.15.3 The process for calculating the TNUoS tariff is described below.

The Transport Model

Model Inputs

14.15.4 The DCLF ICRP transport model calculates the marginal costs of investment in the transmission system which would be required as a consequence of an increase in demand or generation at each connection point or node on the transmission system, based on a study of peak conditions on the transmission system. One measure of the investment costs is in terms of MWkm. This is the concept that ICRP uses to calculate marginal costs of investment. Hence, marginal costs are estimated initially in terms of increases or decreases in units of kilometres (km) of the transmission system for a 1 MW injection to the system.

14.15.5 The transport model requires a set of inputs representative of peak conditions on the transmission system:

- Nodal generation information
- Nodal demand information
- Transmission circuits between these nodes
- The associated lengths of these routes, the proportion of which is overhead line or cable and the respective voltage level
- The ratio of each of 132kV overhead line, 132kV cable, 275kV overhead line, 275kV cable and 400kV cable to 400kV overhead line costs to give circuit expansion factors
- 132kV overhead circuit capacity and single/double route construction information is used in the calculation of a generator's local charge.
- Offshore transmission cost and circuit/substation data
- Identification of a reference node

14.15.6 For a given charging year "t", the nodal TEC figure at each node will be based on the Applicable Value for year "t" in the NETS Seven Year Statement in year "t-1" plus updates to the October of year "t-1". The contracted TECs in the NETS Seven Year Statement include all plant belonging to generators who have a Bilateral Agreement with the TOs. For example, for 2010/11 charges,

the nodal generation data is based on the forecast for 2010/11 in the 2009 NETS Seven Year Statement plus any data included in the quarterly updates in October 2009.

14.15.7 Nodal demand data for the transport model will be based upon the GSP demand that Users have forecast to occur at the time of National Grid Peak Average Cold Spell (ACS) Demand for year "t" in the April Seven Year Statement for year "t-1" plus updates to the October of year "t-1".

14.15.8 Subject to paragraphs 14.15.12 to 14.15.20, Transmission circuits for charging year "t" will be defined as those with existing wayleaves for the year "t" with the associated lengths based on the circuit lengths indicated for year "t" in the April NETS Seven Year Statement for year "t-1" plus updates to October of year "t-1". If certain circuit information is not explicitly contained in the NETS Seven Year Statement, The Company will use the best information available.

14.15.9 The circuit lengths included in the transport model are solely those, which relate to assets defined as 'Use of System' assets.

14.15.10 The transport model employs the use of circuit expansion factors to reflect the difference in cost between (i) cabled routes and overhead line routes, (ii) 132kV and 275kV routes, (iii) 275kV routes and 400kV routes, and (iv), uses 400kV overhead line (i.e. the 400kV overhead line expansion factor is 1). As the transport model expresses cost as marginal km (irrespective of cables or overhead lines), some account needs to be made of the fact that investment in these other types of circuit (specifically 400kV cable, 275kV overhead line, 275kV cable, 132kV overhead line and 132kV cable) is more expensive than for 400kV overhead line. This is done by effectively 'expanding' these more expensive circuits by the relevant circuit expansion factor, thereby producing a larger marginal kilometre to reflect the additional cost of investing in these circuits compared to 400kV overhead line. When calculating the local circuit tariff for a generator, alternative 132kV and offshore expansion factors to those used in the remainder of the tariff calculation are applied to the generator's local circuits.

14.15.11 A reference node is required as a basis point for the calculation of marginal costs. It determines the magnitude of the marginal costs but not the relativity. For example, if the reference point were put in the North of Scotland, all nodal generation marginal costs would likely be negative. Conversely, if the reference point were defined at Land's End, all nodal generation marginal costs would be positive. However, the relativity of costs between nodes would stay the same. For information purposes the reference node for 2010/11 is East Claydon 400kV (ECLA40).

Adjustments to Model Inputs associated with One-Off Works

14.15.12 Where, following the implementation of CUSC Modification CMP203, a generator has paid a One-Off Charge that related to One-off Works carried out on an onshore circuit identified as a local asset, and such One-off Works would affect the value of a local circuit tariff paid by the generator, the transport model inputs associated with the onshore circuit shall be adjusted by The Company to reflect the asset value that would have been modelled if the works had been undertaken on the basis of the original asset design rather than the One-off Works.

14.15.13 Subject to paragraphs 14.15.14 to 14.15.16, where, prior to the implementation of CUSC Modification CMP203, a generator has paid a One-Off Charge (or has paid a charge to the relevant TO prior to 1st April 2005 on the same principles as a One-Off Charge) that related to works equivalent to those described under paragraph 14.15.12, an adjustment equivalent to that under paragraph 14.15.12 shall be made to the transport model inputs as follows.

14.15.14 Such adjustment shall be made following a generator's request, which must be received by The Company no later than the second occurrence of 31st December following the implementation of CUSC Modification CMP203.

14.15.15 The Company shall only make an adjustment to the transport model inputs, under paragraph 14.15.13 where the charge was paid to the relevant TO prior to 1st April 2005 where evidence has been provided by the generator that satisfies The Company that works equivalent to those under paragraph 14.15.12 were funded by the generator.

14.15.16 Where a generator has sufficient reason to believe that adjustments under paragraph 14.15.15 should be made in relation to specific assets that affect a local onshore circuit tariff that applies to one of its sites and outlines its reasoning to The Company, The Company shall (upon the generator's request and subject to the generator's payment of reasonable costs incurred by The Company in doing so) use its reasonable endeavours to assist the generator in obtaining any evidence The Company or a TO may have to support its position.

14.15.17 Where a request is made under paragraph 14.15.13 on or prior to 31st December in a charging year, and The Company is satisfied based on the accompanying evidence provided to The Company under paragraph 14.15.14 that it is a valid request, the transport model inputs shall be adjusted accordingly and taken into account in the calculation of TNUoS tariffs effective from the year commencing on the 1st April following this and otherwise from the next subsequent 1st April.

14.15.18 The following table provides examples of works for which adjustments to transport model inputs for onshore circuits identified as local assets would typically apply:

Ref	Description of works	Adjustments
1	Undergrounding - A User requests to underground an overhead line at a greater cost.	As the cable cost will be more expensive than the overhead line (OHL) equivalent, the circuit will be modelled as an OHL.
2	Substation Siting Decision - A User requests to move the existing or a planned substation location to a place that means that the works cannot be justified as economic by the TO.	As the revised substation location may result in circuits being extended. If this is the case, the originally designed circuit lengths (as per the originally designed substation location) would be used in the transport model.

Ref	Description of works	Adjustments
3	Circuit Routing Decision - A User asks to move an existing or a planned circuit route in a way in which the works cannot be justified as economic by the TO.	As any circuit route changes that extend circuits are likely to result in a greater TNUoS tariff, the originally designed circuit lengths would be used in the transport model.
4	Building circuits at lower voltages - A User requests lower tower height and therefore a different voltage.	As lower voltage circuits result in a higher expansion factor being used, the circuits would be modelled at the originally designed higher voltage.

14.15.19 The following table provides examples of works for which adjustments to transport model inputs for circuits identified as local assets typically would not apply:

Ref	Description of works	Reasoning
1	Undergrounding - A User chooses to have a cable installed via a tunnel rather than buried.	Cable expansion factors are applied in the transport model regardless of whether a cable is tunnelled and buried, so there is no increased TNUoS cost.
2	Additional circuit route works - A User asks for screening to be provided around a new or existing circuit route.	Circuit expansion factors are applied in the transport model irrespective of these works, so there is no increased TNUoS cost.
3	Additional circuit route works - A User requests that a planned overhead line route is built using alternative transmission tower designs.	Circuit expansion factors are applied in the transport model irrespective of these works, so there is no increased TNUoS cost.
4	Additional substation works - A User asks for screening to be provided around a new or existing substation.	The additional substation works will not affect the User's TNUoS charge as there is no effect on power flows or circuit costs within the transport model.
5	Additional substation works - Changes to connection assets (e.g. HV-LV transformers and associated switchgear), metering, additional LV supplies, additional protection equipment, additional building works, etc.	The additional substation works will not affect the User's TNUoS charge as there is no effect on power flows or circuit costs within the transport model.

6	Diversion - A User asks to temporarily move an existing or a planned circuit route in a way in which the works cannot be justified as economic by the TO.	The temporary circuit changes will not be incorporated into the transport model.
7	Connection Entry Capacity (CEC) before Transmission Entry Capacity (TEC). A User asks for a connection in a year prior to the relating TEC; i.e. physical connection without capacity.	No additional works are being undertaken, works are simply being completed well in advance of the generator commissioning. The One-Off Charge reflects the depreciated value of the assets prior to commissioning (and any TNUoS being charged).
8	Early asset replacement - An asset is replaced prior to the end of its expected life.	As the asset is simply replaced, no data in the transport model is expected to change.
9	Additional Engineering/ Mobilisation costs - A User requests changes to the planned works, that results in additional operational costs.	The data in the transport model is unaffected.
10	Offshore (Generator Build) - Any of the works described above or under paragraph 14.15.15.	The value of the works will not form part of the asset transfer value therefore will not be used as part of the offshore tariff calculation.
11	Offshore (Offshore Transmission Owner (OFTO) Build) - Any of the works described above or under paragraph 14.15.15.	As part of determining the TNUoS revenue associated with each asset, the value of the One-Off Works would be excluded when pro-rating the OFTO's allowed revenue against assets by asset value.

14.15.20 The Company shall publish any adjusted transport model inputs that it intends to use in the calculation of TNUoS tariffs effective from the year commencing on the following 1st April in the NETS Seven Year Statement October Update. Any further adjustments that The Company makes shall be published by The Company upon the publication of the final TNUoS tariffs for the year concerned.

Offshore Circuit Expansion Factors

~~14.15.50~~14.15.59 Offshore expansion factors (£/MWkm) are derived from information provided by Offshore Transmission Owners for each offshore circuit. Offshore expansion factors are Offshore Transmission Owner and circuit specific. Each Offshore Transmission Owner will periodically provide, via the STC, information to derive an annual circuit revenue requirement. The offshore circuit revenue shall include revenues associated with the Offshore

Transmission Owner's reactive compensation equipment, harmonic filtering equipment, asset spares and HVDC converter stations.

~~14.15.51~~14.15.60 In the first year of connection, the offshore circuit expansion factor would be calculated as follows:

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

Where:

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

~~14.15.52~~14.15.61 In all subsequent years, the offshore circuit expansion factor would be calculated as follows:

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

Where:

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

14.15.62 For the avoidance of doubt, the offshore circuit revenue values, *CRevOFTO1* and *AvCRevOFTO* shall be determined using asset values after the removal of any One-Off Charges.

~~14.15.53~~14.15.63 Prevailing OFFSHORE TRANSMISSION OWNER specific expansion factors will be published in this statement. These shall be re-calculated at the start of each price control when the onshore expansion constants are revisited.

Prior Year One-Off Works Adjustment Tariff

14.15.89 Where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such an adjustment relates to assets for which local circuit charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203, then The Company shall calculate the Prior Year One-Off Works Adjustment Tariff (PYAT) for year t for each affected generator as follows:

$$PYAT_t = \sum_{i \in PY} \frac{PYAC_i}{Gen_t}$$

Where:

i = each given year i in the set of prior years, PY for which TNUoS charges have been levied in relation the asset(s) subject to adjustments under paragraph 14.15.13.

$\sum_{i \in PY}$ = the sum for all prior years i

$PYAC_i$ = the level of additional local circuit charges paid by the affected generator in year i that has not already been subject to charge calculated in accordance with this paragraph 14.15.89 (or equivalent) in a prior year.

Gen_i = the forecast maximum level of contracted generation associated with the affected generator in year t.

14.15.90 The total revenue adjustment relating to the Prior Year One-Off Adjustment Tariff in relation to year t is calculated by:

$$PYRR_t = \sum_{\substack{All\ affected \\ Generation}} \left(PYAT_t \times Gen_t \right)$$

The Residual Tariff

~~14.15.79~~14.15.91 The total revenue to be recovered through TNUoS charges is determined each year with reference to the Transmission Licensees' Price Control formulas less the costs expected to be recovered through Pre-Vesting connection charges. Hence in any given year t, a target revenue figure for TNUoS charges (TRR_t) is set after adjusting for any under or over recovery for and including, the small generators discount is as follows:

$$TRR_t = R_t - PVC_t - SG_{t-1}$$

Where

TRR_t = TNUoS Revenue Recovery target for year t

R_t = Forecast Revenue allowed under The Company's RPI-X Price Control Formula for year t (this term includes a number of adjustments, including for over/under recovery from the previous year). For further information, refer to Special Condition D2 of The Company's Transmission Licence.

PVC_t = Forecast Revenue from Pre-Vesting connection charges for year t

SG_{t-1} = The proportion of the under/over recovery included within R_t which relates to the operation of statement C13 of the The Company Transmission Licence. Should the operation of statement C13 result in an under recovery in year t – 1, the SG figure will be positive and vice versa for an over recovery.

~~14.15.80~~14.15.92 In normal circumstances, the revenue forecast to be recovered from the corrected transport tariffs will not equate to the total revenue target. This is due to a number of factors. For example, the transport model assumes, for simplicity, smooth incremental transmission investments can be made. In

reality, transmission investment can only be made in discrete 'lumps'. The transmission system has been planned and developed over a long period of time. Forecasts and assessments used for planning purposes will not have been borne out precisely by events and therefore some distinction between an optimal system for one year and the actual system can be expected.

~~14.15.81~~14.15.93 As a result of the factors above, in order to ensure adequate revenue recovery, a constant non-locational **Residual Tariff** for generation and demand is calculated, which includes infrastructure substation asset costs. It is added to the corrected transport tariffs so that the correct generation / demand revenue split is maintained and the total revenue recovery is achieved.

$$RT_D = \frac{(p \times TRR) - CTRR_D}{\sum_{Di=1}^{14} D_{Di}}$$

$$RT_G = \frac{[(1-p) \times TRR] - CTRR_G - LCRR_G + PYRR_G}{\sum_{Gi=1}^{21} G_{Gi}}$$

Where

RT = Residual Tariff (£/MW)

p = Proportion of revenue to be recovered from demand

Final £/kW Tariff

~~14.15.82~~14.15.94 The effective Transmission Network Use of System tariff (TNUoS) can now be calculated as the sum of the corrected transport wider tariff, the non-locational residual tariff and the local tariff:

$$ET_{Gi} = \frac{CTT_{Gi} + RT_G}{1000} + LT_{Gi} - PYAT_{Gi} \quad \text{and} \quad ET_{Di} = \frac{CTT_{Di} + RT_D}{1000}$$

Where

ET = Effective TNUoS Tariff expressed in £/kW

~~14.15.83~~14.15.95 Where tariffs do not change mid way through a charging year, final demand and generation tariffs will be the same as the effective tariffs.

$$FT_{Gi} = ET_{Gi} \quad \text{and} \quad FT_{Di} = ET_{Di}$$

~~14.15.84~~14.15.96 Where tariffs are changed part way through the year, the final tariffs will be calculated by scaling the effective tariffs to reflect that the tariffs are only applicable for part of the year and parties may have already incurred TNUoS liability.

$$FT_{Gi} = \frac{12 \times \left(ET_{Gi} \times \sum_{Gi=1}^{21} G_{Gi} - FL_{Gi} \right)}{b \times \sum_{Gi=1}^{21} G_{Gi}} \quad \text{and} \quad FT_{Di} = \frac{12 \times \left(ET_{Di} \times \sum_{Di=1}^{14} D_{Di} - FL_{Di} \right)}{b \times \sum_{Di=1}^{14} D_{Di}}$$

Where:

b = number of months the revised tariff is applicable for

FL = Forecast liability incurred over the period that the original tariff is applicable for

14.18 Generation charges

Parties Liable for Generation Charges

14.18.1 The following CUSC parties shall be liable for generation charges:

i) Parties of Generators that have a Bilateral Connection Agreement with The Company.

ii) Parties of Licensable Generation that have a Bilateral Embedded Generation Agreement with The Company.

14.18.2 14.25 Classification of parties for charging purposes provides an illustration of how a party is classified in the context of Use of System charging and refers to the relevant paragraphs most pertinent to each party.

Structure of Generation Charges

14.18.3 Generation Charges are comprised Wider and Local Charges, the latter of which contains a substation element and may also contain a circuit element. Specifically, all transmission connected generation will be liable to pay a local substation charge, with some of these also being liable to pay a local circuit charge. For the avoidance of doubt, embedded generation has a zero local tariff.

14.18.4 The intention of the charging rules is to charge the same physical entity only once.

14.18.5 The basis of the generation charge for Power Stations is the Chargeable Capacity and the short-term chargeable capacity (as defined below for positive and negative charging zones).

14.18.6 If there is a single set of Wider and Local generation tariffs within a charging year, the Chargeable Capacity is multiplied by the relevant generation tariff to calculate the annual liability of a generator.

14.18.7 If multiple sets of Wider and Local generation tariffs are applicable within a single charging year, the Chargeable Capacity is multiplied by the relevant tariffs pro rated over the entire charging year, across the months that they are applicable for.

$$Annual\ Liability = Chargeable\ Capacity \times \left(\frac{a \times Tariff\ 1 + b \times Tariff\ 2}{12} \right)$$

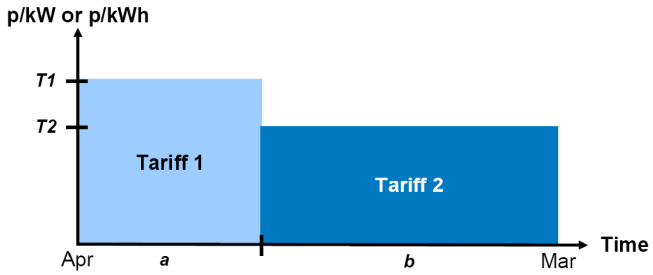
where:

Tariff 1 = Original tariff,

Tariff 2 = Revised tariff,

a = Number of months over which the original tariff is applicable,

b = Number of months over which the revised tariff is applicable.



14.18.8 For the avoidance of doubt if there are multiple sets of Wider and Local generation tariffs applicable within a single charging year and a tariff changes from being positive to negative or vice versa, the Chargeable Capacity for the entire charging year will be determined based on the net position of the pro rated tariffs for each affected generator.

14.18.9 In addition to the Wider and Local Charges, a Prior Year One-Off Works Adjustment shall be applied to a generator's charge where the Company has made an adjustment to transport model data in accordance with paragraph 14.15.13 and such adjustment relates to assets for which TNUoS charges were applied prior to the 1st April following the implementation of CUSC Modification CMP203. For the avoidance of doubt, such an adjustment will only be made once per generator, and is intended to reimburse the generator for any additional charges paid prior to the introduction of the adjustments made under 14.15.13 as a result of such adjustments not being made under previous arrangements.

Basis of Wider Generation Charges

Generation with positive wider tariffs

~~14.18.9~~14.18.10 The Chargeable Capacity for Power Stations with positive wider generation tariffs is the highest Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year. A Power Station should not exceed its TEC as to do so would be in breach of the CUSC, except where it is entitled to do so under the specific circumstances laid out in the CUSC (e.g. where a User has been granted Short Term Transmission Entry Capacity, STTEC). For the avoidance of doubt, TNUoS Charges will be determined on the TEC held by a User as specified within a relevant bilateral agreement regardless of whether or not it enters into a temporary TEC Exchange (as defined in the CUSC).

~~14.18.10~~14.18.11 The short-term chargeable capacity for Power Stations situated with positive generation tariffs is any approved STTEC or LDTEC applicable to that Power Station during a valid STTEC Period or LDTEC Period, as appropriate.

~~14.18.11~~14.18.12 For Power Stations, the short term chargeable capacity for LDTEC with positive generation tariffs referred to in Paragraph 14.18.11~~14.18.10~~ will be the capacity purchased either on a profiled firm[1] or indicative[2] basis and shall be assessed according to the capacity purchased on a weekly basis. The short-term chargeable capacity for LDTEC in any week may comprise of a

[1] where an LDTEC Block Offer has been accepted (Profiled Block LDTEC) and a firm profile of capacity has been purchased.

[2] where an LDTEC Indicative Block Offer has been accepted (Indicative Profiled Block LDTEC) and a right to future additional capacity up to a requested level has been purchased, the availability of which will be notified on a weekly basis in accordance with the CUSC.

number of increments, which shall be determined by considering LDTEC purchased previously in the Financial Year (whether or not in the same LDTEC Period). For example, if in a given week the LDTEC is 200MW but in a previous week the LDTEC had been 150MW, the short-term chargeable capacity in the latter week would comprise of two increments: one of 150MW and a second of 50MW. Further examples are provided in 14.16.6.

Generation with negative wider tariffs

~~14.18.12~~14.18.13 The Chargeable Capacity for Power Stations with negative wider generation tariffs is the average of the capped metered volumes during the three settlement periods described in 14.18.14~~14.18.13~~ below, for the Power Station (i.e. the sum of the metered volume of each BM Unit associated with Power Station in Appendix C of its Bilateral Agreement). A Power Station should not exceed its TEC as to do so would be in breach of the CUSC, except where it is entitled to do so under the specific circumstances laid out in the CUSC (e.g. where a User has been granted Short Term Transmission Entry Capacity). If TEC is exceeded, the metered volumes would each be capped by the TEC for the Power Station applicable for that Financial Year. For the avoidance of doubt, TNUoS Charges will be determined on the TEC held by a User as specified within a relevant bilateral agreement regardless of whether or not it enters into a temporary TEC Exchange (as defined in the CUSC).

~~14.18.13~~14.18.14 The three settlement periods are those of the highest metered volumes for the Power Station and the two half hour settlement periods of the next highest metered volumes which are separated from the highest metered volumes and each other by at least 10 Clear Days, between November and February of the relevant Financial Year inclusive. These settlement periods do not have to coincide with the Triad.

Example

If the highest TEC for a Power Station were **250MW** and the highest metered volumes and resulting capped metered volumes were as follows:

Date	19/11/08	13/12/08	06/02/09
Highest Metered Volume in month (MW)	**245.5**	**250.3**	**251.4**
Capped Metered Volume (MW)	**245.5**	**250.0**	**250.0**

Then, the chargeable Capacity for the Power Station would be:

$$\left(\frac{245.5+250+250}{3}\right) = \textbf{248.5 MW}$$

Note that in the example above, the Generator has exceeded its TEC on 13 December 2007 and 6 February 2008 and would therefore be in breach of the CUSC unless the generator had an approved STTEC or LDTEC value. (The STTEC and LDTEC charge for negative zones is currently set at zero).

~~14.18.14~~14.18.15 The short-term chargeable capacity for Power Stations with negative generation tariffs is any approved STTEC or LDTEC applicable to that Power Station during a valid STTEC Period or LDTEC Period, as applicable.

~~14.18.15~~14.18.16 For Power Stations with negative generation tariffs, the short-term chargeable capacity for LDTEC referred to in Paragraph 14.18.14 will be the capacity purchased either on a profiled firm or indicative basis and shall be assessed according to the capacity purchased on a weekly basis. The short-term chargeable capacity for LDTEC in any week may comprise of a number of increments, which shall be determined by considering LDTEC purchased previously in the Financial Year (whether or not in the same LDTEC Period). For example, if in a given week the LDTEC is 200MW but in a previous week the LDTEC had been 150MW, the short-term chargeable capacity in the latter week would comprise of two increments: one of 150MW and a second at 50MW.

~~14.18.16~~14.18.17 As noted above, a negative LDTEC tariff in negative generation charging zones is set to zero. Accordingly no payments will be made for use of LDTEC (in any of its forms) in these zones.

Basis of Local Generation Charges

~~14.18.17~~14.18.18 The Chargeable Capacity for Power Stations will be the same as that used for wider generation charges, except that each component of the local tariff shall be considered separately as to whether it is a positive or negative tariff component. This means that where a local circuit tariff is negative, the final charging liability for this element will be based on actual metered output as described in Paragraph 14.18.12.

Small Generators Charges

~~14.18.18~~14.18.19 Eligible small generators' tariffs are subject to a discount of a designated sum defined by Licence Condition C13 as 25% of the combined residual charge for generation and demand. The calculation for small generators charges is not part of the methodology however, for information the designated sum is included in **The Statement of Use of System Charges.**

Prior Year One-Off Works Adjustments

14.18.20 The Chargeable Capacity for Power Stations to which a Prior Year One-Off Works Adjustment applies is the Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Tariff under paragraph 14.15.89.

Monthly Charges

~~14.18.19~~14.18.21 Subject to paragraph 14.18.23, ~~I~~initial Transmission Network Use of System Generation Charges for each Financial Year will be based on the Power Station Transmission Entry Capacity (TEC) for each User as set out in their Bilateral Agreement. The charge is calculated as above. This annual TNUoS generation charge is split evenly over the months remaining in the year. For positive final generation tariffs, if TEC increases during the charging year, the party will be liable for the additional charge incurred for the **full** year, which will be recovered uniformly across the remaining chargeable months in the relevant charging year (subject to Paragraph 14.18.~~.~~220 below). An increase in monthly charges reflecting an increase in TEC during the charging year will result in interest being charged on the differential sum of the increased and previous TEC charge. The months liable for interest will be those preceding the TEC increase from April in year t. For negative final generation

tariff, any increase in TEC during the year will lead to a recalculation of the monthly charges for the remaining chargeable months of the relevant charging year. However, as TEC decreases do not become effective until the start of the financial year following approval, no recalculation is necessary in these cases. As a result, if TEC increases, monthly payments to the generator will increase accordingly.

~~14.18.20~~14.18.22 The provisions described above for increases in TEC during the charging year shall not apply where the LDTEC (in any of its forms) has been approved for use before the TEC is available, which will typically mean the LDTEC has been approved after the TEC increase has been approved. In such instances, the party shall commence payments for TEC during the LDTEC Period for LDTEC purchased up to the future level of TEC and LDTEC Charges will only apply to LDTEC that is incremental to the TEC increase. For the avoidance of doubt, where TEC has been approved after LDTEC in a given year, these provisions shall not apply and the LDTEC shall be considered additional to the TEC and charged accordingly.

14.18.23 Where generator is applicable for a Prior Year One-Off Works Adjustment, under paragraph 14.18.9, this shall be made uniformly across the year in monthly instalments based upon the Transmission Entry Capacity (TEC) applicable to that Power Station for that Financial Year that was used in the calculation of the applicable Prior Year One-Off Adjustment Tariff under paragraph 14.15.89.