ANNEX 6 – CMP355 Legal Text

Red text shows approved changes that will be implemented in April 2021 – changes include CMP306, CMP320, CMP324/325, CMP346, CMP347 and CMP353

Blue text shows the changes required for CMP355

14.3.4 The GAV of an asset is re-valued each year normally using one of two methods. For ease of calculation, April is used as the base month.

- In the Modern Equivalent Asset (MEA) revaluation method, the GAV is indexed each year with reference to the prevailing price level for an asset that performs the same function as the original asset;
- In the ~~RPI~~ Transmission Owner Price Index (TOPI) revaluation method, the original cost of an asset is indexed each year by the ~~Retail Price Index (RPI)~~TOPI formula set out in paragraph 14.3.6. For Pre Vesting connection assets commissioned on or before 30 March 1990, the original cost is the 1996/97 charging GAV (MEA re-valued from vesting). The original costs of Post Vesting assets are calculated based on historical cost information provided by the transmission licensee's.

14.3.5 In the MEA revaluation method, the MEA value is based on a typical asset. An MEA ratio is calculated to account for specific site conditions, as follows:

- The outturn GAV (as calculated in paragraph 14.3.4 above) is reindexed by ~~RPI~~ TOPI to the April of the Financial Year the Charging Date falls within;
- This April figure is compared with the MEA value of the asset in the Financial Year the Charging Date falls within and a ratio calculated;
- If the asset was commissioned at a Connection Site where, due to specific conditions, the asset cost more than the standard MEA value, the ratio would be greater than 1. For example, if an asset cost 10% more to construct and commission than the typical asset the MEA ratio would be 1.1. If, however, the asset was found only to cost 90% of the typical MEA value the ratio would be 0.9;
- The MEA ratio is then used in all future revaluations of the asset. The April GAV of the asset in any year is thus the current MEA value of the asset multiplied by the ratio calculated for the Financial Year the Charging Date falls within.

14.3.6 The ~~RPI~~ TOPI revaluation method is as follows:

- The outturn GAV (as calculated in paragraph 14.3.4 above) is reindexed by ~~RPI~~ TOPI to the April of the Financial Year the Charging Date falls within. This April GAV is thus known as the Base Amount;
- The Base Amount GAV is then indexed to the following April by using the ~~RPI~~ TOPI formula used in ~~The Company's~~ the Transmission Owner's Price Control. April GAVs for subsequent charging years are found using the same process of indexing by ~~RPI~~ TOPI.

  i.e. $GAV_n = GAV_{n-1} * ~~RPI_n~~ TOPI_n$

- The ~~RPI~~ TOPI calculation for year n is as follows:

$$TOPI_n = \frac{(May\ to\ October\ average\ TOPI)_{n-1}}{(May\ to\ October\ average\ TOPI)_{n-2}}$$

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Capital Components of the Connection charge for Post Vesting Connection Assets

14.3.9 The standard terms for a connection offer will be:

- 40 year life (with straight line depreciation);
- ~~RPI~~ TOPI indexation

14.3.10 In addition a number of options exist:

- a capital contribution based on the allocated GAV at the time of commissioning will reduce capital. Typically a capital contribution made in advance of or at the time of commissioning will include costs to cover the elements outlined below and charges are calculated as set out in the equations below;

– Construction costs
– Engineering costs (Engineering Charge x job hours)
– Interest During Construction (IDC)
– Return element (6%)
– Liquidated Damages Premium (LD) (if applicable)

General Formula:

Capital Contribution Charge = (Construction Costs + Engineering Charges) x (1+Return %) + IDC + LD Premium

- The MEA and TOPI revaluation methods are described further in 14.3.21. As an example, we will assume MEA revaluation is ~~which is combined with~~ a 7.5% rate of return, ~~as against~~and 6% on the ~~standard RPI~~ TOPI revaluation basis;
- annual charges based on depreciation periods other than 40 years;
- annuity based charging;
- indexation of GAVs based on principles other than MEA revaluation and ~~RPI~~ TOPI indexation. No alternative forms of indexation have been employed to date.

Capital Components of the Connection charge for Pre Vesting Connection Assets

14.3.13 The basis of connection charges for GB assets commissioned on or before 30 March 1990 is broadly the same as the standard terms for connections made since 30 March 1990. Specifically charges for pre vesting connection assets are based on the following principles:

- The GAV is the 1996/97 charging GAV (MEA re-valued from vesting) subsequently indexed by the same measure of ~~RPI~~ TOPI as used in ~~The Company's~~ the Transmission Owner's Price Control;
- 40 year life (with straight line depreciation);
- 6% rate of return

14.3.21 The charge for each connection asset in charging year n can be derived from the general formula below. This is illustrated more fully by the examples in **Appendix 2: Examples of Connection Charge Calculations.**

Annual Connection Charge$_n$ = D_n (GAV_n) + R_n (NAV_n) + SSF_n (TOPI~~RPI~~GAV_n) + TC_n (GAV_n)

Where:

For n = year to which charge relates within the Depreciation Period

n = year to which charge relates
GAV_n = GAV for year n re-valued by relevant indexation method
TOPI~~RPI~~GAV_n = GAV for year n re-valued by TOPI~~RPI~~ indexation
NAV_n = NAV for year n based on re-valued GAV_n
D_n = Depreciation rate as percentage (equal to 1/Depreciation Period) (typically 1/40 = 2.5% of GAV)
R_n = For assets subject to ~~RPI~~ TOPI indexation, the real pre-tax Weighted Average Cost of Capital for the Relevant Transmission Licensee for year n ($WACC_n$)
For assets subject to MEA indexation, the real pre-tax Weighted Average Cost of Capital for the Relevant Transmission Licensee for year n ($WACC_n$) plus 1.5 percentage points.
Where for the year n:

$$WACC_n = \left(\left(\frac{real\ post\ tax\ cost\ of\ equity}{1 - corporporation\ tax\ rate}\right) \times (1 - notional\ gearing\ \%)\right) + (real\ cost\ of\ debt \times notional\ gearing\ \%)$$

and ~~W~~where for the calculation of WACCn: The real post-tax cost of equity, notional gearing %, real cost of debt and the corporation tax rate, are as specified in the latest published Ofgem Price Control Financial Model (PCFM) relating to year n, or should Ofgem fail to publish or cease to publish a PCFM, those specified in the latest public regulatory determination(s) or decision(s) should be used.
SSF_n = Site Specific Factor for year n as a % (equal to the Site Specific Cost/Total Site GAV)
TC_n = Transmission Running Cost component for year n (other Transmission Owner Activity costs).

For n = year to which charge relates beyond the Depreciation Period

n = year to which charge relates
GAV_n = GAV for year n re-valued by relevant indexation method
TOPI~~RPI~~GAV_n = GAV for year n re-valued by ~~RPI~~ TOPI indexation
NAV_n = 0
D_n = 0
R_n = 0
SSF_n = Site Specific Factor for year n as a % (equal to the Site Specific Cost/Total Site GAV)
TC_n = Transmission Running cost component for year n (other Transmission Owner Activity costs).

14.3.22 Note that, for the purposes of deriving asset specific charges for site-specific maintenance, the ~~RPI~~ TOPI re-valued GAV is used. This is to ensure that the exact site charges are recovered from the assets at the site. The site costs are apportioned to the assets on the basis of the ratio of the asset GAV to total Site GAV.

Adjustment for Capital Contributions

14.3.23 If a User chooses to make a 100% capital contribution (either pre-commissioning or post-commissioning) to The Company towards their allocation of a connection asset then no capital charges will be payable and hence the connection charges for that asset would be calculated as follows:

Annual Connection Charge$_n$ = SSF$_n$ (TOPI~~RPI~~GAV$_n$) + TC$_n$ (GAV$_n$)

14.3.24 If a User chooses to make a partial capital contribution(s) (either pre-commissioning or post-commissioning) to The Company towards their allocation of a connection asset, for example PCCF = 50%, then the connection charges for that asset would be calculated as follows:

Annual Connection Charge$_n$ = D$_n$ (GAV$_n$*PCCF) + R$_n$ (NAV$_n$*PCCF) + SSF$_n$ (~~RPIGAV$_n$~~TOPIGAV$_n$) + TC$_n$ (GAV$_n$)

PCCF = Partial Capital Contribution Factor taking into account a capital contribution made pre-commissioning compared to the GAV (as outlined in 14.3.10), and any capital contributions made post-commissioning compared to the appropriate NAV (as outlined in 14.3.12) as appropriate.

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~~ TOPI figure that is used to inflate GAVs, though Users can request alternative indexation methods.

14.6.7 If an asset is reused following termination or allocated to connection when it has previously been allocated to TNUoS, a value needs to be determined for the purposes of connection charges. In both instances the connection charge will be based on the standard formula set out in paragraph 14.3.20. The Gross Asset Value will be based on the original construction costs and indexed by ~~RPI~~ TOPI. Where original costs are not known a reasonable value will be agreed between The Company and the User based on similar types of asset in use. The Net Asset Value will be calculated as if the asset had been in continuous service as a connection asset from its original commissioning date taking into account the depreciation period.

14.11 Illustrative Connection Charges

From 2021~~10~~/~~11~~22 First Year Connection Charges based on the ~~RPI~~ TOPI Method (6% rate of return used as an example)

14.11.1 The following table provides an indication of typical charges for new connection assets. Before using the table, it is important to read through the notes below as they explain the assumptions used in calculating the figures.

Calculation of Gross Asset Value (GAV)

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

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

For details of the Calculation of the Gross Asset Value, see Chapter 2 of this Statement.

Calculation of first year connection charge

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

- The assets are new
- The assets are depreciated over 40 years
- The rate of return is assumed to be 6% for ~~RPI~~ TOPI indexation
- The connection charges include maintenance costs at a rate of 0.52% of the GAV
- The connection charges include Transmission Running Costs at a rate of 1.45% of the GAV

14.12 Examples of Connection Charge Calculations

The following examples of connection charge calculations are intended as general illustrations.

Example 1

14.12.1 This example illustrates the method of calculating the first year connection charge for a given asset value. This method of calculation is applicable to indicative price agreements for new connections, utilising the ~~RPI~~ TOPI method of charging, and assuming:

i) the asset is commissioned on 1 April 2010
ii) there is no inflation from year to year i.e. GAV remains constant
iii) the site specific maintenance charge component remains constant throughout the 40 years at 0.52% of GAV
iv) the Transmission Running Cost component remains constant throughout the 40 years at 1.45% of GAV
v) the asset is depreciated over 40 years
vi) the rate of return charge remains constant at 6% for the 40 year life of the asset
vii) the asset is terminated at the end of its 40 year life

Example 4

14.12.4 If a User has chosen a 20-year depreciation period for their Post Vesting connection assets and subsequently remains connected at the site beyond the twentieth year their charges are calculated as follows.

For years 21-40 they will pay a connection charge based on the following formula:

Annual Connection Charge$_n$ = SSF$_n$ (~~RPI~~ TOPI GAV$_n$)+ TC$_n$ (GAV$_n$)

The NAV will be zero and the asset will be fully depreciated so there will be no rate of return or depreciation element to the charge.

Changes to parts of TNUoS methodology – only affected paragraphs shown

14.15.69 This process of calculating the incremental cost of capacity for a 400kV OHL, along with calculating the onshore expansion factors is carried out for the first year of the price control and is increased by inflation, ~~RPI~~ TOPI, (May–October average increase, as defined in the Transmission Licence) each subsequent year of the price control period. The currently applicable expansion constant is detailed in **The Company's Statement of Use of System Charges** which is available from the **Charging website**.

14.15.69A Notwithstanding Paragraph 14.15.69 from the first year of (and during) the T2 price control (which starts on 1st April 2021), until a further change is made, the Expansion Constant will be that used in the 2020/21 charging year inflated in accordance with ~~RPI~~ TOPI as per paragraph 14.15.69; and plus inflation as defined in the Transmission Licence for each subsequent year of the T2 price control.

14.15.84 Prevailing OFFSHORE TRANSMISSION OWNER specific expansion factors will be published in **The Company's Statement of Use of System Charges** which is available from the **Charging website**. These shall be recalculated for ~~at~~ the start of each price control period using the formula in paragraph 14.15.82. For each subsequent year within the price control period, these expansion factors will be adjusted by the annual Offshore Transmission Owner specific indexation factor, *OFTOInd*, calculated as follows;

$$OFTOInd_{t,f} = \frac{OFTORevInd_{t,f}}{TOPI_t}$$

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where:

$OFTOInd_{t,f}$	=	the indexation factor for Offshore Transmission Owner *f* in respect of charging year *t*;
$OFTORevInd_{t,f}$	=	the indexation rate applied to the revenue of Offshore Transmission Owner *f* under the terms of its transmission licence in respect of charging year *t*; and
~~RPI~~$TOPI_t$	=	the indexation rate applied to the expansion constant in respect of charging year *t*.

14.15.115 The embedded export tariff will be applied to the metered Triad volumes of Embedded Exports for each demand zone as follows:

$$EET_{Di} = ITT_{DiPS} + ITT_{DiYR} + EX$$

Where

ITT_{DiPS} = Peak Security Initial Transport Tariff for the demand zone;
ITT_{DiYR} = Year Round Initial Transport Tariff for the demand zone, and
EX:
First Charging year following the implementation date of CMP 264/265:

$$= \frac{2}{3}(XP - AGIC) + AGIC$$

Second charging year following the implementation date of CMP 264/265:

$$= \frac{1}{3}(XP - AGIC) + AGIC$$

Third charging year following the implementation date of CMP 264/265 and every subsequent charging year:

$$= AGIC$$

Where
XP = Value of demand residual in charging year prior to implementation
AGIC = The Avoided GSP Infrastructure Credit (AGIC) which represents the unit cost of infrastructure reinforcement at GSPs which is avoided as a consequence of embedded generation connected to the distribution networks served by those GSPs. It is calculated from the average annuitised cost of that infrastructure reinforcement divided by the average capacity delivered by a supergrid transformer.
The Avoided GSP Infrastructure Credit is calculated at the beginning of each price control period and in the first applicable charging year following the implementation date of CMP264/265 using data submitted by onshore TSOs as part of the price control process. The data used is from the most recent [20] schemes submitted under the price control process and indexed each year by the ~~RPI~~ TOPI formula set out in 14.3.6 until the end of the price control. For the avoidance of doubt, this approach does not include the cost of the supergrid transformers or any other connection assets as they are paid for by the relevant DNOs thorough their connection charges.

14.15.123 The process for calculating Local Substation Tariffs will be carried out for the first year of the price control and will subsequently be indexed by ~~RPI~~ TOPI for each subsequent year of the price control period.

14.15.131 A discount shall be provided to the offshore substation tariff to reflect the average cost of civil engineering for onshore substations. The currently applicable discount is detailed in **The Company's Statement of Use of System Charges** which is available from the **Charging website**. This will be inflated by ~~RPI~~ TOPI each year and reviewed every price control period.

The Residual Tariff

14.15.134 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.

where:

F = Forecast of User's NHH metered energy consumption for the Financial Year

J = Residual part month summed NHH metered energy consumption for the hours 16:00 to 19:00 for each day where new User registration takes place other than on the first of a month

M = User's summed NHH metered energy consumption for the hours 16:00 to 19:00 for each day for the last complete month for which settlement data is available

R = Total system summed NHH metered energy consumption for the hours 16:00 to 19:00 for each day for the period from the start of that defined under M but for the preceding year and until the end of that preceding Financial Year

W = Total system summed NHH metered energy consumption for the hours 16:00 to 19:00 for each day for the period identified in M but for the preceding Financial Year

14.29 Stability & Predictability of TNUoS tariffs

Stability of tariffs

The Transmission Network Use of System Charging Methodology has a number of elements to enhance the stability of the tariffs, which is an important aspect of facilitating competition in the generation and supply of electricity. This appendix seeks to highlight those elements.

Each node of the transmission network is assigned to a zone, these zones are themselves fixed. The result of this is to dampen fluctuations that would otherwise be observed at a given node caused by changes in generation, demand, and network parameters. The criteria used to establish generation zones are part of the methodology and are described in Paragraph 14.15.42.

In addition to fixing zones, other key parameters within the methodology are also fixed for the duration of the price control period or annual changes restricted in some way. Specifically:

- the expansion constant, which reflects the annuitised value of capital investment required to transport 1MW over 1km by a 400kV over-head line, changes annually according to ~~RPI~~ TOPI. The other elements used to derive the expansion constant are only reviewed at the beginning of a price control period to ensure that it remains cost-reflective. This review will consider those components outlined in Paragraph 14.15.59 to Paragraph 14.15.69.

- the expansion factors, which are set on the same basis of the expansion constant and used to reflect the relative investment costs in each TO region of circuits at different transmission voltages and types, are fixed for the duration price control. These factors are reviewed at the beginning of a price control period and will take account of the same factors considered in the review of the expansion constant.

- the locational security factor, which reflects the transmission security provided under the NETS Security and Quality of Supply Standard, is fixed for the duration of the price control period and reviewed at the beginning of a price control period.

Predictability of tariffs

The Company revises TNUoS tariffs each year to ensure that these remain cost-reflective and take into account changes to allowable income under the price control and ~~RPI~~ TOPI. There are a number of provisions within the Transmission Licence and the CUSC designed to promote the predictability of annually varying charges. Specifically, The Company is required to give the Authority 150 days notice of its intention to change use of system charges together with a reasonable assessment of the proposals on those charges; and to give Users 2 months written notice of any revised charges. The Company typically provides an additional months notice of revised charges through the publication of “indicative” tariffs. Shorter notice periods are permitted by the framework but only following consent from the Authority.