Changes to section 14 of the CUSC are proposed as follows (please note that additions are shown in blue and underlined, deletions are shown in red with strikethrough and text in green are additions by the recently approved CMP320 which is due to be implemented on 1st April 2021):

•

CUSC - SECTION 14

Section 14.3 The Calculation of the Basic Annual Connection Charge for an Asset

Part B: Transmission Running Costs

14.3.19	The TRC factor is calculated by taking a proportion of the forecast Transmission Running Costs for the transmission licensees (based on operational expenditure figures from the latest price control) that corresponds with the proportion of the transmission licensees' total connection assets as a function of their total business GAV. This cost factor is therefore expressed as a percentage of an asset's GAV and will be fixed for the entirety of the price control period. The currently applicable TRC factor, calculated as above, is detailed in **The Company's Statement of Use of System Charges** which is available from the **Charging website**[3]. ~~For 2010/11 this will be 1.45%~~.
14.3.19 Footnote	3 https://www.nationalgrideso.com/industry-information/charging/
14.3.20	To illustrate the calculation, the following example uses the average operating expenditure from the published price control and the connection assets of each transmission licensee expressed as a percentage of their total system GAV to arrive at ~~a~~ the 2010/11 GB TRC value of 1.45%: **Example:** Connection assets as a percentage of total system GAV for each TO:

Scottish Power Transmission Ltd	15.1%
Scottish Hydro Transmission Ltd	8.6%
NGET	12.5%

	Published current price control average annual operating expenditure (£m): |	
Scottish Power Transmission Ltd	29.1
Scottish Hydro Transmission Ltd	11.3
NGET	295.2 | Total GB Connection GAV = £2.12bn GB TRC Factor = (15.1% x £29.1m + 8.6% x £11.3m + 12.5% x £295.2m) / £2.12bn GB TRC Factor = 1.99% Net GB TRC Factor = Gross GB TRC Factor – Site Specific Maintenance Factor* Net GB TRC Factor = 1.99% - 0.54% = 1.45% * Note – the Site Specific Maintenance Factor used to calculate the TRC Factor is that which applies for the first year of the price control period or in this example, is the 2007/8 Site Specific Maintenance Factor of 0.54%.

Section 14.14 – Principles

14.14.5 vi.)	The currently applicable number of generation zones, determined in accordance with 14.15.37 and using the criteria outlined in paragraph 14.15.42, is detailed in **The Company's Statement of Use of System Charges** which is available from the **Charging website**. ~~has been determined as 21.~~

14.15 Derivation of the Transmission Network Use of System Tariff
Calculation of zonal marginal km

14.15.37	Given the requirement for relatively stable cost messages through the ICRP methodology and administrative simplicity, nodes are assigned to zones. Typically, generation zones will be reviewed at the beginning of each price control period with another review only undertaken in exceptional circumstances. Any rezoning required during a price control period will be undertaken with the intention of minimal disruption to the established zonal boundaries. The full criteria for determining generation zones are outlined in paragraph 14.15.42. The currently applicable number of generation zones is detailed in **The Company's Statement of Use of System Charges** which is available from the **Charging website** ~~set for 2010/11 is 20~~.

The Expansion Constant

14.15.65	The Weighted Average Cost of Capital (WACC) and asset life are established at the start of a price control and remain constant throughout a price control period. The WACC used in the calculation of the annuity factor is NGET's regulated rate of return, this assumes that it will be reasonably representative of all licensees. The asset life used in the calculation is 50 years; the appropriateness of this is reviewed when the annuity factor is recalculated at the start of a price control period. These assumptions, applied in accordance with 14.15.64, provide a current annuity factor, as set out in **The Company's Statement of Use of System Charges** which is available from the **Charging website** ~~of 0.066~~.
14.15.66	The final step in calculating the expansion constant is to add a share of the annual transmission overheads (maintenance, rates etc). This is done by multiplying the average weighted cost (J) by an 'overhead factor'. The 'overhead factor' represents the total business overhead in any year divided by the total Gross Asset Value (GAV) of the transmission system. This is recalculated at the start of each price control period. The currently applicable overhead factor used in the calculation of the current expansion constant is, calculated as above, and detailed in The Company's **Statement of Use of System Charges** which is available from the **Charging website** ~~for 2009/10 is 1.8%~~. The overhead and annuitised costs are then added to give the expansion constant.
14.15.67	Using the previous example, and the 2009/10 values for the annuity factor (6.6%) and overhead factor (1.8%), the final steps in establishing the expansion constant are demonstrated below:

400kV OHL expansion constant calculation	**Ave £/MWkm**
OHL	114.160
Annuitised	7.535
Overhead	2.055
Final	**9.589**

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, (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**~~for 2010/11 is 10.633~~.

Onshore Wider Circuit Expansion Factors

14.15.77	The TO specific onshore circuit expansion factors which are currently applicable, are detailed in The Company's **Statement of Use of System Charges** which is available from the **Charging website**. ~~calculated for 2008/9 (and rounded to 2 decimal places) are:~~ ~~Scottish Hydro Region~~ ~~400kV underground cable factor: 22.39~~ ~~275kV underground cable factor: 22.39~~ ~~132kV underground cable factor: 27.79~~ ~~400kV line factor: 1.00~~ ~~275kV line factor: 1.14~~ ~~132kV line factor: 2.24~~ ~~Scottish Power & NGET Regions~~ ~~400kV underground cable factor: 22.39~~ ~~275kV underground cable factor: 22.39~~ ~~132kV underground cable factor: 30.22~~ ~~400kV line factor: 1.00~~ ~~275kV line factor: 1.14~~ ~~132kV line factor: 2.80~~

Onshore Local Circuit Expansion Factors

14.15.79	In addition, the 132kV onshore overhead line circuit expansion factor is sub divided into four more specific expansion factors. This is based upon maximum (winter) circuit continuous rating (MVA) and route construction whether double or single circuit. The 132kV onshore overhead line circuit expansion factors which are currently applicable, are detailed in The Company's **Statement of Use of System Charges** which is available from the **Charging website**.

	~~400kV underground cable factor: 22.39~~ ~~275kV underground cable factor: 22.39~~ ~~132kV underground cable factor: 30.22~~ ~~400kV line factor: 1.00~~ ~~275kV line factor: 1.14~~ ~~132kV line factor (single; <200MVA): 10.00~~ ~~132kV line factor (double; <200MVA): 8.32~~ ~~132kV line factor (single; >=200MVA): 7.13~~ ~~132kV line factor (double; >=200MVA): 4.42~~

The Locational Onshore Security Factor

14.15.89	For the purposes of 14.15.88 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~~[2].
14.15.89 Footnote	~~1 http://www.nationalgrid.com/uk/Electricity/Charges/~~ 2 https://www.nationalgrideso.com/industry-information/charging
14.15.90	For the purposes of 14.15.88 the locational onshore security factor, derived in accordance with paragraphs 14.15.88 and 14.15.89, ~~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. The locational onshore security factor which is currently applicable, is detailed in The Company's **Statement of Use of System Charges**, which is available from the **Charging website**.

Local Security Factors

14.15.91	Local onshore security factors are generator specific and are applied to a generator's local onshore circuits. If the loss of any one of the local circuits prevents the export of power from the generator to the MITS then a local security factor of 1.0 is applied. For generation with circuit redundancy, a local security factor is applied that is equal to the locational security factor, derived in accordance with paragraphs 14.15.88 and 14.15.90 ~~currently 1.8~~.

14.15.94	The offshore local security factor for single circuits with a single cable will be 1.0 and for multiple circuit connections will be capped at the locational onshore

	security factor, derived in accordance with 14.15.88-14.15.90 ~~as 1.8 for 2010/11~~.
14.15.95	The offshore local security factor for configurations with one or more Offshore Interlinks is updated so that the offshore circuit tariff will include the proportion of revenue associated with the Offshore Interlink(s). The specific offshore local security factor for configurations involving an Offshore Interlink, which may be greater than the locational onshore security factor ~~1.8~~, will be calculated for each offshore connection using the following methodology: $$LocalSF = \frac{\text{IRevOFTO} \times \text{NetworkExportCapacity}}{\text{CRevOFTO} \times \sum_{k} \text{Gen}_{k}} + LocalSF_{\text{initial}}$$ Where: IRevOFTO = The appropriate proportion of the Offshore Interlink(s) revenue in £ associated with the offshore connection calculated in 14.15.85 CRevOFTO = The offshore circuit revenue in £ associated with the circuit(s) from the offshore substation to the Single Common Substation. $LocalSF_{initial}$ = Initial Local Security Factor calculated in 14.15.~~80~~93 and 14.15.~~81~~94 and other definitions as in 14.15.~~80~~93.

Onshore Local Substation Tariff

14.15.122	Using the above factors, the corresponding £/kW tariffs ~~(quoted to 3dp)~~ that are currently applicable, are detailed in The Company's **Statement of Use of System Charges** which is available from the **Charging website**. ~~will be applied during 2010/11 are:~~

~~**Substation Rating** (b)~~	~~**Connection Type** (c)~~	~~**Substation Voltage** (a)~~		
		~~**132kV**~~	~~**275kV**~~	~~**400kV**~~
~~<1320MW~~	~~No redundancy~~	~~0.133~~	~~0.081~~	~~0.065~~
~~<1320MW~~	~~Redundancy~~	~~0.301~~	~~0.192~~	~~0.155~~
~~>=1320MW~~	~~No redundancy~~	~~n/a~~	~~0.257~~	~~0.208~~
~~>=1320MW~~	~~Redundancy~~	~~n/a~~	~~0.417~~	~~0.336~~

Offshore Substation Local Tariff

14.15.131	~~For 2010/11 a~~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. 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 each year and reviewed every price control period.