1 Connection Charges

Connection charges enable National Grid to recover, with a reasonable rate of return the costs of installing and maintaining assets which connect individual users to the GB Transmission Network. Connection assets are non-sharable assets installed for and only capable of use by an Individual user and hence represent a shallow charging regime (known as PLUGs). All sharable assets are classed as Infrastructure assets and the costs associated with them are recovered through TNUoS charges.

1.1 Connection/Infrastructure (Use of System) Boundary

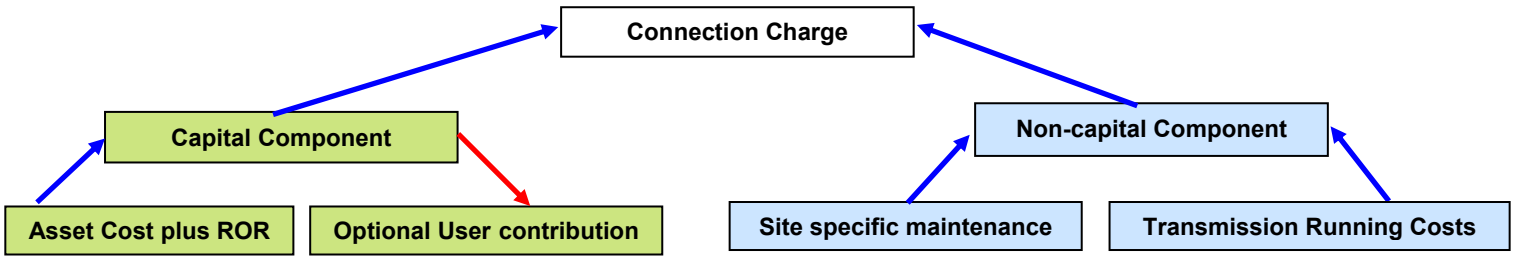
There are standard rules to distinguish Connection assets from Infrastructure assets for double busbar, teed or mesh connections, cables, overhead lines etc. However, customer choice can influence the application of these rules. Such variations are more common in Scotland e.g.
(1) National Grid does not normally own busbars below 275kV in E&W whereas a lot of Transmission network in Scotland at voltage below 275kV is classified as Infrastructure.
(2) Usually Generators do not have connection assets in E&W (as they own the assets right up to NG transmission busbars) but this is different in Scotland due to application of non-standard boundary rules by Scottish Transmission Owners.

1.2 The Statement of Connection Charging Methodology

Following the implementation of BETTA, National Grid was obligated under the Transmission Licence to produce a statement of Connection Charging methodology approved by Ofgem. The Licence conditions further required that the charges in the statement fulfil the three standard obligations of *facilitating competition in electricity market, cost reflectivity and taking account of developments in the GB transmission network.* Furthermore, National Grid is required to facilitate competition in the construction of Connection assets. This obligation is commonly referred as Contestability i.e. allowing third party to build connection assets if the user requests it.
The Statement of Connection Charging Methodology now forms Part 1 of Section 14 of the CUSC. This allows all CUSC parties to propose modifications to the methodology. Earlier, it was National Grid's responsibility to keep the methodology under review.

2 Basic Connection Charge

The connection charge is calculated annually and consists of a capital component and a non-capital component. The components are mainly calculated using the Gross Asset Value (GAV) and the Net Asset Value (NAV) of the connection assets. The GAV represents the total initial cost of constructing the connection assets, whilst the NAV represents mid year depreciated GAV of the asset. As the connection charge is recalculated annually, each year the GAV has to be rebased to account for inflation and the NAV has to be reduced to account for the value paid off in the previous year.



2.1 Capital Component

The capital component recovers the cost of installing and commissioning connection assets. This is charged over the depreciation period of the connection assets, and also includes the Transmission Owner's agreed rate of return. Users can opt to make a capital contribution to pay off some or all of the GAV, reducing the capital component of the connection charge.

For a connection with a 40-year depreciation period and a TO rate of return of 6%, this component is calculated as being:

$$\text{Capital Component} = \underbrace{(1/40 * \text{GAV of the asset})}_{\text{Depreciation element}} + \underbrace{(6\% * \text{NAV of the asset})}_{\text{Rate of Return element}}$$

User can choose to pay capital contribution (in full or partial) toward their allocation of a connection asset. In this case capital component will be:

Capital Component = CCF*(Depreciation element) + CCF*(RoR element)
Where CCF is Capital Contribution Factor (in %)

Once asset is fully depreciated, the capital component of connection charge becomes zero, as the User has already paid off total cost of constructing the assets. At this stage we would negotiate installing new assets or extending the physical life to match that of the Users (sweating the asset).

2.2 Non-Capital Component

The non-capital component recovers the cost of maintaining the connection asset. It is made up of two parts, the site specific maintenance (SSM) charge and the transmission running cost (TRC) charge.

Non Capital Component= (SSM Factor*GAV)+ (TRC Factor*GAV)

SSM Charge TRC Charge

SSM factor is calculated each year based on the forecast of total site specific maintenance for GB divided by the total GAV of the Transmission Licensees GB connection assets, to arrive at a percentage of total GAV. The 2012/13 figure is **0.51%**.

The transmission running cost (TRC) factor is the only part of the connection charge that is not calculated annually, but rather at the previous Price Control Review. It is a proportion of the forecast of Transmission Running Costs for the transmission licensees that corresponds with the proportion of the transmission licensees' total connection assets as a function of their total business GAV. For 2007/08 to 2012/13 the TRC factor is **1.45%**.

3 Other Charges

In addition to the basic connection charge, users may pay for certain other costs related to their connection, which are set out in their bilateral connection agreements.

3.1 One-Off Components

This covers miscellaneous works that may be required, or requested by the connectee and cannot be capitalised into either connection or infrastructure assets e.g. temporary towers for an OHL diversion required during construction of the connection. These are therefore charged out as a one-off cost plus National Grid's rate of return.

3.2 Rental Charges

Where National Grid owns a site that is embedded within a distribution network, the maintenance charges for that connection are excluded from the non-capital component of the charge as the DNO undertakes all maintenance work.

3.3 Termination

If a user terminates either the whole site or just the connection agreement before the assets have reached the end of their asset life, the User is liable for a termination charge. This charge is based on the remaining net asset value of the connection, and once received is held in a provisions account because we are liable to repay the charge to the terminating user if the assets are re-used.

4 Example: Annual connection charge$_n$ = D*(GAV$_n$)+RoR*(NAV$_n$)+SSM*(RPI GAV$_n$)+TRC*(GAV$_n$)

The Connection asset with GAV of £100,000 is in its first year of charging, with a depreciation period of 40 years. The SSM Factor is 0.51% and TRC Factor is 1.45%.

◆ Depreciation	= D*(GAV$_n$)	= 2.5% * £100,000	£2,500
◆ Return	= RoR*(NAV$_n$)	= 6.0% * £98,750	£5,925
◆ Maintenance	= SSM*(RPI GAV$_n$)	= 0.51% * £100,000	£ 510
◆ Running Costs	= TRC*(GAV$_n$)	= 1.45% * £100,000	£1,450
Annual Connection Charge		**=**	**£10,485**