



Electricity Transmission network charging

An introductory guide

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All users of the GB electricity transmission system pay network charges in some way. Generators pay to use the network to transport their electricity supply to where it's needed, and directly connected consumers and suppliers pay to use the network to meet their electricity demand. For the average bill payer, suppliers are responsible for passing on their share of network costs.

The amount of money that needs to be recovered through network costs is decided at the beginning of a price control period by the regulator, Ofgem. How transmission network costs are allocated and paid for by different network users is decided by the charging methodology in the Connection and Use of System Code (CUSC)— this will depend on a network user's location, and possibly when they use the network.

This introductory guide to Electricity Transmission network charging will cover:

- What the three electricity transmission charges are for;
- How these charges are calculated for generation and demand users;
- How and when generation and demand users pay these charges.

Summary of electricity transmission network charges

	Directly connected demand and suppliers	Transmission Connected Generators*	DNOs
Connection Charging The cost of sole use assets that are built to connect to the transmission system	Not paid by suppliers. Possibly paid by directly connected demand, depending on their connection.	Usually paid by generators depending on their connection.	May be paid by DNOs, depending on their connection.
Balancing Services Use of System (BSUoS) The amount charged for the service of balancing the transmission system.	Paid by directly connected demand and Suppliers.	Paid by generation.	Not paid by DNOs
Transmission Network Use of System (TNUoS) The amount charged for the building, operation and maintenance of the transmission system	Paid by suppliers. Supplier TNUoS includes: <ul style="list-style-type: none"> ▪ a locational element ▪ a residual charge. 	Paid by generation. Generator TNUoS includes: <ul style="list-style-type: none"> ▪ a locational element ▪ residual charge ▪ local circuit charge ▪ substation charge. 	Not paid by DNOs

*Transmission connected generators are those with a Bilateral Connection Agreement (BCA) connected at 275kV or above in England & Wales or 132kV and above in Scotland. For further information on charges paid by embedded generation (i.e. those connected within the distribution networks), please refer to our separate briefing note to follow.

Connection charging

A connection charge covers the cost of assets installed solely for, and only used by, an individual network user. It will be clear in the Bilateral Connection Agreement (BCA) if they need any connection assets.

The connection charge is made up of:

- A capital component based on the initial construction cost of the assets; and
- A non-capital component reflecting the maintenance cost of these assets.

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Connection charges are calculated annually and are paid monthly. Users have the option to pay a lump sum (capital contribution) when first connecting if they wish to reduce part of their ongoing connection charges.

The method of calculating connection charges is covered in Section 14 of the CUSC, Section 14 and is non-discriminatory between different users of our network.

Balancing Services Use of System (BSUoS) charging

BSUoS is the Balancing Services Use of System charge and reflects the costs of balancing the system, such as running the national control room, frequency response arrangements, and other ancillary services and constraint costs (paying generators to turn on or off to maintain system security).

BSUoS charges are based on the *volume* of energy put onto or taken off the transmission system in a half-hour period. For each half-hour, the BSUoS tariff is set as a £ / MWh tariff. The tariff for BSUoS is set *ex post* - this means that the tariff only becomes known after the half hour period has taken place.

Both generation and demand pay BSUoS charges, apart from interconnectors. Unlike TNUoS, BSUoS does not change based on location (it is a flat tariff), and is paid 50% by generators and 50% by consumers.

You can find out more on balancing services in Section 4 of the CUSC, and about the charging methodology in Section 14.

Transmission Network Use of System (TNUoS) charging

TNUoS is the Transmission Network Use of System charge, and recovers the allowed revenue for Transmission Owners for the cost of building and maintaining transmission infrastructure. The charging methodology is detailed in Section 14 of the CUSC.

TNUoS tariffs aim to be reflective of the cost of using the network to help network users make efficient decisions about where and when to use the network.

Tariffs are broken down in three ways:

1. The Locational Charge (Wider TNUoS) – calculated by the Transport model - this reflects the incremental cost of power being added to the system at different geographical points.

2. The Residual Charge (Wider TNUoS) – what is not recovered under the Locational charge is recovered in this charge so that the Transmission Owners recover their total allowed revenue.
3. a.) The Local Circuit Charge (Local Circuit TNUoS) – *only paid by generation.*
 b.) The Substation Charge (Local Substation TNUoS) – *only paid by generation.*

Figure 1: Illustration of generation TNUoS charges



How are suppliers and directly connected demand charged for TNUoS?

For TNUoS, there are two ‘types’ of demand:

- half hourly settled (generally commercial)
- non-half hourly (generally domestic, or smaller non-domestic premises).

Half hourly customers are charged according to the demand (MW) they take over the three ‘Triad’ periods each year; the charge is levied through a £/kW tariff. Triads are defined as the three half-hours with the highest system demand, between November and February, separated by at least ten clear days. TNUoS tariffs are set a year ahead and charges are reconciled based on actual usage at the end of that year. Users are then billed monthly for this TNUoS charge.

Non half hourly charges are based on their annual consumption between 4 and 7pm (in kWh), through a p/kWh tariff.

For all consumers, there is a locational element to the charge (across 14 demand zones) plus a residual.

How are generators charged for TNUoS?

Generators are charged according to the **Transmission Entry Capacity (TEC)** they hold each year. This is the maximum amount of power they can put on the system at any one time. The peak element of the tariff looks at investment to secure peak demand. Intermittent generators such as wind farms don't pay this element.

Please note: If there are any inconsistencies between this guidance note the industry framework documents (CUSC, the NGC Use of System Charging Methodology or the BSC). will take precedence.

The CUSC all Code subsidiary documentation can be downloaded from the National Grid Website. For more information, please contact charging.enquiries@nationalgrid.com.