Introduction to electricity transmission charging

6th February 2018
Electricity network charges explained

Transmission Network Use of System charge (TNUoS)
This is paid to Transmission Owners (TOs) for the cost of building and maintaining the shared transmission network.
Your TNUoS charge may depend on:
> Where you are in GB
> When you use the network
> How much you consume
3-4% of average dual-fuel bill

Balancing Services Use of System charge (BSUoS)
This is paid to the System Operator for the cost of balancing the system.
It pays for the skills, tools and services the SO needs to balance supply and demand in real time.
1% of average dual-fuel bill

Distribution Use of System charge (DUsoS)
This is paid to Distribution Network Operators (DNOs) for the cost of building and maintaining the local distribution network.
Your DUsoS charge may depend on:
> Where on the local network you are
> What voltage connection you need
> When in the day you use the network
> How much you consume
8% of average dual-fuel bill

A charge for new assets or reinforcements needed to connect you to the network.
Each connection will have its own cost that is agreed with the TO or DNO you are connecting to.
Payment arranged with your network.
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Quick Poll
Today’s webinar host:

Tom Selby
National Grid ESO
Contents

➢ Transmission owners and operators
➢ Transmission Connection Charges
➢ TNUoS
➢ BSUoS
Transmission Network & System Operator

Multiple TOs

One TSO

National Electricity Transmission System Operator

National Grid Electricity Transmission

*sOffshore Transmission Owner – OFTO

An independent licensed owner of transmission assets connecting offshore wind farms (generators) to the GB onshore transmission network
Transmission charges

**BSUoS** to recover ~£1 billion per annum

- **External**
- **Internal**
- Balancing services
- System Operator running cost

**Connection charges** recover £230 million

- **Capital Component**
- **Non-Capital Component**
- Depreciation
- Rate of Return
- Site Specific Maintenance
- Transmission Running Cost

**TNUoS** to recover £2.6 billion per annum

- **Locational component**
- **Residual component**
- Transport model
- Generators: TEC
- Demand

**Split in 2018/19:**

- **Generation** 16.1%
- **Demand** 83.9%

Generation pay 50%  Demand pay 50%
Connection Charges
Connection Charges

CUSC 14.2.5:

“assets installed solely for and only capable of use by an individual User”

Due to the location of the ownership boundary at the substation, generators do not generally pay connection charges.

Classed as a shallow connection charge regime.

Connection Charge

<table>
<thead>
<tr>
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Transmission network use of system charges (TNUoS)
What is TNUoS?

> Recovers Revenue for:
  > National Grid TO,
  > Scottish Power Transmission,
  > Scottish Hydro Electricity Transmission,
  > Offshore TOs
  > Network Innovation Competition Fund
  > Transmission EDR

> Charges calculated *ex ante* and billed by NGSO
> Methodology defined in Section 14 of the CUSC
> Tariffs apply for a whole year from 1 April, and published by 31 Jan.
TNUnoS Revenue

- TNUnoS Recovers Revenues for all TOs
- Values determined by Price Control
- Total: £2.67bn (2018/19)
- TOs give **final values** to NGSO by **25 January** before charges set on 31 January (STC)

![Diagram showing breakdown of revenues]
Transmission Network Use of System charge (TNUoS)

TNUoS to recover £2.6 billion per annum

What percentage of TNUoS does Generation and demand users pay?

Generation 17%  Demand 83.3%
Who pays TNUoS?

Total (18/19) £2670m

Generation
£430m

Demand
£2240m

HH Demand
£914m

NHH Demand
£1501m

Embedded Export
-£175m
Who pays TNUoS?

- Generators
  - Directly connected to the transmission network
  - Embedded generators >=100MW TEC

- Generation TNUoS charged on the basis of Transmission Entry Capacity (TEC)

- Generators also liable for Demand TNUoS if they take demand over Triad

Total (18/19) £2670m

Generation £430m
Generation Wider Tariffs

- Wider tariffs are calculated per zone – 27 generation zones
- Components apply based on connection and generation type

**Wider Tariff components:**

- Peak Security
- Year Round Shared
- Year Round Not Shared
- Generator Residual
Who pays TNUoS?

> Suppliers

> All licenced suppliers are liable for TNUoS, for their *gross demand* from the transmission network.

> Three categories of charge:

> > **Half Hourly** metered demand on the basis of Triads
> > **Embedded Export** credited for export over Triads
> > **Non-Half-Hourly** demand, total 4pm-7pm annual consumption

> The changes to HH charges were introduced by CMP264/265 from 2018/19 Charging Year

> All demand is in one of these categories

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Who pays TNUoS?

> **Directly Connected Demand**, pay HH demand charges

> **Embedded Generation** (<100MW) which contracts directly with National Grid can gain Embedded Export payments

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HH Demand Charges

Half-Hourly Metered Demand

Average Metered Demand over the Triad (kW)

Zonal Demand Tariff (£/kW)

Demand

Non Half-Hourly

Half-Hourly
NHH Energy Charges

Non-Half-Hourly Metered Demand \[\text{Energy Consumption between 4pm-7pm each day (kWh)}\] \[\times\] \[\text{Zonal Energy Tariff (p/kWh)}\] \[\div 100\]
Balancing services use of system charges (BSUoS)
BSUoS to recover ~£1 billion per annum

What is the split between Generation and demand users for paying BSUoS?

Generation pay 50%  Demand pay 50%
Who do BSUoS charges go to?

**Charging:**
- Charges apportioned on a half hourly £/MWh basis
- Charged half hourly
- Billed Daily
- Two stage Financial Settlement: D+5, D+14m

**Components:**
- External – the monies National Grid pays providers for delivering balancing services
- Internal – the business costs of providing this function, e.g. staff, buildings, systems etc.

**Calculation:**
BSUoS Price £/MWh x BM Unit metered Energy Volume (MWh) x Transmission Loss Multiplier x Trading Unit Delivery Mode (+ or – 1)
Quick Poll
Webinars coming up

> **February 19** - Overview of developments in electricity network charging and access arrangements.
  - Ofgem’s Targeted Charging Review – demand residual
  - Access rights
  - Forward Looking Charges
  - BSUoS

> **February 19** – For demand users – overview of developments in electricity network charging and access arrangements

> **Watch back** – Introduction to distribution charging with SSEN and WPD available at [www.chargingfutures.com](http://www.chargingfutures.com)
TNUoS Transport & Tariff model training sessions

National Grid ESO:

- Thursday 15 March 10:00 – 14:00
- Friday 20 April 10:00 – 14:00

To sign up, contact Charging.Enquiries@nationalgrid.com
Q & A
Please use the chat box to ask your questions
Website:
www.chargingfutures.com

Contact:
Chargingfutures@nationalgrid.com