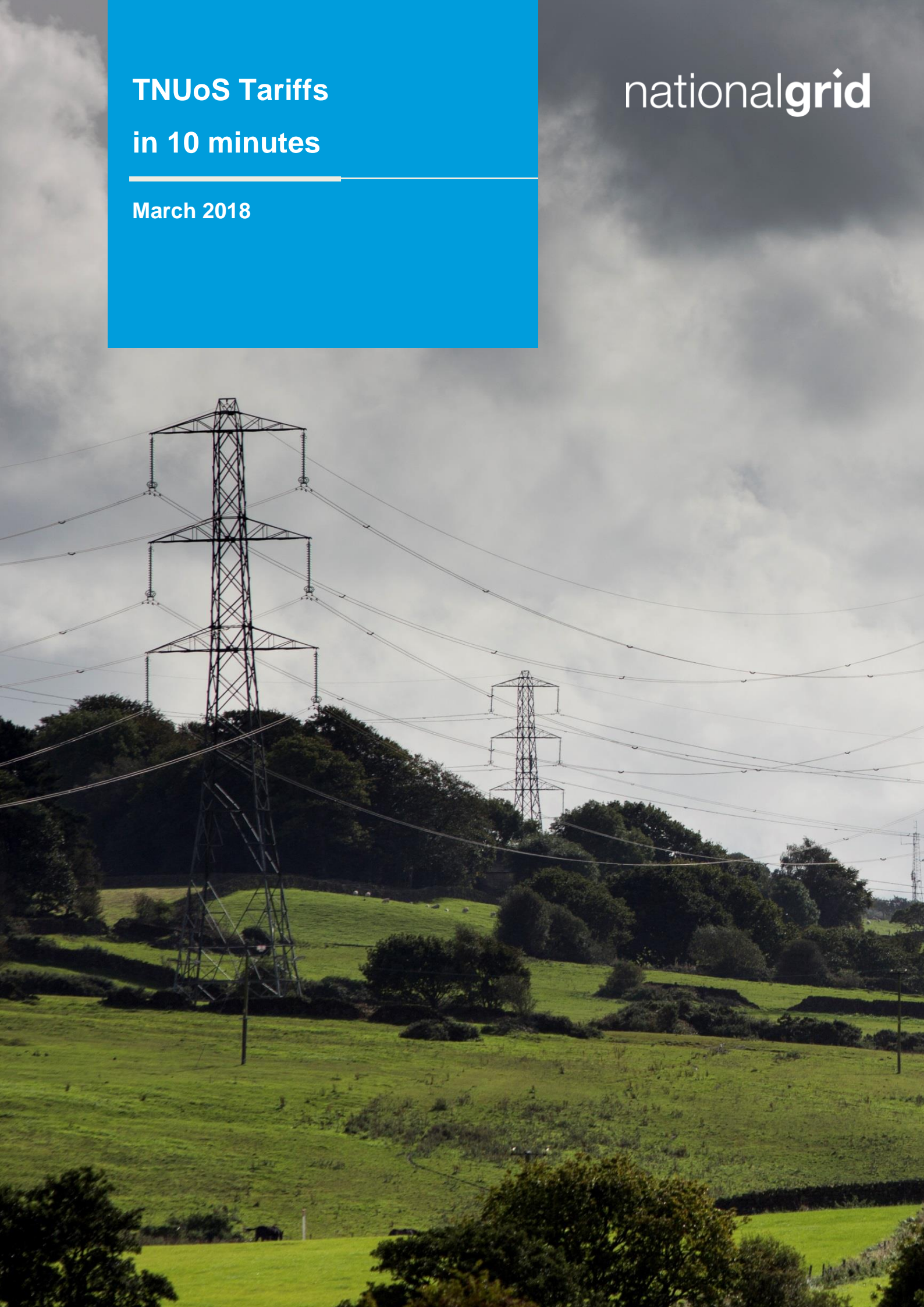


# TNUoS Tariffs in 10 minutes

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March 2018

nationalgrid



## An overview of TNUoS tariffs

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This information paper provides an overview of National Grid's Transmission Network Use of System (TNUoS) tariffs, applicable to transmission connected generators and suppliers. These are published on 31<sup>st</sup> January and take effect from 1<sup>st</sup> April every year.

March 2018

## What are TNUoS tariffs?

Transmission Network Use of System tariffs are payable by all licensed generators<sup>1</sup> and suppliers for the use of GB transmission networks. Some embedded generators<sup>2</sup> ( $\geq 100\text{MW}$ ) who are directly contracted with National Grid are also liable for TNUoS tariffs. The tariffs are determined based on your location and whether you are a generator or supplier. TNUoS tariffs are published by 31<sup>st</sup> January and take effect from the following 1<sup>st</sup> April every year.

The tariffs are made up of two main components:

- **Locational tariffs** to reflect the costs of a customer's use of the transmission network.
- **Residual tariffs** which seek to recover the correct amount of revenue through tariffs.

The locational tariffs ensure the tariffs we charge our customers are reflective of:

- Network configuration (transmission assets, design, circuits etc.).
- Geographical region in which you are located (based on demand/generation zones).
- Levels of demand and generation flows over the network, and the types of generation.

As part of our annual tariff reporting, we provide customers with an initial view of the year ahead TNUoS tariffs. This is communicated through quarterly forecast reports up to the point we publish the draft and final tariffs by 31<sup>st</sup> January. We also produce a forecast looking ahead for five years. Further information on the above can be found on our website under the TNUoS tariff forecasts section<sup>3</sup>, this includes the:

- Timetable for publications of the year-ahead tariffs.
- TNUoS charging principles.

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<sup>1</sup> Excluding embedded generators  $< 100\text{MW}$ , who do not pay TNUoS tariffs.

<sup>2</sup> [https://www.elexon.co.uk/wp-content/uploads/2016/01/Embedded\\_Generation\\_v7.0.pdf](https://www.elexon.co.uk/wp-content/uploads/2016/01/Embedded_Generation_v7.0.pdf)

<sup>3</sup> <https://www.nationalgrid.com/tnuos>

## Why do we produce TNUoS tariffs and charges?

Our role as the National Grid Electricity System Operator is to recover the total allowed revenue on behalf of the Transmission Owners (TOs) through TNUoS tariffs. The total allowed revenue is for the cost of installing and maintaining the transmission system, incurred by the Transmission Owners (TOs) in England, Scotland, Wales and offshore. This is set by Ofgem.

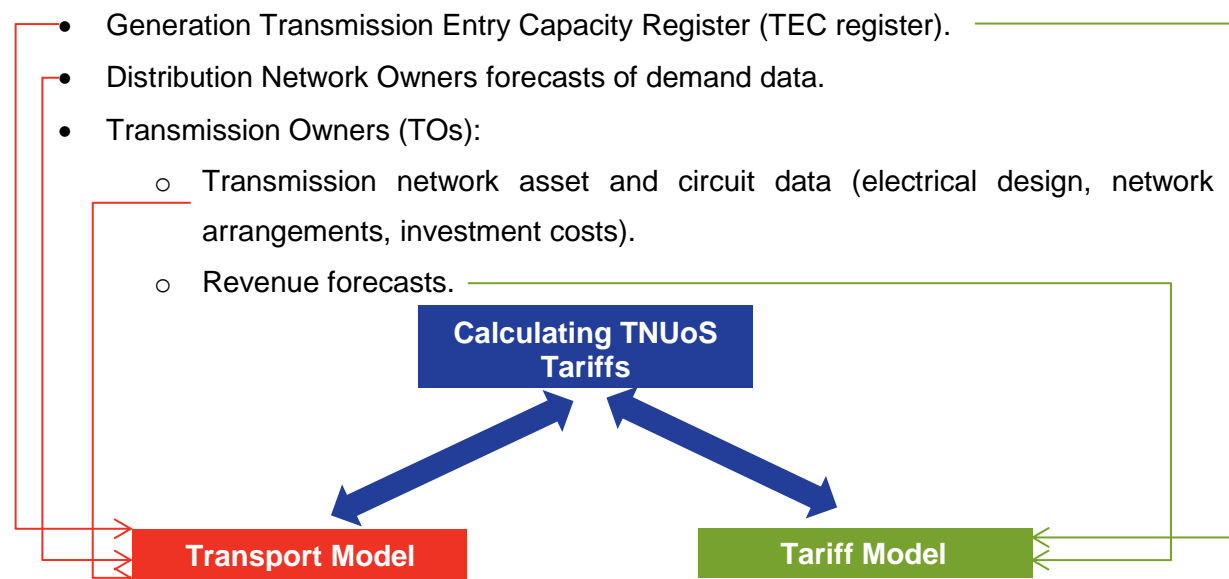
As an example, in the 2018/19 charging year (effective from 1<sup>st</sup> April 2018), the total TO revenue to be recovered will be £2,670m. This is recovered through generation tariffs totalling £430.1m, and demand tariffs totalling £2,240m.

We recover the revenue through TNUoS charges paid by customers who are liable for TNUoS (explained further in the “who pays TNUoS tariffs” section).

## How do we produce TNUoS Tariffs?

The methodology for calculating the TNUoS tariffs is defined in section 14 of the Connection and Use of System Code (CUSC).

We calculate the tariffs using our Transport and Tariff model. The “Transport” model reflects the cost of connecting to different parts of the network using demand and generation energy flows, this is referred to as the **locational** element of the tariff. The “Tariff” part of the model calculates a separate non-locational **residual** component, this is to ensure we recover the full amount of TO allowed revenue. Within this Transport and Tariff model we use a number of inputs from the industry, including data from the:



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## Who pays TNUoS tariffs?

### Generators – Generation Tariffs

Generators which are directly connected to the transmission network and embedded generators with contracts for  $\geq 100$  MW of Transmission Entry Capacity (TEC) are liable to pay generation TNUoS tariffs.

Generators are charged based on the level of their TEC and other factors specific to that generator. Generators with negative tariffs will initially be paid based on their highest TEC for that year. During the reconciliation process, generators with negative tariffs will be paid based on the average output of the three settlement periods<sup>6</sup> (from 1<sup>st</sup> November to the end of February) of their highest output.

Generators are also liable for demand TNUoS charges if they consume demand over the three “triad” periods, this is explained further in the suppliers section.

### What are the TNUoS tariffs for generators?

There are different **generation TNUoS tariffs** which are specific to each generator. A generator’s liability to pay these tariffs depends on several factors, including the:

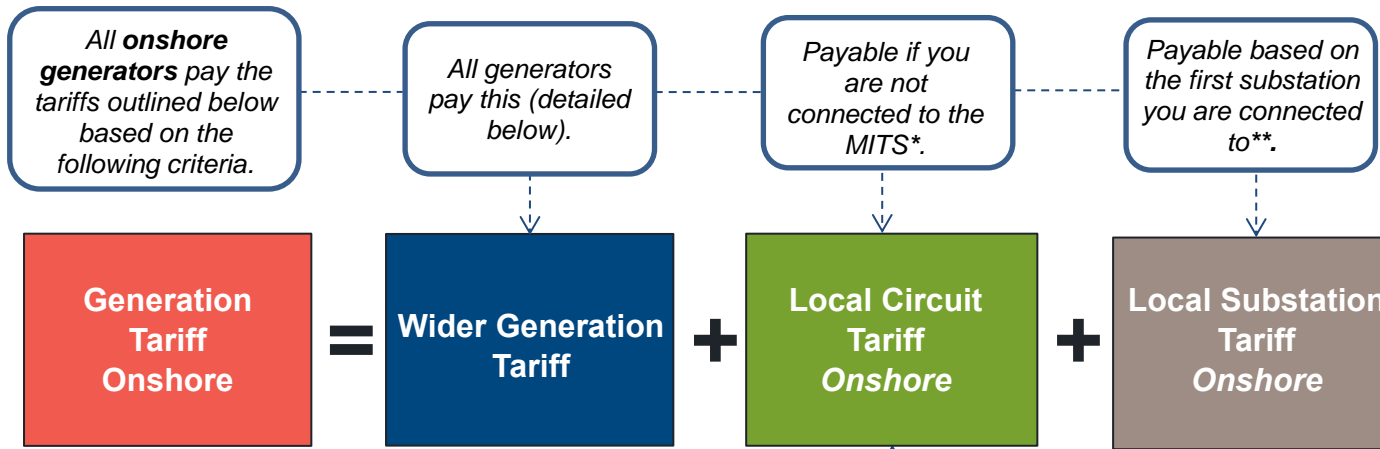
- Location (GB is divided into generation zones 1-27).
- Type of connection (offshore/onshore/distribution network).
- Connection voltage (132kV, 275kV, 400kV).
- Plant type (Conventional Carbon, Conventional Low Carbon, Intermittent).
- Annual Load Factors (ALFs).
- Volume of TEC held by the generator.
  - The TEC figure is equal to the maximum volume of MW the generator is allowed to output onto the transmission network.

All of the **generation TNUoS tariffs** that onshore and offshore generators may be liable to pay are outlined in the following diagram:

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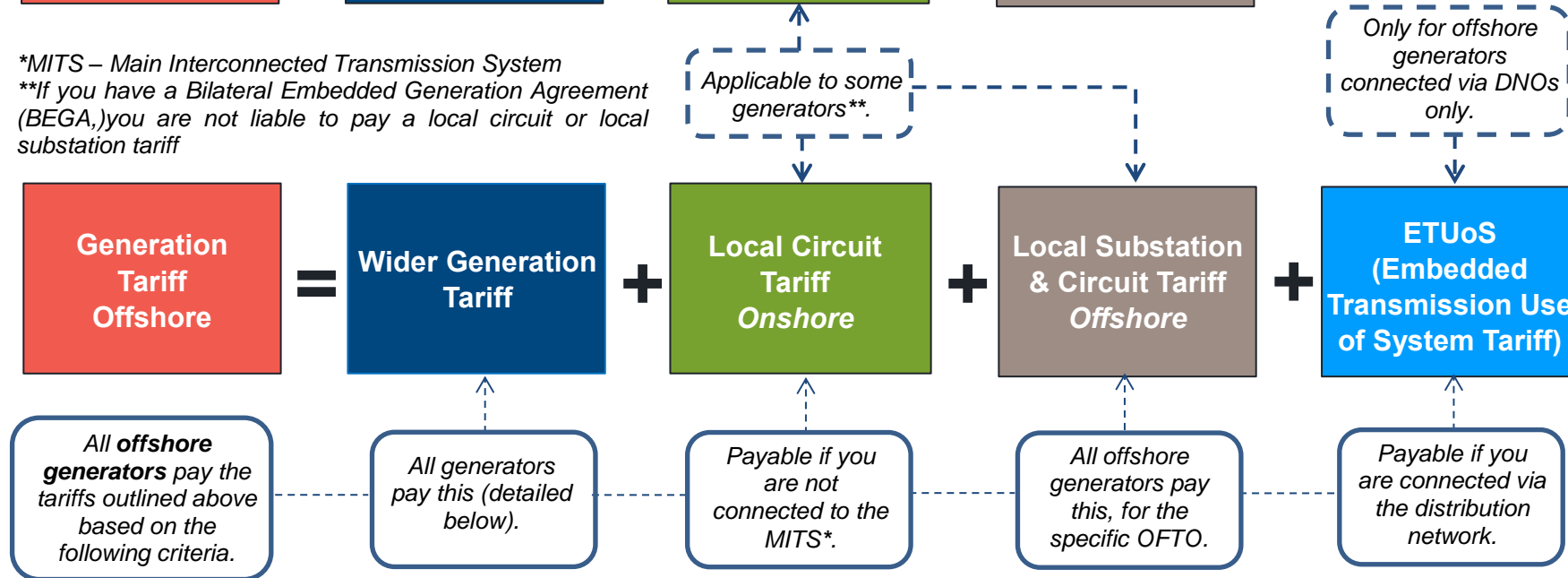
<sup>6</sup> Separated by at least ten clear days.

ONSHORE



\*MITS – Main Interconnected Transmission System  
 \*\*If you have a Bilateral Embedded Generation Agreement (BEGA,) you are not liable to pay a local circuit or local substation tariff

OFFSHORE



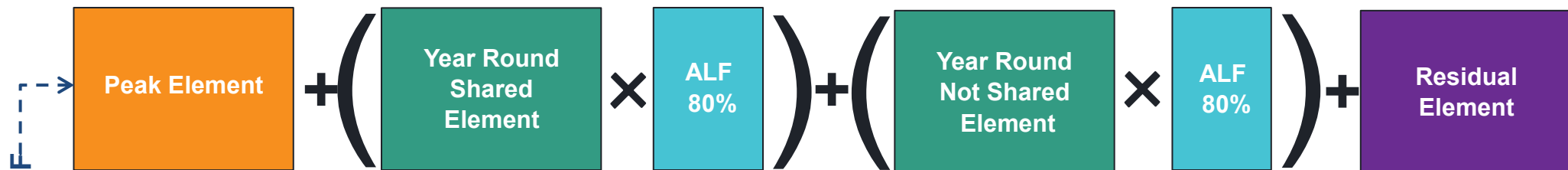
The offshore generator tariffs reflect the cost of offshore networks connecting offshore generation to the MITS. We calculate the tariffs at the beginning of the price control or when the offshore assets are transferred to the offshore transmission owner (OFTO).

There are a total of 27 generation zones across GB, for more information on which tariffs apply to you please refer to our detailed TNUoS tariff report published on our website. This report also includes the charging principles behind the TNUoS tariffs and a map of generation zones.

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The **wider generation tariff** which all generators pay (as above) is different for each of the three main generator technology classifications (**Conventional Carbon generators, Conventional Low Carbon generators, Intermittent generators**). These three generator technologies are made up of four components. All of these components are multiplied by the generators TEC and two are multiplied by the ALF.

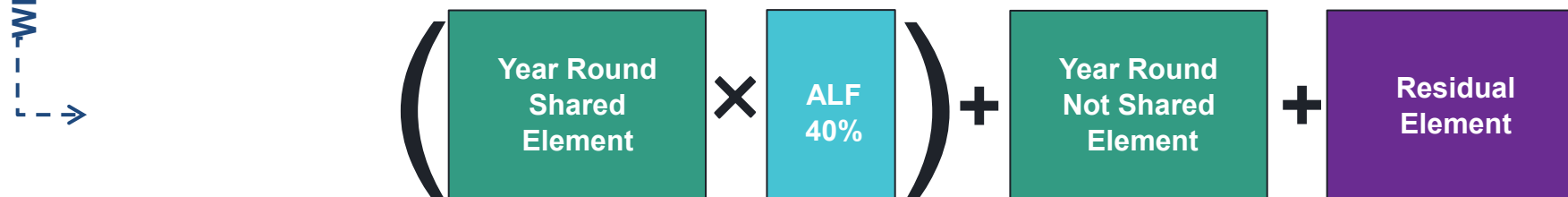
The **wider generation tariff for Conventional Carbon generators** (*Biomass, CHP, Coal, Gas, Pumped Storage*).



The **wider generation tariff for Conventional Low Carbon generators** (*Hydro, Nuclear*).



The **wider generation tariff for Intermittent generators** (*Wind, Wave, Tidal*).



**ALFs** – These % values are illustrative of Annual Load Factors, which are a comparison of annual output to the TEC of each generator. They are specific to each generator and are used in the calculation of the wider tariff. When we publish example tariffs we use an ALF of 80% for conventional generation and 40% for intermittent.

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## **Demand Tariffs – paid by suppliers and directly connected demand**

All licensed suppliers and users connected directly to the transmission network are liable for demand TNUoS charges. This is based on actual demand consumption taken from the transmission network.

There are a total of 14 demand zones across GB, the location of your settlement meter will determine which zonal tariff you will pay. These zones are distribution network owner areas (DNOs). Please refer to our detailed TNUoS tariff report published on our [website](#) to see the charging principles behind the demand tariffs and a map of demand zones.

There are two types of TNUoS demand user:

- Half Hourly metered demand is charged on average gross consumption (total system demand) over triads. Triads<sup>7</sup> are the three half hour peaks of transmission system demand between November and February<sup>8</sup>. All directly connected demand customers are liable to pay this tariff.
  - Embedded Export volume, this is a credit payable to embedded generation exports over triads, this also includes directly contracted embedded generators (<100MW).
- Non – Half Hourly metered demand, this is charged based on annual net consumption (total demand consumption minus embedded generation), 4-7pm daily. Domestic or smaller commercial premises through suppliers are generally liable for NHH rather than HH charges.

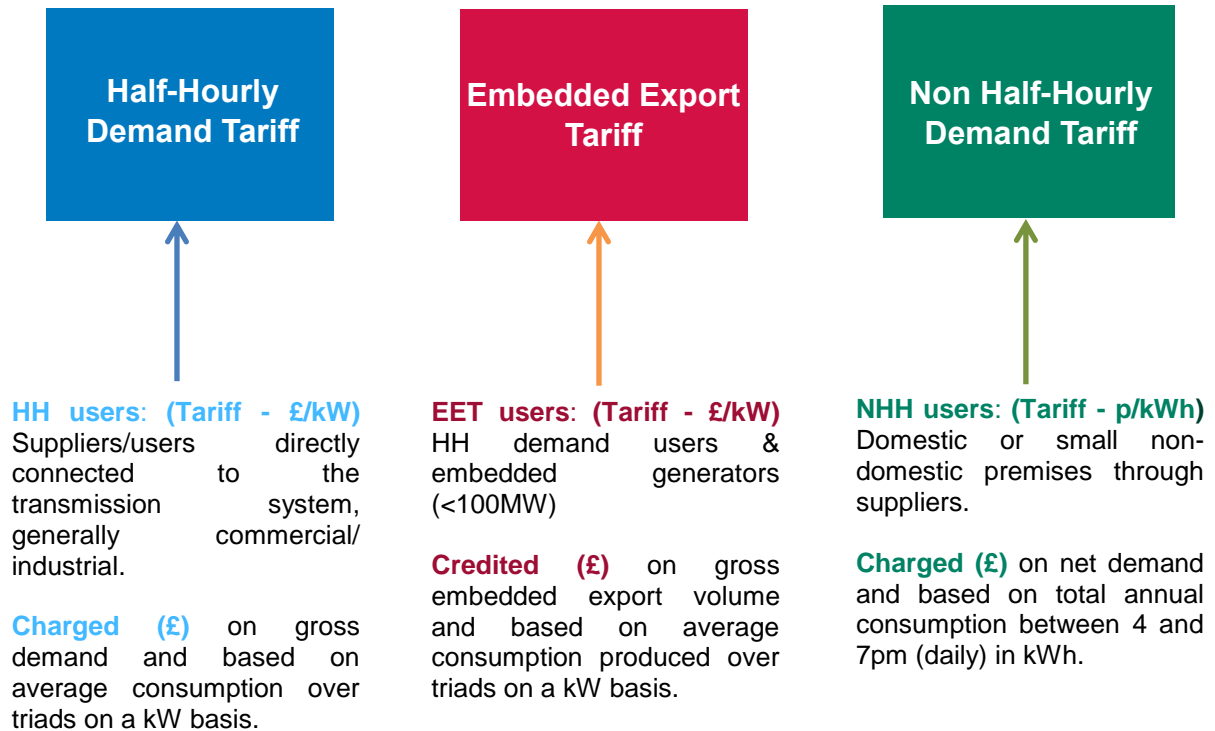
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<sup>7</sup><https://www.nationalgrid.com/sites/default/files/documents/44940-Triads%20Information.pdf>

<sup>8</sup> Each triad is a 30 minute period and must be separated by ten clear days.



There are three demand tariffs these users would be liable to pay<sup>9</sup>:



Suppliers are initially charged via monthly invoices, this is based on the forecast volumes they provide to National Grid Electricity System Operator. This is then reconciled after the end of the charging year (June), when customer invoices are recalculated based on actual usage over the period.

## Any questions?

For any TNUoS tariff forecasting and billing queries, please contact the team using the details below:

Telephone: 01926 654633

Email: [charging.enquiries@nationalgrid.com](mailto:charging.enquiries@nationalgrid.com)

<sup>9</sup> With the exception of the Embedded Export tariff which is a credit for embedded export volumes over triads.