Public

TNUoS Guidance for Generators

August 2025

NESO
National Energy System Operator

Public

Contents

1 What is TNUoS and who pays?

What are TNUoS charges?

Transmission Network Use of System Charges (TNUoS) recover the money that GB Transmission Owners (TOs) spend on building, owning and maintaining transmission assets.

Generators and suppliers are set charges which differ depending on where they are in the country, and also by how they use the transmission network. TNUoS tariffs are calculated, set and billed by us - National Energy System Operator (NESO). We recover revenue from generators and suppliers and pay it to the TOs.

Who pays generation TNUoS charges?

It depends on what type of connection contract you have with National Energy System Operator (NESO), and the size in MW of your Transmission Entry Capacity (TEC) as defined in your contract:

I have a Bilateral Connection Agreement (BCA):

This means your generator is directly connected to the GB electricity transmission network, so you will pay generation TNUoS charges.

I have a Bilateral Embedded Generation Agreement (BEGA):

- If your TEC is 100MW or more, then you will pay generation TNUoS charges.
- If your TEC is lower than 100MW, then you do not pay generation TNUoS charges.
    - Embedded generators with TEC lower than 100MW may be liable to receive Embedded Export payments for the power that they generate over Triad periods. See the Am I eligible to receive Embedded Export Tariff payments section on page 16 for further information.

I have either a Bilateral Embedded Licence Exempt agreement (BELLA), or no direct contract with NESO:

You do not pay generation TNUoS charges.

- Embedded generators with TEC lower than 100MW may be liable to receive Embedded Export payments for the power that they generate over Triad periods. See page 16 for further information.

Offshore generators

Offshore generators will be liable to pay TNUoS for their use of the onshore transmission network. They will also have specific local charges for the offshore transmission network that they use to connect to the onshore network. A guide on these offshore local charges is available on our website: https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

What does NESO use to calculate TNUoS tariffs?

We use our Transport & Tariff model (also known as the DCLF ICRP model) to calculate TNUoS tariffs. The model simulates system flows under two different generation situations. To obtain a copy of the model, and for details of tutorials on how to use it, please see our website: https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

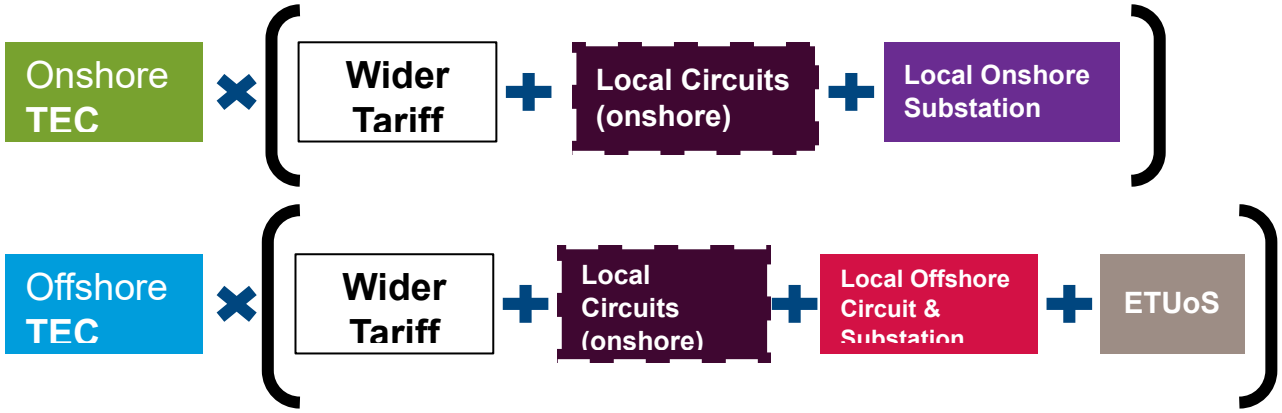
2 What are generation TNUoS charges?

What TNUoS charges do generators pay?

Generators which pay generation TNUoS will be charged several components, depending on their characteristics. The wider tariff applies differently depending on several factors, and the local elements differ according to the specific arrangements by which the generator is connected to the transmission network.

Different charges may apply to onshore generators compared to offshore generators.

The wider and local components are shown below



All components of TNUoS tariffs are multiplied by the TEC of the generator to calculate the annual TNUoS liability.

Which factors affect the charges that apply to my generator?

There are four factors that affect what charges apply to each generator:

- **TEC**: the amount of capacity (in KW) that the generator can use to connect to the transmission system according to their BCA/BEGA.
- **Geographic location**: currently there are 27 generation zones in Great Britain; this determines the wider tariff that applies to the generator.
- **Generator fuel type**: whether a generator is gas-fired or wind powered, for example, will determine how the wider tariff applies to them. It may also affect how the Annual Load Factor (ALF) is calculated for newly or recently commissioned generators.
- **Connection voltage**: generators connecting at 400kV and 275kV in England and Wales, or at 400kV, 275kV and 132kV in Scotland are directly connected to the electricity transmission system and so will be charged TNUoS. Generators connected at lower voltages are embedded, and will pay TNUoS if they have 100MW or more TEC.

How do these factors affect charges?

Charges affected:	TEC	Geographic location	Generator fuel type	Connection voltage
Wider tariff	Yes	Yes	Yes	
Local circuit tariff	Yes			Yes
Local substation tariff	Yes			Yes
Annual Load Factor *(a component of the wider tariff)*	Yes		Yes	
Offshore local circuit tariff	Yes			
Offshore local substation tariff	Yes			
ETUoS	Yes			Yes

How are my charges calculated and billed?

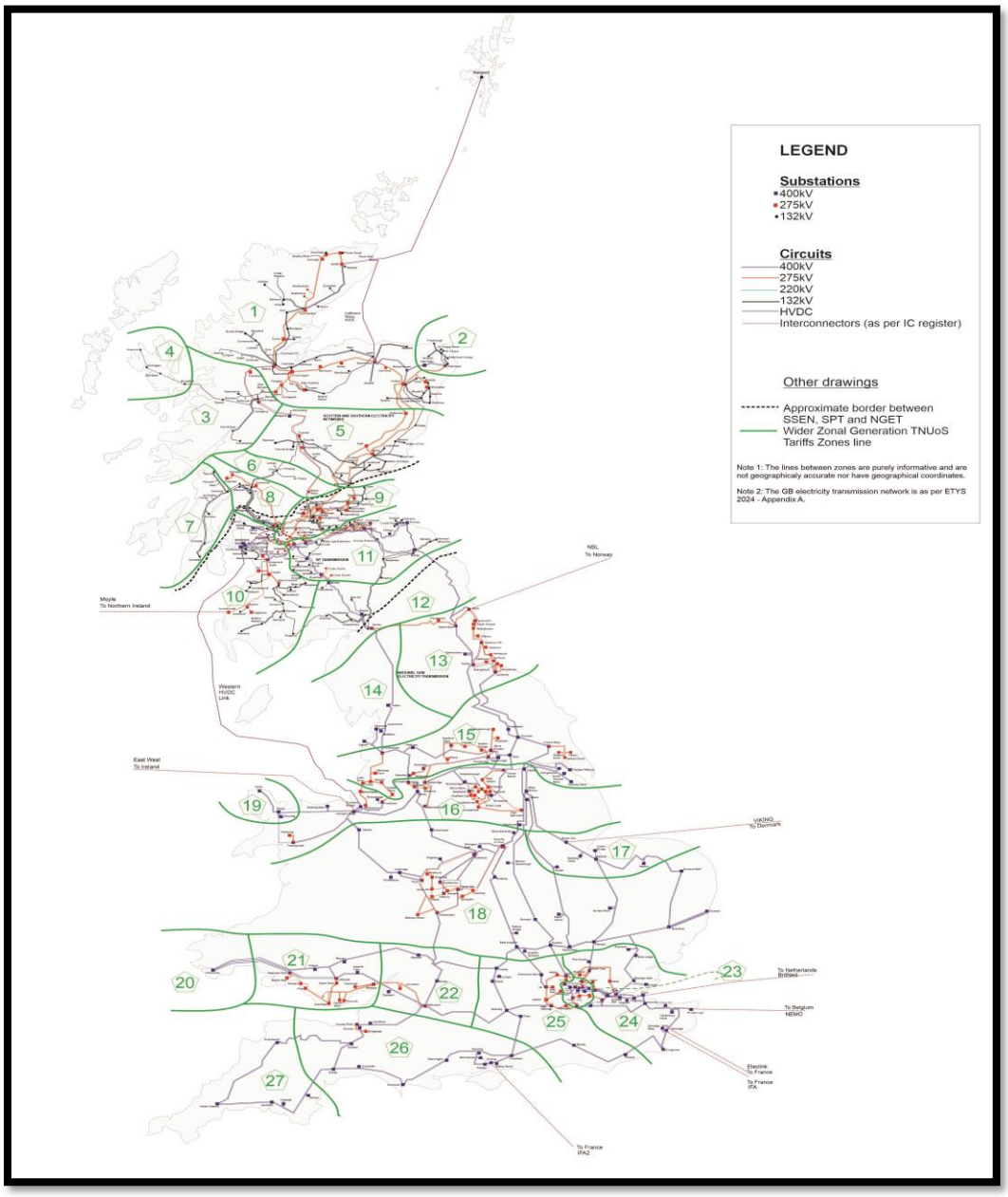
All generation tariffs are published in £/kW. You should multiply the tariff for your generator by the TEC of the generator to derive your annual TNUoS charge.

3 What are wider tariffs?

Generation charging zones

Wider tariffs are the part of TNUoS that relate to the geographic location that the generator is connected. There are 27 generation zones in Great Britain with their own specific wider tariffs. The generation zones are as shown in the diagram below.[1]

Generation zones are reviewed at every price control period. The next price control period begins on 1 April 2026



[1] Generation charging zones are different to the 14 demand charging zones.

What are the components that make up the wider tariff, and how do they apply to different generators?

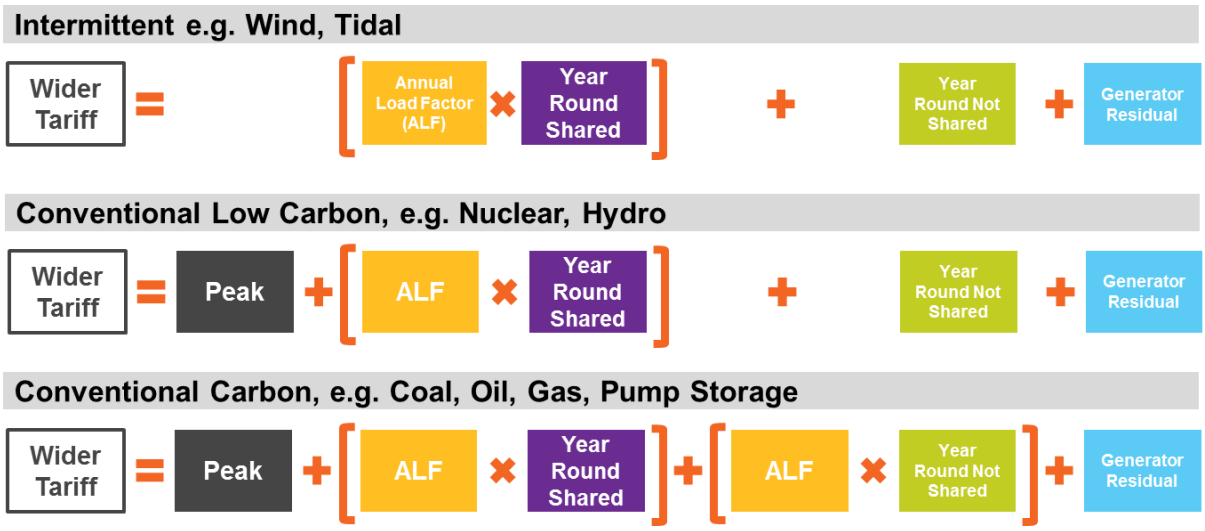
The wider tariff is made up of several parts to reflect the cost of different generator types connecting to the transmission system in different parts of the country.

There are four parts that make up the wider tariff: the Peak, Year-Round Shared, Year Round Not Shared, and the Residual. These apply differently to each generator, depending on what kind of generator it is.

The Peak element is paid only by generators which are designed to run at Peak times. The Year-Round Elements are paid by all generators to reflect year-round system usage. Depending on the generator classification, some of the Year-Round elements are multiplied by the Annual Load Factor (ALF) of the generator.

The Residual is a non-locational element and so is the same in every zone.

How these components apply to different generators is represented in the diagram below.



Generation classifications

All generators a classified according to how they use the transmission system:

- **Intermittent**: these generators are unable to control when they run, instead they run when their fuel is available. They are unlikely to be near full capacity at peak times.
- **Conventional Low Carbon**: these generators are conventional generators which are designed to be run as baseload, but they are less controllable than other types of generators. This could be because their fuel type dictates when they must run, or because they are very difficult to switch off. They are very likely to be generating at peak times.
- **Conventional Carbon**: these generators are more easily controllable than other generators and can be instructed to increase or decrease their output easily. They will almost certainly be running at peak times as their flexibility means they can run at times when electricity prices are highest.

Battery storage is treated the same as Pump Storage and so is a Conventional Carbon generator.

Solar PV would be an Intermittent generator.

How are wider tariffs published?

We publish at least one five-year view of TNUoS tariffs each year, and quarterly tariffs for the year ahead. Final tariffs for the charging year (April to March) are published by 31 January each year.

We publish a report and an accompanying spreadsheet containing the tables. Wider tariffs are published in a table with the following headings, broken down into the four parts.

Zone	Zone Name	System Peak Tariff (£/kW)	Shared Year-Round Tariff (£/kW)	Not Shared Year-Round Tariff (£/kW)	Residual Tariff (£/kW)

The wider tariffs are accompanied by a set of example tariffs for the different generation classifications, using the percentage in the header of the columns as the ALF: These provide an example of the rate per kW of TEC that a generator of each type might pay in each zone.

Example tariffs for a generator of each technology type:		
Conventional Carbon 80% Tariff (£/kW)	Conventional Low Carbon 80% Tariff (£/kW)	Intermittent 40% Tariff (£/kW)

Annual Load Factors

ALFs are calculated each year for generators which are connected to the transmission network. Some parts of the wider tariff are multiplied by the generator's ALF (see above).

We calculate ALFs each year for each connected generator by using data from the past five years where available.

For new generators with no history of generation, we use generic load factors according to their fuel type.

For more information on ALFs, please check the latest ALFs report, which is published on https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance for each charging year.

4 What are onshore local circuit tariffs?

Onshore and offshore generators may pay an onshore local circuit tariff if they do not connect directly to the onshore Main Interconnected Transmission System (MITS).

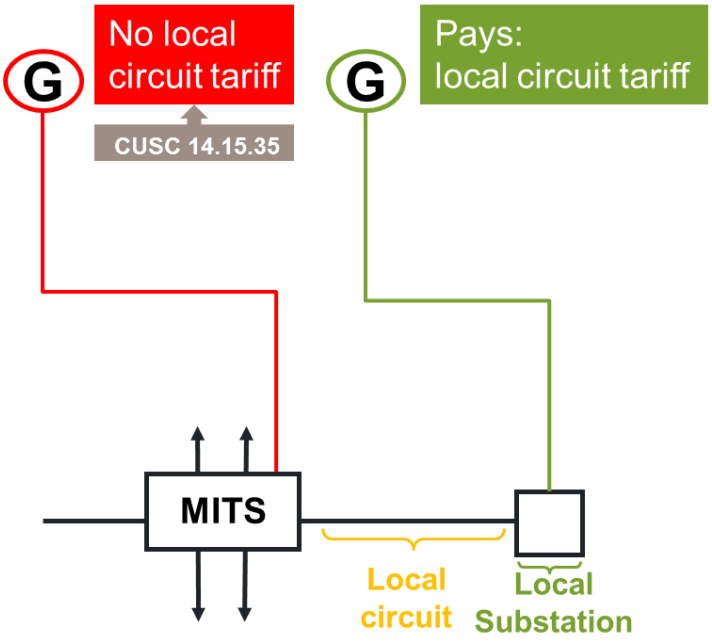
Who pays onshore local circuit tariffs?

Generators which connect directly to a MITS substation **do not pay an onshore local circuit tariff**.

Generators which do not connect to a MITS substation will pay an onshore local circuit tariff. The local circuit tariff reflects the "cost" to add additional 1MW of generation capacity at the non-MITS substation, usually reflects the length and type of the circuits required to connect the MITS.

Embedded generators **do not pay onshore local circuit tariffs**.

If you are not sure if a substation is a MITS or not, please contact us to check.



How do I calculate my local circuit tariff?

Most onshore local circuit tariffs are calculated using generic costs for circuits of the same type, rather than the actual costs of the transmission assets built to connect the generator to the MITS.

NESO calculates onshore local circuit tariffs for applicable generators and publishes the tariffs for the different circuits in our tariff reports. Local circuit tariffs are published in £/kW and are charged by the TEC of the generator.

Local circuit tariffs are calculated using the inputs below[2]:

[2] See CUSC section 14.15.120 for the exact calculation.

(Year-Round nodal marginal km along the local circuit using the local circuit expansion factor)	**X**	Expansion constant	**X**	Local security factor

1000 (to convert the tariff into a £/kW rate)

The components that make up this formula are described below:

Input	Description
Year-Round nodal marginal km along the local circuits using the local circuit expansion factors	This calculation uses the expansion factor(s) and circuit lengths for the components that make up the local circuits, plus a locational element based on modelled system flows. This is calculated in the Transport & Tariff model that we use to calculate TNUoS tariffs.[3] See below for more information on the expansion factor and circuit lengths.
Expansion constant (£MWkm)	This is the indexed cost of 1MWkm of 400kV overhead line. As this is the cheapest circuit type to transmit power per MW, this is used as the reference cost for all GB transmission circuits. The latest tariff report will tell you the current expansion constant; alternatively, you can find the expansion constant for the year you require by looking in the latest five-year view publication. The expansion constant is reviewed at each price control period. There will be a review of the expansion constant and how it should be indexed before the start of the next price control period in April 2026.
Expansion factor (£MWkm)	This is the rate by which the specific type of circuit in the calculation is more expensive than the expansion constant. For example, 275kV overhead line is roughly 20% more expensive than 400kV, so the expansion factor for 275kV is around 1.20.[4] The expansion factors are reviewed at each price control period. There will be a review of the expansion factors before the start of the next price control period in April 2026.
Local security factor	This relates to whether or not the circuit is single or double (i.e. if it is redundant or not). The security factor for single circuits is 1, for double circuits is 1.8. The local security factors are reviewed at each price control period. There will be a review of the local security factors before the start of the next price control period in April 2026

Some generators are on a “transit” route, i.e. they have more than one route linking them to the wider network. Under this configuration, wider system flows also affect local circuit tariffs, by affecting the marginal km.

[3] See https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance for more information on the Transport and Tariff (DCLF ICRP) model.
[4] Correct as of the 2025/26 charging year.

In addition, some generators, although not on a “transit” route, may have some local demand at or along their local circuit (in addition to local generation). For these generators, their local circuit tariffs may fluctuate, as an additional 1MW of generation may increase or decrease the predominant flows on their local circuits.

If you have any questions about local circuits, please contact us.

What about offshore local circuit tariffs?

Offshore local circuit tariffs are calculated differently to onshore local circuits. Please see our offshore charging guide on our website for details on how these tariffs are calculated.

https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

5 What are onshore local substation tariffs?

Who pays onshore local substation tariffs?

Onshore local substation tariffs are charged to generators which connect directly to the transmission network.

Generators pay the local substation tariff for the first substation on the GB transmission network that they connect to.

Embedded generators **do not pay onshore local substation tariffs**.

How are onshore local substation tariffs calculated?

Onshore substation tariffs are generic and are calculated at the start of each price control period. They are indexed by average May to October RPI each year.

There are three factors which affect the charge for each substation:

Factors	Related categories
Voltage	132kV, 275kV or 400kV
Redundancy	Single (non-redundant) or Redundant
Total volume of generation (in TEC) connected at that substation	<1320kV or =>1320kV

How are onshore local substation tariffs published?

If you are not sure about which substation you connect to, or what kind of substation it is, please contact us to check.

What about offshore local substation tariffs?

Offshore local substation tariffs are calculated differently to onshore local circuits. Please see our offshore charging guide on our website for details on how these tariffs are calculated.

https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

6 Generators with negative TNUoS tariffs

How are tariffs calculated for generators with negative tariffs?

If either of the tariffs for your generator is negative, (i.e. the wider or local components) then the way your generator is billed is different to the way generators with positive tariffs are billed.

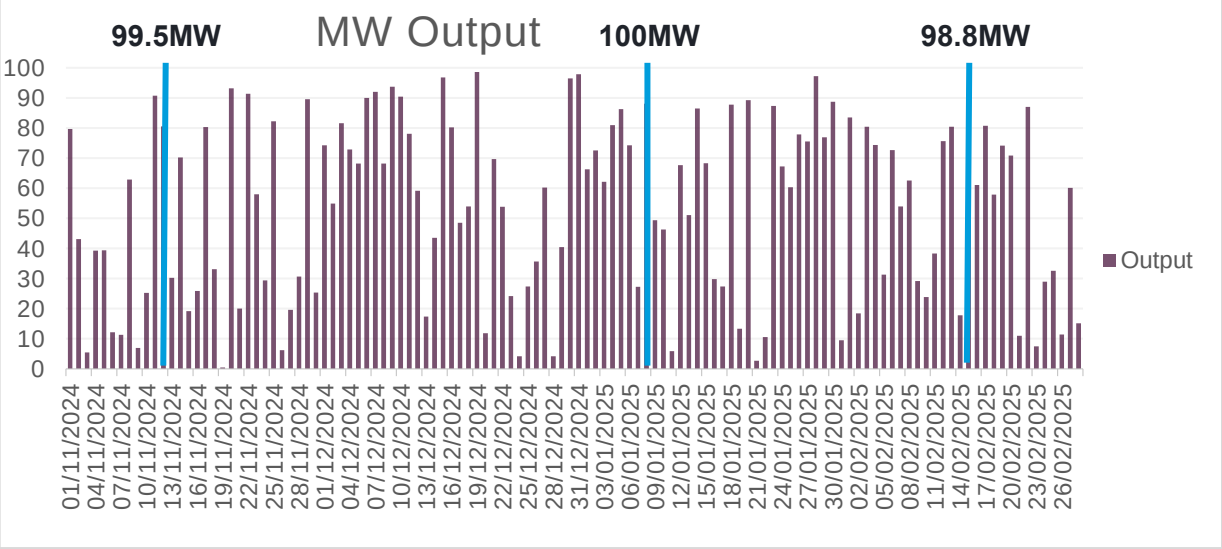
Generators with a negative tariff are paid their TNUoS throughout the year in equal monthly instalments. At the end of the year, some of this money might be reclaimed by NESO during the generation reconciliation.

The generation reconciliation happens after the end of the charging year. This is when NESO compare the TEC of the generator to the average output of the generator over the three settlement periods of highest output from November to the end of February each year. These three settlement periods are specific to each generator and must be separated from each other by ten clear days.

Example

If a 100MW generator has a TNUoS tariff of -£5/kW, then throughout the year they will be paid £500,000.

After the end of the charging year, NESO will use settlement data to identify the three settlement periods from 1 November to the end of February during the charging year. In this example, the highest output was on 7 January; the second was on 10 November; and the third was on 15 February. All of these dates are separated by more than ten clear days:



The average generation capacity in MW used over these three periods is:

$$\frac{(99.5 + 100 + 98.8)}{3} = 99.4\text{MW}$$

The generator's TNUoS payments are then recalculated based on this figure:

99.4MW * -£5 = £497,000

According to this calculation, NESO will reclaim £3,000 from the generator in the reconciliation:

(Original payment) £500,000 minus £497,000 = £3,000.

For more information see CUSC 14.18.13-17.

7 Charges for embedded generators of less than 100MW

Am I charged generation TNUoS?

If your generator has less than 100MW of TEC, then you are not charged generation TNUoS tariffs.

Am I charged demand TNUoS?

You may be eligible to pay Half-Hourly (HH) demand tariffs if you take demand over the Triad periods. Please note: HH tariffs are charged on your gross demand rather than net demand, so even if you are generating more power than you are taking off the system over the Triads, then you will still be charged demand charges.

For more information on HH demand tariffs, please see the guide to Triads on our website: https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

Am I eligible to receive Embedded Export Tariff payments?

Embedded generators which do not pay generation TNUoS charges may be liable to receive Embedded Export Tariff (EET) payments for generating over the Triad periods. The EET has replaced the "Triad Benefit", an embedded benefit payment.

If your generator generates over the Triad periods, then you may be eligible to receive payment for the volume you produce. EETs are calculated and published prior to the charging year (April to March) by 31 January each year. They are charged in £/kW, and there is a specific tariff for each of the 14 demand zones. The tariffs are NOT based on the 27 generation zones.

EETs are paid by NESO to suppliers and embedded generators. In most cases, NESO pays the supplier who then pays the embedded generator. NESO pays suppliers in the initial demand reconciliation, by the end of the June that follows the charging year.[5]

Your export volume is the average of your generation output over the Triad periods.

[5]See our guide to billing timelines on our website: https://www.neso.energy/industry-information/charging/charging-documentation#Charging-guidance

How do I calculate my embedded export volume?

You will need to convert your metered generation in kWh to an average Triad kW figure. Here's how to do it:

Firstly, convert your generation in kWh to kW:

	Triad 1	Triad 2	Triad 3
Generation (kWh)	2000	3000	5000
Time (hours)	0.5	0.5	0.5
kW = kWh/hours	4000	6000	10000

Next, take the average of your kW taken over the Triads:

$$= \frac{\text{Triad 1 + Triad 2 + Triad 3 (kW)}}{\text{3 Triads}} = \frac{4000 + 6000 + 10000}{3} = 6666.66 \text{ kW}$$

In this example, the average generation over the Triads is **6,666.66kW**. This is the volume you will be paid for.

How am I paid for my embedded export volume?

This depends on how your meter is administered, which is determined by your metering arrangements with Elexon and your supplier. Central Volume Allocation (CVA) registered generators are paid directly by NESO, whereas Supplier Volume Allocation (SVA) registered generators are paid through their supplier. For more information, please visit the Elexon website https://www.elexon.co.uk/operations-settlement/.

Contact Us

For more information, please contact the TNUoS team at TNUoS.Queries@neso.energy

Disclaimer

In the event of any inconsistencies between this guidance note and the CUSC, the NGC Use of System Charging Methodology or the BSC, then the CUSC, the NGC Use of System Charging Methodology or the BSC will take precedence.

The CUSC and all Code subsidiary documentation can be downloaded from the National Energy System Operator website. The Statement of the Use of System Charging Methodology and the CUSC can be downloaded from the website.