

To all interested stakeholders

Mark Herring  
[Mark.Herring2@nationalgrideso.com](mailto:Mark.Herring2@nationalgrideso.com)  
[www.nationalgrideso.com](http://www.nationalgrideso.com)

28<sup>th</sup> September 2020

## **Open letter: National Grid Electricity System Operator's (NGESO) interpretation of use and reclassification of assets at a Grid Supply Point where a party connects to a Tertiary Winding.**

The purpose of this open letter is to ensure that stakeholders and other interested parties have a clear understanding of NGESO's interpretation of the Connection & Use of System Code (CUSC) in relation to tertiary connections in the context of charging. In particular, the interpretation that where a party connects to a Tertiary Winding, those assets at site are shared use, and therefore by definition (applying the principles within Section 14, Part 1 of the CUSC<sup>1</sup>) must be treated as transmission system infrastructure assets with costs recovered via Transmission Network Use of System (TNUoS) charges rather than connection charges.

### **Background**

Super Grid Transformers (SGT) are used at connection points on the electricity transmission system to increase voltage to facilitate efficient transmission of power on the network, they are also used to decrease voltage at Grid Supply Points (GSP) for the onward supply to distribution networks. SGTs have primary and secondary windings for the purpose of increasing or decreasing voltage and in some cases a third winding, known as a Tertiary Winding is created. This Tertiary Winding can be used for balancing load in the main windings or for redistribution of fault current. Tertiary Windings can also be used for connection of auxiliary loads at lower voltages.

Since 2018, NGESO and National Grid Electricity Transmission (NGET) have received numerous applications from small generators requesting connection to the electricity transmission network via Tertiary Windings. To provide economic and efficient connections, NGESO have worked with NGET and these customers to develop and issue connection offers utilising Tertiary Windings on SGTs. Many of these transformers are currently classed as connection assets for Distribution Network Operator (DNO) networks. Connection assets are currently defined within the CUSC as Transmission Connection Assets for sole use i.e. transmission assets provided for the sole use of a DNO and as such charged for through connection charges.

### **Connection Charging Methodology Principles**

The CUSC is the contractual framework for connecting to and using the National Electricity Transmission System (NETS). Section 14, Part 1 of the CUSC sets out the statement of the Connection Charging Methodology and the Statement of the Use of System Methodology. This details the overarching principles for definition of asset classification (either sole use or shared infrastructure), the associated costs and their allocation, stating:

#### Costs and their Allocation

*14.2.2 Connection charges relate to the costs of assets installed solely for and only capable of use by an individual User.*

#### Connection/Use of System Boundary

*14.2.4 The first step in setting charges is to define the boundary between connection assets and transmission system infrastructure assets.*

*14.2.5 In general, connection assets are defined as those assets solely required to connect an individual User to the National Electricity Transmission System, which are not and would not normally be used by any other connected party (i.e. "single user assets"). For the purposes of this Statement, all connection assets at a given location shall together form a connection site.*

---

1

[https://www.nationalgrid.com/sites/default/files/documents/CUSC\\_SECTION\\_14\\_V1%2016\\_%206%20July%202017.pdf](https://www.nationalgrid.com/sites/default/files/documents/CUSC_SECTION_14_V1%2016_%206%20July%202017.pdf)

*14.2.7 Shared assets at a banked connection arrangement will not normally be classed as connection assets except where both legs of the banking are single user assets under the same Bilateral Connection Agreement.*

### **NGESO's position on use and reclassification of assets**

Use of a tertiary connection applied by NGESO is grounded in technical studies relating to how power physically flows on the network. NGESO believes that where another party connects to a Tertiary Winding at a GSP it is clear there is shared use of all transmission assets at that GSP and as such, in line with CUSC principles, those transmission assets at the site should be reclassified as infrastructure.

Recent NGESO system studies have established that in the case of introducing another party connecting at a Tertiary Winding, it is evident that such a party injects Megawatts (MW) onto the transmission network. This impacts physical power flows over the tertiary-connected SGT and similarly all the other SGTs connected at that same GSP. These types of connections can also change the overall MW boundary limits at a GSP, dependent on what the tertiary connection is doing e.g. where a tertiary is a battery storage unit it could either be off, or exporting, or charging as demand load. The magnitude of the impact on power flows will vary by site depending on several factors including the size of the GSP; number of tertiary connections; typical running patterns of the tertiary connections; as well as network topology but there is always an impact.

Such impacts demonstrate that a party connected to a Tertiary Winding is then using and so sharing all assets at site meaning these assets should no longer be classed as connection assets. As such, our position is that all SGTs at a GSP would be affected by tertiary connections and, in line with the principles detailed within Section 14 of the CUSC, should be classified as infrastructure assets (as they will no longer be sole connection use).

On the 9th July 2020, NGESO engaged with industry stakeholders at the Transmission Charging Methodology Forum (TCMF) on the topic of tertiary connections with the aim of seeking wider stakeholder views on this interpretation. The consensus was one of agreement that where a party connects at a Tertiary Winding, assets are shared so are no longer connection assets and therefore should be deemed infrastructure.

### **Charging impacts of the reclassification of assets where a party connects to a Tertiary Winding**

Currently, the CUSC allows for the reclassification of assets and this already occurs at various parts of the system. As the associated costs will effectively move between distribution and transmission charges NGESO does not believe that this reclassification from transmission connection to infrastructure assets will have a detrimental impact on end consumers. Currently, SGTs are Transmission Connection Assets and so are solely used and paid for via the Connection Charge by the DNO. Most of these costs (stipulated by the DNO licence conditions) are included within the DNO's allowed revenues as part of the price control. These costs are subsequently recovered by the DNO (from energy suppliers and ultimately end consumers) as a cost element within the Distribution Use of System (DUoS) charge.

The reclassification as above will mean that all assets at that GSP should be reclassified as infrastructure. This will remove the Connection Charge and the need for this to be recovered by the DNO, therefore our expectation is that DUoS charges incurred by end consumers will reduce. This we expect would then be offset by a similar increase in costs to be recovered from Transmission Owners (TOs) allowed revenues via an increase in Wider TNUoS tariffs.

If you have any questions on the contents of this letter, then please contact James Greenhalgh in the first instance at [James.Greenhalgh@nationalgrideso.com](mailto:James.Greenhalgh@nationalgrideso.com).

Yours sincerely



Mark Herring

Senior Manager, Code Change Delivery  
National Grid Electricity System Operator