

04 September 2023

Jonathan Brearley
Chief Executive Officer
Ofgem

Re: reforming the mechanism for supergrid transformer charging

Dear Jonathan

I am writing on behalf of energy scheme developers (and distribution customers in general), many of whom Roadnight Taylor supports with grid connections. Whilst we are a commercial consultancy, we engage in many wider initiatives, such as being on the recent NGESO Connections Reform Working Group and on the ongoing Solar Taskforce Electricity Networks Subgroup, and offering many webinars and blogs, in order to support the wider industry.

We would like to draw your attention to the urgency and importance of ensuring that there is a more appropriate mechanism implemented for charging for supergrid transformer reinforcement. Such a review should seek to remove current distortion between distribution connections in different locations, and between distribution and transmission connections, and to remove the high costs and uncertainty many distribution customers face.

As you will know, most transmission reinforcement works are socialised and are funded through the Transmission Network Use of System charge (TNUOS). However, the cost for reinforcement of supergrid transformers (SGTs) is currently split between being socialised or being charged directly to large triggering distribution customers, depending on the categorisation of the nearest grid supply point (GSP). See Appendix 1 below for a description of the different categories of GSP and their different charging regimes. This leads to a 'postcode lottery' and a distortion of connection charging across the country.

Where distribution customers trigger SGT reinforcement at 'connection asset' sites, the cost is passed on by the ESO to the relevant DNO, and from the DNO to the customer, or group of customers, who trigger the works¹. The cost of these works identified at a wide number of GSPs currently ranges from £12m to £60m per GSP—usually far too much for individual distribution connections to fund. If a group of customers triggers the SGT reinforcement, the cost is split proportionally between those customers, pro-rata on their capacity. This means that if customers in the group terminate their offers, the remaining customers pick up a higher proportion of the cost, until theoretically one customer could be left to fund the full cost. Investors are often not able to accept this risk and so projects stall or are cancelled. As such, this is an urgent issue and needs attention by Ofgem.

Ofgem has previously identified this as an issue. For example, in your June 2021 'Access and Forward-looking Charges Significant Code Review: consultation on minded positions' document, sections 3.27 to 3.34, Ofgem highlighted this as an issue.

¹ Note that there is recent evidence to suggest that SSEN Southern may have elected to accept an annual charge from the ESO for SGT reinforcement to pass on to their wider customer base, rather than passing on a capital charge to triggering customers



Ofgem's SCR Final Decision document in May 2022 says, in relation to the treatment of transmission reinforcement triggered by distribution customers, that, "While we consider that these arrangements need to be reviewed, we confirm our minded-to position not to make any changes . . . at this time." Ofgem's conclusion was that, "we will continue to consider these arrangements in our ongoing work on DUoS and TNUoS and communicate with stakeholders on how we think this work is best taken forward."

So whilst Ofgem has identified this as an issue and promised further work, there has been no action, even though the situation has become worse, with increasing numbers of distribution customers now facing SGT reinforcement charges. As Ofgem has already looked at this issue, it has done the analysis it would need to quickly implement changes, and yet we have not seen action. The Government's proposed Connections Action Plan for this summer, and the outcome from Ofgem's open letter on future reform to the electricity connections process (May 2023), are both opportunities for Ofgem to introduce changes to SGT charging.

There are a number of options that could be used to improve the current situation in relation to SGT reinforcement charging:

1. Socialise all SGT reinforcement through TNUOS

This would effectively turn all present 'connection asset' sites into 'infrastructure sites' and would mean that SGT reinforcement charges are not passed on the DNOs or to distribution customers. This gives NGENSO and the TOs a stronger signal to take a more holistic view in relation to SGT reinforcement, and fits well with the concept of the Centralised Strategic Network Plan (CSNP). Non-build solutions would then also be taken into account.

2. Socialise all SGT reinforcement through DUOS

The DNOs would have to be given appropriate mechanisms within ED2 to request reinforcement of SGTs, and to increase the annual 'pass through' costs to customers. This would fit well with the requirement for DNOs to act more strategically, as build and non-build solutions would have to be presented by the DNO, to provide the best holistic option.

3. Continue to pass reinforcement charges on to triggering distribution customers, but allow DNOs to use a CAF approach to SGT reinforcement charging

This is the least preferred approach, because it doesn't provide any incentive to NGENSO, TOs or DNOs to reinforce strategically on a whole-system basis. Whilst it is better than the current approach, because it gives customers certainty over how much of the SGT reinforcement charge they will be responsible for (whereas currently the charge can increase if other customers terminate their offers), it would still present a blocker to connections.

For example, take a GSP with 2x240MVA SGTs which need reinforcement. Changing to 2x360MVA SGTs might cost c.£15m, triggered a batch of 200MW of accepted generation offers. Part of this batch is a 10MW solar scheme.

- a. Current approach. Charge is $\text{£}15\text{m}/200\text{MW} = \text{£}75,000/\text{MW}^2$. The 10MW solar scheme pays $\text{£}750,000$. But the charge would go up if any of the 200MW of accepted generation schemes terminates their offer.
- b. New approach. New GSP capacity is 360MW. Charge is $\text{£}15\text{m}/360\text{MW} = \text{£}41,666.7/\text{MW}$. The 10MW solar scheme pays $\text{£}416,666.7$. Charge is fixed.

DNOs currently refuse to do this, because they say it exposes them to costs they cannot recover, and to cancellation charges if all distribution customers were to pull out. So DNOs would need a mechanism to be able to collect unallocated costs via DUOS.

² The cost tolerance for the connection works of many large-scale energy projects is in the £50-100k/MW range. £75k/MW would give very little scope for any other connection works



Socialised SGT reinforcement charging would allow network operators to be more strategic, would reduce connection costs for distribution customers, and would therefore better facilitate meeting net zero targets. As such, options 1 and 2 above are preferable to option 3.

The industry is waiting see Ofgem make changes to SGT charging, as highlighted above, and we are keen to work collaboratively with Ofgem to help advise on this issue. We are looking forward to your response.

Yours sincerely,

Hugh Taylor

CEO, Roadnight Taylor

CC:

Emily Bourne, Director of Energy Systems and Networks, Department for Energy Security and Net Zero

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Appendix 1 – categorisation of grid supply points

Single user (connection asset) sites

At GSPs where there is only one DNO, it is classed as a 'connection asset' site. At these sites, the cost of SGT reinforcement triggered by distribution customers is passed on by the DNO to the triggering customers.

Some DNOs have in the past (and potentially the present) sought funding through distribution price controls for such reinforcement. But most SGT reinforcement included in the distribution price controls is to cater for gradual growth in background load, rather than by step changes in load caused by large individual connections.

Most DNOs claim there is no mechanism within RIIO ED2 for passing on the cost of SGT reinforcement at connection asset sites to their customer base through DUOS, or are unwilling to do so. For example, Bramford GSP (UKPN Eastern), Burwell GSP (UKPN Eastern), Keadby (NPG Yorkshire) and Kitwell GSP (NGED West Midlands), have currently been triggered for reinforcement and customers have been written to indicating a high charge for SGT reinforcement.

(Note that connection asset sites can become infrastructure sites when there are direct transmission connections made into those GSPs. So there are some connection asset sites where SGT reinforcements will potentially not be charged if the site classification changes.)

Multi-user (infrastructure asset) sites

At GSPs where there are two or more DNOs, or a DNO and another customer, the site is classified as an 'infrastructure site'. At these sites, the cost of SGT reinforcement is socialised and is not passed on to DNOs, and consequently is not passed on to triggering DNO customers, but is funded through TNOUS.

In Scotland, as transmission starts at 132kV, all 400/132kV and 275/132kV SGTs are classed as part of the main interconnected transmission system and so are not chargeable.

Grid parks

In the last three years or so, NGET has offered a large number of connections to tertiary windings on SGTs. These are effectively a low-capacity transmission connection (c.60MVA), for schemes that would otherwise have connected into the distribution network.

At some GSPs, instead of offering multiple individual SGT tertiary winding connections, NGET has amended offers to provide an SGT for a group of three tertiary winding customers. The grid park SGT is classified as an infrastructure asset (because it is supplying multiple customers) and so is not charged to those customers. But if those customers had applied as a distribution connection, they would likely have been charged for SGT reinforcement.

These grid parks may be the most cost-effective solution, but they lead to a distortion in the charging for SGT reinforcement.