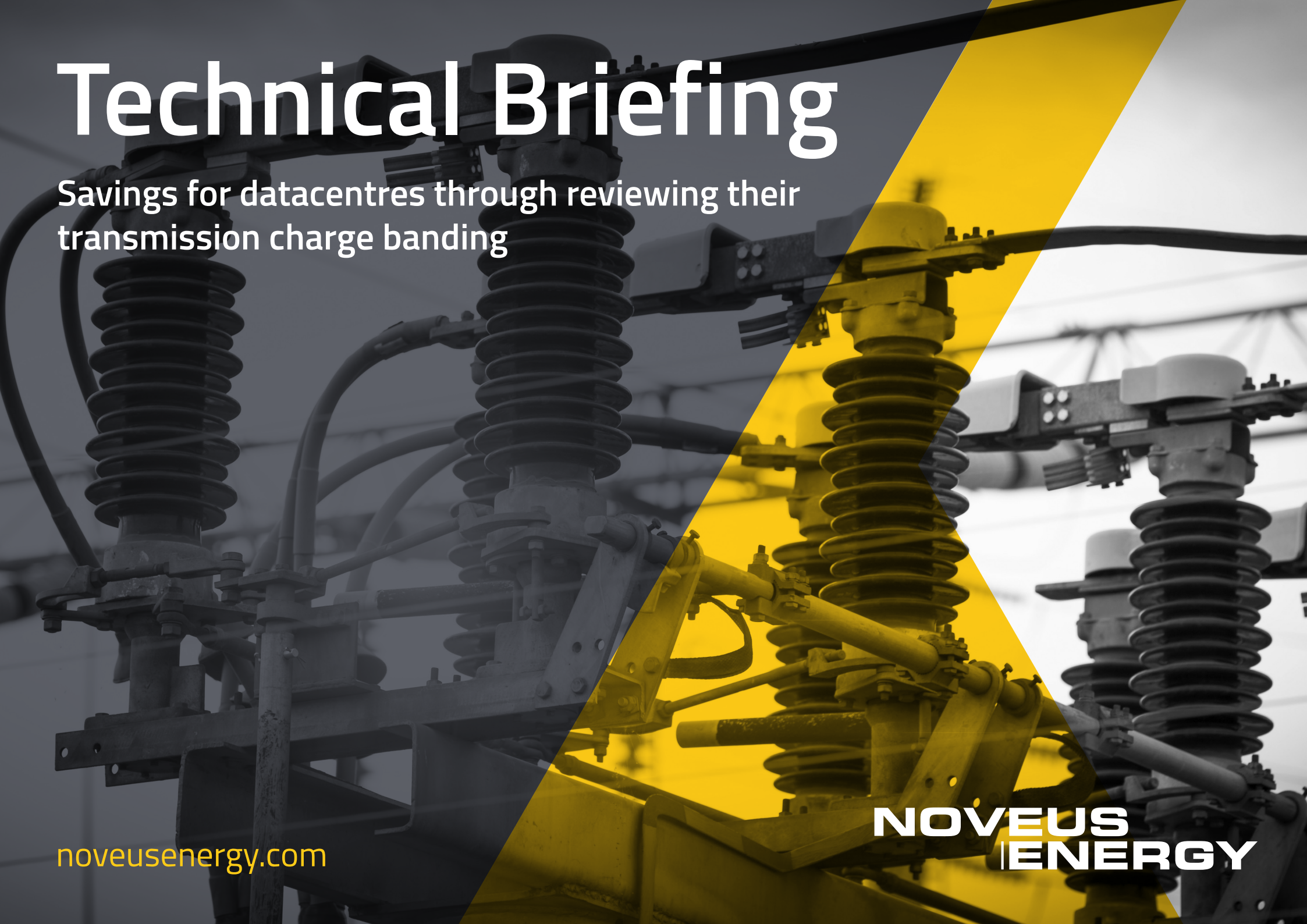
Technical Briefing

Savings for datacentres through reviewing their transmission charge banding



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National Grid have radically altered the way they charge for using the electricity grid. We discuss how customers can review their charges and potentially apply for a cost reduction.

The change on 1 April 2023 came after a long project driven by OFGEM, the energy Regulator, called Targeted Charging Review (TCR). Local electricity distribution network charges changed on 1 April 2022 and National Grid network charges changed one year later.

In the old regime, every customer paid about £45- 55/kW per year to use the National Grid based on their measured power usage each winter. (Customers in Scotland and Northern England paid less). The charge was relatively straight-forward: the more the customer used, the more the customer paid using a formula known colloquially as the "triad".

In the new regime, customers have been allocated into size bands and the size bands are quite broad. This means that customers at the bottom end of one of the new size bands could potentially be paying more for their National Grid charges and customers at the top end of a size band may be paying less. Secondly, these new charges are based on the customers' connection capacity (their "kVA") rather than their actual power usage. This means that customers with spare capacity may well be paying more than they need to. For example, a datacentre might have agreed an electricity capacity of 6,000kVA with the local network but is only using 3,000kVA on the hottest day of the year when their cooling is running at maximum.

All customers have been allocated into one of the new size bands. The table below shows the bands relevant for larger electricity consumers:

Voltage	Band	Threshold (kVA)		Annual Cost
		Lower	Upper	
High Voltage (11kV)	HV Band 3	> 1,000	<= 1,800	£43,000
	HV Band 4	> 1,800	∞	£109,000
"HV substation" and EHV (22kV+)	EHV Band 1	-	<= 5,000	£52,000
	EHV Band 2	> 5,000	<= 12,000	£251,000
	EHV Band 3	> 12,000	<= 21,500	£507,000
	EHV Band 4	> 21,500	∞	£1,348,000

For large customers in particular, their band allocation can be financially material. For example, a datacentre with a 6,000kVA connection will pay National Grid an extra £199,000 per annum more than one with a 5,000kVA connection. That extra power cost will have to be borne by the owner or the DC's clients in the power bills. The 6,000kVA datacentre may already be aware of the problem because they've seen their National Grid charges jump up or they'll see higher costs when they next renew their electricity supply contract.

What can I do about these new National Grid charges?

STEP 1

The first step is to ask an energy consultant which band your site has been allocated into, and whether that allocation is in fact correct. You need to know where your meter is and the voltage it's connected at. Large sites may fall into one of the "EHV" bands if they are connected at 11kV, but their meter is within a large substation owned by the local electricity network. The local networks publish a list of all "EHV" banded meters. Another potential confusion arises when a site a has multiple meters. For example, a datacentre with two 6,000kVA connections will pay more than a datacentre with one 12,000kVA connection. The cost difference is £251,000 per annum so definitely worthy of further investigation.

STEP 2

The second step is to ask an energy consultant if you can move into a lower band. (This decision cannot be taken lightly because there may be substantial costs if you move down a band and then need to move back up to a higher band.) It's easy to access your meter readings and review how much electricity capacity you have been using historically.

The challenge all DC operators face is to project forward their energy use and take a view on how much additional capacity will be needed as the datacentre keeps growing until the site is physically full.

STEP 3

There are various energy efficiency projects that can help move a datacentre into a lower capacity band. Roof-top solar panels can generate enough extra power on hot sunny days to offset the extra power needed to cool the datacentre. In addition, there are sustainability benefits and more stable costs. Similarly, any improvements to chillers, UPS, etc. will improve the datacentre's PUE and reduce the amount of electricity needed.

How do I change my Banding?

If your energy consultant has identified a mis-banding or agreed a lower band with you then they need to present a business case to you including the National Grid charges and the local network charges which are both sensitive to the banding.

You will have to write to the local electricity network, who control the bandings on behalf of themselves and National Grid, to formally request a lower banding. You can reduce part of your local network charge immediately, the "availability" or "per kVA" charge. You can also immediately reduce your "banded" charge, but only when you request an exceptionally large capacity reduction. Otherwise, you must apply now and wait until April 2026 to see the benefit of a lower "banded" charge for the following five years. For the network companies the April 2026 re-banding exercise will be complex: they will have to recalculate the boundaries of the bands and then reallocate each customer into their new band. The networks tell us they will start the exercise in 2024 but we don't know their exact methodology. Customers are advised to act sooner rather than later to maximise their chances of a cost reduction.

Key questions for datacentre operators about their electricity connection

1. Is my connection correctly sized for the growth plans of my new datacentre?

2. If my datacentre is mature, am I paying for an oversized electricity connection?

3. Can I group my meters together to lower my network costs?

4. Can I reduce my peak power needs via energy efficiency or solar panels?

How can Noveus Energy help you?

At Noveus Energy we have a multidisciplinary team of technical and commercial consultants who help clients to secure electricity connections and minimise their on-going energy cost. We have already secured a £700,000 per annum saving for a large datacentre by investigating their National Grid banding.

For more information or to arrange a **FREE 1-2-1** consultation please contact Mark Callaway on **07956 544052** or email **mark.callaway@noveusenergy.com**


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