

DCP 172 Draft Legal Text

**Clarification of way in which voltage rise is used
in determining the New Network Capacity**

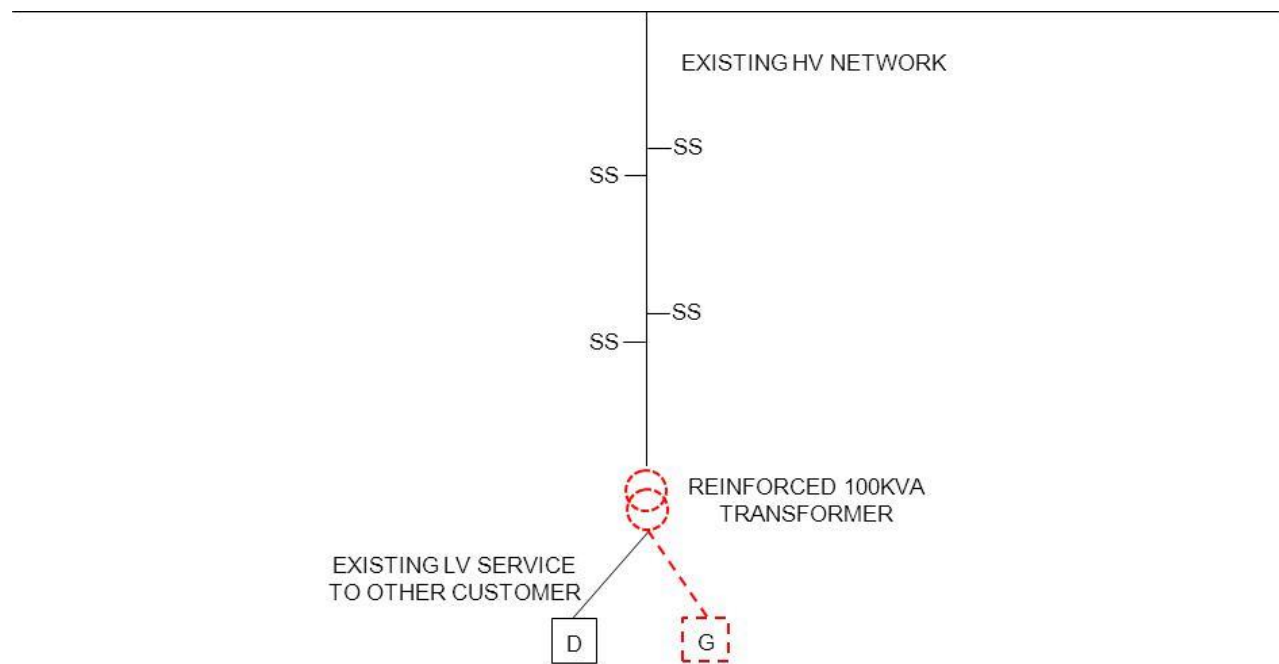
Amend Table in paragraph 1.24 of Schedule 22 as follows:

<p>New Network Capacity</p>	<p>is either the secure or non-secure capacity of the Relevant Section of Network (RSN) following Reinforcement. Whether secure or non-secure capacity is applicable depends upon the type of capacity that can be provided from the RSN. For example, if the capacity provided to the Customer by the RSN is secure, but the capacity requested by the Customer at the point of connection is non-secure, the secure capacity will be used. See Example 12.</p> <p>The capacity to be used will be based on our assessment of the thermal ratings, voltage drop<u>change</u> and upstream restrictions and compliance with our relevant design, planning and security of supply policies. The equipment ratings to be used are the appropriate operational rating at the time of the most onerous operational conditions taking account of seasonal ratings and demand.</p>
------------------------------------	---

Add three new examples to the end of the examples section of Schedule 22 as follows:

Example 14: New 25kVA Generation Connection, Voltage Rise Triggered Reinforcement

An existing Customer wishes to connect a new generator with a Required Capacity for export of 25kVA. The Minimum Scheme for connection of the generator requires the local 25kVA pole mounted transformer to be reinforced with a 100kVA split phase transformer in order to keep voltage rise within acceptable limits. A new 95mm² service cable is to be installed to the premises.



Reinforcement:

The RSN for the Reinforcement is the HV/LV transformer.

Security CAF calculation: the numerator in the CAF calculation is the Required Capacity of the Customer, i.e. 25kVA. The denominator is the New Network Capacity following Reinforcement, this being the maximum generation output that could be connected whilst keeping the voltage rise within acceptable limits, i.e. 40kVA in this case.

Fault Level CAF calculation: this scheme does not have any significant Fault Level contribution to the existing shared use distribution network and Fault Level CAF is therefore not applicable here.

The Connection Charge for this Scheme is calculated as follows:

Reinforcement:

	Cost	Apportionment	Customer Contribution
Non Contestable Work			
Replacement 100kVA transformer	£15,000	25/40 x 100% = 62.5%	£9,375
Total Reinforcement Cost	£15,000		£9,375

Extension Assets:

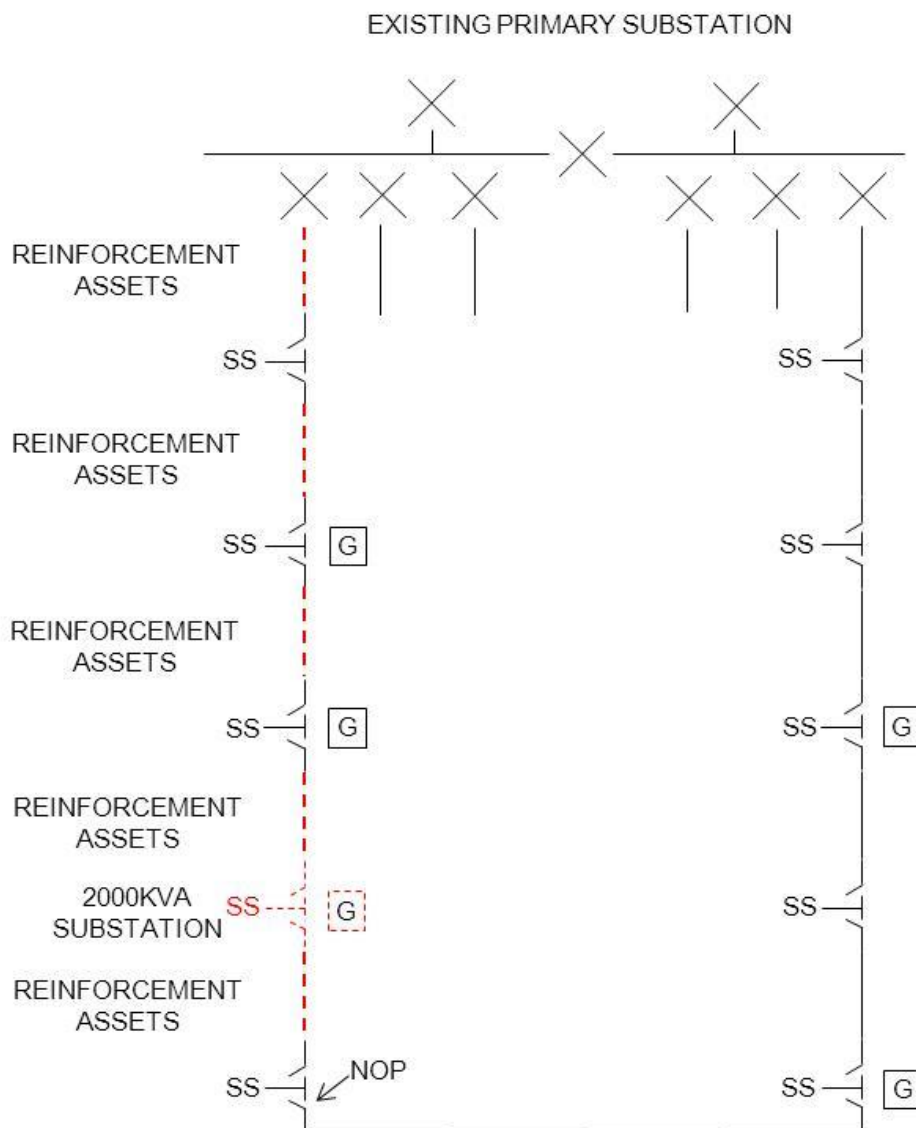
	Cost	Apportionment	Customer Contribution
Contestable Work			
Provision and installation of LV service cable	£1,500	n/a	£1,500
Non-Contestable Work			
LV joints to network	£500	n/a	£500
Total Extension Asset Cost	£2,000		£2,000
CIC Charges			£200

Total Connection Charge = £9,375 + £2,000 = £11,375

(Note – for simplicity, the high-cost generation project threshold of £200/kW has been ignored in this example, but would apply in respect of the costs illustrated. Refer to paragraph 1.15.)

Example 15: New 2MVA Generation Connection, Voltage Rise Triggered Reinforcement

A Customer wishes to connect a new generator with a Required Capacity for export purposes of 2MVA. The local 11kV feeder has a large amount of generation already connected and will need to be reinforced in order to keep voltage rise within acceptable limits. The Minimum Scheme requires Reinforcement of the existing 185mm² 11kV underground cable with 300mm² underground cable and installation of a new substation for connection of the 2MVA export capacity. The total length of the reinforced cable is 2km. The thermal rating of the 300mm² underground cable is 8MVA. The 11kV underground cable on the other side of the normal open point is already 300mm² and does not require to be reinforced.



Reinforcement:

The RSN for the Reinforcement is the 11kV feeder.

Security CAF calculation: the numerator in the CAF calculation is the Required Capacity of the Customer, i.e. 2MVA. The denominator is the New Network Capacity following Reinforcement, this being the maximum generation that could be connected whilst keeping the voltage rise within acceptable limits, i.e. 6MVA in this case.

Fault Level CAF calculation: this scheme does not have any significant Fault Level contribution to the existing shared use distribution network and Fault Level CAF is therefore not applicable here.

The Connection Charge for this Scheme is calculated as follows:

Reinforcement:

	Cost	Apportionment	Customer Contribution
Non Contestable Work			
2km 300mm 11kV cable	£200,000	2/6 x 100% = 33.3%	£66,666
Total Reinforcement Cost	£200,000		£66,666

Extension Assets:

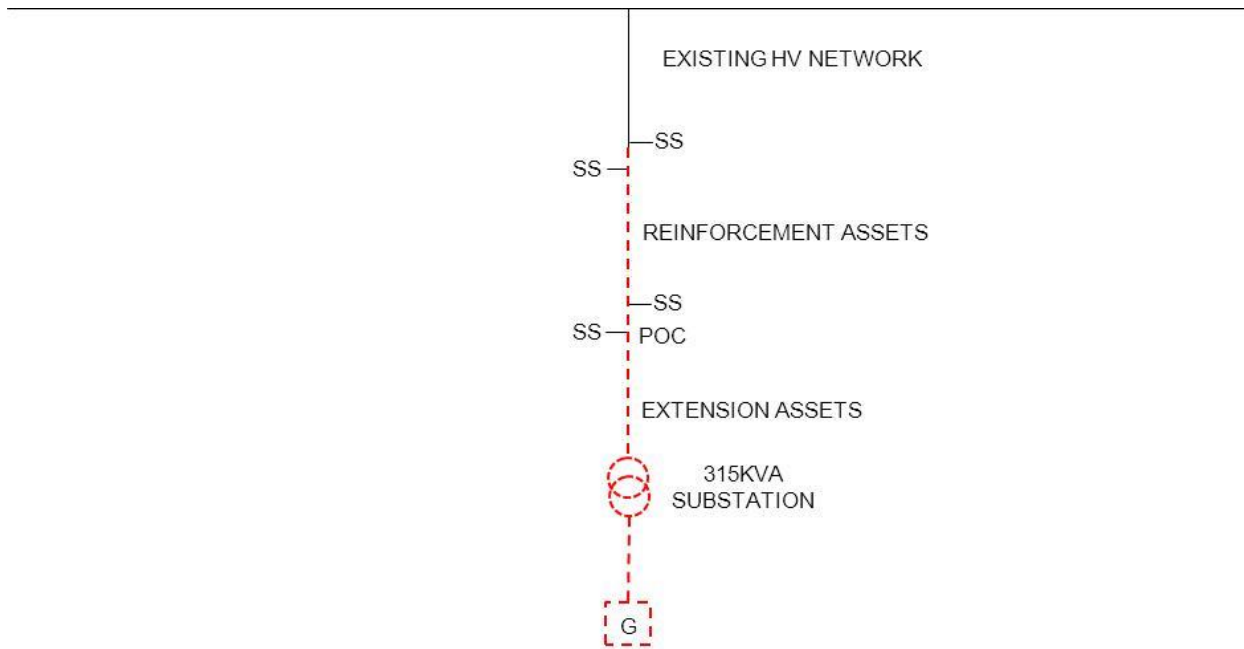
	Cost	Apportionment	Customer Contribution
Contestable Work			
2MVA 11kV substation	£40,000	n/a	£40,000
Non-Contestable Work			
2 by 11kV closing joints	£5,000	n/a	£5,000

Total Extension Asset Cost	£45,000		£45,000
CIC Charges			£200

Total Connection Charge = £66,666 + £45,000 = £111,666

Example 16: New 250kVA Generation Connection, Voltage Rise Triggered Reinforcement

A Customer wishes to connect a new generator with a Required Capacity for export of 250kVA. The Minimum Scheme for connection of the generator requires the local 11kV overhead line to be reinforced with 100mm² conductor over part of its length in order to keep voltage rise within acceptable limits. The thermal capacity of the 100mm² overhead line is 5MVA. The thermal capacity of the original 50mm² overhead line is 3MVA. A new 315kVA ground mounted substation requires to be installed at the premises. The overhead line is 1km in length but only 500m is required to be reinforced in order to keep voltage rise within acceptable limits.



Reinforcement:

The RSN for the Reinforcement is the 11kV overhead line.

Security CAF calculation: the numerator in the CAF calculation is the Required Capacity of the Customer, i.e. 250kVA. The denominator is the New Network Capacity following Reinforcement, this being the maximum generation that could be connected whilst keeping the voltage rise within acceptable limits. As the length of overhead line to be reinforced has been determined to accommodate the 250kVA requirement only, then this is also 250kVA in this case.

Fault Level CAF calculation: this scheme does not have any significant Fault Level contribution to the existing shared use distribution network and Fault Level CAF is therefore not applicable here.

The Connection Charge for this Scheme is calculated as follows:

Reinforcement:

	Cost	Apportionment	Customer Contribution
Non Contestable Work			
Replacement 11kV overhead line conductor	£25,000	$250/250 \times 100\%$ = 100%	£25,000
Total Reinforcement Cost	£25,000		£25,000

Extension Assets:

	Cost	Apportionment	Customer Contribution
Contestable Work			
Provision and installation of 315kVA substation	£50,000	n/a	£50,000
Non-Contestable Work			
11kV joint to network	£1,000	n/a	£1,000
Total Extension Asset Cost	£51,000		£51,000
CIC Charges			£200

Total Connection Charge = £25,000 + £51,000 = £76,000

Wragge Lawrence Graham & Co LLP
13 October 2015