

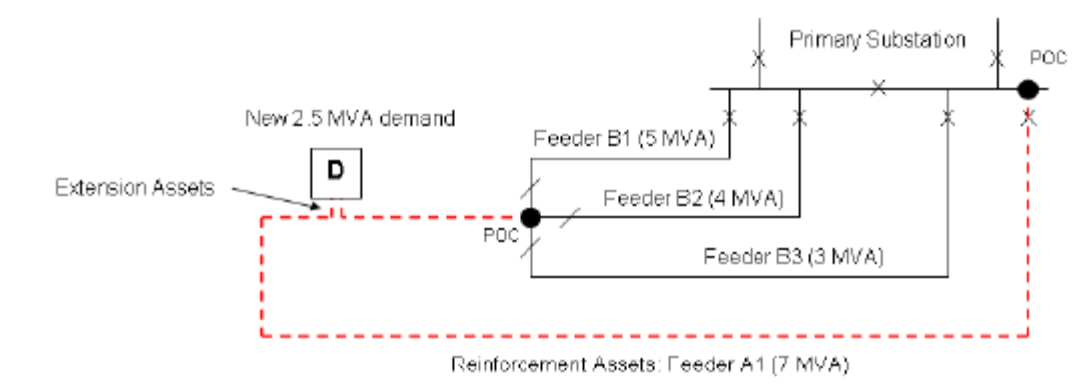
Example 13: Secure Connection With Secure Reinforcement

A Customer requests a new connection to commercial premises which has a Required Capacity of 2.5 MVA. The connection is to be provided on a secure basis and the Minimum Scheme is as shown.

To comply with demand security requirements, it is necessary to install a new feeder (Feeder A1) with a thermal capacity of 7 MVA, as a reinforcement of the network which comprises of circuits B1, B2 and B3. The ratings of the circuits are as detailed and the loadings are in line with design standards.

The Extension Assets in this case are two 11 kV cable circuits of 25m each.

For technical reasons the maximum number of feeders (within any group) for consideration will be four.



Reinforcement:

If sufficient capacity had been available in the existing network, only two of the existing feeders would have been required to provide the required security.

The original network is a 3 circuit configuration with a theoretical total capacity of 12MVA (5+4+3 MVA) Under n-1 conditions (and with the largest capacity circuit unavailable) the thermal capacity of the network would be reduced to 7MVA which would be accomplished through network reconfiguration and the moving of 'normal open points'.

On the revised/new network with 4 circuits the total theoretical capacity would be 19MVA Under n-1 conditions (and with the largest capacity circuit unavailable) the thermal capacity of the network would be reduced to 12MVA.

Hence, the New Network Capacity is determined by applying $(N - 1)$ security to the 4 feeder RSN. This gives a secure NNC of 12 MVA. This recognises the possible loss of feeder A1 and supplies fully restored via the remaining circuits B1, B2 and B3.

Therefore, the numerator in the CAF calculation is the Required Capacity of 2.5 MVA and the denominator is the New Network Capacity of 12.0 MVA.

The Connection Charge for this Scheme is calculated as follows:

Version 2

3/4/14

Reinforcement:

	Cost	Apportionment	Customer Contribution
Contestable Work			
Installation of new 11kV feeder	£ 250,000	$2.5 / 12 \times 100\% = 20.8\%$	£52,000
Total Reinforcement Cost	£ 250,000		£52,000

Extension Assets:

Contestable Work	Cost	Apportionment	Customer Contribution
Installation of 2 x 25m 11kV cable	£ 10,000	n/a	£ 10,000
Installation of 2 x 11kV metering circuit breakers	£ 100,000	n/a	£ 100,000
Non-Contestable Work			
Joints to 11kV network	£ 5,000	n/a	£ 5,000
Total Extension Asset	£115,000		£115,000
CIC Charges			£ 1,100

Total Connection Charge = £ 52,000 + £ 115,000 = £ 163,000