

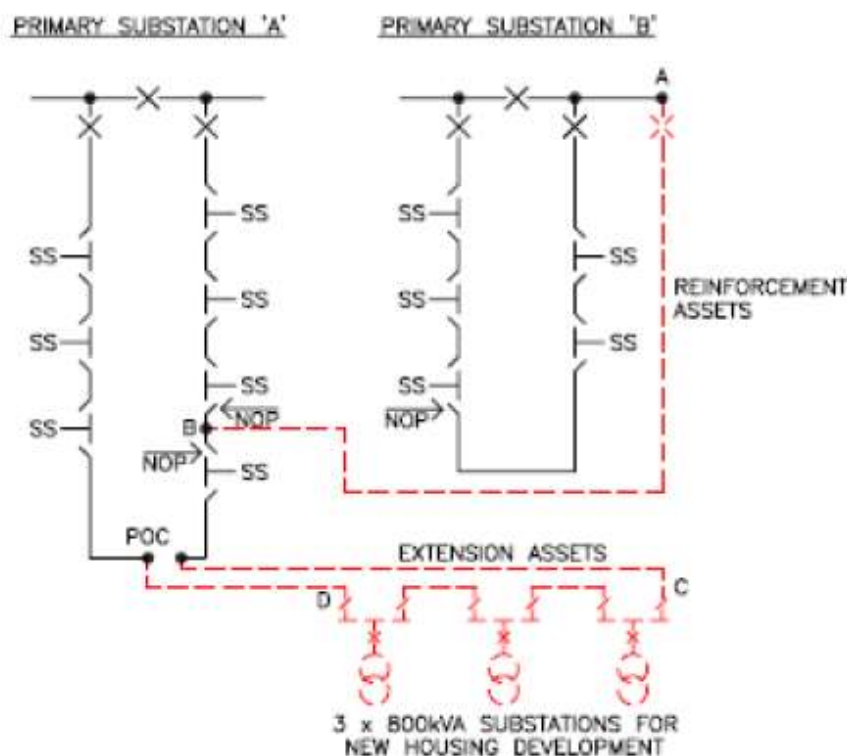
DCP 287 – Examples of EDCM benefits

1. Background

DCP 287 is looking at whether credits for EDCM connected generators should include an element for direct costs, indirect costs, transmission exit charges and network rates. This paper provides some examples to assist the working group discussion.

2. Example of new assets

The example below is taken from the common connection charging statement contained within DCUSA. Example 8A looks at connection of a housing estate with load transfer. The housing estate requires 2MVA, but the local substation is unable to accommodate. Instead the substation is connected to another substation (B). to transfer a portion of the load:



In this example, the assets that need to be installed to connect the two substations totals £178k and consist of the following:

	Cost	Apportionment	Customer Contribution
Non Contestable Work			
1300m of 11kV Cable	£130,000	$2/15.4 \times 100\% = 13.0\%$	£16,883
11kV Circuit Breaker at Primary Substation B	£45,000	As above	£5,844
11kV jointing at Point B	£3,000	As above	£390
Total Reinforcement Cost	£178,000		£23,117

Distributed generation can remove the need for this capital expenditure in two ways:

- By connecting directly into the primary substation and displacing the capacity that is provided by the second substation
- By reducing demand further down the network and freeing up capacity at the primary substation, thereby removing the need for the interconnection

In addition to the avoided cost of reinforcement, there are a number of further benefits as follows:

- There is no longer a requirement for the 1300m of 11kV cable and other assets. Consequently, the DNO will not incur direct ongoing costs associated with this asset (eg inspection and maintenance costs, operating expenditure relating to fault repairs, the cost of tree cutting, etc).
- The closely associated indirect costs that relate to the work that has been avoided (eg network design and engineering, project management, engineering management and clerical support, wayleaves, stores, etc).
- Network rates – NR are based on the value of a DNO's asset. In this case, the avoidance of building the cable and other assets saves the DNO the network rates associated with these assets.

3. Example of existing assets

Where a DG connects into the existing network, the avoided future reinforcement cost is recognised under the LRIC/ FCP methodology. The additional costs associated with the avoided assets is covered in the previous section. There are also additional system wide benefits that DG can bring to the network. For example:

- Network businesses operate equipment and conduct maintenance to regulate voltage levels through the network. This includes adjusting taps on transformers or upgrading them entirely, which requires expenditure. Distributed generation may have an effect on the management of voltage regulation, either because of the export of power into the grid or through the operation of its network interfacing equipment.
- The network must be operated to meet a range of power quality requirements, which protects electrical network equipment. Power quality can be impacted by fluctuations in voltage and harmonics faced by a distribution system. Some distributed generation provide benefits for DNOs by working with the network to manage power quality levels, such as managing harmonics and flicker experienced in a local network.
- Potential for added resilience to the network in fault situations.

The benefit that DG can bring to existing assets means that the direct and associated indirect costs of managing these assets are reduced and this benefit should be passed on to EDCM generators.

4. Transmission Exit Charges

Transmission exit charges recover the capital costs of GSPs. This may be the cost of building or upgrading GSPs. DG offset demand which reduces the probability of these assets needing reinforcement. At present DG get rewarded for this in the CDCM, but not in the EDCM.

5. Conclusion

The proposer believes that the additional benefits that DG brings to DNOs is recognised in the CDCM, but not in the EDCM which focuses on avoided future capex cost using either LRIC or FCP. The examples provided in this paper, demonstrates the additional benefit that can be achieved for DNOs.