

## 1 THE TREATMENT OF CAPACITY IN THE CDCM

- 1.1 There are three categories of costs allocated in the CDCM – these are Network Costs, Transmission Exit costs and Other costs. Network Costs apply to all distribution network levels, Transmission Exit costs apply only to the transmission level<sup>1</sup> whilst Other Costs apply partly to each distribution network level and partly to dedicated assets for each type of user.
- 1.2 Network costs at each network level are converted to a £/kW/yr by dividing the cost of the network level assets (£) by the exit flow (kW) at the time of system simultaneous maximum load (SMD) to produce a network level asset cost in £/kW, and then multiplying this by an annuity factor. Capacity is not relevant to this calculation.
- 1.3 Other Costs are allocated to each network level on the basis of ‘notional asset value’<sup>2</sup>. For the purpose of calculating a notional asset value for each network level, the network level asset cost in £/kW is multiplied by an estimated load. The estimated load is not the pure SMD, but rather the ‘SMD adjusted for standing charge factors’<sup>3</sup>.
- 1.4 The ‘SMD adjusted for standing charge factors’ differs from the pure SMD by replacing, for each network level, the pure SMD with a diversified aggregate capacity calculated as follows:
- Start with the pure SMD.
  - Remove the portion of SMD at each network level which is subject to standing charge factors for each tariff.
  - Add, at each network level which is subject to standing charge factors, the diversified aggregate capacity. For NHH customers the aggregate capacity is the total annual kWh/load factor (i.e. max demand), whereas for HH customers the aggregate capacity is the total agreed capacities of the HH customers (i.e. agreed capacities). The diversity factors applied to these aggregate capacities are determined by reference to the diversity factors input to the CDCM by the DNO, or in the case of LV where no such diversity factor

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<sup>1</sup> Transmission exit costs apply only to transmission level which is unaffected by the treatment of capacity for any CDCM tariff and so is not explained further in this consultation.

<sup>2</sup> A portion of Other Costs is also allocated to the Customer level by reference to the aggregate value of service models but this is not relevant to this consultation and is not explained further.

<sup>3</sup> Standing charge factors in the CDCM represent the extent to which the network design and planning process takes account of the capacity of a particular customer.

is input, calculated within the CDCM<sup>4</sup>.

- 1.5 Having allocated Other Costs (£/yr) to each network level as described above, these costs are converted to a £/kW/yr at each network level by dividing by the SMD adjusted for standing charge factors.
- 1.6 The CDCM at this point has therefore calculated a £/kW/yr by network level for both Network Costs and Other Costs. For network levels more remote from the tariff groups' voltage of connection these £/kW/yr costs are converted to network level p/kWh rates to apply to each tariff primarily by reference to the tariff groups' load characteristics (coincidence factor and load factor). For network levels close to the voltage of connection the methodology converts these £/kW/yr costs to capacity rates (p/kVA/day) by reference to the network level diversity factor and an assumed power factor of 0.95<sup>5</sup>. In deriving capacity and fixed charges the relevant voltage levels for each tariff are defined by their standing charge factors.
- 1.7 The standing charge factors for NHH settled users are:
  - a) 100 per cent for the network level at which the end user is supplied; and
  - b) Zero for any further network level.
- 1.8 The standing charge factors for half hourly settled users at LV Sub are:
  - a) 100 per cent for the transformation level at which the supply is made to the end user;
  - b) 100 per cent for circuits at the next voltage level; and
  - c) Zero for any further network level.
- 1.9 The standing charge factors for other half hourly settled users are:
  - a) 100 per cent for the voltage level of supply of the end user;
  - b) 100 per cent for the next transformation level;
  - c) 20 per cent for circuits at the next voltage level (including 132kV for HV users to the extent

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<sup>4</sup> Diversity factor for LV circuit is calculated as the sum of: [(aggregate capacity for NHH (max demand) + aggregate capacity for HH (agreed capacities))/SMD (NHH & HH)]

<sup>5</sup> For each network level: [p/kVA/day from network model assets] = 100\*[standing charge factor]\*[network level £/kW/year]\*[user loss factor]/[network level loss factor]\*(1 - [contribution proportion])/[days in year]/(1 + [diversity allowance])\*[power factor in network model]

that 132kV/HV transformation is used); and

d) Zero for any further network level.

1.10 For HH demand users, except unmetered users, the p/kVA/day unit costs are allocated to the capacity charge rate. For NHH demand users, again except unmetered users, the p/kVA/day unit costs are allocated to the fixed charge by multiplying the p/kVA/day rates by the average kVA/customer<sup>6</sup>.

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<sup>6</sup> For this purpose, demand users in PC 1-4 are taken as a single group