

## Legal Text Associated with DCUSA Change Proposal 179

Amend Section 2A, paragraph 19.5 as follows:

### Invoicing of Charges

19.5 The Company shall invoice Use of System Charges (but excluding any Transactional Charges) payable by or to the User by reference to Settlement Class using aggregated data obtained from the Supercustomer DUoS Report, except in relation to Metering Points or Metering Systems where:

19.5.1 the electricity imported via an Exit Point or exported via an Entry Point is not contained in the Supercustomer DUoS report, and is measured by Half-Hourly Metering Equipment (as defined in the Balancing and Settlement Code) or by an Equivalent Meter for the purposes of Settlement; and/or

19.5.2 the Use of System Charge is not comprised solely of one or more standing charges and/or one or more Unit Rates; and/or

19.5.3 the Use of System Charge is specified in the Relevant Charging Statement as not being billed by Settlement Class; and/or

19.5.4 Use of System Charges are to be determined as a result of an Extra-Settlement Determination.

**Comment [RT1]:** This text is based on P300 option 1. If P300 option 2 is progressed, then 2 new reports will be created and the legal text will be amended as follows:  
19.5 – Add in name of the new reports  
19.5.1 – Amend the new text to replace the Supercustomer DUoS report with the name of the new report

Table 3 of Schedule 15 amended as follows:

**TABLE 3**

4.1 The table referred to in Clause 35A.4 is set out below:

Company Name:

Date:

Illustrative Charging Year: t+1

PLEASE NOTE THAT THESE ARE ILLUSTRATIVE TARIFFS ONLY AND ARE  
NOT TO BE CONSIDERED TO REPRESENT THE INDICATIVE OR FINAL  
TARIFFS WHICH WILL BE APPLIED BY THIS COMPANY

	PCs	Unit rate 1 p/kWh	Unit rate 2 p/kWh	Unit rate 3 p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Reactive power charge p/kVArh
Domestic Unrestricted							
Domestic Two Rate							
Domestic Off Peak (related MPAN)							
Small Non Domestic Unrestricted							
Small Non Domestic Two Rate							
Small Non Domestic Off Peak (related MPAN)							
LV Medium Non- Domestic							
LV Sub Medium Non-Domestic							
HV Medium Non- Domestic							
<u>LV Network Domestic</u>							
<u>LV Network Non- Domestic Non-CT</u>							
LV HH Metered							
LV Sub HH Metered							
HV HH Metered							

NHH UMS category A							
NHH UMS category B							
NHH UMS category C							
NHH UMS category D							
LV UMS (Pseudo HH Metered)							
LV Generation NHH or Aggregate HH							
LV Sub Generation NHH							
LV Generation Intermittent							
LV Generation Non-Intermittent							
LV Sub Generation Intermittent							
LV Sub Generation Non-Intermittent							
HV Generation Intermittent							
HV Generation Non-Intermittent							

Commentary

1. All illustrative tariffs as shown above are based on the latest Total Allowed Revenue (ARt in table 1) and the updated forecast Transmission Exit Charges (TBt in table) and any other inputs (if appropriate).

Schedule 16 to be amended as specified below:

## **SCHEDULE 16 – COMMON DISTRIBUTION CHARGING METHODOLOGY**

### **Introduction**

1. This Schedule 16 sets out the Common Distribution Charging Methodology (CDCM), which gives the methods, principles, and assumptions underpinning the calculation of Use of System Charges by each DNO Party (except where the DNO Party is acting as an LDNO).
- 1A. The CDCM is applicable to “Designated Properties”, as defined in Standard Condition 13A (Common Distribution Charging Methodology) of the DNO Party’s Distribution Licences.
2. The Schedule 16 comprises two main parts. Part 1 describes the cost allocation rules. Part 2 describes the tariff structures and their application.
3. In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Party will populate and publish:
  - (a) the CDCM model version 10X32 as issued by the Panel on 1 April ~~2013~~ 2015 ; and
  - (b) the CDCM “Price Control Disaggregation” model version 2.0 as issued by the Panel on 1 April 2014.
4. The glossary at the end of this Schedule 16 contains definitions of terms and acronyms used in this Schedule 16. In the case of any conflict between the defined terms and acronyms set out in this Schedule 16 (on the one hand) and the definitions and rules of interpretation set out in Clause 1 of this Agreement (on the other), the defined terms and acronyms set out in this Schedule 16 shall prevail.
5. Algebraic formulae in this Schedule 16 use square brackets to clarify the calculations. For the avoidance of doubt, these square bracketed terms form an effective part of this Schedule 16.

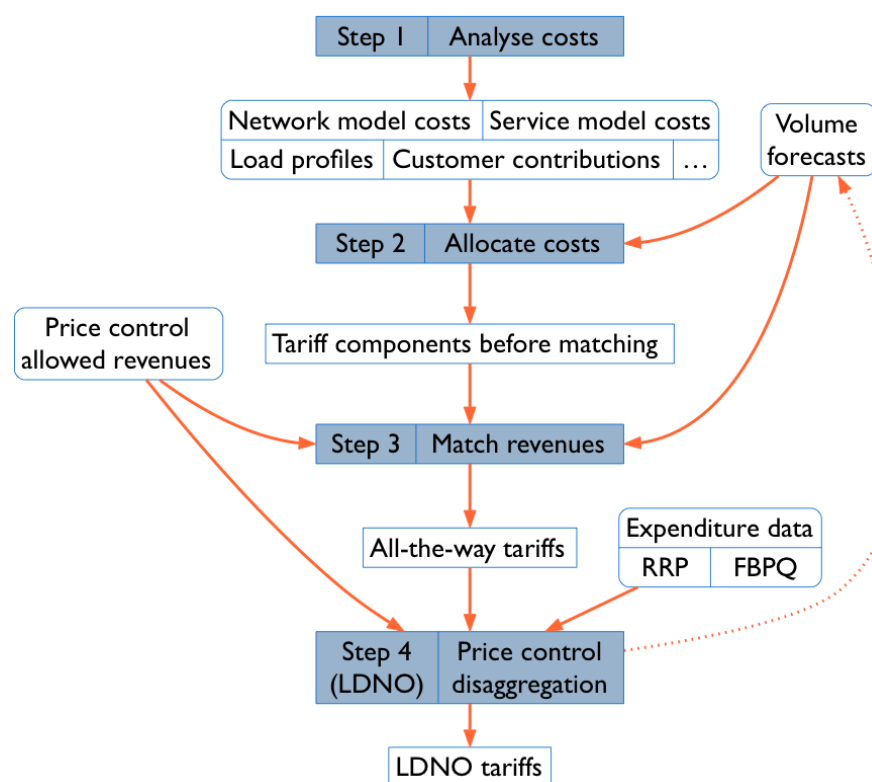
**Comment [PA2]:** To be updated with new model number once approved

## Part 1 — Cost allocation

### Main steps in the allocation

6. Figure 1 gives a general overview of how the four main steps in the methodology relate to each other.

Figure 1 Overview of the main steps in the methodology



7. Step 1 involves the gathering of information about the network, the costs of assets and operations, the users of the network, and the forecast level of use and level of allowed revenue in the charging year.
8. Step 2 is the application of the cost allocation rules set out below. These rules are only for all-the-way tariffs and do not apply to LDNO tariffs.
9. Step 3 involves adjustments to the tariff components calculated in step 2 in order to match revenue recovered from the CDCM to the amount of revenue allowed under the price control conditions.
10. Step 4 uses price control condition calculations, actual expenditure data and forecast expenditure data in order to determine discount percentages, which are then applied to all-the-way tariffs in order to produce LDNO tariffs.
11. Step 4 is independent from Steps 1 to 3. In practical terms, Step 4 must be performed first, as the discount percentages are used within Step 1 to combine volume forecasts for all-the-way and portfolio tariffs into a single composite dataset for each type of end user.

#### Overview of the tariff components

12. Each tariff comprises of some or all of the tariff components listed in table 1.

**Table 1** List of tariff components ~~and restrictions on their application~~

Tariff component	Unit	<del>Restrictions</del>
One, two or three unit rates	p/kWh	<del>No more than two unit rates for non half hourly settled demand.</del>
Fixed charge	p/day	<del>Not for unmetered supplies.</del>
Capacity charge	p/kVA/day	<del>Half hourly settled demand tariffs only.</del>
Reactive power charge	p/kVArh	<del>Half hourly settled tariffs only.</del>

13. For users that are acting as LDNOs, tariffs are portfolio tariffs with the same tariff components as the corresponding all-the-way end user tariff, excluding reactive power charges (but prices for some tariff components may be calculated as zero).

14. Each component of each tariff is rounded to the nearest value with no more than three decimal places in the case of unit rates expressed in p/kWh and reactive power unit charges expressed in p/kVArh, and with no more than two decimal places in the case of fixed and capacity charges expressed in p/MPAN/day and p/kVA/day respectively.

**Step 1: Analyse costs**

15. The first step of the methodology involves the determination of costs or revenue allowances for various parts of the network, and the collection of information about the relevant characteristics of network users.

**Network model asset values**

16. The DNO Party specifies a network model, also known as a distribution reinforcement model (DRM) or a 500 MW model, in line with the requirements of this section.
17. In all cases, the network model determines the £/kW/year figure (based on simultaneous maximum load at each network level) corresponding to amortisation and return on capital for assets at the LV circuits, HV/LV and HV network levels.
18. For DNO Parties that do not rely on a separate EHV charging methodology, the network model also determines these costs at the EHV/HV and EHV network levels, and, in England and Wales, at the 132kV/EHV and 132kV network levels.
19. The network model consists of a costed design for an increment to the DNO Party's network. The DNO Party may only change this costed design with effect from 1 April. The DNO must provide notice of any such change in the Annual Review Pack to be published by the third Working Day of January in the calendar year prior to the calendar year in which such 1 April occurs (so as to provide approximately 15 months' prior notice of such change).
20. At each network level, the model is sized to provide secure capacity to meet demand that, aggregated up to individual grid supply point (GSP) level, amounts to 500 MW of simultaneous maximum demand.
21. The model's design assumes a power factor of 0.95 and no embedded generation.

22. The assets included in the network model are modern equivalent assets of the kind that the DNO Party would normally install on new networks.
23. The nature, quantity and size of assets in the model is such as to meet demand and security to the DNO Party's design and planning standards, allowing for the use of standard size equipment and typical utilisation factors.
24. The proportion of assets of different types at each network level, e.g. overhead and underground circuits, reflects the mix of users and the topography in the DNO Party's Distribution Services Area.
25. The cost assumed for each asset type reflect total purchase and installation cost in the charging year, using the DNO Party's normal procurement methods.
- 25A. The DNO Party will determine or estimate the proportion of relevant load going through 132kV/HV direct transformation. The DNO Party may only change its determination or estimate of the proportion of relevant load going through 132kV/HV direct transformation with effect from 1st April, and must provide a minimum of 15 months' prior notice of such changes. However, where a change to such determination or estimate is caused by the implementation of a change to this methodology, the requirement to provide a minimum of 15 months' prior notice will not apply.

#### **Diversity allowances**

26. For each of the 132kV (except in Scotland), EHV and HV voltage levels, the DNO Party determines a diversity allowance between the transformation level above circuits at that voltage and the transformation level below circuits at that voltage.
27. Each diversity allowance represents the extent, expressed as a percentage, to which the sum of the maximum load across all substations below would exceed the corresponding sum for substations above.
28. The DNO Party also determines a diversity allowance between the GSP Group as a whole and the individual grid supply points.
- 28A. The DNO Party may only change its determination of such diversity allowances with effect from 1<sup>st</sup> April, and must provide a minimum of 15 months' prior notice of such changes. However, where a change to such determination is caused by the



implementation of a change to this methodology, the requirement to provide a minimum of 15 months' prior notice will not apply.

#### **Customer contributions under current connection charging policy**

29. The DNO Party estimates the extent to which the assets at each network level used by each category of users would have been expected to be covered by customer contributions if they had been constructed under the charging year's connection charging policy.
30. The DNO Party groups users into categories, by network level of supply, for the purpose of making these estimates.
31. In the case of generators, the proportions relate to the notional assets whose construction or expansion might be avoided due to the generator's offsetting of demand on the network, and takes the same values as for a demand user at the same network level of supply.

#### **Service model asset values**

32. The DNO Party specifies a set of service models covering the range of typical dedicated assets operated for the benefit of individual HV and LV users of the network.
33. For each service model, the DNO Party estimates the number and types of connections that the model covers, and a total construction cost for the assets in the model. The DNO Party may only change the construction cost of any service model with effect from 1 April. The DNO Party must provide notice of any such change in the Annual Review Pack to be published by the third Working Day of January in the calendar year prior to the calendar year in which such 1 April occurs (so as to provide approximately 15 months' prior notice of change).
34. For each tariff, the DNO Party identifies the extent to which each of the service models represents the relevant assets for an average user in that tariff.
35. A weighted average of service models is used if several service models apply to the same tariff.

- 35A. The DNO Party may only change its estimate of the proportionate applicability of each service model to each tariff type with effect from 1st April, and must provide a minimum of 15 months' prior notice of such changes. However, where a change to such estimate is caused by the implementation of a change to this methodology, the requirement to provide a minimum of 15 months' prior notice will not apply.
36. In the case of unmetered supplies, service model assets are modelled on the basis of units delivered.
37. In the case of generation service models, the service models should reflect the additional costs of protection equipment for a typical generator in each category, for example the difference in cost between a fuse and a circuit breaker, or the cost of additional telecommunications equipment used for control purposes.

**Transmission exit expenditure**

38. The DNO Party prepares a forecast of expenditure on transmission exit charges in the charging year.

**Other expenditure**

39. The DNO Party prepares a forecast of other expenditure for the charging year, where other expenditure is defined as the sum of:
- (a) 100 per cent of direct operating costs.
  - (b) 60 per cent of indirect costs (as defined in RRP guidance).
  - (c) 100 per cent of network rates.

**Distribution time bands**

40. The DNO Party determines five distribution time bands, labelled black, red, yellow, amber and green. The 'red', 'amber' and 'green' time bands will apply to all half hourly settled tariffs that are metered. The 'black', 'yellow' and 'green' time bands will apply to the unmetered supplies half hourly tariff.
41. Distribution time bands are defined separately for Monday-Friday and for Saturday/Sunday. In each case, time bands are defined by reference to UK clock time only, and always begin and end on the hour or half hour. There will be no constraint on either the number of hours that can be covered by each time band or whether the time band applies to all or only part of a day. The red, amber and green times bands will apply throughout the year. The black and yellow time bands can be set to apply to only part of the year, where so specified by the DNO Party.
- 41A. The DNO Party may only change distribution time bands with effect from 1 April and must provide a minimum of 15 months prior notice of such changes. However, where a change to distribution time bands is caused by the implementation of a change to this methodology, the requirement to provide a minimum of 15 months notice prior notice will not apply.
- 41B. Notice of changes to the distribution time bands should be given in the relevant charging statement, and such notice should appear in the same paragraph of the statement as the time bands that are being changed.

### **Load characteristics**

42. The DNO Party estimates the following load characteristics for each category of demand users:
- a) A load factor, defined as the average load of a user group over the year, relative to the maximum load level of that user group. Load factors are numbers between 0 and 1.
  - b) A coincidence factor, defined as the expectation value of the load of a user group at the time of system simultaneous maximum load, relative to the maximum load level of that user group. Coincidence factors are numbers between 0 and 1.

- c) In the case of multi-rate tariffs and non-half hourly unmetered supplies tariffs that are applied to non-half-hourly meter data or to fixed time bands that differ from the distribution time bands (if any), the estimated proportion of units recorded in each relevant time pattern regime that fall within each distribution time band.

42A. The load characteristics for non-half hourly unmetered supplies are not determined from settlement data. For each non half hourly unmetered supplies tariff the load characteristics are calculated using profile data derived for each GSP Group.

- 43. In determining the load characteristics of each category of demand user the DNO Party will use reasonable endeavours to analyse meter and profiling data received for the most recent 3 year period for which data are available in time for use in the calculation of charges. The three elements of load characteristics – Load Factors, Coincidence Factors, and the estimated proportion of units recorded in each relevant time pattern regime that fall within each distribution time band – will be calculated individually for each of the 3 years and a simple arithmetic average will be calculated to be used in tariff setting.

- 44. For load factors and coincidence factors in the case of non half hourly settled customer classes (except the non half hourly unmetered supplies tariffs), data adjusted for GSP Group correction factor are used.

- 45. For the estimated proportion of units recorded in each relevant time pattern regime that fall within each distribution time band, data are not adjusted for GSP Group correction factors.

- 46. Not used.

#### **Loss adjustment factors to transmission**

- 47. For each network level, the DNO Party determines a single loss adjustment factor to transmission relating to Exit Points from its network at that level. These loss adjustment factors should be representative of average losses at the time of system simultaneous maximum load.

#### **Peaking probabilities**

48. The DNO Party determines a peaking probability in respect of each network level and each of the distribution time bands.
49. The peaking probability represents the probability that an asset at that network level would experience maximum load during that distribution time band. In deriving peaking probabilities the DNO Party will use reasonable endeavours to use the most recent 3 year period for which information is available in time for use in the calculation of charges. Peaking probabilities will be derived individually for each of the 3 years and a simple arithmetic average will be calculated to be used in tariff setting.

#### **Power factor data**

50. The DNO Party determines or estimates, for each network level, the average of the ratio of reactive power flows (kVAr) to network capacity (kVA), weighted by reactive power flow.
51. If data are not available for any network level, the DNO Party uses data for the nearest network level at which they are available.
- 51A. The DNO Party may only change its estimate of the matters referred to in paragraph 50 with effect from 1<sup>st</sup> April, and must provide a minimum of 15 months' prior notice of such changes. However, where a change to such estimate is caused by the implementation of a change to this methodology, the requirement to provide a minimum of 15 months' prior notice will not apply.

#### **Volume forecasts**

52. The DNO Party forecasts the volume chargeable to each tariff component under each tariff for the charging year.
53. The volume forecasts for portfolio tariffs are multiplied by the LDNO discount percentages determined in Step 4, and combined with the all-the-way volume forecasts for each end user type. These combined volume forecasts are used throughout Steps 2 and 3 of the methodology.

#### **Forecast of price control allowed revenues**

54. The DNO Party prepares a forecast of allowed revenue for the charging year in accordance with the requirements of the price control conditions and in a manner which is consistent with its volume forecasts and in a format consistent with table 1 of Schedule 15.

## Step 2: Allocate costs

### Categories of costs

55. The cost and revenue allocation is driven by a representation of the different voltage and transformation levels in the network and by a distinction between the elements of cost related to assets and those related to operations.
56. Table 2 shows the network levels and categories of costs used in the model. In this Schedule 16, the acronym EHV refers to voltages of 22 kV and above, up to and excluding 132 kV. In the case of the Scottish Distribution Services Areas, the entries for the 132kV and 132kV/EHV network levels are zero as these voltages are part of the transmission network. LV refers to voltages below 1 kV, and HV refers to voltages of at least 1kV and less than 22kV.

**Table 2 Categories of unit costs in the model**

Category	Description	Unit	Levels
Network assets	Amortisation and return on capital for networks or substations at each level, excluding assets that are deemed to be covered by customer contributions.	£/kW/year	132kV
			132kV/EHV
			EHV
			EHV/HV
			132kV/HV
			HV
	This is expressed per kW of system simultaneous maximum load.		HV/LV LV circuits
Transmission exit	Expressed per kW of system simultaneous maximum load	£/kW/year	Transmission exit

**Table 2** Categories of unit costs in the model

Category	Description	Unit	Levels
Other expenditure	Other expenditure is attributed to levels and assets in the network following the rules set out below.	£/kW/year	132kV 132kV/EHV EHV EHV/HV 132kV/HV HV HV/LV LV circuits
	The part allocated to network levels is expressed per kW of system simultaneous maximum load.		
	The part of other expenditure allocated to assets dedicated to one customer is expressed per user for each user type.	£/year	For each type of user

**Annuitisation of network model asset values**

57. Capital costs that are not covered by customer contributions are converted to annual costs using a level annuity with the annuity period and rate of return set out in table 3.

**Table 3** Annuity rate of return and annuity period

Parameter	Value
Annuity period	40
Annuity rate of return	6.9% until the 31 March 2011, and thereafter the “allowed pre- tax weighted average cost of capital” set by the Authority as part of the then most recent review of the charge restriction conditions applying under the DNO Party’s Distribution Licence.

### **Determination of unit costs from network model**

58. For each network level, the DNO Party determines the flow at time of system simultaneous maximum load, measured at Exit Points from the network level, that could be accommodated by the network model on the basis of a normal mix and diversity of loads for its network.
59. The asset value and unit cost for that network level are obtained by dividing the annuitised cost of purchasing and installing the assets in the network model by this exit flow at time of system simultaneous maximum load.
- $$[\text{network level assets } \text{£/kW}] = [\text{assets } \text{£}] / [\text{modelled exit flow at time of system simultaneous maximum load kW}]$$
- $$[\text{network level } \text{£/kW/year}] = [\text{network level assets } \text{£/kW}] * [\text{annuity factor}]$$
60. The modelled exit flow at peak time is obtained by combining the 500 MW at GSP sizing assumption, the diversity allowance between GSP and GSP Group, and the loss adjustment factor for the relevant network level.

### **Allocation of other expenditure**

61. Estimated load at each network level is calculated from:
- volume forecasts for each tariff;
  - the loss adjustment factors representative of the time of system simultaneous maximum load;
  - the load characteristics for users on each tariff, used to estimate the contribution of each user category to load at the time of system simultaneous maximum load.
62. For the purposes of this calculation, a generation user is taken to make a zero contribution to load at the network level corresponding to circuits at its Entry Point, and a full negative contribution to load at all network levels above its Entry Point. For demand users, account is taken of differences between the diversity allowance in the network model and the diversity of each customer group in order to ensure that the estimated load matches the volumes subject to charges in respect of each network level.
63. For each network level covered by the network model, a notional asset value is calculated by multiplying the unit asset cost by the estimated load:



$$[\text{notional asset value } \pounds] = [\text{network level assets } \pounds/\text{kW}] * [\text{estimated load kW}]$$

64. For each service model, a notional asset value is calculated by multiplying the unit asset value of that service model by the extent to which each user requires that model.
65. Other expenditure (excluding transmission exit charges) is allocated between network levels in the proportion given by these notional assets.
66. The result is combined with forecast transmission exit charges to give an annual expenditure figure for each network level and for each service model. These figures are converted into unit cost using the same rules as for costs and revenues from network assets and customer assets.

**Allocation of costs on the basis of contribution to system simultaneous maximum load**

67. All  $\pounds/\text{kW}/\text{year}$  unit costs and revenue are used in the calculation of yardstick charges for each tariff.
68. For demand tariffs and portfolio tariffs related to demand users with a single unit rate (with the exception of the non-half hourly unmetered supplies tariffs), the contributions of each network level to the unit rate are calculated as follows:

$$[\text{p/kWh from network model assets}] = 100 * [\text{network level } \pounds/\text{kW}/\text{year}] * [\text{user loss factor}] / [\text{network level loss factor}] * [\text{coincidence factor}] / [\text{load factor}] * (1 - [\text{contribution proportion}]) / [\text{days in charging year}] / 24$$

$$[\text{p/kWh from operations}] = 100 * [\text{transmission exit or other expenditure } \pounds/\text{kW}/\text{year}] * [\text{user loss factor}] / [\text{network level loss factor}] * [\text{coincidence factor}] / [\text{load factor}] / [\text{days in charging year}] / 24$$

69. These calculations are repeated for each network level.
70. In this equation, the user loss factor is the loss adjustment factor to transmission for the network level at which the user is supplied, and the network level loss factor is the loss adjustment factor to transmission for the network level for which costs are being attributed.
71. For generation users and portfolio tariffs for generation users, no contribution to the unit rate is calculated in respect of the network level corresponding to circuits at the

Entry Point, and a negative contribution to the unit rate (i.e. a credit) comes from each network level above the Entry Point. That contribution is calculated as follows:

$$[\text{p/kWh from network model assets}] = -100 * [\text{network level } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * (1 - [\text{contribution proportion}]) / [\text{days in year}] / 24$$

$$[\text{p/kWh from operations}] = -100 * [\text{transmission exit or other expenditure } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] / [\text{days in year}] / 24$$

72. For tariffs with several unit rates and non-half hourly unmetered supplies tariffs, the same principle is used but the ratio of the coincidence factor to the load factor is replaced with a coefficient calculated by the following procedure:

- a) Calculate the ratio of coincidence factor to load factor that would apply if units were uniformly spread within each time band, based on the estimated proportion of units recorded in each relevant time pattern regime that fall within each distribution time band and the assumption that the time of system simultaneous maximum load is certain to be in the red or black (as appropriate) distribution time band.
- b) Calculate a correction factor for each user type as the ratio of the coincidence factor to load factor, divided by the result of the calculation above.
- c) For each network level and each unit rate, replace the ratio of the coincidence factor to the load factor in the above formula with the ratio of coincidence factor (to network level asset peak) to load factor that would be apply given peaking probabilities at that network level if units were uniformly spread within each time band, multiplied by the correction factor.
- d) The coefficient calculated for the non-half hourly and half hourly unmetered supplies tariffs will be determined by aggregating these tariffs to produce one value.

72A An additional set of correction factors is applied to the LV Network Domestic and LV Network Non-Domestic Non-CT tariffs and the non half hourly settled tariffs for

profile classes 1 to 4, so as to ensure that the average charges produced by the LV Network Domestic tariff are equivalent to a volume-weighted average of the non half hourly settled tariffs for profile classes 1 and 2, and the average charges produced by the LV Network Non-Domestic Non-CT tariff are equivalent to a volume-weighted average of the non half hourly settled tariffs for profile classes 3 and 4.

#### Allocation of network costs to standing charges (fixed and capacity)

73. For demand users, other than unmetered users, standing charge factors are used to reduce unit charges and to attribute these costs or revenues to capacity charges (p/kVA/day) or fixed charges (p/day) instead.

74. The standing charge factors for demand tariffs are shown in the table below:

~~non half hourly settled users are:~~

~~a) 100 per cent for the network level at which the end user is supplied.~~

~~b) Zero for any further network level.~~

~~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.~~

~~c) Zero for any further network level.~~

~~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 that 132kV/HV transformation is used).~~

~~d) Zero for any further network level.~~

<u>Tariff</u>	<u>EHV</u>	<u>EHV/HV</u>	<u>HV</u>	<u>HV/LV</u>	<u>LV circuits</u>
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<u>Domestic Unrestricted</u>					<u>100%</u>
<u>Domestic Two Rate</u>					<u>100%</u>
<u>Domestic Off Peak (related MPAN)</u>					<u>100%</u>
<u>Small Non Domestic Unrestricted</u>					<u>100%</u>
<u>Small Non Domestic Two Rate</u>					<u>100%</u>
<u>Small Non Domestic Off Peak (related MPAN)</u>					<u>100%</u>
<u>LV Medium Non-Domestic</u>					<u>100%</u>
<u>LV Sub Medium Non-Domestic</u>				<u>100%</u>	
<u>HV Medium Non-Domestic</u>	<u>20%</u>	<u>100%</u>	<u>100%</u>		
<u>LV Network Domestic</u>					<u>100%</u>
<u>LV Network Non-Domestic Non-CT</u>					<u>100%</u>
<u>LV HH Metered</u>			<u>20%</u>	<u>100%</u>	<u>100%</u>
<u>LV Sub HH Metered</u>			<u>100%</u>	<u>100%</u>	-
<u>HV HH Metered</u>	<u>20%</u>	<u>100%</u>	<u>100%</u>	-	-
<u>NHH UMS category A</u>					<u>0%</u>
<u>NHH UMS category B</u>					<u>0%</u>
<u>NHH UMS category C</u>					<u>0%</u>
<u>NHH UMS category D</u>					<u>0%</u>
<u>LV UMS (Pseudo HH Metered)</u>					<u>0%</u>

75. Where a standing charge factor is specified for the EHV/HV network level, the same standing charge factor applies to the 132kV/HV network level

76. Where a standing charge factor is specified for the EHV network, level, and where the 500 MW model includes 132kV/HV transformation, the 132kV standing charge factor is set to the EHV standing charge factor multiplied by the proportion of load going through 132kV/HV transformation.

74.77. For each tariff, the unit rates are reduced to take account of the allocation of costs to capacity or fixed charges. This is achieved by multiplying the cost element for each relevant network level by  $(1 - [\text{standing charge factor}])$ .

75.78. For each demand user type, and for each network level, the unit cost to be attributed to capacity charges or fixed charges in respect of that network level is:

$$[\text{p/kVA/day from network model assets}] = 100 * [\text{standing charge factor}] * [\text{network level } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * (1 - [\text{contribution proportion}]) / [\text{days in year}] / (1 + [\text{diversity allowance}]) * [\text{power factor in network model}]$$

$$[\text{p/kVA/day from transmission exit or other expenditure}] = 100 * [\text{standing charge factor}] * [\text{transmission exit or other expenditure } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] / [\text{days in year}] / (1 + [\text{diversity allowance}]) * [\text{power factor in network model}]$$

~~76.~~79. The power factor in network model parameter is set to 0.95.

~~77.~~80. The diversity allowance for the LV circuit level is defined as the amount by which the aggregate maximum demand load determined for that network level exceeds the estimated demand at the time of system simultaneous maximum load. The aggregate maximum demand is calculated by aggregating agreed import capacities for half hourly settled users and estimated capacities for non half hourly settled user groups.

81. For the tariffs listed below ~~half hourly settled demand users, except unmetered users,~~ the unit costs calculated by the formula above are allocated to the capacity charge:

- LV HH Metered
- LV Sub HH Metered
- HV HH Metered

~~78.~~82. Otherwise, the unit costs calculated by the formula above are allocated to the fixed charge.

83. For the tariffs listed below ~~domestic users in profile classes 1 and 2, and for small business users in profile classes 3 and 4,~~ LV costs are allocated to the fixed charge by estimating the proportion of LV network capacity used by these categories of users, and dividing the corresponding proportion of LV costs by the number of domestic and ~~non domestic small business~~ MPANs. ~~Related MPANs are excluded from this calculation and are not subject to the resulting fixed charge.~~

- Domestic Unrestricted
- Domestic Two Rate

- [Small Non-Domestic Unrestricted](#)
- [Small Non-Domestic Two Rate](#)
- [LV Network Domestic](#)
- [LV Network Non-Domestic Non-CT](#)

~~84.~~ For the tariffs listed below ~~non half hourly settled demand users, except unmetered users~~, the relevant unit costs in p/kVA/day are converted to a fixed charge by multiplying them by the estimated maximum load per user of the user category (obtained from the volume forecast and load factor data) divided by the power factor in the network model:-

- [LV Medium Non-Domestic](#)
- [LV Sub Medium Non-Domestic](#)
- [HV Medium Non-Domestic](#)

#### **Costs associated with LV customer and HV customer levels**

~~79.~~~~85.~~ Other expenditure allocated to the LV customer and HV customer network levels are included in the fixed charge for each tariff where there is such a tariff component.

~~80.~~~~86.~~ In the case of unmetered supplies, these charges are spread across all units.

#### **Costs associated with reactive power flows**

~~81.~~~~87.~~ For each tariff and each network level, the contribution to reactive power unit charges is obtained as follows:

- Calculate what the contribution to a single unrestricted unit rate in p/kWh from each network level would be.
- Take the absolute value.
- Adjust for standing charge factors at the relevant network levels (for demand users only).
- Multiply by the assumed power factor in the network model.
- Multiply by the DNO Party's estimate of the average ratio of the reactive power flow (kVAr) to network load (kVA) at the relevant network level.

~~82~~88. For the purpose of the calculation of reactive power unit charges, generation users are taken to make a full contribution to the reactive power flows in the network at their Entry Point and at each network level above their Entry Point.

### **Step 3: Match revenues**

~~83~~89. The DNO Party uses its volume forecasts to estimate the revenues that would be raised by applying the tariff components derived from step 2, excluding any revenues treated as excluded revenue under the price control conditions.

~~84~~90. If any separate charging methodology is used alongside the CDCM, e.g. for EHV users, then the forecast revenues from these charges, excluding any revenues treated as excluded revenue under the price control conditions, are added to the total.

~~85~~91. If the forecast of allowed revenue exceeds the estimate of relevant revenues, then the difference is a shortfall. If the estimate of relevant revenues exceeds the forecast of allowed revenue, then the difference is a surplus.

~~86~~92. To allocate any shortfall or surplus, the DNO Party calculates the effect on demand tariffs and on forecast revenues from these tariffs of adding £1/kW/year (relative to system simultaneous maximum load) to costs at the transmission exit level.

~~87~~93. Using this estimate, the DNO Party determines a single adder figure in £/kW/year such that adding that amount to costs at the transmission exit level would eliminate the shortfall or surplus. The single adder is positive if there is a shortfall and negative if there is a surplus.

~~88~~94. If this procedure would result in negative value for any tariff component, then the tariff component is set to zero and the single adder figure is modified to the extent necessary to match forecast and target revenue.

~~89~~95. The final tariffs for demand (before rounding and application of LDNO discounts) are determined on the basis of an allocation with the single adder included in costs. Tariffs for generation do not have any revenue matching element.

### **Step 4: Price control disaggregation**

~~90-96.~~ Step 4 involves calculations based on price control and expenditure data which produce a series of discount percentages to be used to determine portfolio tariffs for LDNOs.

~~91-97.~~ For the purposes of price control disaggregation the network is split into five levels: LV services, LV mains, HV/LV, HV and EHV.

~~92-98.~~ The determination of discount percentages involves the following steps:

- (a) Allocation of price control revenue elements to network levels.
- (b) Determination of a percentage allocation of total revenue per unit to network levels.
- (c) Determination of the proportion of the LV mains deemed to be used by LV-connected embedded networks.
- (d) Allocation of 100% of the LV services to LV-connected embedded networks (the “[LV services allocation]”).
- (e) Determination of the proportion of the HV network deemed to be provided by HV-connected embedded networks with HV end users.
- (f) Calculation of the discount percentage for each combination of boundary network level and end user network level.
- (g) Application of discount percentages to determine portfolio tariffs.

#### **Allocation of price control revenue elements to network levels**

~~93-99.~~ The calculation of percentage allocations of price control revenues to network levels is based on separate percentages by network level for the operating cost, depreciation and return on the regulatory asset value elements of the DNO Party’s allowed revenue.

~~94-100.~~ In order to determine the allocation to network levels of each element of price control revenue, the DNO Party uses the costs allocation drivers calculated from the following sources:

- (a) RRP data on units distributed and operating expenditure broken down by network level.



- (b) Data that each DNO Party considers appropriately represents the forecast of net capital expenditure and customer contributions for the period 2005/06–2014/15, broken down by network level.
- (c) Forecast data that each DNO Party considers appropriately represents the gross modern equivalent asset values (replacement costs) for various asset types.
- (d) The value of all notional assets calculated in each DNO Party's EDCM model. This comprises the aggregate of:
  - (I) the sum of notional site-specific asset values of all network levels allocated to capacity for all customers in the DNO Party's EDCM model;
  - (II) the sum of notional asset values at all network levels allocated to demand for all customers in the DNO Party's EDCM model;
  - (III) the sum of sole use asset values allocated to demand for all customers in the DNO Party's EDCM model; and
  - (IV) the sum of sole use asset values for generation only for all customers in the DNO Party's EDCM model.
- (e) The CDCM notional asset values for each network level as referred to in paragraph 63 of this schedule.

95-101 Data from the RRP are used to distinguish between direct and indirect costs, with direct costs coded by network level. For the purpose of this calculation, capital expenditure is included, net of customer contributions, but negative figures are replaced with zero. This analysis provides direct costs percentage for each network level, based on RRP data. The direct cost percentage for LV mains is denoted "[LV mains direct proportion]" and the direct cost percentage for HV is denoted "[HV direct proportion]".

~~96.~~102. Indirect operating costs are allocated to network levels on the basis of an estimate of modern equivalent asset value by network level. The operating cost percentage for each level is a weighted average of the direct and indirect percentages. Estimated gross modern equivalent asset values used for this purpose are derived from asset counts and gross modern equivalent asset values (replacement costs) for various asset types. The estimated gross modern equivalent asset value at the EHV network level is adjusted by multiplying it by the EHV Reduction Ratio.

~~97.~~103. Transmission exit charges are not allocated to any of the voltage tiers. These charges are deducted from the allowed revenue (see paragraph 111).

~~98.~~104. Both the depreciation and return on capital elements of allowed revenue are allocated to network levels on the basis of net capital expenditure data derived from the appropriate capital expenditure forecast. All figures are aggregated over the 10-year period from 2005/2006 to 2014/2015, taking in actual data or forecasts for each year as available.

~~99.~~105. For each network level, the relevant net capital expenditure is calculated by adding up total condition based replacement (proactive and reactive replacement), combined in the case of LV services, LV mains, HV and EHV with connections spend minus customer contributions for connections at that voltage level, general reinforcement capital expenditure at that voltage level, and fault reinforcement capital expenditure at that voltage level. The net capital expenditure at the EHV network level is adjusted by multiplying it by the EHV Reduction Ratio.

~~100.~~106. Some of these categories allow HV substation and transformer costs to be identified. These costs (and no other costs) are allocated to the HV/LV network level.

~~101.~~107. Some of the expenditure categories do not separately identify HV substation/transformer costs. For these categories costs are allocated to the HV/LV in the same proportion as for the other categories (where these costs are separately identified).

~~102.~~108. Generation-related capital expenditure is not included in the net capex attributable to each network level.

**Determination of a percentage allocation of total revenue per unit to network levels**

~~103.~~109. The percentage allocation of costs to network levels is determined as a weighted average of the percentage allocation for each of the elements of price control revenue, rescaled by units flowing.

~~104.~~110. The DNO Party determines a breakdown of price control allowed revenue over the period from 2005/2006 to 2009/2010 between (1) operating expenditure, (2) depreciation and (3) return on regulatory asset value. Each of these 3 components of price control allowed revenue is then allocated across each network level using the percentage cost drivers as calculated for each such network level in accordance with the provisions of paragraphs 99-108 above. The resultant allocations are aggregated by network level to obtain a percentage per network level of total price control allowed revenue for the period 2005/2006 to 2009/2010.

~~105.~~111. For the purpose of paragraph 110, the price control allowed revenue (stated as the “Total allowed revenue” in the price control disaggregation model) for the relevant charging year is adjusted by deducting the Revenue not to share. The Revenue not to share comprises the aggregate of:

- (a) the net amount earned or lost by the DNO Party under price control financial incentive schemes; and
- (b) Transmission exit charges.

~~106.~~112. This adjusted price control allowed revenue (stated in the model as the “Total revenue to share”) is then allocated to each network level using the weighted average percentage allocations calculated in accordance with paragraph 110. Before making this allocation however, the Total revenue to share must be further adjusted to deduct a portion of the price control allowed revenue that is to be recovered from EHV customers. This adjusted Total revenue to share is derived by deducting the following:

$$\left( \text{EHV Revenue} * \frac{\text{Total revenue to share}}{\text{Total allowed revenue}} \right)$$

Where:

Total allowed revenue = the price control allowed revenue

Total revenue to share = Total allowed revenue – Revenue not to share

EHV Revenue = the revenue to be recovered from EHV customers for the relevant charging year.

112A The revenue not to share must also be adjusted to deduct a portion of the price control allowed revenue that is to be recovered from EHV customers. This adjusted Revenue not to share is derived by deducting the following:

$$\left( \text{EHV Revenue} * \frac{\text{Revenue not to share}}{\text{Total allowed revenue}} \right)$$

Where

Revenue not to share = as per paragraph 111 above.

Total allowed revenue = the price control allowed revenue

EHV Revenue = the revenue to be recovered from EHV customers for the relevant charging year.

~~107.~~113. The adjusted price control allowed revenues allocated to each network level are then rescaled by the estimated number of units flowing through each network level. The Revenue not to share is re-scaled by all units flowing into the DNO Party's EHV network. The resultant revenues, scaled by units flowing, are then normalised so that they add up to 100 per cent. The result of this calculation is a set of percentage allocations for each of the LV services, LV mains, HV/LV, HV and EHV network levels and the Revenue not to share.

#### **LV mains split**

~~108.~~114. The DNO Party determines the proportion of the LV mains which LV-connected embedded networks are deemed to use by:

- (a) determining the total length of its LV mains used by LV-connected licensed embedded networks;
- (b) dividing that total length by the number of end users on LV-connected licensed embedded networks; and
- (c) dividing the result by the average length of LV mains by LV end user on the DNO Party's own LV network.

~~109~~.115. The result of this calculation is denoted “[LV mains split]”.

#### **HV split**

~~110~~.116. The DNO Parties will procure that the Nominated Calculation Agent estimates the typical proportion of the HV network which is provided by the DNO Party in the case of HV loads supplied through an HV-connected LDNO. This estimate will be based on sample data, and the average used will be the same for all DNO Parties.

~~111~~.117. The proportion is denoted “[HV split]”, and is represented as:

$$HV\ Split = 1 - \frac{Sum\ of\ IDNO\ network\ length/Number\ of\ IDNO\ connections}{Sum\ of\ DNO\ network\ lengths/Number\ of\ DNO\ connections}$$

#### **Calculation of discount percentages**

~~112~~.118. The discount percentages are determined as follows (where “[LV mains allocation]” is the percentage of total costs that are allocated to the LV mains network level).

~~113~~.119. For embedded networks with an LV boundary, the discount is equal to:  
[LV: LV discount] = [LV services allocation] + ([LV mains allocation]\*(1 – [LV mains split]\*[LV mains direct proportion])).

~~114~~.120. For embedded networks with an HV boundary, three percentage discount figures are used.

~~115~~.121. The percentage discount applicable to tariffs for LV network end users is:  
[HV: LV discount] = [LV services allocation] + [LV mains allocation] + [HV/LV allocation] + [HV allocation]\*(1 – [HV split]\*[HV direct proportion]).

~~116~~.122. The percentage discount applicable to tariffs for LV substation end users is:  
[HV: LV Sub discount] = ([HV/LV allocation] + [HV allocation]\*(1-[HV split]\*[HV direct proportion]))/(1-[LV mains allocation] – [LV services allocation]).

~~117.~~123. The percentage discount applicable to tariffs for HV end users is:

$$[\text{HV: HV discount}] = [\text{HV allocation}] * (1 - [\text{HV split}] * [\text{HV direct proportion}]) / (1 - [\text{LV services allocation}] - [\text{LV mains allocation}] - [\text{HV/LV allocation}])$$

Application of discount percentages to determine portfolio tariffs

~~118.~~124. For demand users, the discount percentages are applied to all tariff components in all-the-way tariffs in order to determine embedded network portfolio tariffs.

~~119.~~125. For generation users, the unit rate element (p/kWh) is not discounted, reflecting the modelling assumption that generation benefits are seen at the voltage level above the Exit Point, and therefore the embedded LDNO simply “passes on” the benefits seen at the DNO Party level. The fixed charge element (p/day) is discounted at 100 per cent, as this tariff component in the all-the-way tariff recovers costs associated with the allocation of other expenditure to service assets, which are not provided by the DNO Party.

## Part 2 — Tariff structures and application

~~120.~~126. The development of the CDCM has involved the creation of a common tariff structure for all 14 DNO Parties and their Distribution Service Areas.

~~121.~~127. This part details the common tariff structure and associated tariff elements for Non-Half Hourly (NHH), ~~and~~ Half-Hourly (HH) site specific and HH aggregated metered supplies for demand, generation, unmetered supplies and charges to LDNOs.

### Tariff structures for demand customers

#### NHH Metered Demand

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~~122.~~128. Use of System Charges for NHH Metering Point Administration Numbers (MPANs) will be via the Supercustomer approach which uses data from the D0030 industry data flow and is based on Settlements Classes comprising:

- (a) Line Loss Factor Class (LLFC);
- (b) Profile Class (PC);
- (c) Standard Settlement Configuration (SSC); and
- (d) Time Pattern Regime (TPR)

~~123.~~129. The combination of LLFC/PC/SSC/TPR determines the associated profile and half-hourly data values.

~~124.~~130. NHH metered time bands will follow either, the appropriate SSC/TPR combinations with the allocation of the TPR to the unit rate set by the DNO Party, or the time bands set by DNO Parties where that DNO Party already utilises a form of 'de-linking'.

131. Charges will be applied on a fixed charge and unit rate basis. There will be no capacity, maximum demand or reactive charges for NHH metered MPANs.

131a This clause only applies once Measurement Classes F and G are available under the BSC. Where the Supplier transfers customers with Half Hourly metering equipment from NHH settlement to HH settlement -the following Measurement Classes will apply:

- Domestic users connected at LV with either CT or non-CT metering installed will transfer from Measurement Class A to Measurement Class F.
- Non-Domestic users connected at LV with non-CT metering installed will transfer from Measurement Class A to Measurement Class G.
- Non-Domestic users connected at LV with CT metering installed will transfer from Measurement Class A to Measurement Class C (greater than 100kW) or Measurement Class E (less than 100kW).

~~125.~~132. Structure of NHH demand charges:

- (a) Fixed charge will be p/MPAN/day.
- (b) Unit charges will be p/kWh.
- (c) Unmetered supplies will be charged on a p/kWh basis only.

#### **HH Site Specific Metered Demand**

~~126.~~133. Use of System Charges for HH settled site specific demand customers will use data from the D0275 or D0036 industry data flows based on half hourly metered data provided by MPAN.

~~127.~~134. Charges will consist of a fixed, unit, capacity and reactive power charge.

~~128.~~135. As described in Paragraph 40, there will be three unit rate time bands on a time of day basis for all half hourly settled customers with the exception of the half hourly unmetered supplies tariff, to reflect the requirements of the cost drivers of their individual networks. These three time bands will be called 'red', 'amber' and 'green' to represent three differing cost signals. As described in Paragraph 40, there will be three unit rate time bands for the half hourly unmetered supplies tariff, to reflect the



requirements of the cost drivers of their individual networks. The three time bands will be called 'black', 'yellow' and 'green' to represent three differing cost signals.

135a HH metered customers will be assigned to the appropriate tariff based on the measurement class of the metering system and the voltage of connection as specified in the table below:

<u>Tariff</u>	<u>Voltage of Connection</u>	<u>Measurement Class</u>
<u>LV Network Domestic</u>	<u>LV</u>	<u>F</u>
<u>LV Network Non-Domestic Non-CT</u>	<u>LV</u>	<u>G</u>
<u>LV HH Metered</u>	<u>LV</u>	<u>C / E</u>
<u>LV Sub HH Metered</u>	<u>LV Sub</u>	<u>C / E</u>
<u>HV HH Metered</u>	<u>HV</u>	<u>C / E</u>
<u>LV UMS (Pseudo HH Metered)</u>	<u>LV</u>	<u>D</u>

Note 1: Domestic Customers who are half hourly settled can only be assigned to Measurement Class F. If Measurement Class F is unavailable the Supplier must ensure the domestic customer is settled NHH.

129,136. Structure of the HH demand charges:

- (a) Fixed charge p/MPAN/day;
- (b) Unit rate charge p/kWh;
- (c) Unmetered supplies will be charged on a p/kWh basis only;
- (d) Capacity charge p/kVA/day; and
- (e) Reactive power charge p/kVArh.

~~130.~~137. Generally the p/MPAN/day charge relates to one MPAN. However, where a site is a group of MPANs as identified in the connection agreement, billing systems should be able to group the MPANs where appropriate for charging purposes.

~~131.~~138. Unit charges will be allocated by settlements HH data and DNO Party specific network time bands.

~~132.~~139. There will be no charges applied to correctly de-energised HH MPANs/sites as determined by the de-energisation status in MPAS Registration System.

140. Where a site is incorrectly de-energised, i.e. when actual metering advances are received the DNO Parties should contact suppliers to ensure the status is corrected. If a site is found to be energised charges will be back dated to the date of energisation.

#### **HH Aggregated Metered Demand**

140a Use of System Charges for HH aggregated metered demand MPANs will be via the Supercustomer approach which uses data from the D0030 industry data flow and is based on Settlement Classes comprising:

- a) Line Loss Factor Class (LLFC);
- b) Profile Class (PC);
- c) Standard Settlement Configuration (SSC); and
- d) Time Pattern Regime (TPR)

140b The combination of LLFC/PC/SSC/TPR determines the associated profile and half hourly data values. These will be determined by the DNO Party and provided to the Supplier Volume Allocation Agent. The PC will always be zero.

140c HH Aggregated metered time bands will follow either, the appropriate SSC/TPR combinations with the allocation of the TPR to the unit rate set by the DNO Party, or the time bands set by the DNO Parties where that DNO Party already utilises a form of 'de-linking'.

140d Charges will be applied on a fixed charge and unit rate basis. There will be no capacity or maximum demand or reactive charges for HH aggregated metered demand MPANs.

**Comment [PA3]:** This text assumes P300 option 1 is progressed. If P300 option 2 is progressed, the legal text will need to be amended as follows:

140a – The D0030 dataflow will be replaced with the name of the new dataflow.

140e Structure of HH aggregated metered demand charges:

a) Fixed charge will be p/MPAN/day

a)b) Unit charges will be p/kWh

## Demand Tariff Structures

141. Table 4 below shows the structure for NHH demand tariffs:

<b>Table 4: Non-half-hourly metered demand tariffs</b>					
<u>Point of Connection</u>	<u>Tariff Name</u>	<u>Profile Class</u>	<u>Unit rate 1* p/kWh</u>	<u>Unit rate 2* p/kWh</u>	<u>Fixed charge p/MPAN/day</u>
<u>LV</u>	<u>Domestic Unrestricted</u>	<u>1</u>	<u>✓</u>		<u>✓</u>
<u>LV</u>	<u>Domestic Two Rate</u>	<u>2</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
<u>LV</u>	<u>Domestic Off-Peak (related MPAN)</u>	<u>2</u>	<u>✓</u>		
<u>LV</u>	<u>Small Non-Domestic Unrestricted</u>	<u>3</u>	<u>✓</u>		<u>✓</u>
<u>LV</u>	<u>Small Non-Domestic Two Rate</u>	<u>4</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
<u>LV</u>	<u>Small Non-Domestic Off-Peak (related MPAN)</u>	<u>4</u>	<u>✓</u>		
<u>LV</u>	<u>LV Medium Non-Domestic</u>	<u>5 to 8</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
<u>LV</u>	<u>NHH UMS (Category A)</u>	<u>8</u>	<u>✓</u>		
<u>LV</u>	<u>NHH UMS (Category B)</u>	<u>1</u>	<u>✓</u>		
<u>LV</u>	<u>NHH UMS (Category C)</u>	<u>1</u>	<u>✓</u>		
<u>LV</u>	<u>NHH UMS (Category D)</u>	<u>1</u>	<u>✓</u>		
<u>LVS</u>	<u>LV Sub Medium Non-Domestic</u>	<u>5 to 8</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
<u>HV</u>	<u>HV Medium Non-Domestic</u>	<u>5 to 8</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>

133. \* Unit rates 1 and 2 for NHH customers are either unrestricted or based upon the TPR  
The following tables and notes show the structure for demand tariffs:

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<b>Table 4: Non-half-hourly metered demand tariffs</b>				
<b>Point of Connection</b>	<b>Profile Class</b>	<b>Unit Rate Time Bands</b>	<b>Other Charges</b>	<b>Tariff Name</b>
<u>LV</u>	<u>1</u>	<u>One</u>	<u>Fixed</u>	<u>Domestic Unrestricted</u>
<u>LV</u>	<u>2</u>	<u>Two</u>	<u>Fixed</u>	<u>Domestic Two Rate</u>

Table 4: Non-half-hourly metered demand tariffs				
Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
LV	2	One	None	Domestic Off Peak (related MPAN)
LV	3	One	Fixed	Small Non-Domestic Unrestricted
LV	4	Two	Fixed	Small Non-Domestic Two Rate
LV	4	One	None	Small Non-Domestic Off Peak (related MPAN)
LV	5 to 8	Two	Fixed	LV Medium Non-Domestic
LVS	5 to 8	Two	Fixed	LV Sub Non-Domestic
HV	5 to 8	Two	Fixed	HV Medium Non-Domestic *The proposal is that this tariff will be closed to new customers and all new HV connections will be required to be half hourly metered
LV	8	One	None	NHH UMS (Category A)
LV	1	One	None	NHH UMS (Category B)
LV	1	One	None	NHH UMS (Category C)
LV	1	One	None	NHH UMS (Category D)

139a Table 5 below shows the structure for HH demand tariffs:

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**Table 45: Half-hourly metered demand tariffs**

Tariff	Unit rate 1 p/kWh	Unit rate 2 p/kWh	Unit rate 3 p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded Capacity charge p/kVA/day	Reactive power charge p/kVArh
LV Network Domestic	Red	Amber	Green	✓	-	-	-
LV Network Non-Domestic Non-CT	Red	Amber	Green	✓	-	-	-
LV HH Metered	Red	Amber	Green	✓	✓	✓	✓
LV Sub HH Metered	Red	Amber	Green	✓	✓	✓	✓
HV HH Metered	Red	Amber	Green	✓	✓	✓	✓
LV UMS (Pseudo HH Metered)	Black	Yellow	Green	-	-	-	-

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**Table 5: Half-hourly metered demand tariffs**

Point Of Connection	Unit Rate Time Bands	Other Charges	Tariff Name
LV	Three	Fixed, Capacity and Reactive Power	LV HH metered
LVS	Three		LV Sub HH metered
HV	Three		HV HH metered
LV	Three	None	LV UMS (Pseudo HH Metered)

Notes relating to tables 4 and 5:

Note 1: The Domestic and Non-Domestic off-peak (related MPAN) tariffs are supplementary to a standard published tariff and therefore only available under these conditions.

Note 2: Where DNO Parties use a default tariff for invalid settlement combinations these will be charged at the Domestic Unrestricted rates.

Note 3: LV Sub applies to customers connected to the DNO Party's network at a voltage of less than 1 kV at a substation with a primary voltage (the highest operating voltage present at the substation) of at least 1 kV and less than 22 kV, where the current transformer (CT) used

for the customer's settlement metering is located at the substation. For these purposes, 'at the substation' means:

- a) an HV/LV substation with the metering CT in the same chamber as the substation transformer; or
- b) an HV/LV substation with the metering CT in a chamber immediately adjacent to the substation transformer chamber.

Note 4: not used.

Note 5: Note 3 above for LV substation tariffs will be applied if a customer or its supplier provides evidence demonstrating to the DNO Party's reasonable satisfaction, that the requirements of note 3 are met.

To determine whether such evidence is sufficient, the DNO Party will investigate and reach a decision based on the evidence supplied and any additional information that is available to it. Administration charges (to cover reasonable costs) may apply if a technical assessment or site visit is required. Where a DNO Party agrees that a customer should be moved to the LV substation tariff, the new tariff will be applied in the next calendar month following the DNO Party's decision.

Where a customer is already registered on an LV substation tariff they will remain so.

Note 6: HV Medium Non-Domestic - This tariff will be closed to new customers and all new HV connections will be required to be half-hourly metered.

Note 7: Fixed charges are generally levied on a pence per MPAN basis. However, there are some instances in the half-hourly market where more than one MPAN exists on a customer's connection and only one fixed charge is appropriate. Where a group of MPANs is classed as a site as identified in the connection agreement, billing systems should be able to group the MPANs, where appropriate, for charging purposes.

## **Tariff structures for generation**

### **NHH Metered Generation**

~~134.~~142. Use of System Charges for NHH Low Voltage (LV and LVS) generation tariffs will also be billed via Supercustomer. The billing systems will be required to apply fixed charges plus negative unit charges with the process being managed through the DNO Party's invoicing of the supplier.

~~135.~~143. Structure of NHH generation charges:

- (a) Fixed charge will be p/MPAN/day; and
- (b) Unit rate charge p/kWh.

### HH Metered Generation

~~136.~~144. Use of System Charges for HH Low Voltage (LV) and High Voltage (HV) generation tariffs will also be via the HH billing systems. The billing systems will be required to apply fixed charges plus reactive power unit charges, negative unit charges and manage the process through the DNO Party's invoicing of the supplier

~~137.~~145. Structure of NHH generation charges:

- (a) Fixed charge will be p/MPAN/day;
- (b) Unit rate charge p/kWh; and
- (c) Reactive power charge p/kVArh.

~~138.~~146. The following tables and notes show the structure for generation tariffs.

Table <del>56</del> : Non-half-hourly metered generation tariffs				
Point of connection	Profile class	Unit Rate Time Bands	Other Charges	Tariff Name
LV	8	One	Fixed	LV Generation NHH <u>or</u>
LVS				<u>Aggregate HH*</u> LV Sub Generation NHH

\* This tariff can be settled NHH or aggregated HH

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Table <del>67</del> : Half-hourly metered generation tariffs				
Point Of Connection	Unit Rate Time bands	Other Charges	Tariff Name	

Table 67: Half-hourly metered generation tariffs				
Point Of Connection	Unit Rate Time bands	Other Charges	Tariff Name	
LV	One	Fixed and Reactive Power	LV Generation Intermittent	
LVS			LV Sub Generation Intermittent	
LV	Three		LV Generation Non-Intermittent	
LVS			LV Sub Generation Non-Intermittent	
HV	One		HV Generation Intermittent	
HV	Three		HV Generation Non-Intermittent	

Note 1: A single-rate tariff is applied to NHH settled generation, as there is no readily available and accurate information about the time at which units are delivered.

Note 2: Intermittent generation is defined as a generation plant where the energy source of the prime mover cannot be made available on demand, in accordance to the definitions in Engineering Recommendation P2/6. These include wind, tidal, wave, photovoltaic and small hydro. The operator has little control over operating times therefore, a single-rate tariff (based on a uniform probability of operations across the year) will be applied to intermittent generation.

Note 3: Non-intermittent generation is defined as a generation plant where the energy source of the prime mover can be made available on demand, in accordance to the definitions in Engineering Recommendation P2/6. The generator can choose when to operate, and bring more benefits to the network if it runs at times of high load. These include combined cycle gas turbine (CCGT), gas generators, landfill, sewage, biomass, biogas, energy crop, waste incineration and combined heat and power (CHP). A three-rate tariff will be applied to generation credits for half-hourly settled non-intermittent generation.



Note 4: LV Sub Generation applies to customers connected to the DNO Party's network at a voltage of less than 1 kV at a substation with a primary voltage (the highest operating voltage present at the substation) of at least 1 kV and less than 22 kV, where the current transformer used for the customer's settlement metering is located at the substation.

Note 5: not used.

Note 6: Note 4 above for LV generation substation tariffs will be applied for new customers from 1 April 2010.

### Tariff structures for LDNOs

147. The tariff structure for LDNOs will mirror the structure of the all-the-way-tariff, and is dependant on the voltage of connection either LV or HV. The same tariff elements will apply.

**Table 8: LDNO LV connection\***

Profile Class	Tariff Name	Unit rate 1 p/kWh	Unit rate 2 p/kWh	Unit rate 3 p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded Capacity charge p/kVA/day	Reactive power charge p/kVAh
1	Domestic Unrestricted	✓			✓			
2	Domestic Two Rate	✓	✓		✓			
2	Domestic Off-Peak (related MPAN)	✓						
3	Small Non-Domestic Unrestricted	✓			✓			
4	Small Non-Domestic Two Rate	✓	✓		✓			
4	Small Non-Domestic Off-Peak (related MPAN)	✓						
5 to 8	LV Medium Non-Domestic	✓	✓		✓			
8	NHH UMS (Category A)	✓						
1	NHH UMS (Category B)	✓						
1	NHH UMS (Category C)	✓						
1	NHH UMS (Category D)	✓						
0	LV Network Domestic	Red	Amber	Green	✓			
0	LV Network Non-Domestic Non-CT	Red	Amber	Green	✓			
0	LV HH Metered	Red	Amber	Green	✓	✓	✓	✓
0	LV UMS (Pseudo HH Metered)	Black	Yellow	Green				
0 or 8	LV Generation NHH or Aggregate HH	✓			✓			
0	LV Generation Intermittent	✓			✓			✓

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0	LV Generation Non-Intermittent	Red	Amber	Green	✓		✓
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\* Where the boundary between the LDNO and DNO network is at LV

**Table 9: LDNO HV connection\***

Profile Class	Tariff Name	Unit rate 1 p/kWh	Unit rate 2 p/kWh	Unit rate 3 p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded Capacity charge p/kVA/day	Reactive power charge p/kVArh
1	Domestic Unrestricted	✓			✓			
2	Domestic Two Rate	✓	✓		✓			
2	Domestic Off-Peak (related MPAN)	✓						
3	Small Non-Domestic Unrestricted	✓			✓			
4	Small Non-Domestic Two Rate	✓	✓		✓			
4	Small Non-Domestic Off-Peak (related MPAN)	✓						
5 to 8	LV Medium Non-Domestic	✓	✓		✓			
8	NHH UMS (Category A)	✓						
1	NHH UMS (Category B)	✓						
1	NHH UMS (Category C)	✓						
1	NHH UMS (Category D)	✓						
0	LV Network Domestic	Red	Amber	Green	✓			
0	LV Network Non-Domestic Non-CT	Red	Amber	Green	✓			
0	LV HH Metered	Red	Amber	Green	✓	✓	✓	✓
0	LV UMS (Pseudo HH Metered)	Black	Yellow	Green				
0	LV Sub HH Metered	Red	Amber	Green	✓	✓	✓	✓
0	HV HH Metered	Red	Amber	Green	✓	✓	✓	✓
0 or 8	LV Generation NHH or Aggregate HH	✓			✓			✓
0	LV Generation Intermittent	✓			✓			✓
0	LV Generation Non-Intermittent	Red	Amber	Green	✓			✓
0	LV Sub Generation Intermittent	✓			✓			✓
0	LV Sub Generation Non-Intermittent	Red	Amber	Green	✓			✓
0	HV Generation Intermittent	✓			✓			✓
0	HV Generation Non-Intermittent	Red	Amber	Green	✓			✓

**Table 8: LDNO LV connection**

Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
LV	1	One	Fixed	Domestic Unrestricted
LV	2	Two	Fixed	Domestic Two Rate
LV	2	One	None	<del>Domestic Off Peak (related MPAN)</del>
LV	3	One	Fixed	<del>Small Non Domestic Unrestricted</del>
LV	4	Two	Fixed	<del>Small Non Domestic Two Rate</del>
LV	4	One	None	<del>Small Non Domestic Off Peak (related MPAN)</del>
LV	5 to 8	Two	Fixed	LV Medium Non Domestic
LV	8	One	None	NHH UMS (Category A)
LV	1	One	None	NHH UMS (Category B)
LV	1	One	None	NHH UMS (Category C)
LV	1	One	Unit Rate	NHH UMS (Category D)
<u>LV</u>	<u>0</u>	<u>Three</u>	<u>Fixed</u>	<u>LV Network Domestic</u>
<u>LV</u>	<u>0</u>	<u>Three</u>	<u>Fixed</u>	<u><del>LV Network Non Domestic Non-CT</del></u>
LV	N/A <u>0</u>	Three	<del>Fixed, Capacity and Reactive Power</del>	LV HHH Metered
LV	N/A <u>0</u>	Three	None	<del>LV UMS (Pseudo HHH Metered)</del>

Table 8: LDNO LV connection				
Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
LV	0 or 8	One	Fixed	<del>LV Generation NHH</del> or <del>Aggregate HH</del>
LV	N/A0	One	<del>Fixed and Reactive Power</del>	LV Generation Intermittent
LV	N/A0	Three	<del>Fixed and Reactive Power</del>	LV Generation Non-Intermittent

Table 9: LDNO HV connection				
Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
HV	1	One	Fixed	Domestic Unrestricted
HV	2	Two	Fixed	Domestic Two Rate
HV	2	One	None	<del>Domestic Off Peak</del> (related MPAN)
HV	3	One	Fixed	<del>Small Non-Domestic Unrestricted</del>
HV	4	Two	Fixed	<del>Small Non-Domestic Two Rate</del>
HV	4	One	None	<del>Small Non-Domestic Off Peak</del> (related MPAN)

Table 9: LDNO HV connection				
Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
HV	5 to 8	Two	Fixed	LV Medium Non-Domestic
HV	8	One	None	NHH UMS (Category A)
HV	4	One	None	NHH UMS (Category B)
HV	4	One	None	NHH UMS (Category C)
HV	4	One	None	NHH UMS (Category D)
<del>HV</del>	<del>0</del>	<del>Three</del>	<del>Fixed</del>	<del>LV Network Domestic</del>
<del>HV</del>	<del>0</del>	<del>Three</del>	<del>Fixed</del>	<del>LV Network Non-Domestic Non-CT</del>
HV	N/A <del>0</del>	Three	Fixed, <del>Capacity</del> and Reactive Power	LV HH Metered
HV	N/A <del>0</del>	Three	None	LV UMS (Pseudo-HH Metered)
HV	N/A <del>0</del>	Three	Fixed, <del>Capacity</del> and Reactive Power	LV Sub-HH Metered
HV	N/A <del>0</del>	Three	Fixed, <del>Capacity</del> and Reactive Power	<del>HV HH Metered</del>
HV	<del>0 or 8</del>	One	Fixed <del>and</del> Reactive Power	<del>LV Generation NHH or Aggregate HH</del>
HV	N/A <del>0</del>	One	Fixed <del>and</del> Reactive Power	<del>LV Generation Intermittent</del>

Table 9: LDNO HV connection				
Point of Connection	Profile Class	Unit Rate Time Bands	Other Charges	Tariff Name
HV	N/A0	Three	Fixed and Reactive Power	LV Generation Non-Intermittent
HV	N/A0	One	Fixed and Reactive Power	LV Sub-Generation Intermittent
HV	N/A0	Three	Fixed and Reactive Power	LV Sub-Generation Non-Intermittent
HV	N/A0	One	Fixed and Reactive Power	HV Generation Intermittent
HV	N/A0	Three	Fixed and Reactive Power	HV Generation Non-Intermittent

## Capacity charges

### Maximum Import Capacity

139;148. The Maximum Import Capacity (MIC) will be charged on a site basis (p/kVA/day).

140;149. The level of MIC will be agreed at the time of connection and when an increase has been approved. Following such an agreement (be it at the time of connection or an increase) no reduction in MIC will be allowed for a period of one year.

141;150. Reductions to the MIC may only be permitted once in a 12 month period and no retrospective changes will be allowed. Where MIC is reduced the new lower level will be agreed with reference to the level of the customers' maximum demand. It

should be noted that where a new lower level is agreed the original capacity may not be available in the future without the need for network reinforcement and associated cost.

~~142.~~151. For LDNO connections, if capacity ramping has been agreed with the DNO Party, in accordance with the DNO Party's connection charging methodology, the phasing profile will apply instead of the above rules. Where an LDNO has agreed a phasing of capacity this will be captured in the Bilateral Connection Agreement with the DNO Party.

#### **Standby Capacity for Additional Security on Site**

~~143.~~152. Where standby capacity charges are applied, the charge will be set at the same rate as that applied to normal MIC.

#### **Exceeded Capacity**

~~144.~~153. Where a customer takes additional capacity over and above the MIC without authorisation, the excess will be classed as exceeded capacity. The exceeded portion of the capacity will be charged at the same p/kVA/day rate, based on the difference between the MIC and the actual capacity. This will be charged for the duration of the month in which the breach occurs.

#### **Minimum Capacity Levels**

~~145.~~154. There is no minimum capacity threshold.  
Capacity Value Calculations – Import

~~146.~~155. The actual capacity utilised will be calculated by the following formula:

$$\text{Import Demand} = 2 \times \sqrt{\text{AI}^2 + \max(\text{RI}, \text{RE})^2}$$

Where:

AI = Import consumption in kWh  
RI = Reactive import in kVArh

RE = Reactive export in kVArh

Import Demand = kVA

~~147.~~156. This calculation is completed for every half hour and the maximum value from the billing period is captured.

~~148.~~157. The chargeable capacity is, for each billing period, the highest of the Maximum Import Capacity or the actual capacity, calculated as above, with the same charge rate applying throughout the year.

~~149.~~158. Only kVArh Import and kVArh Export values occurring at times of kWh Import are used.

Capacity Value Calculations – Export

~~150.~~159. The actual capacity utilised will be calculated by the following formula:

$$\text{Export Demand} = 2 \times \sqrt{AE^2 + \max(RI, RE)^2}$$

Where:

AE = Export production in kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

Export Demand = kVA

~~151.~~160. This calculation is completed for every half hour and the maximum value from the billing period is captured.

~~152.~~161. The export demand value is calculated to record the highest export value and used for information only.

~~153.~~162. Only kVArh Import and kVArh Export values occurring at times of kWh Export are used.

### **Reactive power charges**



~~154.~~163. Reactive power charges will be applied based on chargeable reactive power.  
The charge will be p/kVArh for units in excess of a set amount.

~~155.~~164. The chargeable reactive power units will be calculated by the following formulae.

Chargeable Reactive Power Unit Calculations - Import

$$\text{Chargeable kVArh} = \max \left( \max(\text{RI}, \text{RE}) - \left( \sqrt{\left( \frac{1}{0.95^2} - 1 \right)} \times \text{AI} \right), 0 \right)$$

Where:

AI = Import consumption in kWh

RI = Reactive Import in kVArh

RE = Reactive export in kVArh

~~156.~~165. The 0.95 constant refers to the reactive charging threshold and the design power factor of the network model within the CDCM.

~~157.~~166. This calculation is completed for every half hour and the values summated over the billing period.

~~158.~~167. Only kVArh Import and kVArh Export values occurring at kWh Import are used.

~~159.~~168. The square root calculation will be to two decimal places.

Chargeable Reactive Power Unit Calculations - Export

$$\text{Chargeable kVArh} = \max \left( \max(\text{RI}, \text{RE}) - \left( \sqrt{\left( \frac{1}{0.95^2} - 1 \right)} \times \text{AE} \right), 0 \right)$$

Where:

AE = Export production in kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

~~160~~,169.\_\_\_\_\_ The 0.95 constant refers to the reactive charging threshold and the design power factor of the network model within the CDCM.

~~161~~,170.\_\_\_\_\_ This calculation is completed for every half hour and the values summated over the billing period.

~~162~~,171.\_\_\_\_\_ Only kVArh Import and kVArh Export values occurring at kWh Export are used.

~~163~~,172.\_\_\_\_\_ The square root calculation will be to two decimal places.

#### **Charging decimal places**

~~164~~,173.\_\_\_\_\_ DNO Parties will set unit charges (kWh) and reactive power charges (kVArh) to three decimal places. The rates for fixed charges and capacity charges will be set to two decimal places.

### Part 3 — Network Unavailability Rebate Payments

~~165.~~174. A compensation payment may be payable to customers for network outages under two schemes.

~~166.~~175. The majority of customers are compensated under the Guaranteed Standards arrangements set out in The Electricity (Standards of Performance) Regulations 2010.

~~167.~~176. Customers who are off supply for greater than defined periods of time are entitled to a payment. This scheme applies to all demand customers and to all generators not included in the scheme described below.

~~168.~~177. For customers with generation connected at more than 1,000 volts and who have agreed a standard connection the following scheme will apply. This scheme is known as Distributed Generation Network Unavailability Rebate and payments will be calculated for each generator on the following basis:

$$\text{Payment} = A * B * (C - D)$$

Where:

A = the network unavailability price of £2 per MW per hour.

B = incentivised generator capacity; the highest active electrical power that can be generated (or the relevant incremental change of this amount in cases of the expansion of existing generation plant) by the generator for the year, according to the connection and/or use of system agreement(s).

C = network interruption duration; the total duration of all occurrences (in minutes) on the network each of which involves a physical break in the circuit between itself and the rest of the system or due to any other open circuit condition, which prevents the generator from exporting power. It excludes:

- 50 per cent of the total duration of cases where the DNO Party takes pre-arranged outages of its equipment for which the statutory notification has been issued to the generator;
- the cases where the generator has specific exemption agreements with the DNO Party in the connection and/or use of system agreement(s); and

- the cases which are part of exempted events in the quality of service incentive or the Guaranteed Standard Statutory Instrument (such exemptions include interruptions of less than three minutes duration and industrial action).

D = the baseline network interruption duration for the relevant year which either has a default value of zero or some other value agreed between the customer and the DNO Party and recorded within either; the connection offer, connection agreement and/or use of system agreement(s).

169.178. Distributed Generation Network Unavailability Rebate scheme payments will be calculated by the DNO Party on an annual basis (1st April - 31st March) and payments made shortly after the end of each year. This payment is automatic and does not need to be claimed by the generation customer. The de minimis level of rebate is £5 (and below that amount no payment will be made).

## Glossary of Terms used in this Schedule 16

**Comment [RT4]:** AP to add in a definition for CT metering

In this Schedule 16, except where the context otherwise requires, the expressions in the left-hand column below shall have the meaning given to them in the right-hand column below:

<i>Term</i>	<i>Meaning</i>
<b>allowed revenue</b>	the DNO Party's "Combined Allowed Distribution Network Revenue" (as defined in the DNO Party's price control conditions).
<b>all-the-way tariff</b>	a tariff applicable to an end user rather than an LDNO.
<b>boundary tariff</b>	a tariff for use of the DNO Party's network by an LDNO where charges are based on boundary flows.
<b>CDCM</b>	the Common Distribution Charging Methodology.
<b>charging year</b>	the 12-month period ending on a 31st March for which charges and credits are being calculated.
<b>coincidence factor</b>	for a user category, aggregate load at the time of the DNO Party's system simultaneous maximum load divided by maximum aggregate load.
<b>Common Distribution Charging Methodology</b>	the methodology of that name with which the DNO Party is obliged to comply under its Distribution Licence.
<b>contribution proportion</b>	the proportion of asset annuities which are deemed covered by customer contributions. This is defined for each combination of a tariff and a network level.
<b>customer contribution</b>	capital charges payable by customers under the DNO Party's connection charging policy.
<b>distribution time bands</b>	the time bands described in paragraphs 40, 41 and 135.

<i>Term</i>	<i>Meaning</i>
<b>diversity allowance</b>	the extent, expressed as a percentage, to which the sum of the maximum load across all assets in the modelled network level is expected to exceed the simultaneous maximum load for the network level as a whole, as per paragraph 27.
<b>DRM</b>	distribution reinforcement model. This may refer either to a 500 MW network model or to a cost allocation method based on such a model.
<b>EDCM</b>	<u>means the EHV distribution charging methodology as described in Schedule 17 or Schedule 18 (as applicable to each DNO Party).</u>
<b>EHV</b>	EHV refers to nominal voltages of at least 22kV and less than 132kV; network elements with a nominal voltage of 132kV are excluded from EHV for the purpose of this Schedule 16.
<b>EHV Reduction Ratio</b>	<u>A factor applied to the EHV network drivers in the price control disaggregation that reduces the allocation of costs to the EHV network level to account for revenues recovered from EDCM customers. The EHV Reduction Ratio is calculated as follows:</u>
$EHV\ Reduction\ Ratio = \frac{EHV\ assets\ in\ CDCM\ model\ (£) - all\ notional\ assets\ in\ EDCM\ model\ (£)}{EHV\ assets\ in\ CDCM\ model\ (£)}$	
<p>where:</p> <p>EHV assets in the CDCM model = the sum of the notional values in £ of the EHV assets described in paragraph 100(e) of this schedule, namely 132kV, 132kV/EHV, EHV, EHV/HV, and 132kV/HV assets;</p> <p>all notional assets in the EDCM model = the total notional value in £ of the assets described in paragraph 100(d) of this schedule; and</p> <p>EHV assets in CDCM model = the sum of notional asset values of EHV assets in the CDCM model.</p>	

<i><b>Term</b></i>	<i><b>Meaning</b></i>
<b>embedded network</b>	an electricity distribution system operated by an LDNO and embedded within the DNO Party's network.
<b>end user</b>	is a user, but excluding LDNOs.
<b>Engineering Recommendation</b>	one of the engineering recommendations referred to in the Distribution Code.
<b>excluded revenue</b>	revenue from "Excluded Services" (as defined in the price control conditions).
<b>GSP</b>	grid supply point: where the network is connected to a transmission network.
<b>HV</b>	nominal voltages of at least 1kV and less than 22kV.
<b>kV</b>	Kilovolt (1,000 Volts): a unit of voltage.
<b>kVAr</b>	Kilo Volt Ampere reactive: a unit of reactive power flow.
<b>kVArh</b>	Kilo Volt Ampere reactive hour: a unit of total reactive power flow over a period of time.
<b>kW</b>	Kilowatt (1,000 Watts): a unit of power flow.
<b>kWh</b>	Kilowatt hour: a unit of energy.
<b>LDNO</b>	a licensed distribution network operator, meaning an IDNO Party or DNO Party operating an electricity distribution system outside of its Distribution Services Area.
<b>load factor</b>	for a user category, average load divided by maximum aggregate load.
<b>LV</b>	nominal voltages of less than 1kV.

<i>Term</i>	<i>Meaning</i>
<b>LV Mains</b>	<p>LV distributing mains where:</p> <ul style="list-style-type: none"> <li>a) the upper boundary is at the secondary side (LV) of a distributor transformer; and</li> <li>b) the lower boundary is the point of connection associated with the LV service.</li> </ul>
<b>LV Services</b>	the service line from the LV main to the DNO's protection device situated upon the customer's premises, including the joint and associated components connecting the service line to the distributing main.
<b><u>Measurement Class</u></b>	<u>has the meaning of the term as defined within the BSC</u>
<b>modern equivalent asset and modern equivalent asset value</b>	is a reference to the cost of replacing an asset at the time of the calculation.
<b>MPAN</b>	the unique number identifying a particular Metering Point or Metering System.
<b>MVA</b>	Mega Volt Ampere (1,000 kVA): a unit of network capacity.
<b>MW</b>	Megawatt (1,000 kW): a unit of power flow.
<b>MWh</b>	Megawatt hour (1,000 kWh): a unit of energy.
<b>network</b>	the DNO Party's Distribution System within the DNO Party's Distribution Services Area.



<i>Term</i>	<i>Meaning</i>
<b>network level</b>	the network is modelled as a stack of circuit and transformation levels between supplies at LV and the transmission network. A network level is any circuit or transformation level in that stack. Additional network levels are used for transmission exit and for LV and HV customer assets.
<b>network model</b>	a costed design for a 500 MW extension to the DNO Party's network, as described in paragraph 16.
<b>peaking probability</b>	is the peaking probability described in paragraph 49.
<b>power factor</b>	the ratio of energy transported (kW) to network capacity used (kVA).
<b>portfolio tariff</b>	a tariff for use of the DNO Party's network by an LDNO where charges are based on flows out of/into the LDNO's electricity distribution system from its end users or further nested networks.
<b>price control conditions</b>	the charge restriction conditions contained as special conditions within the DNO Party's Distribution Licence.
<b>profile class</b>	has the meaning given to that expression in the Balancing and Settlement Code.
<b>regulatory asset value</b>	is the DNO Party's regulatory asset value as described in the Regulatory Instructions and Guidance issued by the Authority under the DNO Party's Distribution Licence.
<b>related MPAN</b>	has the meaning given to the expression "Related Metering Points" in the Master Registration Agreement.
<b>Revenue not to share</b>	means the amount described as such in paragraph 111.

<i><b>Term</b></i>	<i><b>Meaning</b></i>
<b>RRP</b>	regulatory reporting pack, a dataset produced each year by each DNO Party for the Authority.
<b>service model</b>	a costed design for the typical dedicated assets of a category of network users.
<b>standing charge</b>	any fixed or capacity charge that does not depend on actual use of the network.
<b>Supercustomer</b>	in relation to billing, is billing by Settlement Class.
<b>system simultaneous maximum load</b>	the maximum load for the GSP Group as a whole.
<b>time pattern regime or TPR</b>	means a code that is used to identify the switching times of a meter register.
<b>unit</b>	where the context permits, the word unit refers to kWh.
<b>unit rate</b>	a charging or payment rate based on units distributed or units generated. Unit rates are expressed in p/kWh. Tariffs applied to multi-rate meters and/or using several time bands for charging have several unit rates.
<b>user</b>	refers to customers (whether demand customers or generators) and (where relevant) LDNOs.

Amend Schedule 19 as specified below:

## **SCHEDULE 19 – PORTFOLIO BILLING**

### **1. APPLICATION OF THIS SCHEDULE**

- 1.1 Notwithstanding Clause 36.3, this Schedule applies to, and is binding between, each DNO Party (for the one part) and each EDNO (for the second part).
- 1.2 This Schedule sets out the process for determining the data by reference to which the Use of System Charges payable by the EDNO to the DNO Party are to be calculated.
- 1.3 In this Schedule, an “**Embedded Distribution Network Operator**” or “**EDNO**” is, in respect of each DNO Party:
  - (a) any IDNO Party; or
  - (b) any DNO Party acting outside of that DNO Party’s Distribution Services Area,
  - (c) which (in each case) has a Distribution System within a GSP Group associated with that DNO Party.
- 1.4 In this Schedule, a reference to the EDNO’s “**Connectees**” shall only be a reference to those Connectees to the Distribution Systems referred to in Paragraph 1.3 (and shall not include any Connectees to other Distribution Systems of the EDNO).
- 1.5 The Use of System Charges calculated in accordance with this Schedule shall be payable by the EDNO in accordance with Clause 44, and shall be subject to Clause 43.7 and paragraph 2 of Schedule 4 (as if the references to the User in those Clauses and that Schedule were to the EDNO).

### **2. NHH AND HH AGGREGATED DEMAND DATA**

- 2.1 In order to calculate the Use of System Charges attributable to the EDNO’s non-half-hourly-settled and half-hourly aggregated settled demand Connectees, the DNO Party

will use the data provided to it by the SVAA pursuant to section S and BSCP508 of the BSC.

- 2.2 Where a subsequent Settlement Run indicates that, as a result of such Settlement Run, the Use of System Charges are different from those previously billed, the DNO Party shall calculate such difference and the interest thereon, and shall submit an invoice for

- 2.3 such difference and interest as soon as is reasonably practicable after such Settlement Run. Such interest shall be calculated in accordance with the provisions of Schedule 3 (as if the invoice under Paragraph 2.1 was an Initial Account, and as if the invoice under this Paragraph 2.2 was a Reconciliation Account under Clause 20.4).
- 2.4 The DNO Party shall identify to the EDNO the amount of each such invoice which relates to each Settlement Run, broken down by Settlement Code.

### **3. HH SITE SPECIFIC DATA**

- 3.1 In order to calculate the Use of System Charges attributable to the EDNO's site specific half-hourly-settled Connectees, the DNO Party will use data contained in the report provided by the EDNO pursuant to Paragraph 3.2 (subject to any revisions to reflect errors in such reports identified by the DNO Party pursuant to Paragraph 5).
- 3.2 The EDNO shall provide a report to the DNO Party, on or before the 15th day of each month, based on the amounts invoiced to Supplier/DG Parties by the EDNO pursuant to Clause 21 in respect of its Connectees, including all relevant data not previously reported to the DNO Party (and any adjustments to data previously reported).
- 3.3 The report shall contain the following data items in the following sequence for each invoice raised in respect of a half-hourly-settled Connectee:
- (a) the Market Domain I.D. of the EDNO;
  - (b) the GSP Group code of the DNO Party;
  - (c) the invoice reference number;
  - (d) the name or other reference identifying the EDNO Distribution System;
  - (e) a list of the MPANs covered by the invoice;
  - (f) the month(s) of consumption covered by the invoice;
  - (g) the Line Loss Factor Class Id (as defined in the MRA) for each MPAN covered by the invoice;
  - (h) the fixed charge units (in days) for each MPAN covered by the invoice;

- (i) the DNO Party's unit rate 1 (red) units (in kWh) for each MPAN covered by the invoice;
- (j) the DNO Party's unit rate 2 (amber) units (in kWh) for each MPAN covered by the invoice;
- (k) the DNO Party's unit rate 1 (black) units (in kWh) for each MPAN covered by the invoice;
- (l) the DNO Party's unit rate 2 (yellow) units (in kWh) for each MPAN covered by the invoice;
- (m) the DNO Party's unit rate 3 (green) units (in kWh) for each MPAN covered by the invoice;
- (n) the chargeable agreed capacity (in kVA) for each MPAN covered by the invoice;
- (o) the chargeable excess capacity (in kVA) for each MPAN covered by the invoice; and
- (p) the chargeable reactive power units (in kVArh) for each MPAN covered by the invoice.

3.4 The report referred to in Paragraph 3.3 shall be provided in Excel 2003 format with each data item in a separate column. Where there are no half-hourly-settled Connectees, the EDNO shall submit a nil return.

#### **4. MPAN REPORT**

4.1 On or before the 15th day of each month, the EDNO shall send to the DNO Party a list of the EDNO's MPANs for site specific half-hourly settled Connectees, together with the following information (in separate columns) for each such MPAN (as at the start of that month):

- (a) its trading status;
- (b) the date from which such trading status has been effective;
- (c) its energisation status; and
- (d) the date from which such energisation status has been effective.

Amend Schedule 20 as specified below:

## **SCHEDULE 20 – PRODUCTION OF THE ANNUAL REVIEW PACK**

### **1. INTRODUCTION**

- 1.1 The “Annual Review Pack” or “ARP” is a document to be completed by each DNO Party giving indicative (when first published in accordance with Clause 35B) and final (when updated in accordance with Clause 35B) Use of System Charges to apply pursuant to the Charging Methodology set out in Schedule 16 (the “CDCM”). The pack shall contain detail of historical and forecast CDCM inputs, and a forecast of use of system tariffs for the next 5 years, in accordance with Paragraph 2. The template to be used for the pack shall be ARP model version ~~404~~**[X]** as issued by the Panel on 01 November 2012.

**Comment [RT5]:** Version number to be determined when legal text is applied to the DCUSA.