SCHEDULE 15 – COST INFORMATION TABLE

1. DEFINITIONS

1.1 In this Schedule 15, except where the context otherwise requires, the following terms shall have the meanings set opposite them:

CDCM	means the Common Distribution Charging Methodology as set out in Schedule 16.
CDCM Revenue	means the revenue to be recovered from tariffs calculated under the CDCM.
Demand Use of System Charges	has the meaning given to that term in special condition CRC2 of the Company's Distribution Licence.
EDCM & Certain Interconnector Revenue	means, at any time and in respect of a Regulatory Year, the Company's reasonable estimate (at that time) of: (a) the revenue to be recovered from tariffs calculated under the Charging Methodology set out in Schedule 17 or 18 (as applicable to the Company); plus (b) to the extent relevant, the revenue to be recovered from the DNO Party-to-DNO

	Party interconnector charges referred to in paragraph 20.4 of the methodology set out in schedule 17.
Final Collected Revenue Forecast	means, at any time and in respect of a Regulatory Year, the Company's reasonable estimate (at that time) of the final Regulated Combined Distribution Network Revenue for that Regulatory Year.
Generation Use of System Charges	has the meaning given to that term in special condition CRC2 of the Company's Distribution Licence.
Regulated Combined Distribution Network Revenue	has the meaning given to that term in special conditions CRC2 of Company's Distribution Licence.
Regulatory Year	has the meaning given to that term in special condition CRC2 of the Company's Distribution Licence.
Regulatory Year t	means, in respect of any estimate, the then current Regulatory Year at the time the estimate is made. **Regulatory Year t-1** shall be the previous Regulatory year, and **Regulatory Year t+1** shall be the following Regulatory Year and so on.

Use of System Charges	means Demand Use Of System Charges and Generation Use Of System Charges.

1.2 The estimates made by the Company in completing the table set out in this Schedule (including the illustrative tariffs) shall be based on such information as is reasonably available to the Company at the time of such estimate (it being acknowledged that such estimates may be subject to revision from time to time).

1.3 The terms used in the second column of table 1 below are to have the meanings ascribed to them in the special conditions (CRCs) of the Company's Distribution Licence. The Company is to complete the subsequent columns with the corresponding value for such term and each Regulatory Year, as provided by the Company's Licence (or, where no such value is provided, with the Company's best estimate of such value on the basis of stated assumptions to be outlined in the final column of that table).

1.4 Words and expressions not otherwise defined in this Agreement or this Schedule shall have the meanings given to them in the special conditions (CRCs) of the Company's Distribution Licence.

1.5 The illustrative tariffs to be included by the Company in completing table 3 below shall be determined using the latest Total Allowed Revenue (ARt in table 1) and an updated estimate of Transmission Exit Charges (TBt in table 1) and any other inputs (if appropriate).

TABLE 1

The table referred to in Clause 35A.2 is set out below:

Company Name: **[PLEASE ENTER COMPANY NAME]**
Date: **[MMMM YYYY]**
Title: **DCUSA Schedule 15 - Table 1 information**

Description	**Licence Term**	**CRC**							Assumptions
Regulatory Year			**t-1**	**t**	**t+1**	**t+2**	**t+3**	**t+4**	
			[YYYY/YY]	**[YYYY/YY]**	**[YYYY/YY]**	**[YYYY/YY]**	**[YYYY/YY]**	**[YYYY/YY]**	
Base Demand Revenue before inflation (A1)	PU	CRC2A							
Annual Iteration adjustment before inflation (A2)	MOD	CRC2A							
RPI True-up before inflation (A3)	TRU	CRC2A							
Price index adjustment (A4)	RPIF	CRC2A							
Base demand revenue (A): [A = (A1 + A2 + A3) * A4]	**BR**	**CRC2A**	**-**	**-**	**-**	**-**	**-**	**-**	A = (A1 + A2 + A3) * A4
Pass-Through Licence Fees (B1)	LF	CRC2B							
Pass-Through Business Rates (B2)	RB	CRC2B							
Pass-Through Transmission Connection Point Charges (B3)	TB	CRC2B							
Pass-through Smart Meter Communication Licence Costs (B4)	SMC	CRC2B							
Pass-through Smart Meter IT Costs (B5)	SMIT	CRC2B							

Pass-through Ring Fence Costs (B6)	RF	CRC2B							
Pass-Through Others (B7)	HB, SEC, UNC	CRC2B							
Allowed Pass-Through Items (B): [B = B1 + B2 + B3 + B4 + B5 + B6 + B7]	**PT**	**CRC2B**	-	-	-	-	-	-	B = B1 + B2 + B3 + B4 + B5 + B6 + B7
Broad Measure of Customer Service incentive (C1)	BM	CRC2C							
Quality of Service incentive (C2)	IQ	CRC2D							
Connections Engagement incentive (C3)	ICE	CRC2E							
Time to Connect incentive (C4)	TTC	CRC2F							
Losses Discretionary Reward incentive (C5)	LDR	CRC2G							
Network Innovation Allowance (C6)	NIA	CRC2H							
Low Carbon Networks Fund (C7)	LCN1	CRC2J							
	LCN2	CRC2J							
Connection Guaranteed Standards Systems & Processes penalty (C8)	AUM, CGSRA	CRC2K-L							
Residual Losses and Growth incentive (C9)	PPL	CRC2M							
	GTA	CRC2M							
Incentive Revenue and Other Adjustments (C): [C = C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8 + C9]			-	-	-	-	-	-	C = C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8 + C9
Correction Factor (D)	-K	CRC2A							

Total allowed Revenue (E): [E = A + B + C + D]	**AR**	**CRC2A**	**-**	**-**	**-**	**-**	**-**	**-**	E = A + B + C + D
Other 1. Excluded services - Top-up, standby, and enhanced system security (F1) (see note 1)	DRS4	CRC5C							
Other 2. Excluded services - Revenue protection services (F2) (see note 1)	DRS5	CRC5C							
Other 3. Excluded services - Miscellaneous (F3) (see note 1)	DRS9	CRC5C							
Other 4. blank or if required please provide description (F4)									
Other 5. blank or if required please provide description (F5)									
Total other revenue recovered by Use of System Charges (F): [F = F1 + F2 + F3 + F4 + F5]			-	-	-	-	-	-	F = F1 + F2 + F3 + F4 + F5
Total Revenue for Use of System Charges (G): [G = E + F]			-	-	-	-	-	-	G = E + F
1. Revenue raised outside CDCM - EDCM and Certain Interconnector Revenue (H1)									
2. Revenue raised outside CDCM - Voluntary under-recovery (H2)									
3. Revenue raised outside CDCM - blank or if required please provide description (H3)									
4. Revenue raised outside CDCM - blank or if required please provide description (H4)									

Total Revenue to be raised outside the CDCM (H): [H = H1 + H2 + H3 + H4]			-	-	-	-	-	-	H = H1 + H2 + H3 + H4
Latest forecast of CDCM Revenue (I): [I = G - H]			-	-	-	-	-	-	I = G - H
CDCM Revenue Used in Charging Model				-	-	-	-	-	
Final Collected Revenue Forecast (J)									
Forecast Over / (Under) Recovery [being (J - F - E + H2)]			-	-	-	-	-	-	J - F - E + H2
Forecast overall percentage change to Allowed Revenue (K)				-	-	-	-	-	
Overall % change to Use of System Charges effective 1st April of Regulatory Year to balance (L)									

Note 1: Cost categories associated with excluded services should only be populated if the Company recovers the costs of providing these services from Use of System Charges.

TABLE 2

The table referred to in Clause 35A.3 is set out below:

Company Name: **[PLEASE ENTER COMPANY NAME]**
Date: **[MMMM YYYY]**
Title: **DCUSA Schedule 15 - Table 2 information**

Description	**[YYYY/YY]**			**[YYYY/YY]**			**[YYYY/YY]**		
Regulatory Year	**Regulatory Year t**			**Regulatory Year t+1**			**Regulatory Year t+2**		
£m	**Low**	**Central**	**High**	**Low**	**Central**	**High**	**Low**	**Central**	**High**
Under/over recovery									
RPI True-up									
Annual Iteration									
Broad Measure of Customer Service									
Quality of Service									
Incentive on Connections Engagement									
Time to Connect									
Low Carbon Network Fund									
Significant others (please specify)									
Final Collected Revenue Forecast									

Commentary

1. All £ figures are in money of the day.

2. Information provided to the nearest £m.

Assumptions

1. It is assumed that there will be one set of price changes per year effective on 1st April.

TABLE 3

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

Company Name: **[PLEASE ENTER COMPANY NAME]**
Date: **[MMMM YYYY]**
Title: **DCUSA Schedule 15 - Table 3 information**
Illustrative Charging Year: **[YYYY/YY] (t+2)**

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

	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~~						
LV ~~Network~~ Domestic Aggregated						
LV Domestic (Related MPAN)						
LV ~~Network~~ Non-Domestic Non-CT Aggregated						
LV Non-Domestic Non-CT (Related MPAN)						

LV Site Specific ~~HH~~ Metered						
LV Sub ~~HH~~ Site Specific Metered						
HV Site Specific ~~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~~ Aggregated ~~HH~~						
LV Sub Generation Aggregated ~~NHH~~						

~~LV Generation Intermittent~~						
LV Site Specific Generation ~~Non-Intermittent~~						
~~LV Sub Generation Intermittent~~						
LV Sub Site Specific Generation ~~Non-Intermittent~~						
~~HV Generation Intermittent~~						
HV Site Specific 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 – 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 ~~103~~ xxx as issued by the Panel on 1 April ~~2015~~xxxx; and

   (b) the CDCM "Price Control Disaggregation" model version 3.0 as issued by the Panel on 1 April 2016.

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.

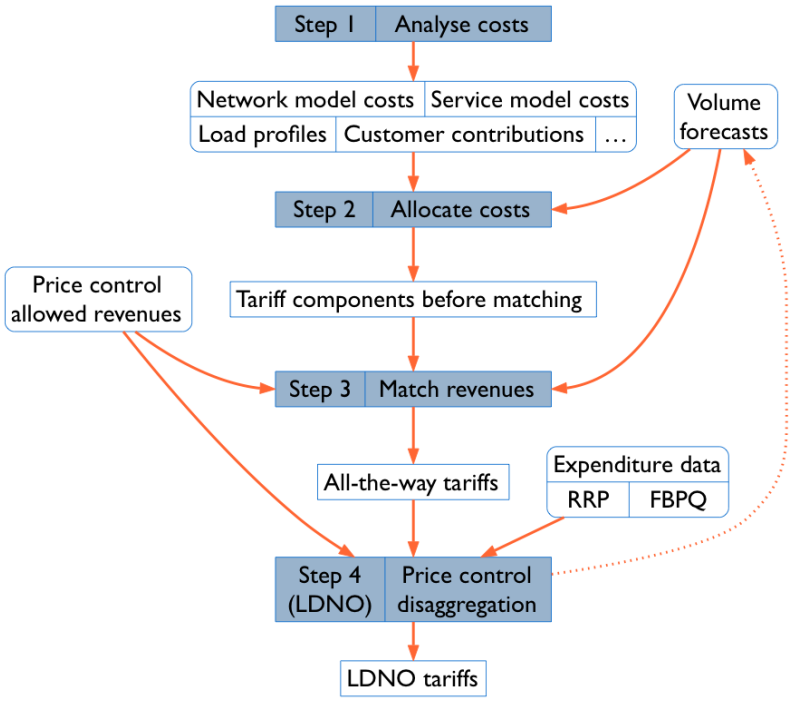
5. Algebraic formulae in this Schedule 16 use square brackets to clarify the calculations. For the avoidance of doubt, these square bracketed terms form an effective part of this Schedule 16.

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

Table 1 List of tariff components

Tariff component	Unit
One, two or three unit rates	p/kWh
Fixed charge	p/day
Capacity charge	p/kVA/day
Reactive power charge	p/kVArh

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. 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, HV, EHV/HV and EHV network levels, and, in England and Wales, at the 132kV/EHV, 132kV/HV and 132kV network levels.

18. Not Used.

19. The network model consists of a costed design for an increment to the DNO Party's network.

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.

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.

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.

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.

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~~ tariffs which are unmetered.

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), t~~The estimated proportion of units ~~recorded in each relevant time pattern regime~~ that fall within each distribution time band for each tariff.~~.~~

42A. Not Used ~~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 (at the time of setting charges for the relevant charging year) 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 Aggregrate ~~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

Commented [OC1]: 'settled' should be deleted.

Commented [OC2]: Incorrect text deleted

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 (at the time of setting charges for the relevant charging year) 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.

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. This is expressed per kW of system simultaneous maximum load.	£/kW/year	132kV 132kV/EHV EHV EHV/HV 132kV/HV HV HV/LV LV circuits
Transmission exit	Expressed per kW of system simultaneous maximum load	£/kW/year	Transmission exit
Other expenditure	Other expenditure is attributed to levels and assets in the network following the rules set out below. The part allocated to network levels is expressed per kW of system simultaneous maximum load.	£/kW/year	132kV 132kV/EHV EHV EHV/HV 132kV/HV HV HV/LV LV circuits

Table 2 Categories of unit costs in the model

Category	Description	Unit	Levels
	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	Set to equal the latest pre-tax real weighted average cost of capital (CC below) for each DNO Party calculated using the following formula: CC = (Gearing Assumption x Pre-Tax Cost of Debt) + (1- Gearing Assumption)*(Post Tax Cost of Equity/(1-Corporation Tax Rate)) where: Gearing Assumption is set to the 'notional Gearing' value referred to in the ED1 Price Control Financial Handbook; Pre-Tax Cost of Debt is set to the 'cost of corporate debt' value specified in or calculated in accordance

Table 3 Annuity rate of return and annuity period

Parameter	Value
	with the most recent Annual Iteration Process applicable when setting distribution Use of System Charges; Post Tax Cost of Equity is set to the 'cost of equity' value referred to in the ED1 Price Control Financial Handbook; and Corporation Tax Rate is the rate of corporation tax which is, when setting distribution Use of System Charges, expected to be applicable in respect of the regulatory year (as defined in the Distribution Licence) in which those Charges will take effect. The CC value is calculated as a percentage, and rounded to two decimal places.

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.

[network level assets £/kW] = [assets £]/[modelled exit flow at time of system simultaneous maximum load kW]

[network level £/kW/year] = [network level assets £/kW]*[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:

a) volume forecasts for each tariff;

b) the loss adjustment factors representative of the time of system simultaneous maximum load;

c) 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:

[notional asset value £] = [network level assets £/kW]*[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 £/kW/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:

[p/kWh from network model assets] = 100*[network level £/kW/year]*[user loss factor]/[network level loss factor]*[coincidence factor]/[load factor]*(1 – [contribution proportion])/[days in charging year]/24

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

Commented [OC3]: After reviewing the responses I feel that we should leave reinstate this text, just removing the reference to single unit rate customers.

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:

[p/kWh from network model assets] = –100*[network level £/kW/year]*[user loss factor]/[network level loss factor]*(1 – [contribution proportion])/[days in year]/24

[p/kWh from operations] = –100*[transmission exit or other expenditure £/kW/year]*[user loss factor]/[network level loss factor]/[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 aggregated and half hourly unmetered supplies tariffs will be determined by aggregating these tariffs to produce one value.

72A. Not Used ~~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.~~

Commented [OC4]: The NHH charges will no longer exist thus its correct to remove this text. However we need to consider and understand the impact of doing this, as stated in the responses.

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:

Tariff	EHV	EHV/HV	HV	HV/LV	LV circuits
~~Domestic Unrestricted~~					~~100%~~
~~Domestic Two Rate~~					~~100%~~
~~Domestic Off Peak (related MPAN)~~					~~100%~~
~~Small Non Domestic Unrestricted~~					~~100%~~
~~Small Non Domestic Two Rate~~					~~100%~~
~~Small Non Domestic Off Peak (related MPAN)~~					~~100%~~
~~LV Medium Non-Domestic~~					~~100%~~
~~LV Sub Medium Non-Domestic~~				~~100%~~	
~~HV Medium Non-Domestic~~	~~20%~~	~~100%~~	~~100%~~		
LV ~~Network~~ Domestic Aggregated					100%
LV Domestic (Related MPAN)					100%
LV ~~Network~~ Non-Domestic Non-CT Aggregated					100%
LV Non-Domestic Non-CT (Related MPAN)					100%
LV Site Specific ~~HH~~ Metered			20%	100%	100%
LV Sub ~~HH~~ Site Specific Metered			100%	100%	
HV Site Specific ~~HH~~ Metered	20%	100%	100%		
~~NHH UMS Category A~~					~~0%~~
~~NHH UMS Category B~~					~~0%~~
~~NHH UMS Category C~~					~~0%~~
~~NHH UMS Category D~~					~~0%~~
LV UMS ~~(Pseudo HH Metered)~~					0%

Commented [OC5]: This is an error, these should be 100%

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.

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 – [standing charge factor]).

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:

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

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

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

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~~ aggregated half hourly settled user groups.

81. For the tariffs listed below, the unit costs calculated by the formula above are allocated to the capacity charge:

- LV ~~HH~~ Site Specific Metered
- LV Sub Site Specific~~HH~~ Metered
- HV Site Specific~~HH~~ Metered.

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

83. For the tariffs listed below, 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 MPANs:

- ~~Domestic Unrestricted~~
- ~~Domestic Two Rate~~
- ~~Small Non-Domestic Unrestricted~~
- ~~Small Non-Domestic Two Rate~~
- LV ~~Network~~ Domestic Aggregated
- LV ~~Network~~ Non-Domestic Non-CT Aggregated~~.~~

84. Not Used.

~~For the tariffs listed below, 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:~~

~~(a) LV Medium Non-Domestic~~

~~(a) LV Sub Medium Non-Domestic~~

~~(b) HV Medium Non-Domestic.~~

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Commented [OC6]: Believe that the approach on medium non domestic should be the same as the domestic tariffs, as a result think this change should look at removing these from the CDCM.

Costs associated with LV customer and HV customer levels

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.

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

Costs associated with reactive power flows

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

    (a) 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.

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

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.

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.

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.

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.

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.

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.

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

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.

97. For the purposes of price control disaggregation the network is split into five levels: LV services, LV mains, HV/LV, HV, and a single level covering EHV and 132kV (including EHV/HV).

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

(a) Breakdown of price control allowed revenue between operating expenditure, depreciation and return on regulatory asset value.

(b) Allocation of each of these components of price control allowed revenue to network levels.

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

Determination of the proportion of the LV mains deemed to be used by LV-connected embedded networks.

Determination of the proportion of the HV network deemed to be provided by HV-connected embedded networks.

Calculation of the discount percentage for each combination of boundary network level and end user network level.

Allocation of price control revenue elements to network levels

99. Not Used.

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 2005/2006–2014/2015, 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.

Allocation of operating expenditure to network levels

101. The DNO Party allocates operating expenditure in the 2007/2008 RRP and the Forecast Business Plan Questionnaire LR1 submission by network level. The RRP already allocates some operating expenditure by network level. For categories of expenditure for which the table below reports "MEAV" in the column headed "Allocation key", the DNO Party allocates, on the basis of modern equivalent asset values, the difference between total operating expenditure and the operating expenditure that is allocated to network levels.

Table: Allocation rules

	Allocation key	**Percentage capitalised**	**Direct cost indicator**
Load related new connections & reinforcement (net of contributions)	See paragraph 102A of this Schedule 16	100.0%	1
Non-load new & replacement assets (net of contributions)	MEAV	100.0%	1
Non-operational capex	MEAV	23.5%	1
Faults	MEAV	23.5%	1
Inspections, & Maintenance	MEAV	23.5%	1
Tree Cutting	MEAV	23.5%	1
Network Policy	MEAV	52.57%	
Network Design & Engineering	MEAV	52.57%	
Project Management	MEAV	52.57%	
Engineering Mgt & Clerical Support	MEAV	52.57%	
Control Centre	MEAV	52.57%	
System Mapping - Cartographical	MEAV	52.57%	
Customer Call Centre	MEAV	52.57%	
Stores	MEAV	52.57%	
Vehicles & Transport	MEAV	52.57%	
IT & Telecoms	Do not allocate	52.57%	
Property Mgt	Do not allocate	52.57%	

HR & Non-operational Training	MEAV	52.57%	
Health & Safety & Operational Training	MEAV	52.57%	
Finance & Regulation	MEAV	52.57%	
CEO etc	MEAV	52.57%	
Atypical cash costs	Do not allocate		1
Pension deficit payments	Do not allocate	57.7%	1
Metering	Do not allocate		1
Excluded services & de minimis	Do not allocate		1
Relevant distributed generation (less contributions)	Do not allocate		1
IFI	Do not allocate		1
Disallowed Related Party Margins	Do not allocate		1
Statutory Depreciation	Do not allocate		1
Network Rates	Do not allocate		1
Transmission Exit Charges	Deduct from revenue		1
Pension deficit repair payments by related parties	Do not allocate		1
Non activity costs and reconciling amounts	Do not allocate		1

102. For the categories of expenditure for which the table reports "MEAV" under "the column "Allocation key", the DNO Party allocates the difference between total and allocated operating expenditure on the basis of an estimate of modern equivalent asset value by network level. 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 DNO Party maps assets to network levels using the mapping shown in the table headed "Mapping of assets to network levels", and calculates the share of MEAV allocated to each of the network levels. The estimated gross modern equivalent asset value at the EHV and 132 kV network level is adjusted by multiplying it by the EHV Reduction Ratio (see Glossary).

102A RRP costs described as "Load related new connections & reinforcement (net of contributions)" are allocated as follows:

(a) Reinforcement costs are allocated to network tiers using data from table 2.4 of the 2007/2008 RRP.

(b) Load related connections' direct costs (net of customer contributions) are allocated to network tiers using data from the FBPQ LR1 table. This table identifies customer contributions in respect of direct costs (by network tier) and indirect costs. For the purpose of this allocation it is the customer contributions that relate to direct costs that are netted off against those costs. Where this allocation results in a negative value for a network tier (i.e. where customer contributions for direct costs are greater than the direct costs) they are replaced with zero. Customer contributions in excess of direct costs are added to the customer contributions relating to indirect costs.

(c) For each network tier, costs reported as "Load related new connections & reinforcement (net of contributions)" are the sum of costs for general reinforcement and the net direct costs for load based connections.

(d) Total activity costs reported under 2007/2008 RRP table 1.3 are not used in the allocation of these costs. Therefore, unallocated costs relating to "Load related new connections & reinforcement (net of contributions)" are set to zero.

(e) Customer contributions (reported in FBPQ LR1) relating to indirect costs (including surpluses in customer contributions for direct costs) are treated as

allowed revenue in the "DNO final allocation" worksheet in the price control disaggregation model). They are allocated to network tiers using the opex cost driver (determined using the "Calc DNO opex allocation" worksheet in the price control disaggregation model).

102B. The DNO Party adjusts the operating costs allocated to each network level - equal to the sum of the operating costs already allocated to network levels in the 2007/2008 RRP and the operating costs allocated in line with the previous paragraph - by multiplying, for each operating cost category, the allocated cost by one minus the capitalisation percentage specified in the table headed "Allocation rules". On the basis of summing this adjusted allocation of operating costs across cost categories for each network level, the DNO Party calculates the share of operating costs of each network level. These are denoted as [Expensed proportions].

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

Table: Mapping of assets to network levels

Asset	**Network level**
LV mains overhead lines	LV mains
LV services overhead lines	LV services
LV overhead support	LV mains
LV mains underground cable, consac	LV mains
LV mains underground cable, plastic	LV mains
LV mains underground cable, paper	LV mains
LV services underground cable	LV services
LV pillar, indoors	LV mains
LV pillar, outdoors	LV mains
LV board, wall-mounted	LV mains
LV board, underground	LV mains
LV fuses, pole-mounted	LV mains

LV fuses, tower-mounted	LV mains
6.6/11 kV overhead line, open	HV
6.6/11 kV overhead line, covered	HV
20 kV overhead line, open	HV
20 kV overhead line, covered	HV
6.6/11 kV overhead support	HV
20 kV overhead support	HV
6.6/11kV underground cable	HV
20kV underground cable	HV
HV submarine cable	HV
6.6/11 kV circuit breaker pole-mounted	HV
6.6/11 kV circuit breaker ground-mounted	HV
6.6/11 kV switch pole-mounted	HV
6.6/11 kV switch ground-mounted	HV/LV
6.6/11 kV ring main unit	HV/LV
6.6/11 kV other switchgear, pole-mounted	HV
6.6/11 kV other switchgear, ground-mounted	HV
20 kV circuit breaker, pole-mounted	HV
20 kV circuit breaker, ground-mounted	HV
20 kV switch, pole-mounted	HV
20 kV switch, ground-mounted	HV/LV
20 kV ring main unit	HV/LV
20 kV other switchgear, pole-mounted	HV
20 kV other switchgear, ground-mounted	HV
6.6/11 kV transformer, pole-mounted	HV/LV
6.6/11 kV transformer, ground-mounted	HV/LV

20 kV transformer, pole-mounted	HV/LV
20 kV transformer, ground-mounted	HV/LV
33kV overhead pole line	EHV and 132kV
33kV overhead tower line	EHV and 132kV
66kV overhead pole line	EHV and 132kV
66kV overhead tower line	EHV and 132kV
33kV pole	EHV and 132kV
33kV tower	EHV and 132kV
66kV pole	EHV and 132kV
66kV tower	EHV and 132kV
33kV underground cable, non-pressurised	EHV and 132kV
33kV underground cable, oil	EHV and 132kV
33kV underground cable, gas	EHV and 132kV
66kV underground cable, non-pressurised	EHV and 132kV
66kV underground cable, oil	EHV and 132kV
66kV underground cable, gas	EHV and 132kV
EHV submarine cable	EHV and 132kV
33 kV circuit breaker, indoors	EHV and 132kV
33 kV circuit breaker, outdoors	EHV and 132kV
33 kV switch, ground-mounted	EHV and 132kV
33 kV switch, pole-mounted	EHV and 132kV
33 kV ring main unit	EHV and 132kV
33 kV other switchgear	EHV and 132kV
66 kV circuit breaker, indoors and outdoors	EHV and 132kV
66 kV other switchgear	EHV and 132kV
33 kV transformer, pole-mounted	EHV and 132kV

33 kV transformer, ground mounted	EHV and 132kV
33 kV auxiliary transformer	EHV and 132kV
66 kV transformer	EHV and 132kV
66 kV auxiliary transformer	EHV and 132kV
132kV overhead line pole conductor	EHV and 132kV
132kV overhead line tower conductor	EHV and 132kV
132kV pole	EHV and 132kV
132kV tower	EHV and 132kV
132kV tower fittings	EHV and 132kV
132kV underground cable, non-pressurised	EHV and 132kV
132kV underground cable, oil	EHV and 132kV
132kV underground cable, gas	EHV and 132kV
132 kV submarine cable	EHV and 132kV
132 kV circuit breaker, indoors and outdoors	EHV and 132kV
132 kV other switchgear	EHV and 132kV
132 kV transformer	EHV and 132kV
132 kV auxiliary transformer	EHV and 132kV
132 kV/EHV remote terminal unit, pole-mounted	EHV and 132kV
132 kV/EHV remote terminal unit, ground-mounted	EHV and 132kV
HV remote terminal unit, pole-mounted	HV
HV remote terminal unit, ground-mounted	HV

Allocation of depreciation and return to network levels

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 on net capital expenditure are aggregated over the 10-year period from 2005/2006 to 2014/2015, taking in actual data or forecasts for each year as available.

105. The DNO Party calculates the net capital expenditure split by LV, LV/HV, HV, and EHV and 132kV (which includes EHV/HV). For each of these four segments, the relevant net capital expenditure is calculated by adding up expenditure on total condition based replacement (proactive and reactive replacement), connections spend minus customer contributions (directs) 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 and 132 kV network level is adjusted by multiplying it by the EHV Reduction Ratio (see Glossary).

106. Some of these net capital expenditure categories allow HV substation and transformer costs to be identified. These costs (and no other costs) are allocated to the HV/LV network level. The ratio of the expenditure in these categories on HV substations and transformers to the expenditure in these categories on other HV assets is denoted as [HV/LV capital expenditure ratio].

107. Some of the net capital expenditure categories do not separately identify HV substation/transformer costs and report a single figure for HV. For these categories, the costs reported under HV are split between the HV/LV network and the HV network level so that the ratio of the amount allocated to the HV/LV network level to the costs reported under HV is equal to [HV/LV capital expenditure ratio].

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

108A. The DNO Party splits the net capital expenditure allocated to LV by dividing it between the LV mains and the LV services network levels. It does this on the basis of the ratio of net capital expenditure on total condition based replacement costs for each of those two network levels.

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

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.

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 three 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 99-108A above. The allocations of each of the three components of price control allowed revenue are aggregated by network level to obtain a percentage per network level of total price control allowed revenue.

111. The price control allowed revenue for 2007/2008 (denoted as the [Total allowed revenue] in the price control disaggregation model) is adjusted by deducting from it the [Revenue not to share]. The [Revenue not to share] comprises the aggregate of:

(a) the net amount earned by the DNO Party under price control financial incentive schemes for 2007/2008 (this may be a negative number); and

Transmission exit charges for 2007/2008.

112. This adjusted price control allowed revenue (denoted as [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. The [Adjusted Total revenue] to share is derived as follows:

[Adjusted total revenue to share] = [Total revenue to share] – [EHV Revenue] * [Total revenue to share] / [Total allowed revenue]

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 in 2007/2008

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. The [Adjusted Revenue not to share] is derived as follows:

[Adjusted revenue not to share] = [Revenue not to share] – [EHV Revenue] * [Revenue not to share] / [Total allowed revenue]

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 in 2007/2008.

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, loss adjusted to LV. The result is denoted by [Revenue to share per unit], for each network level. The Revenue not to share is re-scaled by all units flowing into the DNO Party's EHV network, loss adjusted to LV; the result is denoted as [Revenue not to share per unit].

113A. The DNO Party calculates the number of units flowing through each network level, loss-adjusted to LV, in two steps.

113B. The first step is to calculate adjustment factors for units distributed at LV, at HV and at EHV and 132kV in respect of each of the LV, HV and EHV and 132kV levels.

- For units distributed at LV, the adjustment factor is 1 (one).
- For units distributed at HV, the adjustment factor is 0 (zero) in respect of the LV level, and (U + 0.5*Losses) / (U + Losses) in respect of the other levels, where U is the number of units distributed at LV plus half of the number of units distributed at HV plus a quarter of the number of units distributed at EHV and 132kV.
- For units distributed at EHV, the adjustment factor is 0 (zero) in respect of the LV and HV levels, and (U + 0.25*Losses) / (U + Losses) in respect of the EHV and 132kV level, where U is defined as above.

113C. The second step is to calculate, for each of the LV, HV, and EHV and 132kV networks, the sum of the product of the three adjustment factors and the units distributed at each of LV, HV, and EHV and 132kV. This gives the number of units, (loss adjusted to LV) flowing through each of the LV, HV, and EHV and 132kV

networks. The number of units, loss adjusted to LV, flowing through the LV services, the LV mains and the HV/LV network levels are the same as the number flowing through the LV network.

113D. For each network level, the DNO Party calculates the percentage that the [Revenue to share per unit] represents of the sum of the [Revenue to share per unit] across all network levels and the [Revenue not to share per unit]. The results are denoted as [LV mains allocations], [LV services allocation], [HV/LV allocation], [HV allocation] and [EHV and 132kV allocation].

Calculation of direct proportions

113E. The DNO Party calculates the [HV direct proportion] and the [LV direct proportion] on the basis of the allocation of RRP operating expenditure across network levels set out in paragraphs 101 and 102 (before the adjustment for capitalisation rates is made). Before this calculation is performed, any negative figure is set to zero.

- The [HV direct proportion] is the ratio of the sum of the operating expenditure allocated to the HV network level across the expenditure categories identified as "Direct costs" in the table headed "Allocation rules" to the sum of the operating expenditure allocated to the HV network level across all operating expenditure categories.

- The [LV direct proportion] is the ratio of the sum of the operating expenditure allocated to the LV services or the LV mains network levels across the expenditure categories identified as "Direct costs" in the table headed "Allocation rules" to the sum of the operating expenditure allocated to the LV services or LV mains networks level across all operating expenditure categories.

LV mains split

114. The DNO Party will procure that the Nominated Calculation Agent estimates for the DNO Party's Distribution Services Area 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;

dividing that total length by the number of end users on LV-connected licensed embedded networks; and

dividing the result by the average length of LV mains by LV end user on the DNO Party's own LV network.

The estimates under this paragraph 114 will be based on available data provided by DNO Parties and the IDNO Parties.

115. The result of this calculation is denoted "[LV mains split]".

HV split

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.

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

118. The discount percentages are determined as follows.

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 direct proportion])).

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

(a) 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]).

(b) 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]).

(c) The percentage discount applicable to tariffs for HV end users is:
[HV: HV discount] = [HV allocation]*(1 – [HV split]*[HV direct proportion])/
(1 – [LV services allocation] – [LV mains allocation] - [HV/LV allocation])

Application of discount percentages to determine portfolio tariffs

121. Not used.

122. Not used.

123. Not used.

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.

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

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

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

Tariff structures for demand customers

~~NHH~~Aggregated Metered Demand

128. Use of System Charges for HH aggregated metered demand MPANs ~~(as determined under paragraph 135B above)~~ 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) Standard Settlement Configuration (SSC); and

c) Time Pattern Regime (TPR)

129. 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 for HH settled aggregated metered demand MPANs will always be zero.

130. DNO specific network time bands will be applied to the appropriate SSC/TPR combinations stated in paragraph 129.

131. Charges will be applied on a fixed charge and unit rate basis, the latter allocated to DNO specific network timebands. There will be no capacity, exceeded capacity or reactive power charges for HH aggregated metered demand MPANs.

132. Structure of HH aggregated metered demand charges shall be as follows:

a) Fixed charge will be p/MPAN/day

b) Unit charges will be p/kWh.

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Commented [CH8]: Clarify that it refers to pseudo and make it clear that it is not the industry MDD data.

Commented [OC9]: For NHH this will not always be 'zero' do we want to add text?

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Commented [OC11]: Changed to 129 from the incorrect 130b.

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(c) LV Domestic Aggregated (Related MPAN) and LV Non-Domestic Non-CT Aggregated (Related MPAN) and Unmetered supplies will be charged on a p/kWh basis only.

132A As described in Paragraph 40, there will be three unit rate time bands on a time of day basis for all HH aggregated 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. ~~-~~

132B Those users in Measurement Class A, F or G will be settled on an aggregated basis. HH aggregated settled customers will be assigned to the appropriate tariff based on the Measurement Class, type of metering equipment installed and the voltage of connection as specified in the table below:

Tariff	Voltage of Connection	Metering	Measurement Class
LV Aggregated Domestic	LV	Whole Current or Current Transformer	A / F
LV Domestic (Related MPAN)	LV	Whole Current	A / F
LV Non-Domestic Non-CT Aggregated	LV	Whole Current	A / G
LV Non-Domestic Non-CT (Related MPAN)	LV	Whole Current	A / G

~~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)~~

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Commented [OC13]: Consider renumbering 132A and 132B to B and C?

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Commented [OC15]: Text relating to UMS moved to 140A

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

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.

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.

Changes from NHH to HH Settlement for Metered Demand

132A Not Used Prior to Measurement Classes F and G being available under the BSC, where the Supplier transfers customers from NHH Settlement to HH Settlement, Measurement Class C (100kW or more) and Measurement Class E (less than 100kW) will apply.

132B Once Measurement Classes F and G are available under the BSC, where the Supplier transfers customers from NHH Settlement to HH Settlement the following Measurement Classes will apply:

- Domestic users connected at LV with non-CT metering installed will transfer from Measurement Class A to Measurement Class F.
- Domestic users connected to LV with CT metering can (at supplier option in discussion with user) move to Measurement Class C (must be more than 100kW), Measurement Class E (must be 100kW or less) or Measurement Class F (must be 100kW or less).
- 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 (more than 100kW) or Measurement Class E (100kW or less).~~

~~HH~~ Site-Specific Metered Demand

~~128.~~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.

~~129.~~134. Charges will consist of a fixed, unit, capacity and reactive power charge.

~~130.~~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 ~~and HH aggregate~~ 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 on a seasonal time of day basis 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 ~~Prior to Measurement Classes F and G being available under the BSC, t~~Those users in Measurement Class C~~, D~~ or E will be HH settled on a site-specific basis, and assigned to the appropriate tariff based on the Measurement Class, type of metering equipment installed and the voltage of connection as specified in the table below:

Tariff	Voltage of Connection	Metering	Measurement Class
LV ~~HH~~ Site Specific Metered	LV	Whole current/Current Transformer	C / E
LV Sub Site Specific ~~HH~~ Metered	LV Sub	Whole current/Current Transformer	C / E
HV Site Specific ~~HH~~ Metered	HV	Current Transformer	C / E

135B. ~~This paragraph only applies once Measurement Classes F and G are available under the BSC. Where this paragraph applies, those users who remain in Measurement Class C or E will be HH settled on a site specific basis, while those users in Measurement Class A, B, F or G will be settled on an aggregate basis. HH aggregated settled customers will be assigned to the appropriate tariff based on the Measurement Class, type of metering equipment installed and the voltage of connection as specified in the table below:~~

~~Tariff~~	~~Voltage of Connection~~	~~Metering~~	~~Measurement Class~~
~~LV Network Domestic~~	~~LV~~	~~Whole Current or Current Transformer~~	~~F~~
~~LV Network Non-Domestic Non-CT~~	~~LV~~	~~Whole Current~~	~~G~~
~~LV HH Metered~~	~~LV~~	~~Current Transformer~~	~~C / E~~
~~LV Sub HH Metered~~	~~LV Sub~~	~~Current Transformer~~	~~C / E~~
~~HV HH Metered~~	~~HV~~	~~Current Transformer~~	~~C / E~~

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~~131.~~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.

~~132.~~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.

~~133.~~138. Unit charges will be allocated by settlements HH data and DNO Party specific network time bands.

~~134.~~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.

Unmetered Supplies

140A Use of System Charges for HH aggregated unmetered MPANs will be via the Supercustomer approach which uses data from the D0030 industry data flow and is based on Settlement Classes. As described in Paragraph 40, there will be three unit rate time bands for the half hourly aggregated 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.

140B Use of System Charges for HH Site Spe site specific (pseudo HH) customers will use data from the D0275 or D0036 industry data flows based on half hourly data provided by MPAN.

140C Charges will consist of a unit rates only

Tariff	Voltage of Connection	Measurement Class
LV UMS	LV	B / D

140A. ~~Use of System Charges for HH aggregated metered demand MPANs (as determined under paragraph 135B above) 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 for HH aggregated metered demand MPANs will always be zero.~~

~~140C. DNO specific network time bands will be applied to the appropriate SSC/TPR combinations stated in paragraph 140B.~~

~~140D. Charges will be applied on a fixed charge and unit rate basis, the latter allocated to DNO specific network timebands. There will be no capacity, exceeded capacity or reactive power charges for HH aggregated metered demand MPANs.~~

~~140E. Structure of HH aggregated metered demand charges shall be as follows:~~

~~(a) Fixed charge will be p/MPAN/day~~

~~(b) Unit charges will be p/kWh.~~

Demand Tariff Structures

~~135.~~141. Table 4 below shows the structure for ~~NHH~~ HH aggregated metered demand tariffs, and Table 5 below shows the structure for HH site specific metered demand tariffs ~~(both site specific and aggregated).~~.

Table 4: ~~Non-half hourly~~HH Aggregated ~~metered demand~~ Ttariffs

~~Point of Connection~~	Tariff Name	~~Profile Class~~Unit 1 (p/kWh)	~~Unit rate 1*~~Unit 2 (-p/kWh)	~~Unit rate 2*~~Unit 3 ~~p~~p/kWh)	Fixed charge p/MPAN/day
~~LV~~	~~Domestic Unrestricted~~	~~1~~	~~✓~~		~~✓~~
~~LV~~	~~Domestic Two Rate~~	~~2~~	~~✓~~	~~✓~~	~~✓~~
~~LV~~	~~Domestic Off-Peak (related MPAN)~~	~~2~~	~~✓~~		

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~~LV~~	~~Small Non-Domestic Unrestricted~~	~~3~~	~~✓~~		~~✓~~
~~LV~~	~~Small Non-Domestic Two Rate~~	~~4~~	~~✓~~	~~✓~~	~~✓~~
~~LV~~	~~Small Non-Domestic Off-Peak (related MPAN)~~	~~4~~	~~✓~~		
~~LV~~	~~LV Medium Non-Domestic~~	~~5 to 8~~	~~✓~~	~~✓~~	~~✓~~
~~LV~~	~~NHH UMS (Category A)~~	~~8~~	~~✓~~		
~~LV~~	~~NHH UMS (Category B)~~	~~1~~	~~✓~~		
~~LV~~	~~NHH UMS (Category C)~~LV Domestic Aggregated	Red~~1~~	Amber~~✓~~	Green	✓
~~LV~~	~~NHH UMS (Category D)~~LV Domestic (Related MPAN)	Red~~1~~	Amber~~✓~~	Green	
~~LVS~~	~~LV Sub Medium Non-Domestic~~LV Non-Domestic Non-CT Aggregated	Red~~5 to 8~~	Amber~~✓~~	Green~~✓~~	✓
~~HV~~	~~HV Medium Non-Domestic~~LV Non-Domestic Non-CT (Related MPAN)	Red~~5 to 8~~	Amber~~✓~~	Green~~✓~~	~~✓~~
	LV UMS	Black	Yellow	Green	

~~* Unit rate~~

~~s 1 and 2 for NHH customers are either unrestricted or based upon the TPR or the DNO specific combinations.~~

Table 5: Half-hourly Site Specific ~~metered demand T~~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 Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
LV Sub Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
HV Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
LV UMS ~~(Pseudo HH Metered)~~	Black	Yellow	Green				

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Note 1: The LV Domestic (Related MPAN) and LV Non-Domestic Non-CT (Related MPAN) ~~Domestic and Non-Domestic off-peak (related MPAN)~~ tariffs are supplementary to a standard published tariff and therefore only available under these conditions. These will be charged the same red, amber and green unit rates but will have a zero fixed charge

Note 2: Where DNO Parties use a default tariff for invalid settlement combinations these will be charged at the LV Network Domestic Aggregated~~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.~~Not Used

Note 7: Fixed charges are generally levied on a pence per MPAN basis. However, there are some instances in the half-hourly site specific 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 and~~ Aggregated HH Metered Generation

~~136.~~142. Use of System Charges for ~~NHH Low Voltage (LV and LVS) generation tariffs and~~ Aaggregated ~~HH~~ LV generation will 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.

Commented [OC18]: Incorrect retention of 'HH'

~~137.~~143. Structure of ~~NHH and~~ A~~a~~ggregated HH generation charges:

~~1.1~~Fixed charge will be p/MPAN/day; and

Unit rate charge p/kWh.

Re-active Charges will not apply.

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Site Specific HH Metered Generation ~~(other than Aggregated)~~

~~138.~~144. Use of System Charges for HH Site Specific Low Voltage (LV) and High Voltage (HV) generation tariffs ~~(excluding aggregated HH LV generation)~~ will 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

~~139.~~145. Structure of Site Specific HH ~~aggregate and HH~~ generation charges:

~~1.~~(a) Fixed charge will be p/MPAN/day;

Unit rate charge p/kWh; and

Reactive power charge p/kVArh.

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146. The following table~~s~~ and notes show the structure for generation tariffs.

Table 6: Non-hHalf-Hhourly Aggregated Mmetered Ggeneration Ttariffs				
Tariff NamePoint of Connection	Unit rate 1 (p/kWh)Tariff Name	Unit rate 2 (p/kWh)Profile Class	Unit rate 3 (p/kWh)Unit rate 1 p/kWh	Fixed charge p/MPAN/day
LV Generation AggregatedLV	LV Generation NHH or Aggregate HH*Red	8 or 0Amber	✓Green	✓
LV Sub Generation AggregatedLVS	LV Sub Generation NHHRed	8Amber	✓Green	✓

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* This tariff can be settled NHH or aggregated HH

Table 7: Site Specific Half-Hhourly metered Ggeneration Ttariffs					
Tariff	Unit rate 1 p/kWh	Unit rate 2 p/kWh	Unit rate 3 p/kWh	Fixed charge p/MPAN/day	Reactive power charge p/kVArh
LV Generation Intermittent	✓			✓	✓
LV Sub Generation Intermittent	✓			✓	✓
HV Generation Intermittent	✓			✓	✓
LV Site Specific Generation Non-Intermittent	Red	Amber	Green	✓	✓
LV Sub Site Specific Generation Non-Intermittent	Red	Amber	Green	✓	✓
HV Site Specific Generation Non-Intermittent	Red	Amber	Green	✓	✓

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.Not Used

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.Not Used

Note 3: All generation will be treated as Non-intermittent and a ~~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

~~140.~~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/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~~	~~✓~~	~~✓~~		~~✓~~			

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~~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 Aggregated	Red	Amber	Green	✓			
0	LV Domestic (Related MPAN)	Red	Amber	Green				
0	LV ~~Network~~ Non-Domestic Non-CT Aggregated	Red	Amber	Green	✓			
0	LV Non-Domestic Non-CT (Related MPAN)	Red	Amber	Green				
0	LV Site Specific ~~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~~	~~✓~~			~~✓~~			~~✓~~
0	LV Generation Aggregated ~~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~~	~~✓~~	~~✓~~		~~✓~~			

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Table 9: LDNO HV connection*								
~~8~~	~~NHH UMS (Category A)~~	~~✓~~						
~~1~~	~~NHH UMS (Category B)~~	~~✓~~						
~~1~~	~~NHH UMS (Category C)~~	~~✓~~						
~~1~~	~~NHH UMS (Category D)~~	~~✓~~						
0	LV ~~Network~~ Domestic Aggregated	Red	Amber	Green	✓			
0	LV Domestic (Related MPAN)	Red	Amber	Green				
0	LV ~~Network~~ Non-Domestic Non-CT Aggregated	Red	Amber	Green	✓			
0	LV Non-Domestic Non-CT (Related MPAN)	Red	Amber	Green				
0	LV Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
0	LV UMS ~~(Pseudo HH Metered)~~	Black	Yellow	Green				
0	LV Sub Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
0	HV Site Specific ~~HH~~ Metered	Red	Amber	Green	✓	✓	✓	✓
~~0 or 8~~	LV Generation ~~NHH or~~ Aggregated ~~HH~~	Red~~✓~~	Amber	Green	✓			
~~0~~	~~LV Generation Intermittent~~LV Sub Generation Aggregated	Red~~✓~~	Amber	Green	✓~~✓~~			~~✓~~
0	LV Site Specific Generation Aggregated~~Non-Intermittent~~	Red	Amber	Green	✓			✓
~~0~~	~~LV Sub Generation Intermittent~~	~~✓~~			~~✓~~			~~✓~~
0	LV Sub Site Specific Generation ~~Non-Intermittent~~	Red	Amber	Green	✓			✓
~~0~~	~~HV Generation Intermittent~~	~~✓~~			~~✓~~			~~✓~~
0	HV Site Specific Generation ~~Non-Intermittent~~	Red	Amber	Green	✓			✓

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Commented [OC21]: RAG and fixed charge reinstated.

Commented [OC22]: Tariff now included with RAG and fixed.

Capacity charges

Maximum Import Capacity

~~141.~~148. The Maximum Import Capacity (MIC) will be charged on a site basis (p/kVA/day).

~~142.~~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 (subject to Part 4 below).

~~143.~~150. Subject to Part 4 below, 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.

~~144.~~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

~~145.~~152. Where standby capacity charges are applied, the charge will be set at the same rate as that applied to normal MIC.

Exceeded Capacity

~~146.~~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

~~147.~~154. There is no minimum capacity threshold.

Capacity Value Calculations – Import

~~148.~~155. The actual capacity utilised will be calculated by the following formula:

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

Where:

AI = Import consumption in kWhRI = Reactive import in kVArh

RE = Reactive export in kVArh

Import Demand = kVA

~~149.~~156. This calculation is completed for every half hour and the maximum value from the billing period is captured.

~~150.~~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.

~~151.~~158. Only kVArh Import and kVArh Export values occurring at times of kWh Import are used.

Capacity Value Calculations – Export

~~152.~~159. The actual capacity utilised will be calculated by the following formula:

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

Where:

AE = Export production in kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

Export Demand = kVA

~~153.~~160. This calculation is completed for every half hour and the maximum value from the billing period is captured.

~~154.~~161. The export demand value is calculated to record the highest export value and used for information only.

~~155.~~162. Only kVArh Import and kVArh Export values occurring at times of kWh Export are used.

Reactive power charges

~~156.~~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.

~~157.~~164. The chargeable reactive power units will be calculated by the following formulae.

Chargeable Reactive Power Unit Calculations - Import

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

Where:

AI = Import consumption in kWh

RI = Reactive Import in kVArh

RE = Reactive export in kVArh

~~158.~~165. The 0.95 constant refers to the reactive charging threshold and the design power factor of the network model within the CDCM.

~~159.~~166. This calculation is completed for every half hour and the values summated over the billing period.

~~160.~~167. Only kVArh Import and kVArh Export values occurring at kWh Import are used.

~~161.~~168. The square root calculation will be to two decimal places.

Chargeable Reactive Power Unit Calculations - Export

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

Where:

AE = Export production in kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

~~162.~~169. The 0.95 constant refers to the reactive charging threshold and the design power factor of the network model within the CDCM.

~~163.~~170. This calculation is completed for every half hour and the values summated over the billing period.

~~164.~~171. Only kVArh Import and kVArh Export values occurring at kWh Export are used.

~~165.~~172. The square root calculation will be to two decimal places.

Charging decimal places

~~166.~~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.