Common Distribution Charging Methodology

December 2009

Contents

CDCM Version control		
Version Number	**Description**	**Date**
0.0	Methodology submitted to Ofgem for approval	25 August 2009
0.1	Removal of 'Appendix B Draft' and change date on page 1. Addition of this table CDCM version control. Addition of new paragraph 5 with CDCM model version control. Addition of new paragraph 37 to clarify the application of generation service models	17 November 2009
0.2	Addition of words to paragraph 124 to clarify that the percentage discount calculated in the LDNO model apply to demand users only. Addition of new paragraph 125 to explain the application of the discount to "all the way" generation tariffs to create an embedded LDNO generation portfolio tariff.	18 November 2009
0.3	Removal of the specific references to FBPQ data in paragraphs 100(b), 100(c), 102 and 104 to allow the use of more appropriate data for the forecast of capital expenditure. Removal or the term FBPQ from the glossary.	26 November 2009
0.4	Addition of section 'Part 3 — Network Unavailability Rebate Payments'	26 November 2009

0.5	Change the reference to “voltage of supply” to “entry point” in paragraphs 62, 71 and 88, to make it consistent with the Distribution Licence. Addition of the term “exit point” to the glossary.	02 December 09
0.6	Change to paragraph 116 to reflect the updated methodology to calculate the HV split in relation to HV IDNO tariffs for HV end customers.	04 December 09

Introduction

1. This document is a draft of the Common Distribution Charging Methodology which, subject to Ofgem approval, will be used by the 14 regional distribution network operators in Great Britain to set use of system charges for certain categories of users.

2. This document gives the methods, principles, and assumptions underpinning the calculation of use of system charges.

3. The document comprises two main parts. Part 1 describes the cost allocation rules. Part 2 describes the tariff structures and their application.

4. The glossary at the end of this statement contains short definitions of terms and acronyms.

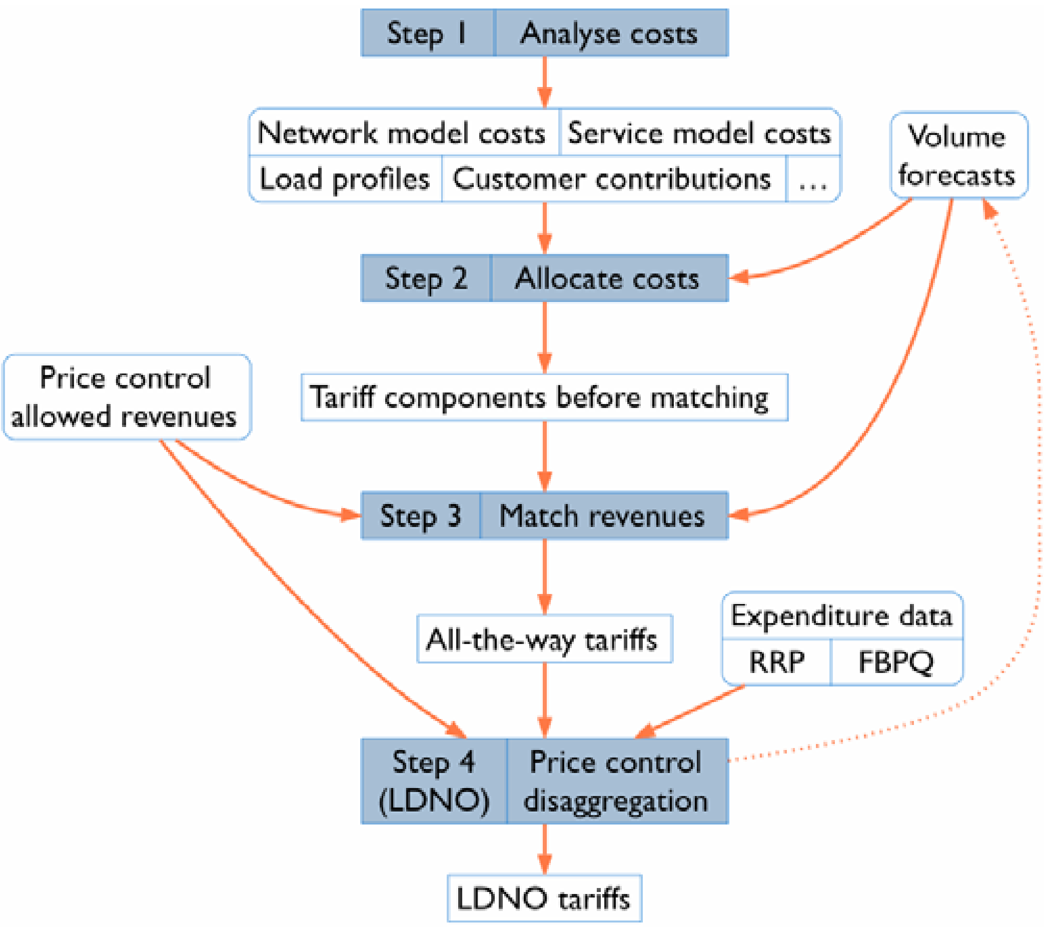
5. In order to comply with this methodology statement when setting distribution use of system charges the distribution network operator will populate and publish the CDCM model version '100' as issued on date 08th December 2009.

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.

10. Step 4 uses price control calculations and from actual 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 the tariff components listed in table 1.

Table 1 List of tariff components and restrictions on their application

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

13. For users that are acting as licensed distribution network operators, 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 distribution networks, and the collection of information about the relevant characteristics of network users.

Network model asset values

16. The licensee specifies a network model, also known as a distribution reinforcement model (DRM) or a 500 MW model, in line with the requirements of this section.

17. In all cases, the network model determines the £/kW/year figure (based on simultaneous maximum load at each network level) corresponding to amortisation and return on capital for assets at the LV circuits, HV/LV and HV network levels.

18. For licensees that do not rely on a separate EHV charging methodology, the network model also determines these costs at the EHV/HV and EHV network levels, and, in England and Wales, at the 132kV/EHV and 132kV network levels.

19. The network model consists of a costed design for an increment to the licensee's distribution system.

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 licensee 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 licensee'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 licensee's area.

25. The cost assumed for each asset type reflect total purchase and installation cost in the charging year, using the licensee's normal procurement methods.

Diversity allowances

26. For each of the 132kV (except in Scotland), EHV and HV voltage levels, the licensee 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 licensee 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 licensee 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 licensee 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 licensee 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 licensee 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 licensee 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 licensee prepares a forecast of expenditure on transmission exit charges in the charging year.

Other expenditure

39. The licensee 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 licensee determines three distribution time bands, labelled red, amber and green.

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. Each time band may be divided into any number of sections.

Load characteristics

42. The licensee 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 that are applied to non-half-hourly meter data or to fixed time bands that differ from the distribution time bands (if any), the estimated proportion of units recorded in each relevant time pattern regime that fall within each distribution time band.

43. Where appropriate, the licensee determines load characteristics by analysis of meter and profiling data received for a recent 12 month period for which data are available in time for use in the calculation of charges.

44. For load factors and coincidence factors in the case of non half hourly settled customer classes, 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. Settlement data for non half hourly unmetered supplies are not used to determine load characteristics. Instead, the load factor and coincidence factor for this user class are set equal to the figures for pseudo half hourly LV unmetered supplies, if any. If no data are available for pseudo half hourly LV unmetered supplies in the relevant area, data for pseudo half hourly LV unmetered supplies from another area are used as a proxy.

Loss adjustment factors to transmission

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

Peaking probabilities

48. The licensee 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.

Power factor data

50. The licensee 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 licensee uses data for the nearest network level at which they are available.

Volume forecasts

52. The licensee 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 licensee prepares a forecast of allowed revenue for the charging year in accordance with the requirements of the price control licence conditions and in a manner which is consistent with its volume forecasts.

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 document, the acronym EHV refers to voltages of 22 kV and above, up to and *excluding* 132 kV. In the case of the Scottish licensed distribution 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
	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 using the annuity period and rate of return set out in table 3.

Table 3 Annuity rate of return and annuity period

Parameter	*Value*
Annuity period	40
Annuity rate of return	6.9%

Determination of unit costs from network model

58. For each network level, the licensee 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, 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

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, 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 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.

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 non half hourly settled users are:

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

(b) Zero for any further network level.

75. The standing charge factors for half hourly settled users at LV Sub and HV Sub are:

(a) 100 per cent for the transformation level at which the supply is made to the end user.

(b) 100 per cent for circuits at the next voltage level.

(c) Zero for any further network level.

76. The standing charge factors for other half hourly settled users are:

(a) 100 per cent for the voltage level of supply of the end user.

(b) 100 per cent for the next transformation level.

(c) 20 per cent for circuits at the next voltage level (including 132kV for HV users to the extent that 132kV/HV transformation is used).

(d) Zero for any further network level.

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 half hourly settled user groups.

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

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

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

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

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.

(b) Take the absolute value.

(c) Adjust for standing charge factors at the relevant network levels (for demand users only).

(d) Multiply by the assumed power factor in the network model.

(e) Multiply by the licensee'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 licensee 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 licence 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 licence 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 licensee 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 on this estimate, the licensee 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 four levels: LV, HV/LV, HV and EHV.

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

(a) Allocation of price control revenue elements to network levels.

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

(c) Determination of the proportion of the LV network deemed to be used by LV-connected embedded networks.

(d) Determination of the proportion of the HV network deemed to be provided by HV-connected embedded networks with HV end users.

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

(f) Application of discount percentages to determine portfolio tariffs.

Allocation of price control revenue elements to network levels

99. The calculation of percentage allocations of price control revenues to network levels is based on separate percentages by network level for the operating cost, depreciation and return on RAV elements of the licensee's allowed revenue.

100. In order to determine the allocation to network levels of each element of price control revenue, the licensee 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 considers appropriately represents the forecast of net capital expenditure and customer contributions for the period 2005/06–2014/15, broken down by network level.

(c) Forecast data that each DNO considers appropriately represents the gross modern equivalent asset values (replacement costs) for various asset types.

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

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

103. Transmission exit charges are allocated to the EHV network level.

104. Both the depreciation and return on capital elements of allowed revenue are allocated to network levels on the basis of net capital expenditure data derived from

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

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

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

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

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

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

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 licensee determines a breakdown of price control allowed revenue over the period from 2005/2006 to 2009/2010 between operating expenditure, depreciation and return on regulatory asset value (RAV).

111. For the purpose of that calculation, allowed revenue is adjusted by deducting the net amount earned or lost by the licensee under price control financial incentive schemes.

112. These allocations of the operating expenditure, depreciation and return elements of allowed revenue are combined using weights from the price control breakdown.

113. The weighted average allocations are then rescaled by the estimated number of units flowing through each network level, and normalised so that they sum to 100 per cent. The result of this calculation is a set of percentages for each of the LV, HV/LV, HV and EHV network levels.

LV split

114. The licensee determines the proportion of the LV network which LV-connected embedded networks are deemed to use by:

    (a) determining the total length of its LV mains used by LV-connected licensed embedded networks;

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

(c) dividing the result by the average length of LV network by LV end user on the licensee's own LV network.

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

HV split

116. The licensee estimates the typical proportion of the HV network which is provided by the DNO in the case of HV loads supplied through an HV-connected LDNO. This estimate is based on sample data for the average network length of IDNO connections in relation to the average length of DNO connections. The average length per connection is expressed as the HV cable length (meters) divided by the sum of HV customers plus the number of HV/LV substations, for both IDNOs and DNOs.. The average used is the same for all DNOs.

117. The proportion is denoted [HV split].

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 allocation]*(1 – [LV split]*[LV direct proportion]).

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

121. The percentage discount applicable to tariffs for LV network end users is:

[HV: LV discount] = [LV allocation] + [HV/LV allocation].

122. The percentage discount applicable to tariffs for LV substation end users is:

[HV: LV Sub discount] = [HV/LV allocation]/(1 – [LV allocation]).

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

[HV: HV discount] = [HV allocation]*(1 – [HV split]*[HV direct proportion])/
(1 – [LV allocation] – [HV/LV allocation])

Application of discount percentages to determine portfolio tariffs

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 level. The fixed charge element (p/day) is discounted at 100%, 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.

Part 2 — Tariff structures and application

126. The development of the common distribution charging methodology (CDCM) has involved the creation of a common tariff structure for all 14 Distribution Network Operators (DNOs) licence areas.

127. This part details the common tariff structure and associated tariff elements for Non-Half Hourly (NHH) and Half-Hourly (HH) metered supplies for demand, generation, unmetered supplies and charges to Licensed Distribution Networks Operators (LDNOs).

Tariff structures for demand customers

NHH Metered Demand

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 Standard Settlements Configurations of:

(a) Line Loss Factor Class (LLFC);

(b) Profile Class (PC);

(c) Standard Settlement Configuration (SSC); and

(d) Time Pattern Regime (TPR)

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, or the time bands set by DNOs where that DNO 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.

HH Metered Demand

133. Use of system charges for HH settled demand customers will use data from the D0275 or D0036 industry data flows based on half hourly metered data provided by MPAN.

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

135. There will be three unit rate time bands on a time of day (ToD) basis to reflect the requirements of the cost drivers of their individual networks, the three ToD time

bands will be called ‘Red’, ‘Amber’ and ‘Green’ to represent three differing cost signals. There will be no constraint on either the number of hours that can be covered by each time band or whether the time band can be split during the day. A time band can be applied to only cover certain weekdays i.e. Monday to Friday. The times should be applied consistently through the year i.e. ToD rather than seasonal time of day (SToD).

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.

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.

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

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

140. Where a site is incorrectly de-energised, i.e. when actual metering advances are received the DNOs 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.

Demand Tariff Structures

141. The following tables and notes show the structure for demand tariffs.

Table 4: Non-half-hourly metered demand tariffs				
Point of Connection	**Profile Class**	**Unit Rate Time Bands**	**Other Charges**	**Tariff Name**
LV	1	One	Fixed	Domestic Unrestricted
LV	2	Two	Fixed	Domestic Two Rate
LV	2	One	None	Domestic Off-Peak (related MPAN)
LV	3	One	Fixed	Small Non-Domestic Unrestricted
LV	4	Two	Fixed	Small Non-Domestic Two Rate
LV	4	One	None	Small Non-Domestic Off-Peak (related MPAN)
LV	5 to 8	Two	Fixed	LV Medium Non-Domestic

Table 4: Non-half-hourly metered demand tariffs				
Point of Connection	**Profile Class**	**Unit Rate Time Bands**	**Other Charges**	**Tariff Name**
LVS	5 to 8	Two	Fixed	LV Sub Non-Domestic
HV	5 to 8	Two	Fixed	HV Medium Non-Domestic *The proposal is that this tariff will be closed to new customers and all new HV connections will be required to be half-hourly metered
LV	1 & 8	One	None	NHH UMS (Unmetered supplies)

Table 5: Half-hourly metered demand tariffs			
Point Of Connection	**Unit Rate Time Bands**	**Other Charges**	**Tariff Name**
LV	Three	Fixed, Capacity and Reactive Power	LV HH metered
LVS	Three		LV Sub HH metered
HV	Three		HV HH metered
HVS	Three		HV Sub HH metered
LV	Three	None	LV UMS (Pseudo HH Metered)

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

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

Note 3: LV Sub applies to customers connected to the licensee's distribution system 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 4: HV Sub applies to customers connected to the licensee's distribution system at a voltage of at least 1 kV and less than 22 kV at a substation with a primary voltage (the highest operating voltage present at the substation) of at least 22 kV and less than 66 kV, where the current transformer used for the customer's settlement metering or for metering used in the calculation of the customer's use of system charges or credits is located at the substation.

Note 5: Notes 3 and 4 above for LV and HV substation tariffs will be applied for new customers from 1 April 2010. Where a customer is already registered on either an LV or HV 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; and

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

Tariff structures for generation

NHH Metered Generation

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

143. Structure of NHH generation charges:

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

(b) Unit rate charge p/kWh;

HH Metered Generation

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

145. Structure of NHH generation charges

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

(b) Unit rate charge p/kWh;

(c) Reactive power charge p/kVArh.

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

<table>
<tr><th colspan="5">Table 6: Non-half-hourly metered generation tariffs</th></tr>
<tr><th>Point of connection</th><th>Profile class</th><th>Unit Rate Time Bands</th><th>Other Charges</th><th>Tariff Name</th></tr>
<tr><td>LV</td><td rowspan="2">8</td><td rowspan="2">One</td><td rowspan="2">Fixed</td><td>LV Generation NHH</td></tr>
<tr><td>LVS</td><td>LV Sub Generation NHH</td></tr>
</table>

<table>
<tr><th colspan="4">Table 7: Half-hourly metered generation tariffs</th></tr>
<tr><th>Point Of Connection</th><th>Unit Rate Time bands</th><th>Other Charges</th><th>Tariff Name</th></tr>
<tr><td>LV</td><td rowspan="2">One</td><td rowspan="2">Fixed and Reactive Power</td><td>LV Generation Intermittent</td></tr>
<tr><td>LVS</td><td>LV Sub Generation Intermittent</td></tr>
</table>

Table 7: Half-hourly metered generation tariffs			
Point Of Connection	**Unit Rate Time bands**	**Other Charges**	**Tariff Name**
LV	Three		LV Generation Non-Intermittent
LVS			LV Sub Generation Non-Intermittent
HV	One		HV Generation Intermittent
HVS			HV Sub Generation Intermittent
HV	Three		HV Generation Non-Intermittent
HVS			HV Sub Generation Non-Intermittent

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

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

Note 3: Non-intermittent generation is defined as a generation plant where the energy source of the prime mover can be made available on demand, in accordance to the definitions in ER 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 licensee's distribution system 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: HV Sub Generation applies to customers connected to the licensee's distribution system at a voltage of at least 1 kV and less than 22 kV at a substation with a primary voltage (the highest operating voltage present at the substation) of at least 22 kV and less than 66 kV, where the current transformer used for the customer's settlement metering or for metering used in the calculation of the customer's use of system charges or credits is located at the substation.

Note 6: Notes 4 and 5 above for LV and HV generation substation tariffs will be applied for new customers from 1 April 2010.

Tariff structures for LDNOs

147. The tariff structure for embedded network operators 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				
Point of Connection	**Profile Class**	**Unit Rate Time Bands**	**Other Charges**	**Tariff Name**
LV	1	One	Fixed	Domestic Unrestricted
LV	2	Two	Fixed	Domestic Two Rate
LV	2	One	None	Domestic Off-Peak (related MPAN)
LV	3	One	Fixed	Small Non-Domestic Unrestricted
LV	4	Two	Fixed	Small Non-Domestic Two Rate
LV	4	One	None	Small Non-Domestic Off-Peak (related MPAN)
LV	5 to 8	Two	Fixed	LV Medium Non-Domestic
LV	1 & 8	One	Unit Rate	NHH UMS (Unmetered supplies)
LV	N/A	Three	Fixed, Capacity and Reactive Power	LV HH Metered
LV	N/A	Three	None	LV UMS (Pseudo HH Metered)
LV	8	One	Fixed	LV Generation NHH
LV	N/A	One	Fixed and Reactive Power	LV Generation Intermittent
LV	N/A	Three	Fixed and Reactive Power	LV Generation Non-Intermittent

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

Table 9: LDNO HV connection				
Point of Connection	**Profile Class**	**Unit Rate Time Bands**	**Other Charges**	**Tariff Name**
HV	4	Two	Fixed	Small Non-Domestic Two Rate
HV	4	One	None	Small Non-Domestic Off-Peak (related MPAN)
HV	5 to 8	Two	Fixed	LV Medium Non-Domestic
HV	1 & 8	One	None	NHH UMS (Unmetered supplies)
HV	N/A	Three	Fixed, Capacity and Reactive Power	LV HH Metered
HV	N/A	Three	None	LV UMS (Pseudo HH Metered)
HV	N/A	Three	Fixed, Capacity and Reactive Power	LV Sub HH Metered
HV	N/A	Three	Fixed, Capacity and Reactive Power	HV HH Metered
HV	8	One	Fixed and Reactive Power	LV Generation NHH
HV	N/A	One	Fixed and Reactive Power	LV Generation Intermittent
HV	N/A	Three	Fixed and Reactive Power	LV Generation Non-Intermittent
HV	N/A	One	Fixed and Reactive Power	LV Sub Generation Intermittent
HV	N/A	Three	Fixed and Reactive Power	LV Sub Generation Non-Intermittent
HV	N/A	One	Fixed and Reactive Power	HV Generation Intermittent
HV	N/A	Three	Fixed and Reactive Power	HV Generation Non-Intermittent

Capacity charges

Maximum Import Capacity

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

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.

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

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

151. For embedded LDNO connections, if capacity ramping has been agreed with the DNO, in accordance with the DNO's 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.

Standby Capacity for Additional Security on Site

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

Exceeded Capacity

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

154. There is no minimum capacity threshold.

Capacity Value Calculations - Import

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 kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

Import Demand = kVA

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

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.

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

Capacity Value Calculations - Export

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

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

Where:

AE = Export production in kWh

RI = Reactive import in kVArh

RE = Reactive export in kVArh

Export Demand = kVA

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

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

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

Reactive power charges

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.

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

Chargeable Reactive Power Unit Calculations - Import

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

Where:

AI = Import consumption in kWh

RI = Reactive Import in kVArh

RE = Reactive export in kVArh

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

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

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

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

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

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

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

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

Charging decimal places

173. DNOs will set unit charges (kWh) and reactive power charges (kVArh) to three decimal places. The rates for fixed charges and capacity charges will be set to two decimal places.

Part 3 — Network Unavailability Rebate Payments

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

175. The majority of customers are compensated under the Guaranteed Standards arrangements set out in Statutory Instrument 2005 No. 1019 (The Electricity (Standards of Performance) Regulations 2005).

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

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

Payment = A*B*(C-D)

Where:

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

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

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

- 50 per cent of the total duration of cases where the DNO takes pre-arranged outages of its equipment for which the statutory notification has been issued to the generator;

- the cases where the generator has specific exemption agreements with the DNO in the connection and/or use of system agreement(s); and

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

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

178. Distributed Generation Network Unavailability Rebate scheme payments will be calculated by the network operator on an annual basis (1st April - 31st March) and payments made shortly after the end of each year. This payment is automatic and does not need to be claimed by the generation customer. The de minimis level of rebate is £5.

Glossary

Term	*Explanation*
All-the-way tariff	A tariff applicable to an end user rather than an embedded licensed distribution network.
Boundary tariff	A tariff for use of the network by another licensed distribution network operator where charges are based on boundary flows.
CDCM	The common distribution charging methodology.
Charging year	The financial year (12 month period ending on a 31st March) for which charges and credits are being calculated.
Coincidence factor	For a user category, aggregate load at the time of the licensee's system simultaneous maximum load divided by maximum aggregate load.
Contribution proportion	The proportion of asset annuities which are deemed covered by customer contributions. This is defined for each combination of a tariff and a network level.
Customer contribution	Capital charges payable by customers under the licensee's connection charging policy.
DCUSA	The Distribution Connection and Use of System Agreement.
Diversity allowance	The extent, expressed as a percentage, to which the sum of the maximum load across all assets in the modelled network level is expected to exceed the simultaneous maximum load for the network level as a whole.
DRM	Distribution reinforcement model. This may refer either to a 500 MW network model or to a cost allocation method based on such a model.
EHV	In this document, EHV refers to nominal voltages of at least 22kV and less than 132kV; network elements with a nominal voltage of 132kV are excluded from EHV for the purpose of this document.
Embedded network	An embedded distribution network operated by an LDNO.
Entry point	A point on the licensee's Distribution System at which units of electricity, whether metered or unmetered, enter that system.
GSP	Grid supply point: where the distribution network is connected to a transmission network.
HV	Nominal voltages of at least 1kV and less than 22kV.
kV	Kilovolt (1,000 Volts): a unit of voltage.

Term	*Explanation*
kVA	Kilo Volt Ampere: a unit of network capacity.
kVAr	Kilo Volt Ampere reactive: a unit of reactive power flow. The network capacity used by a flow of A kW and B kVAr is SQRT(A^2+B^2) kVA.
kVArh	Kilo Volt Ampere reactive hour: a unit of total reactive power flow over a period of time. Reactive power meters usually register kVArh.
kW	Kilowatt (1,000 Watts): a unit of power flow.
kWh	Kilowatt hour: a unit of energy. Meters usually register kWh.
LDNO	Licensed distribution network operator. This refers to an independent distribution network operator (IDNO) or to an distribution network operator (DNO) operating embedded distribution network outside its distribution service area.
Licensee	The distribution network operator using this methodology to set use of system charges for its network.
Load factor	For a user category, average load divided by maximum aggregate load.
LV	Nominal voltages of less than 1kV.
MVA	Mega Volt Ampere (1,000 kVA): a unit of network capacity.
MW	Megawatt (1,000 kW): a unit of power flow.
MWh	Megawatt hour (1,000 kWh): a unit of energy. Energy trading is usually conducted in MWh.
Network level	The network is modelled as a stack of circuit and transformation levels between supplies at LV and the transmission network. A network level is any circuit or transformation level in that stack. Additional network levels are used for transmission exit and for LV and HV customer assets.
Network model	A costed design for a 500 MW extension to the licensee's distribution system.
Ofgem's 1 October 2008 document	"Delivering the electricity distribution structure of charges project", Ofgem, 1 October 2008, available from http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistChrgs/.
Ofgem's 20 March 2009 document	"Next steps in delivering the electricity distribution structure of charges project", Ofgem, 20 March 2009, available from http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistChrgs/.
Power factor	The ratio of energy transported (kW) to network capacity used (kVA).

Term	*Explanation*
Portfolio tariff	A tariff for use of the network by another licensed distribution network operator where charges are based on flows out of/into the other licensed distribution network from its end users or further nested networks.
Related MPAN	Two or more metering points that supply the same customer and are located at the same (or are part of the same) premises. In the context of the CDCM, related MPANs mean the secondary tariff which has to be taken together with another (master) tariff.
RRP	Regulatory reporting pack, a dataset produced each year by each regional distribution network operator for Ofgem.
Service model	A costed design for the typical dedicated assets of a category of network users.
Settlement period	One of 46, 48 or 50 consecutive periods of a half hour starting at 0:00 UK clock time on each day.
Standard distribution licence conditions	The standard conditions of the electricity distribution licence that have effect under section 8A of the Electricity Act 1989 (introduced by section 33 of the Utilities Act 2000).
Standing charge	Any fixed or capacity charge that does not depend on actual use of the network.
System simultaneous maximum load	The maximum load for the GSP Group as a whole.
Time pattern regime	An identifier for meter registers for non half hourly settled users.
Unit	Where the context permits, the word unit refers to kWh.
Unit rate	A charging or payment rate based on units distributed or units generated. Unit rates are expressed in p/kWh. Tariffs applied to multi-rate meters and/or using several time bands for charging have several unit rates.