

DCP 424 Use of Complex Sites

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AMENDMENTS TO SECTION 2A (DISTRIBUTOR TO SUPPLIER RELATIONSHIPS)

Insert the following new definitions in Clause 1.1 (Definitions),

Complex Site	has the meaning given to that term in the Balancing and Settlement Code.
Pseudo Secondary MPAN	has the meaning given to that term in the Balancing and Settlement Code Procedure 550.

SCHEDULE 16 – COMMON DISTRIBUTION CHARGING METHODOLOGY

Insert new paragraphs 128A, 132 E, F,G and H

Introduction

This Schedule 16, version 14.1, is to be used for the calculation of Use of System Charges which will become effective from, 01 April 2022 and remain effective until superseded by a revised version.

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.

This Schedule 16 comprises two main parts. Part 1 describes the cost allocation rules. Part 2 describes the tariff structures and their application.

In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Party will populate and publish the following CDCM model versions:

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for charges effective from 1 April 2020:

where the Authority has given no direction under Clause 19.1B, CDCM model version 3 as issued by the Panel in accordance with Clause 14.5.3; or

where the Authority has given direction under Clause 19.1B that periods of notice described in Clause 19.1A need not apply, CDCM model version 3(332) as issued by the Panel in accordance with Clause 14.5.3;

for charges effective from 1 April 2021:

where the Authority has given no direction under Clause 19.1B, CDCM model version 6 as issued by the Panel in accordance with Clause 14.5.3; or

where the Authority has given direction under Clause 19.1B that periods of notice described in Clause 19.1A need not apply, CDCM model version 6(379) as issued by the Panel in accordance with Clause 14.5.3; or

for charges effective from 1 April 2022 or later:

where the Authority has given no direction under Clause 19.1B, CDCM model version 7 as issued by the Panel in accordance with Clause 14.5.3; or

where the Authority has given direction under Clause 19.1B that periods of notice described in Clause 19.1A need not apply, CDCM model version 8 as issued by the Panel in accordance with Clause 14.5.3.

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.

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.

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PART 1 — COST ALLOCATION

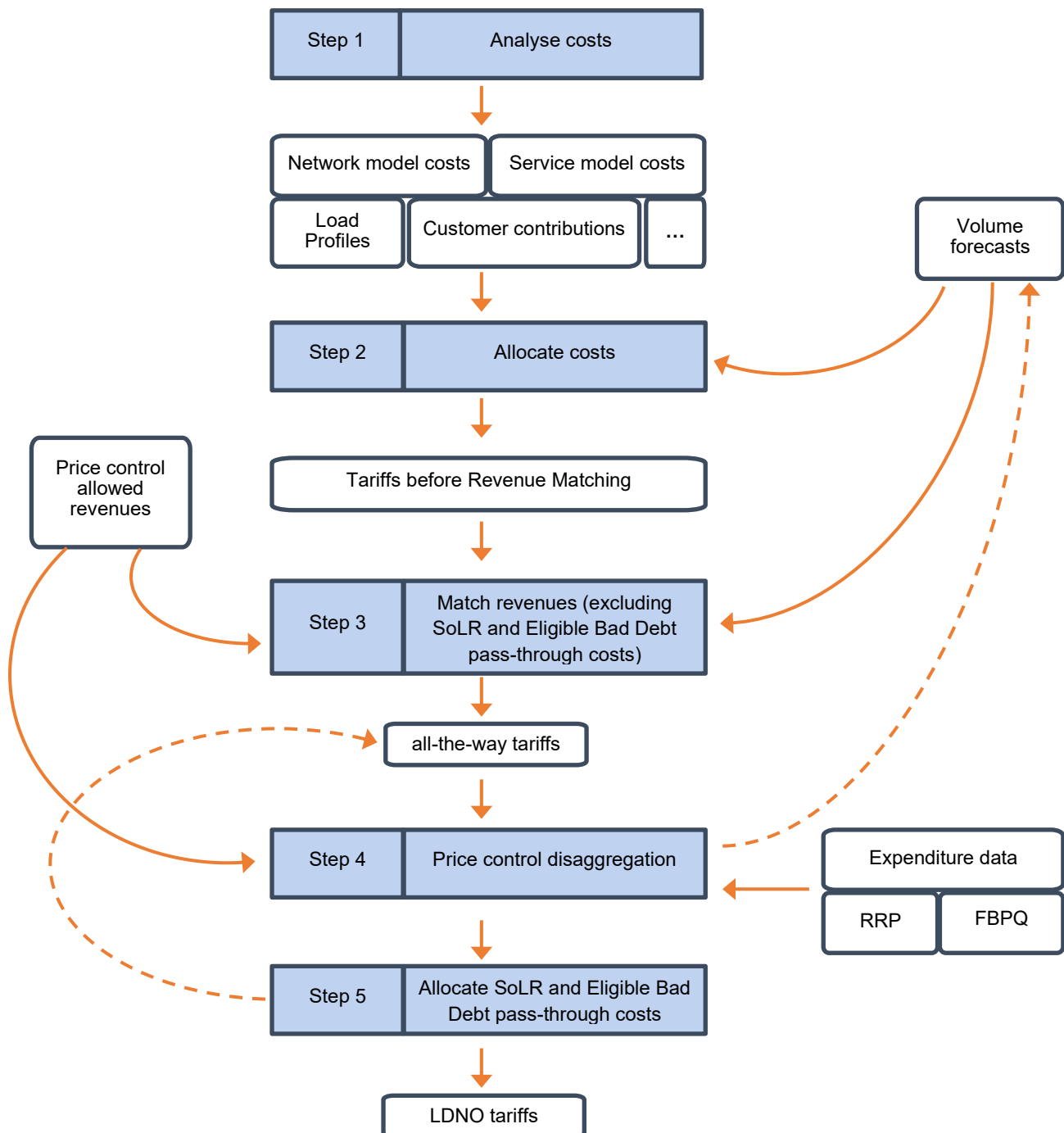
Main steps in the allocation

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

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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.

Step 2 is the application of the cost allocation rules set out below. These rules are only for tariffs before revenue matching and do not apply to LDNO tariffs.

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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, less any adjustment needed for the recovery of the pass-through costs referred to in paragraph 10A, which are allocated in Step 5 following the application of discount factors as detailed in Step 4.

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.

10A. Step 5 allocates pass-through of:

- (a) the DNO Party's Supplier of Last Resort costs to all post revenue matching domestic tariffs with a fixed charge, including those for LDNOs; and
- (b) the DNO Party's Eligible Bad Debt costs to all post revenue matching metered demand tariffs, including those for LDNOs.

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

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

Table 1: List of tariff components		
Tariff component	Unit	
Three unit rates	p/kWh	
Fixed charge	p/day	
Capacity charge	p/kVA/day	
Exceeded capacity charge	p/kVA/day	Half hourly settled demand tariffs only.
Reactive power charge	p/kVArh	

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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).

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 (including exceeded capacity charges) expressed in p/MPAN/day and p/kVA/day respectively.

STEP 1: ANALYSE COSTS

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

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.

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.

Not Used.

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

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.

The model's design assumes a power factor of 0.95 and no embedded generation.

The assets included in the network model are modern equivalent assets of the kind that the DNO Party would normally install on new networks.

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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.

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.

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

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.

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.

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

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.

The DNO Party groups users into categories, by network level of supply, for the purpose of making these estimates.

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

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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.

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.

For each tariff before revenue matching, the DNO Party identifies the extent to which each of the service models represents the relevant assets for an average user in that tariff.

A weighted average of service models is used if several service models apply to the same tariff.

In the case of unmetered supplies, service model assets are modelled on the basis of units delivered.

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

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

Other expenditure

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.

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Distribution time bands

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 tariffs that are metered. The 'black', 'yellow' and 'green' time bands will apply to tariffs that are unmetered.

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

The DNO Party estimates the following load characteristics for each category of demand users:

- 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; and
 - 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.
- 42A. The load characteristics for unmetered supplies for which Use of System Charges are billed on an aggregated basis are not determined from settlement data. For each such

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unmetered supplies tariff the load characteristics are calculated using profile data derived for each GSP Group.

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. Load factors and coincidence factors will be calculated individually for each of the 3 years and a simple arithmetic average will be calculated to be used in tariff setting.

For load factors and coincidence factors in the case of customer classes for which Use of System Charges are billed on an aggregated basis (except the unmetered supplies customer classes), data adjusted for GSP Group correction factor are used.

Not used.

Not used.

Loss adjustment factors to transmission

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

The DNO Party determines a peaking probability in respect of each network level and each of the distribution time bands.

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.

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Power factor data

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.

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

The DNO Party forecasts the volume chargeable to each tariff component under each tariff for the charging year. The DNO Party forecast should be separately analysed by both: tariffs before revenue matching, and all-the-way tariffs.

52A. For the purposes of the calculations described in Step 2 below, forecast volumes for the Domestic Aggregated (Related MPAN) and Non-Domestic Aggregated (Related MPAN) tariffs are added to the volumes for Domestic Aggregated or CT and Non-Domestic Aggregated or CT tariffs as follows:

- (a) Domestic Aggregated (Related MPAN) volumes are added to Domestic Aggregated or CT volumes;
- (b) LDNO LV: Domestic (Related MPAN) volumes are added to LDNO LV: Domestic Aggregated or CT volumes;
- (c) LDNO HV: LV Domestic (Related MPAN) volumes are added to LDNO HV: LV Domestic Aggregated or CT volumes;
- (d) Non-Domestic Aggregated (Related MPAN) volumes are added to Non-Domestic Aggregated or CT volumes.
- (e) LDNO LV: Non-Domestic (Related MPAN) volumes are added to LDNO LV: Non-Domestic Aggregated or CT volumes; and
- (f) LDNO HV: Non-Domestic (Related MPAN) volumes are added to LDNO HV: Non-Domestic Aggregated or CT volumes.

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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.

53A. The DNO Party also forecasts the total customer count for tariffs for domestic customers connected to LDNO networks which are calculated in the EDCM.

53B. The DNO Party also forecasts the total customer count for tariffs for all demand tariffs for Designated Properties connected to LDNO networks which are calculated in the EDCM.

Forecast of price control allowed revenues

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 20.

STEP 2: ALLOCATE COSTS

Categories of costs

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.

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.

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Table 2: Categories of unit costs in the model

Category	Description	Unit	Levels
Network assets	<p>Amortisation and return on capital for networks or substations at each level, excluding assets that are deemed to be covered by customer contributions.</p> <p>This is expressed per kW of system simultaneous maximum load.</p>	£/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	<p>Other expenditure is attributed to levels and assets in the network following the rules set out below.</p> <p>The part allocated to network levels is expressed per kW of system simultaneous maximum load.</p>	£/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

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Annuitisation of network model asset values

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	<p>Set to equal the latest pre-tax real weighted average cost of capital (CC below) for each DNO Party calculated using the following formula:</p> $CC = (\text{Gearing Assumption} \times \text{Pre-Tax Cost of Debt}) + (1 - \text{Gearing Assumption}) \times (\text{Post Tax Cost of Equity} / (1 - \text{Corporation Tax Rate}))$ <p>where:</p> <p>Gearing Assumption is set to the ‘Notional gearing’ value for the regulatory year for which tariffs are being set in the latest version of the PCFM (InputSummary sheet, Finance inputs, Vanilla allowed return on capital) prepared for the relevant DNO Party for publication with such tariff setting on the DNO Party’s website;</p> <p>Pre-Tax Cost of Debt is set to the ‘Allowed return on debt’ value for the regulatory year for which tariffs are being set in the latest version of the PCFM (InputSummary sheet, Finance inputs, CAPM calculator tool: allowed return on debt) prepared for the relevant DNO Party for publication with such tariff setting on the DNO Party’s website;</p> <p>Post Tax Cost of Equity is set to the ‘Allowed return on equity’ value for the regulatory year for which tariffs are being set in the latest version of the PCFM (InputSummary sheet, Finance inputs, CAPM calculator tool: allowed return on equity) prepared for the relevant DNO Party for publication with such tariff setting on the DNO Party’s website; and</p>

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Table 3: Annuity rate of return and annuity period	
Parameter	Value
	<p>Corporation Tax Rate is set to the ‘Corporation tax rate’ value for the regulatory year for which tariffs are being set in the latest version of the PCFM (InputSummary sheet, Tax, Tax policy) prepared for the relevant DNO Party for publication with such tariff setting on the DNO Party’s website.</p> <p>In the event of any value not being available from the above data sources, the DNO Party will prepare a forecast of the value to be used in the CC formula instead.</p> <p>The CC value is calculated as a percentage, and rounded to two decimal places.</p>

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Determination of unit costs from network model

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.

The asset value and unit cost for that network level are obtained by dividing the annuitised cost of purchasing and installing the assets in the network model by this exit flow at time of system simultaneous maximum load.

$$[\text{network level assets } \text{£/kW}] = [\text{assets } \text{£}] / [\text{modelled exit flow at time of system simultaneous maximum load kW}]$$
$$[\text{network level } \text{£/kW/year}] = [\text{network level assets } \text{£/kW}] * [\text{annuity factor}]$$

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

Estimated load at each network level is calculated from:

volume forecasts for each tariff before revenue matching;

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

the load characteristics for users on each tariff before revenue matching, used to estimate the contribution of each user category to load at the time of system simultaneous maximum load.

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.

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:

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

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.

Other expenditure (excluding transmission exit charges) is allocated between network levels in the proportion given by these notional assets.

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

All £/kW/year unit costs and revenue are used in the calculation of yardstick charges for each tariff before revenue matching

For demand tariffs before revenue matching and portfolio tariffs before revenue matching related to demand users, the contributions of each network level to the unit rate are calculated as follows:

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

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

These calculations are repeated for each network level.

In the paragraph 68 equation:

- (a) the user loss factor is the loss adjustment factor to transmission for the network level at which the user is supplied;

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- (b) the network level loss factor is the loss adjustment factor to transmission for the network level for which costs are being attributed; and
- (c) the pseudo load coefficient is calculated as follows:
 - i) 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 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;
 - ii) 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;
 - iii) for each network level and each unit rate, derive the ratio of coincidence factor (to network asset peak) to load factor that would apply given peaking probabilities at that network level if units were uniformly spread within each time band, multiplied by the correction factor; and
 - iv) the result of (iii) above is the pseudo load coefficient for the network level and unit rate.

For generation tariffs before revenue matching and portfolio tariffs before revenue matching, no contribution to the unit rate is calculated in respect of the network level corresponding to circuits at the Entry Point, and a negative contribution to the unit rate (i.e. a credit) comes from each network level above the Entry Point. That contribution is calculated as follows:

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

Not used.

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

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.

The standing charge factors for demand tariffs before revenue matching are shown in the table below:

Tariff before revenue matching	EHV	EHV/HV	HV	HV/LV	LV circuits
Domestic Aggregated or CT					100%
Non-Domestic Aggregated or CT					100%
LV Site Specific			20%	100%	100%
LV Sub Site Specific			100%	100%	
HV Site Specific	20%	100%	100%		
Unmetered Supplies					0%

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.

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.

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

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

$$[\text{p/kVA/day from network model assets}] = 100 * [\text{standing charge factor}] * [\text{network level } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * (1 - [\text{contribution}]$$

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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]

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

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 users for which Use of System Charges are billed on a site specific basis (excluding users with Domestic Aggregated or CT and Non-Domestic Aggregated or CT) and estimated capacities for users in for which Use of System Charges are billed on an aggregated basis and those with Domestic Aggregated or CT and Non-Domestic Aggregated or CT for which Use of System Charges are billed on a site specific basis.

For the tariffs before revenue matching listed below, the unit costs calculated by the formula above are allocated to the capacity charge. The exceeded capacity charge for half hourly settled demand users, except unmetered users, is calculated using the same formula, but with the customer proportion set to zero.

- LV Site Specific
- LV Sub Site Specific
- HV Site Specific

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

For the tariffs before revenue matching 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:

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- Domestic Aggregated or CT
- Non-Domestic Aggregated or CT.

Not used.

Costs associated with LV customer and HV customer levels

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

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

Costs associated with reactive power flows

For each tariff before revenue matching 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 DNO Party's estimate of the average ratio of the reactive power flow (kVAr) to network load (kVA) at the relevant network level.

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.

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STEP 3: MATCH REVENUES

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

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.

90A. The DNO Party calculates an adjusted forecast of allowed revenues, which excludes any Eligible Bad Debt and Supplier of Last Resort pass-through costs. Such pass-through costs are taken into account in Step 5 after LDNO discounts have been applied in Step 4.

If the adjusted forecast of allowed revenue exceeds the estimate of relevant revenues, then the difference is a residual shortfall. If the estimate of relevant revenues exceeds the adjusted forecast of allowed revenue, then the difference is a residual surplus.

Revenue matching is achieved by:

- (a) apportioning the total value of the residual surplus or residual shortfall to be returned or recovered respectively, via a fixed charge to (i) the domestic LV-connected charging band and (ii) the specific charging bands set out in paragraph 2.4 of Schedule 32 on the basis of (A) the aggregated consumption of all Final Demand Sites in that band (including the consumption of any Related MPANs where applicable), relative to (B) the combined total net consumption for all Final Demand Sites (including the consumption of any Related MPANs where applicable) plus the total consumption for unmetered customers.
- (b) The allocated proportion of the residual value to each charging band will then be divided equally among all Final Demand Sites within that charging band, resulting in the same level of residual fixed charge.
- (c) Residual charges for each Final Demand Site will be applied as a fixed charge adder (p/Final Demand Site/day) calculated as follows: the revenue surplus or

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shortfall (in pence) to be recovered for the band that the Final Demand Site is in; divided by the total number of Final Demand Sites in that band; divided by days in the charging year.

92A. In order to calculate all-the-way tariffs, residual charges are added to the tariffs before revenue matching as shown in the table below.

Tariff before revenue matching	All-the-way Tariff	Residual Charge
Domestic Aggregated or CT	Domestic Aggregated or CT with Residual	Domestic LV-connected Charging Band
Domestic Aggregated (Related MPAN)	Domestic Aggregated (Related MPAN)	None
Non-Domestic Aggregated or CT	Non-Domestic Aggregated or CT No Residual	None
	Non-Domestic Aggregated or CT Band 1	Non-domestic LV connected without a MIC as a basis for its current charge (Charging Band 1)
	Non-Domestic Aggregated or CT Band 2	Non-domestic LV connected without a MIC as a basis for its current charge (Charging Band 2)
	Non-Domestic Aggregated or CT Band 3	Non-domestic LV connected without a MIC as a basis for its current charge (Charging Band 3)
	Non-Domestic Aggregated or CT Band 4	Non-domestic LV connected without a MIC as a basis for its current charge (Charging Band 4)
Non-Domestic Aggregated (Related MPAN)	Non-Domestic Aggregated (Related MPAN)	None
LV Site Specific	LV Site Specific No Residual	None
	LV Site Specific Band 1	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 1)
	LV Site Specific Band 2	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 2)

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	LV Site Specific Band 3	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 3)
	LV Site Specific Band 4	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 4)
LV Sub Site Specific	LV Sub Site Specific No Residual	None
	LV Sub Site Specific Band 1	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 1)
	LV Sub Site Specific Band 2	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 2)
	LV Sub Site Specific Band 3	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 3)
	LV Sub Site Specific Band 4	Non-domestic LV connected with a MIC as a basis for its current charge (Charging Band 4)
HV Site Specific	HV Site Specific No Residual	None
	HV Site Specific Band 1	Non-domestic HV connected with a MIC as a basis for its current charge (Charging Band 1)
	HV Site Specific Band 2	Non-domestic HV connected with a MIC as a basis for its current charge (Charging Band 2)
	HV Site Specific Band 3	Non-domestic HV connected with a MIC as a basis for its current charge (Charging Band 3)
	HV Site Specific Band 4	Non-domestic HV connected with a MIC as a basis for its current charge (Charging Band 4)
Unmetered Supplies	Unmetered Supplies	Unmetered Supplies

Note 1: In all cases, the charges are added together by adding each individual component of the tariffs individually, whether it is a fixed or unit residual charge component.

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Note 2: Where a charge is listed as ‘None’, or a value has not been set for a charge, the residual charge to be added in the case of that tariff component is zero.

92B. For any DNO Party, if the count of Final Demand Sites in any given metered non-domestic charging band is less than two in the charging year for which tariffs are being determined, the residual fixed charge for that band will be calculated as set out in accordance with Paragraph 92, but the total import consumption and total count of Final Demand Sites in that band will be combined with the equivalent information for the band above that band and at the same voltage level. If the band in question is the highest band, then it will be combined with the equivalent information for the band below that band and at the same voltage level. The residual fixed charge should therefore be the same for all the Final Demand Sites in the bands combined under this Paragraph 92B. There must be no single or combined band with less than two Final Demand Sites within that band. A Final Demand Site connected during the year will be counted as a fraction based on the proportion of the year for which the site was connected.

92C. There are eight possible combinations for grouping of non-domestic charging bands under Paragraph 92B. The grouping of bands under Paragraph 92B shall be applied in accordance with the preference order given in the table below.

Preference order for band grouping combinations	Band 1	Band 2	Band 3	Band 4
First	1	2	3	4
Second	1 + 2		3	4
Third	1	2 + 3		4
Fourth	1	2	3 + 4	
Fifth	1 + 2		3 + 4	
Sixth	1 + 2 + 3			4
Seventh	1	2 + 3 + 4		
Eighth	1 + 2 + 3 + 4			

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- 92D. Revenue matching for unmetered customers is achieved by apportioning the total value of the residual surplus or residual shortfall to be returned or recovered respectively, on the basis of total consumption for unmetered customers, relative to the combined total net consumption for all Final Demand Sites (including the consumption of any Related MPANs where applicable) plus the total consumption for unmetered customers. The residual value for unmetered customers is then recovered by applying a unit charge adder (p/kWh) calculated as follows: the residual surplus or shortfall (in pence) to be recovered; divided by the total volume of all unmetered customers (in kWh).

The unit charges adder is positive if there is a shortfall and negative if there is a surplus.

Where a residual surplus exists, and it is not possible to apply the charge from any charging band, as it reduces the fixed components of the relevant all-the-way tariff to less than zero (post allocation of pass-through costs in step 5), then the total fixed charge element of that all-the-way tariff will be capped at zero. The remaining residual surplus will be returned to all Final Demand Sites within that charging band by applying a fixed charge adder (p/kWh) across all unit rates. If this procedure would result in negative value for any tariff component, then that tariff component is set to zero, and the unit charge adder figure is modified to the extent necessary to match forecast and target revenue.

- 94A. Where Paragraph 94 applies and the basis for that all-the-way tariff is derived from more than one tariff before revenue matching and shares the same residual charge as described in Paragraph 92A, then the amount of residual charge to be applied will be set equal to the amount that applies to whichever tariff before revenue matching would first require a cap to be applied in accordance with Paragraph 94 (i.e. the lesser of the two). Where applicable, this applies to the fixed charge element of the relevant all-the-way tariff and the fixed charge adder on unit rates of the relevant all-the-way tariff.

Tariffs for generation do not have any revenue matching element.

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STEP 4: PRICE CONTROL DISAGGREGATION

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.

The discount percentages are determined in accordance with Schedule 29, which schedule is deemed to form part of this CDCM (as if it were set out herein).

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.

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.

STEP 5: ALLOCATION OF PASS-THROUGH COSTS

Step 5 involves calculations based on the level of Supplier of Last Resort pass-through costs to be recovered in the charging year. Such costs are allocated to all domestic tariffs with a fixed charge (including LDNO tariffs) on an equivalent basis (i.e. without discounting LDNO tariffs). Step 5 also involves calculations based on the level of Eligible Bad Debt pass-through costs to be recovered in the charging year. Such costs are allocated to all demand tariffs (including LDNO tariffs) on an equivalent basis (i.e. without discounting LDNO tariffs).

Supplier of Last Resort pass-through costs are allocated by applying a fixed charge adder (p/day) to the tariffs for following customer groups (as further described in paragraph 102):

- Domestic Aggregated or CT;
- LDNO LV: Domestic Aggregated or CT;
- LDNO HV: Domestic Aggregated or CT;

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- LDNO HVplus: Domestic Aggregated or CT (which is calculated in the EDCM);
- LDNO EHV: Domestic Aggregated or CT (which is calculated in the EDCM);
- LDNO 132kV/EHV: Domestic Aggregated or CT (which is calculated in the EDCM);
- LDNO 132kV: Domestic Aggregated or CT (which is calculated in the EDCM);
- LDNO 0000: Domestic Aggregated or CT (which is calculated in the EDCM).

The fixed charge adder is calculated as the costs to be passed through (in £) multiplied by 100 divided by the combined customer count of the groups listed in paragraph 101 (including those with tariff calculated in the EDCM, as determined in paragraph 53A) divided by the number of days in the charging year.

Eligible Bad Debt pass-through costs are allocated by applying a fixed charge adder (p/day) to all metered demand tariffs excluding ‘related MPAN’ tariffs. The fixed charge adder is calculated as the costs to be passed through (in £) multiplied by 100 divided by the combined customer count of all metered demand customer groups (including those with tariffs calculated in the EDCM, as determined in paragraph 53B) excluding ‘related MPAN’ customer groups divided by the number of days in the charging year.

The DNO Party will publish details of the fixed charge adders calculated under this Step 5 in its Use of System Charging Statement (as defined in and required by Standard Condition 14 of the DNO Party’s Distribution Licence).

Not used.

Not used.

Not used.

Not used.

Not used.

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Not used.

Not used.

Not used.

Not used.

Not used.

Not used.

Not used.

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Not used.

Not used.

Not used.

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Not used.

Not used.

Not used.

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PART 2 — TARIFF STRUCTURES AND APPLICATION

The CDCM provides for a common tariff structure for all 14 DNO Parties and their Distribution Service Areas.

This part details the common tariff structure for tariffs before revenue matching and associated tariff elements for demand and generation, for unmetered supplies and for charges to LDNOs.

127A. Tariffs before revenue matching are used to calculate the all-the-way tariffs as described in Paragraph 92A.

Tariff structures for demand customers

Aggregated Metered Demand

128 For MPANs that are to be charged on an aggregated basis (as further described in Paragraph 132C), subject to Paragraph 128A, Use of System Charges will be via the Supercustomer approach which for non-MHHS MPANs 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)

and which for MHHS MPANs uses data from the REP-002B industry data flow based on DUoS Tariff ID.

128A. MPANs that are included within a Class 5 Complex Site or Class 6 Complex Site where netting of Imports and Exports occurs across the network will be charged on an aggregated basis, using aggregated data provided on the D0275 or D0036 or for MHHS customers the IF-021 or IF-013 or IF-014 industry data flows in accordance with BSC Procedure BSCP 502 established under the BSC (and any replacement or substitute BSC Procedure from time to time).

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- 129 For non-MHHS NHH settled MPANs, the combination of LLFC/PC/SSC/TPR determines the associated profile and half-hourly data values. For HH and MHHS metered MPANs, the half-hourly data is used.
- 130 DNO specific network time bands will be applied to the appropriate SSC/TPR combinations or half-hourly data associated with each DUoS Tariff ID stated in Paragraph 129.
- 131 Charges will be applied on a fixed charge and unit rate basis. The latter allocated to DNO specific network time bands. There will be no capacity, exceeded capacity or reactive charges for aggregated metered demand MPANs.
- 132 Structure of aggregated metered demand charges will be as follows (where, if MPAN counts are provided for each settlement period, the fixed charge will be applied to the MPAN count in the final settlement period of the day):
- (a) Fixed charge will be p/MPAN/day; and
 - (b) Unit charges will be p/kWh.
- 132A. Domestic Aggregated (Related MPAN) and Non-Domestic Aggregated (Related MPAN) and unmetered supplies will be charged on a p/kWh basis only.
- 132B. As described in Paragraph 40, there will be three unit rate time bands on a time-of-day basis for all aggregated customers with the exception of the 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.
- 132C. Those MHHS customers whose Connection Type is "Whole Current" will be charged on an aggregated basis and will be assigned to the appropriate tariff before revenue matching based on the Domestic Premises Indicator.

Those non-MHHS customers in Measurement Class A, F or G will be charged on an aggregated basis. Such customers will be assigned to the appropriate tariff before

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revenue matching based on the Measurement Class, type of metering equipment installed and the voltage of connection as specified in the table below:

Complex Sites

132E. Where one or more MPANs form part of a Complex Site under the Balancing and Settlement Code results in the netting of Import and Export volumes for settlement purposes, the Distributor shall ensure that Use of System Charges are applied based on the gross consumption volumes associated with the Complex Site in accordance with paragraphs 132E to 132G.

Gross Consumption Volumes

132F. In respect of MPANs forming part of a Complex Site, gross consumption volumes shall be determined in relation to the metered volumes, comprised within the Complex Site and provided to the Distributor via the applicable DIP interfaces.

Pseudo Secondary MPANs for Charging Purposes

132G. Where settlement netting arrangements prevent gross consumption volumes from being attributed directly to an MPAN, the Distributor may require such volumes to be attributed to one or more Pseudo Secondary MPANs created solely for the purposes of applying and billing Use of System Charges.

Charging Treatment

132H. Use of System Charges applied pursuant to paragraphs 132E to 132G shall:

- (a) be applied using the relevant LLFC or DUoS Tariff ID associated with the MPAN and associated Pseudo Secondary MPANs;
- b) not treat a Pseudo Secondary MPAN as a separate physical connection point; and
- c) not alter or override settlement arrangements under the Balancing and Settlement Code.