

**SCHEDULE 29 - CALCULATION OF DISCOUNT PERCENTAGES  
FOR THE PURPOSE OF DETERMINING CERTAIN LDNO USE OF  
SYSTEM CHARGES UNDER SCHEDULES 16, 17 AND 18**

**Implementation Date**

**This Schedule 29, version 12.1, is to be used for the calculation of Use of System Charges which will become effective from, 01 April 2020 and remain effective until superseded by a later revised version.**

1. This Schedule forms part of the CDCM and the EDCMs. It describes the methodology for the calculation of discount percentages for the purpose of determining certain LDNO use of system charges under Schedules 16, 17 and 18.
- 1A. In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Parties will populate the price control disaggregation model (PCDM) version 3.0 when issued by the Panel in accordance with Clause 14.5.3.
2. For the purposes of calculating discount percentages, the DNO Party's network is split into five levels: (i) LV services, (ii) LV mains, (iii) HV/LV, (iv) HV and (v) a single level covering EHV and 132kV (including EHV/HV).
3. The calculation of discount percentages used in Schedule 16 involves the following steps:
  - a) Breakdown of price control allowed revenue between operating expenditure, depreciation and return on regulatory asset value.
  - b) Allocation of each of these components of price control allowed revenue to network levels.
  - c) Determination of a percentage allocation of total revenue per unit to network levels.
  - d) Determination of the proportion of the LV mains deemed to be used by LV-connected embedded networks.

- e) Determination of the proportion of the HV network deemed to be provided by HV-connected embedded networks.
  - f) Calculation of the discount percentage for each combination of boundary network level and end user network level.
4. For the calculation of discount percentages used in Schedule 16, in order to determine the allocation to network levels of each element of price control revenue, the DNO Party uses cost allocation drivers calculated from the following sources:
- a) Regulatory Reporting Pack (RRP) data on units distributed and operating expenditure broken down by network level.
  - b) Data that each DNO Party considers appropriately represents the forecast of net capital expenditure and customer contributions for the period 2005/2006–2014/2015, broken down by network level.
  - c) Data from a version of the Forecast Business Plan Questionnaires (FBPQ) that would have been submitted by each DNO Party to the Authority before April 2010.
  - d) Forecast data that each DNO Party considers appropriately represents the gross modern equivalent asset values (replacement costs) for various asset types.
  - e) The value of all notional assets calculated in each DNO Party's EDCM model. This comprises the aggregate of:
    - I. the sum of notional site-specific asset values of all network levels allocated to capacity for all customers in the DNO Party's EDCM model;
    - II. the sum of notional asset values at all network levels allocated to demand for all customers in the DNO Party's EDCM model;
    - III. the sum of sole use asset values allocated to demand for all customers in the DNO Party's EDCM model; and
    - IV. the sum of sole use asset values for generation only for all customers in the DNO Party's EDCM model.

- f) The CDCM notional asset values for each network level as referred to in paragraph 63 of Schedule 16.
5. The calculation of discount percentages used in Schedules 17 and 18 is a two-part process. The first part of the process involves the calculation of the percentages used to allocate the DNO Party's Allowed Revenue to each network level. This is done for each element of Allowed Revenue: the operating cost, depreciation and return on RAV elements. These are aggregated over the period 2005/2006 to 2009/2010 (the DPCR4 period). In order to determine the allocation to network levels of each element of price control revenue, the following cost allocation drivers are used:
- a) Data submitted by the DNO Party to the Authority using the format prescribed in the Regulatory Reporting Pack (RRP) on units distributed and operating expenditure broken down by network level (relating to the year 2007/2008).
  - b) Data from a version of the FB PQ that would have been submitted by each DNO Party to the Authority before April 2010.
  - c) Data that each DNO Party considers appropriately represents the forecast of net capital expenditure and customer contributions for the period 2005/2006–2014/2015, broken down by network level.
  - d) Forecast data that each DNO Party considers appropriately represents the gross modern equivalent asset values (replacement costs) for various asset types.

#### **Allocation of operating expenditure to network levels**

6. The DNO Party allocates operating expenditure in the 2007/2008 RRP by network level. The RRP already allocates some operating expenditure by network level.

**Table: Allocation rules**

	<b>Allocation key</b>	<b>Percentage capitalised</b>	<b>Direct cost indicator</b>
Load related new connections & reinforcement (net of contributions)	As described in this Schedule	100.0%	1
Non-load new & replacement assets (net of contributions)	MEAV	100.0%	1
Non-operational capex	MEAV	23.5%	1
Faults	MEAV	23.5%	1
Inspections, & Maintenance	MEAV	23.5%	1
Tree Cutting	MEAV	23.5%	1
Network Policy	MEAV	52.57%	
Network Design & Engineering	MEAV	52.57%	
Project Management	MEAV	52.57%	
Engineering Mgt & Clerical Support	MEAV	52.57%	
Control Centre	MEAV	52.57%	
System Mapping – Cartographical	MEAV	52.57%	
Customer Call Centre	MEAV	52.57%	
Stores	MEAV	52.57%	
Vehicles & Transport	MEAV	52.57%	
IT & Telecoms	Do not allocate	52.57%	
Property Mgt	Do not allocate	52.57%	
HR & Non-operational Training	MEAV	52.57%	
Health & Safety & Operational Training	MEAV	52.57%	
Finance & Regulation	MEAV	52.57%	
CEO etc	MEAV	52.57%	
Atypical cash costs	Do not allocate		1
Pension deficit payments	Do not allocate	57.7%	1
Metering	Do not allocate		1
Excluded services & de minimis	Do not allocate		1
Relevant distributed generation (less contributions)	Do not allocate		1
IFI	Do not allocate		1
Disallowed Related Party Margins	Do not allocate		1
Statutory Depreciation	Do not allocate		1
Network Rates	Do not allocate		1
Transmission Exit Charges	Deduct from revenue		1
Pension deficit repair payments by related parties	Do not allocate		1
Non activity costs and reconciling amounts	See paragraph 11A below		See paragraph 11A below

7. For the categories of expenditure for which the table reports “MEAV” under “the column “Allocation key”, the DNO Party allocates the difference between total and allocated operating expenditure on the basis of an estimate of modern equivalent asset value by network level. Estimated gross modern equivalent asset values used for this purpose are derived from asset counts and gross modern equivalent asset values (replacement costs) for various asset types. The DNO Party maps assets to network levels using the mapping shown in the table in paragraph 12 (Mapping of assets to network levels), and calculates the share of MEAV allocated to each of the network levels.
8. For the calculation of discount percentages used in Schedule 16 only, the estimated gross modern equivalent asset value at the EHV and 132kV network level is adjusted by multiplying it by the EHV Reduction Ratio. The EHV Reduction Ratio is a factor applied to the EHV network drivers that reduces the allocation of costs to the EHV network level to account for revenues recovered from EDCM Connectees. The "**EHV Reduction Ratio**" is calculated as follows:

$$[EHV \text{ Reduction Rate}] = [EHV \text{ and } 132kV \text{ assets in the CDCM model}] / ([EHV \text{ and } 132kV \text{ assets in the CDCM model}] + [All \text{ notional assets in the EDCM model}])$$

**Where:**

***EHV and 132kV assets in the CDCM model*** = the sum of the notional values in £ of the EHV assets in the CDCM model, namely 132kV, 132kV/EHV, EHV, EHV/HV, and 132kV/HV assets; and

***all notional assets in the EDCM model*** = the total notional value in £ of the assets as described in paragraph 4(e) above.

9. For each network level, the DNO Party calculates a category of operating costs called “***Load related new connections & reinforcement (net of contributions)***” as the sum of the following elements:
- a. General reinforcement costs reported in table 2.4 of the 2007/2008 RRP. These are reported by network level. The amount related to the HV system is allocated entirely to the HV network level. No allocation is made for the HV/LV network level.

- b. [“New connections & customer specific reinforcement” less “Customer contributions (directs) for connections” for connections at each network level aggregated over the period 2005/2006 to 2014/2015], and divided by 10. Both sets of numbers are reported for each network level in the FBPQ (worksheet LR1). No allocation is made for the HV/LV network level. If this element is negative for any network level, it is replaced by zero for that network level.
10. The DNO Party adjusts the operating costs allocated to each network level - equal to the sum of the operating costs already allocated to network levels in the 2007/2008 RRP and the operating costs allocated in line with the previous paragraphs - by multiplying, for each operating cost category, the allocated cost by [one minus the relevant capitalisation percentage specified in the table in paragraph 6 (Allocation rules)].
11. On the basis of summing this adjusted allocation of operating costs across cost categories for each network level, the DNO Party calculates the share of operating costs of each network level. These are denoted as "**Expensed proportions**".
- 11A. RRP costs described in the table at paragraph 6 above as “Non activity costs and reconciling amounts” shall be allocated as follows:
- (a) costs described in table 2.6 of the 2007/2008 RRP as “Ofgem licence fee” shall be 100% allocated directly to the LV services level and treated as indirect costs; and
- (b) no other costs shall be directly allocated.
12. Transmission exit charges are not allocated to any of the voltage tiers. These charges are deducted from the allowed revenue.

**Table: Mapping of assets to network levels**

<b>Asset</b>	<b>Network level</b>
LV mains overhead lines	LV mains
LV services overhead lines	LV services
LV overhead support	LV mains
LV mains underground cable, consac	LV mains
LV mains underground cable, plastic	LV mains
LV mains underground cable, paper	LV mains
LV services underground cable	LV services

LV pillar, indoors	LV mains
LV pillar, outdoors	LV mains
LV board, wall-mounted	LV mains
LV board, underground	LV mains
LV fuses, pole-mounted	LV mains
LV fuses, tower-mounted	LV mains
6.6/11 kV overhead line, open	HV
6.6/11 kV overhead line, covered	HV
20 kV overhead line, open	HV
20 kV overhead line, covered	HV
6.6/11 kV overhead support	HV
20 kV overhead support	HV
6.6/11kV underground cable	HV
20kV underground cable	HV
HV submarine cable	HV
6.6/11 kV circuit breaker pole-mounted	HV
6.6/11 kV circuit breaker ground-mounted	HV
6.6/11 kV switch pole-mounted	HV
6.6/11 kV switch ground-mounted	HV/LV
6.6/11 kV ring main unit	HV/LV
6.6/11 kV other switchgear, pole-mounted	HV
6.6/11 kV other switchgear, ground-mounted	HV
20 kV circuit breaker, pole-mounted	HV
20 kV circuit breaker, ground-mounted	HV
20 kV switch, pole-mounted	HV
20 kV switch, ground-mounted	HV/LV
20 kV ring main unit	HV/LV
20 kV other switchgear, pole-mounted	HV
20 kV other switchgear, ground-mounted	HV
6.6/11 kV transformer, pole-mounted	HV/LV
6.6/11 kV transformer, ground-mounted	HV/LV
20 kV transformer, pole-mounted	HV/LV
20 kV transformer, ground-mounted	HV/LV
33kV overhead pole line	EHV and 132kV
33kV overhead tower line	EHV and 132kV
66kV overhead pole line	EHV and 132kV
66kV overhead tower line	EHV and 132kV
33kV pole	EHV and 132kV
33kV tower	EHV and 132kV
66kV pole	EHV and 132kV
66kV tower	EHV and 132kV
33kV underground cable, non-pressurised	EHV and 132kV

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

**Allocation of depreciation and return to network levels**

13. Both the depreciation and return on capital elements of allowed revenue are allocated to network levels on the basis of net capital expenditure data aggregated over the 10-year period from 2005/2006 to 2014/2015, taking in the DNO Party's appropriate estimates or forecasts for each year as available.
14. The DNO Party calculates the net capital expenditure split by LV, LV/HV, HV, and EHV and 132kV (which includes EHV/HV). For each of these four segments, the relevant net capital expenditure is calculated by adding up expenditure on total condition based replacement (proactive and reactive replacement), connections spend minus customer contributions (directs) for connections at that voltage level, general reinforcement capital expenditure at that voltage level, and fault reinforcement capital expenditure at that voltage level.
15. For the calculation of discount percentages used in Schedule 16 only, the net capital expenditure at the EHV and 132kV network level is adjusted by multiplying it by the EHV Reduction Ratio (see paragraph 8 above). This adjustment is not done for the calculation of discount percentages used in Schedules 17 and 18.
16. Some of these net capital expenditure categories allow HV substation and transformer costs to be identified. These costs (and no other costs) are allocated to the HV/LV network level. The ratio of the expenditure in these categories on HV substations and transformers to the expenditure in these categories on other HV assets is denoted as "**HV/LV capital expenditure ratio**".
17. Some of the net capital expenditure categories do not separately identify HV substation/transformer costs and report a single figure for HV. For these categories, the costs reported under HV are split between the HV/LV network and the HV network level so that the ratio of the amount allocated to the HV/LV network level to the costs reported under HV is equal to the [HV/LV capital expenditure ratio] determined above.
18. Generation-related capital expenditure is not included in the net capex attributable to each network level.

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

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

20. The DNO Party determines a breakdown of price control allowed revenue over the period from 2005/2006 to 2009/2010 between (1) operating expenditure, (2) depreciation and (3) return on regulatory asset value. Operating expenditure is then allocated to each network level according to the [Expensed proportions] for each network level (see paragraph 11 above). The depreciation and return on regulatory asset value elements of price control allowed revenue are allocated to each network level in the proportions calculated as described in paragraphs 13-19 of this Schedule. Different allocations are obtained for the purpose of Schedule 16 and for the purposes of Schedules 17 and 18. Again, separately for the purposes of Schedule 16 and for Schedules 17 and 18, the allocations of each of the three components of price control allowed revenue are aggregated by network level to obtain a percentage per network level of total price control allowed revenue.
21. The price control allowed revenue for 2007/2008 (denoted as the "**Total allowed revenue**") is adjusted by deducting from it the [Revenue not to share] (denoted as the "**Adjusted total revenue to share**"). The "**Revenue not to share**" comprises the aggregate of:
- a) the net amount earned by the DNO Party under price control financial incentive schemes for 2007/2008 (this may be a negative number); and
  - b) Transmission exit charges for 2007/2008.
22. The [Adjusted total revenue to share] for the calculation of discount percentages used in Schedule 16 (and the [Total revenue to share] for the calculation of discount percentages used in Schedule 17 and 18) are then allocated to each network level using the appropriate weighted average percentage allocations calculated as described in paragraph 20 of this Schedule.

23. A further two revenue elements are allocated to each network level using the [Expensed proportions] for each network level:
- a. “Customer contributions indirects” (from worksheet LR1 of the FB PQ) aggregated over the period 2005/2006 to 2014/2015, and divided by ten.
  - b. The absolute value of the aggregate across all network levels and over the period 2005/2006 to 2014/2015 of any negative numbers obtained when “New connections & customer specific reinforcement” less “Customer contributions (directs) for connections” for connections at each network level in the FB PQ (worksheet LR1) is calculated, divided by 10.
24. The revenues allocated to each network level are then rescaled by the estimated number of units flowing through each network level, loss adjusted to LV. The result is denoted by "**Revenue to share per unit**", for each network level. The Revenue not to share is re-scaled by all units flowing into the DNO Party’s EHV network, loss adjusted to LV; the result is denoted as "**Revenue not to share per unit**".
25. The DNO Party calculates the number of units flowing through each network level, loss-adjusted to LV, in two steps.
26. The first step is to calculate adjustment factors for units distributed at LV, at HV and at EHV and 132kV in respect of each of the LV, HV and EHV and 132kV levels.
- a) For units distributed at LV, the adjustment factor is 1 (one).
  - b) For units distributed at HV, the adjustment factor is 0 (zero) in respect of the LV level, and  $(U + 0.5 * \text{Losses}) / (U + \text{Losses})$  in respect of the other levels, where U is the number of units distributed at LV plus half of the number of units distributed at HV plus a quarter of the number of units distributed at EHV and 132kV.
  - c) For units distributed at EHV, the adjustment factor is 0 (zero) in respect of the LV and HV levels, and  $(U + 0.25 * \text{Losses}) / (U + \text{Losses})$  in respect of the EHV and 132kV level, where U is defined as above.
27. The second step is to calculate, for each of the LV, HV, and EHV and 132kV networks, the sum of the product of the three adjustment factors and the units distributed at each

of LV, HV, and EHV and 132kV. This gives the number of units, (loss adjusted to LV) flowing through each of the LV, HV, and EHV and 132kV networks. The number of units (loss adjusted to LV) flowing through the LV services, the LV mains and the HV/LV network levels are the same as the number flowing through the LV network.

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

### **Calculation of direct proportions**

29. The DNO Party calculates the [HV direct proportion] and the [LV direct proportion] on the basis of the allocation of RRP operating expenditure across network levels set out in paragraphs 6 and 7 of this Schedule (before the adjustment for capitalisation rates is made). Before this calculation is performed, any negative figure is set to zero.
30. The "**HV direct proportion**" is the ratio of the sum of the operating expenditure allocated to the HV network level across the expenditure categories identified as "Direct costs" in the table in paragraph 6 (Allocation rules) to the sum of the operating expenditure allocated to the HV network level across all operating expenditure categories.
31. The "**LV direct proportion**" is the ratio of the sum of the operating expenditure allocated to the LV services or the LV mains network levels across the expenditure categories identified as "Direct costs" in the table in paragraph 6 (Allocation rules) to the sum of the operating expenditure allocated to the LV services or LV mains networks level across all operating expenditure categories.
32. The DNO Party calculates the [EHV and 132kV direct cost proportion] on the basis of the allocation of RRP operating expenditure across network levels set out in paragraphs 6-12 of this Schedule (before the adjustment for capitalization rates is made). Before this calculation is performed, any negative figure is set to zero. The "**EHV and 132kV direct cost proportion**" is calculated as the ratio of the sum of the operating expenditure allocated to the EHV and 132kV network level across the expenditure

categories identified as “Direct costs” in the table in paragraph 6 (Allocation rules) to the sum of the operating expenditure allocated to the EHV and 132kV network level across all operating expenditure categories.

### **LV mains split**

33. The DNO Party will procure that the Nominated Calculation Agent estimates for the DNO Party’s Distribution Services Area the proportion of the LV mains which LV-connected embedded networks are deemed to use by:
- a) determining the total length of its LV mains used by LV-connected embedded networks;
  - b) dividing that total length by the number of end users on LV-connected embedded networks; and
  - c) dividing the result by the average length of LV mains by LV end user on the DNO Party’s own LV network.
34. The estimates will be based on available data provided by DNO Parties and IDNO Parties.
35. The result of this calculation is denoted “**LV mains split**”.

### **HV split**

36. The DNO Parties will procure that the Nominated Calculation Agent estimates the typical proportion of the HV network which is provided by the DNO Party in the case of HV loads supplied through an HV-connected embedded network. This estimate will be based on sample data, and the average used will be the same for all DNO Parties.
37. The proportion is denoted “**HV split**”, and is represented as:

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

### **EHV network level disaggregation**

38. For the calculation of discount percentages used in Schedule 17 and 18 only, the percentage allocated to the EHV and 132kV network level, [EHV and 132kV allocation], is split into separate percentages for the following asset levels:
- a) 132kV circuits (England and Wales only);
  - b) 132kV/EHV substations (England and Wales only);
  - c) EHV circuits; and
  - d) EHV/HV substations
39. The DNO Party splits [EHV and 132kV allocation] into separate percentages for the above assets levels on the basis of the share of the MEAV of the EHV and 132kV network level accounted for by the MEAV of the assets associated with each of the four asset levels. The DNO Party does this on the basis of the MEAV of the assets and of the mapping in the table below. The results of the allocation of [EHV and 132kV allocation] into percentage allocations for the different EHV and 132kV asset levels are denoted as "**132kV allocation**", "**132kV/EHV allocation**", "**EHV allocation**" and "**EHV/HV allocation**".

**Table: MEAV EDCM mapping**

<b>Asset</b>	<b>Asset level</b>
6.6/11 kV circuit breaker pole-mounted	EHV/HV
6.6/11 kV circuit breaker ground-mounted	EHV/HV
20 kV circuit breaker, pole-mounted	EHV/HV
20 kV circuit breaker, ground-mounted	EHV/HV
33kV overhead pole line	EHV
33kV overhead tower line	EHV
66kV overhead pole line	EHV
66kV overhead tower line	EHV
33kV pole	EHV
33kV tower	EHV

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

132kV circuit breaker, indoors and outdoors	132kV
132kV other switchgear	132kV
132kV transformer	132kV/EHV
132kV auxiliary transformer	132kV/EHV
132kV/EHV remote terminal unit, pole mounted	EHV/HV
132kV/EHV remote terminal unit, ground mounted	EHV/HV

### Calculation of discount percentages

40. The discount percentage used in Schedule 16 to calculate tariffs applicable to embedded networks with an LV boundary is:

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

41. For embedded networks with an HV boundary, three percentage discount figures are used in Schedule 16.

42. The discount percentage used in Schedule 16 to calculate tariffs applicable to embedded networks with an HV boundary in respect of LV network end users is:

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

43. The discount percentage used in Schedule 16 to calculate tariffs applicable to embedded networks with an HV boundary in respect of LV substation end users is:

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

44. The discount percentage used in Schedule 16 to calculate tariffs applicable to embedded networks with an HV boundary in respect of HV end users is:

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

45. For the calculation of discount percentages used in Schedules 17 and 18, each LDNO Distribution System is allocated to one of five discount categories, defined as follows:

- a) Discount category 0000 - this applies where the asset ownership boundary between the host DNO Party and the LDNO is at the GSP.
  - b) Discount category 132kV (in England and Wales only) - this applies where the asset ownership boundary is at 132kV and not at the GSP.
  - c) Discount category 132kV/EHV (in England and Wales only) - this applies where the asset ownership boundary is at 22kV or more on the secondary side of a substation where the primary side is at 132kV.
  - d) Discount category EHV - this applies where the asset ownership boundary is at 22kV or more, but less than 132kV, not at a GSP or at a transformation substation where the primary is at 132kV.
  - e) Discount category HVplus - this applies where the asset ownership boundary is at less than 22kV.
- 45A. For the purposes of allocating each LDNO Distribution System to a category in accordance with paragraph 45, the DNO Party may designate 66 kV circuits belonging to either network level 1 or 3 and substations with a primary voltage of 66 kV into level 2 or level 4 or level 5, depending on its network planning policies.
46. Discount percentages for Schedules 17 and 18 are determined as follows:

**For discount categories 0000, 132kV/EHV and HVplus**

Discount percentage = the lowest of 100 per cent and  $P / (S + U)$

**For discount category 132kV**

Discount percentage = the lowest of 100 per cent and  $(P + ([132kV \text{ allocation}] * (1 - ([Network \text{ length split for } 132kV] * [EHV \text{ and } 132kV \text{ direct cost proportion}])))) / (S + U)$

**For discount category EHV**

Discount percentage = the lowest of 100 per cent and  $(P + ([EHV \text{ allocation}] * (1 - ([Network \text{ length split for EHV}] * [EHV \text{ and } 132kV \text{ direct cost proportion}])))) / (S + U)$

Where:

***Discount percentage*** is the discount applicable for each combination of discount category and end user type.

***P*** is the sum of the allocation percentages for all network levels below the network level of the DNO Party-embedded network boundary up to and including the network level of the end user in the case of demand, and up to and excluding the network level of the end user in the case of generation.

***S*** is the sum of the percentages for all network levels in the distribution network above and including the network level of the end user in the case of demand, and up to and excluding the network level of the end user in the case of generation.

***U*** is the ratio of the sum of the DNO Party's total incentive revenue and the transmission exit charge, and the DNO Party's total Allowed Revenue including any incentive revenue and transmission exit charge.

[***Network length split for 132kV***] and [***Network length split for EHV***] are currently set to 100 per cent.

[***EHV and 132kV direct cost proportion***] is as calculated in paragraph 32.

### **Glossary of Terms used in this Schedule**

47. Expressions used in this Schedule shall be interpreted in accordance with Schedules 16, 17 and 18.