

## **DCP 266 ‘The calculation and application of IDNO discounts’**

### **Proposed Legal Text**

**Amend the following wording at the beginning of Schedule 16:**

#### **Introduction**

This Schedule 16, version ~~10.0~~[TBC], is to be used for the calculation of Use of System Charges which will become effective from, ~~01 April 2018~~[TBC] and remain effective until superseded by a revised version.

**Amend paragraph 3 of Schedule 16 as follows:**

3. In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Party will populate and publish the CDCM model version ~~104~~[TBC] when issued by the Panel in accordance with Clause 14.5.3.

**Amend paragraph 52 of Schedule 16 as follows:**

52. The DNO Party forecasts the volume chargeable to each tariff component under each tariff for the charging year. In doing so, the DNO Party will assume a non-zero number of customers with associated chargeable volumes will exist in the charging year for each tariff.

**Amend the following wording at the beginning of Schedule 17:**

#### **1. INTRODUCTION**

This Schedule 17, version ~~10.0~~[TBC], is to be used for the calculation of Use of System Charges which will become effective from, ~~01 April 2018~~[TBC] and remain effective until superseded by a revised version.

**Amend paragraph 1.3 of Schedule 17 as follows:**

- 1.3 In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Party will populate and publish the EDCM model version ~~F204~~[TBC] when issued by the Panel in accordance with Clause 14.5.3.

**Amend the following wording at the beginning of Schedule 18:**

## **1. INTRODUCTION**

**This Schedule 18, version ~~10.0~~[TBC], is to be used for the calculation of Use of System Charges which will become effective from, ~~01-April-2018~~[TBC] and remain effective until superseded by a revised version.**

**Amend paragraph 1.3 of Schedule 18 as follows:**

- 1.3 In order to comply with this methodology statement when setting distribution Use of System Charges the DNO Party will populate and publish the EDCM model version ~~L204~~[TBC] when issued by the Panel in accordance with Clause 14.5.3.

**Amend the following wording at the beginning of Schedule 20:**

## **1. INTRODUCTION**

**This Schedule 20, version ~~10.0~~[TBC], is to be used for the calculation of Use of System Charges which will become effective from, ~~01-April-2018~~[TBC] and remain effective until superseded by a revised version.**

**Amend paragraph 1.1 of Schedule 20 as follows:**

- 1.1 The “Annual Review Pack” or “ARP” is a document to be completed by each DNO Party giving indicative (when first published in accordance with Clause 35B) and final (when updated in accordance with Clause 35B) Use of System Charges to apply pursuant to the Charging Methodology set out in Schedule 16 (the “CDCM”). The pack shall contain detail of historical and forecast CDCM inputs, and a forecast of use of system tariffs for the next 5 years, in accordance with Paragraph 2. The template to be used for the pack shall be ARP model version ~~104~~[TBC] when issued by the Panel.

**Amend the following wording at the beginning of Schedule 29:**

### **Implementation Date**

This Schedule 29, version ~~10.0~~[TBC], is to be used for the calculation of Use of System Charges which will become effective from, ~~01-April-2018~~[TBC] and remain effective until superseded by a later revised version.

**Amend paragraphs 1A and 3(c) of Schedule 29 as follows:**

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 PCDM model version ~~1.0~~[TBC] 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 ~~an 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.

**The heading above paragraph 20 and paragraphs 21 to 28 of Schedule 29 are to be amended as follows:**

**Determination of ~~an 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 "2007/08 **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:
- “Customer contributions indirects” (from worksheet LR1 of the FBPQ) aggregated over the period 2005/2006 to 2014/2015, and divided by ten.
  - 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 FBPQ (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 for 2007/2008, 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 for 2007/2008 and for the charging year, 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.
- For units distributed at LV, the adjustment factor is 1 (one).
  - For units distributed at HV, the adjustment factor is 0 (zero) in respect of the LV level, and  $(U + 0.5 * \text{Losses}) / (U + \text{Losses})$  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.
  - 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 p/kWh allocation of revenues percentage that the [Revenue to share per unit] represents, multiplied by a revenue and units scaler of the sum of the [Revenue to share per unit] across all network levels and the [Revenue not to share per unit]. given by  $([Charging\ year\ total\ allowed\ revenue] / [2007/08\ Total\ allowed\ revenue]) / ([charging\ year\ total\ units\ distributed] / [2007/08\ total\ units\ distributed])$ ; where total units distributed shall be determined by units flowing through the EHV and 132kV network level as determined in paragraphs 25 to 27. The results are denoted as "LV mains p/kWh allocations", "LV services p/kWh allocation", "HV/LV p/kWh allocation", "HV p/kWh allocation" and "EHV and 132kV p/kWh allocation".

**Amend paragraphs 38 to 46 of Schedule 29 as follows:**

38. For the calculation of discount percentages used in Schedule 17 and 18 only, the p/kWh allocation of revenues percentage allocated to the EHV and 132kV network level, [EHV and 132kV p/kWh allocation], is split into separate percentages-p/kWh values 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 p/kWh allocation] into separate p/kWh values 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, multiplied by a revenue and units scaler given by  $([Charging\ year\ total\ allowed\ revenue] / [2007/08\ Total\ allowed\ revenue]) / ([charging\ year\ total\ units\ distributed] / [2007/08\ total\ units\ distributed])$ ; where total units

distributed shall be determined by units flowing through the EHV and 132kV network level as determined in paragraphs 25 to 27. 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 p/kWh allocation] into ~~percentage~~ p/kWh allocations for the different EHV and 132kV asset levels are denoted as "**132kV p/kWh allocation**", "**132kV/EHV p/kWh allocation**", "**EHV p/kWh allocation**" and "**EHV/HV p/kWh allocation**".

**Table: MEAV EDCM mapping**

Asset	Asset level
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 LDNO revenue allocation (2007/08 p/kWh) discount percentages p/kWh**

40. The discount p/kWh percentage used in paragraph 46B in Schedule 16 to calculate discount percentages applicable to embedded networks with an LV boundary is:



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

41. For embedded networks with an HV boundary, three ~~p/kWhpercentage~~ discount figures are used in ~~paragraph 46BSchedule 16~~.
42. The discount ~~p/kWhpercentage~~ used in ~~paragraph 46BSchedule 16~~ to calculate ~~discount percentages tariffs~~ applicable to embedded networks with an HV boundary in respect of LV network end users is:

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

43. The discount ~~p/kWhpercentage~~ used in ~~paragraph 46BSchedule 16~~ to calculate ~~discount percentages tariffs~~ applicable to embedded networks with an HV boundary in respect of LV substation end users is:

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

44. The discount ~~p/kWhpercentage~~ used in ~~paragraph 46BSchedule 16~~ to calculate ~~discount percentages tariffs~~ applicable to embedded networks with an HV boundary in respect of HV end users is:

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

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~~ p/kWh for used in paragraph 46B to calculate LDNO tariffs for Schedules 17 and 18 are determined as follows:

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

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

**For discount category 132kV**

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

**For discount category EHV**

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

Where:

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

*P* is the sum of the p/kWh allocations ~~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.

**Insert the following heading and paragraphs 46A and 46B to Schedule 29 as follows:**

**Application of discounts percentages to determine portfolio tariffs**

46A. For each all-the-way CDCM tariff an average absolute p/kWh is calculated by dividing the total revenue collected from all tariff components of that all-the-way tariff by the total all-the-way volume associated with that tariff. For this purpose the revenues and units for the Domestic Two Rate and Domestic Off Peak (related MPAN) tariffs will be aggregated and the Small Non-Domestic Two Rate and Small Non-Domestic Off Peak (related MPAN) tariffs will be aggregated.

46B. For each all-the-way CDCM tariff a discount percentage is calculated as the lowest of: 100% and the appropriate LDNO p/kWh discount (which is dependent on the LDNO level of connection and the voltage of connection of the end user) divided by the appropriate all-the-way CDCM tariff p/kWh calculated in 46A above.