

Model documentation: Update models and guidance for DCP 395 (Request D04-1)

DCUSA/ElectraLink

7 March 2022



Important notice

This report was prepared by CEPA¹ and TNEI² for the exclusive use of the recipient(s) named herein.

The information contained in this document has been compiled by CEPA and TNEI and may include material from other sources, which is believed to be reliable but has not been verified or audited. Public information, industry and statistical data are from sources we deem to be reliable; however, no reliance may be placed for any purposes whatsoever on the contents of this document or on its completeness. No representation or warranty, express or implied, is given and no responsibility or liability is or will be accepted by or on behalf of CEPA and TNEI or by any of their directors, members, employees, agents or any other person as to the accuracy, completeness or correctness of the information contained in this document and any such liability is expressly disclaimed.

The findings enclosed in this report may contain predictions based on current data and historical trends. Any such predictions are subject to inherent risks and uncertainties.

The opinions expressed in this document are valid only for the purpose stated herein and as of the date stated. No obligation is assumed to revise this report to reflect changes, events or conditions, which occur subsequent to the date hereof.

CEPA and TNEI do not accept or assume any responsibility in respect of the document to any readers of it (third parties), other than the recipient(s) named therein. To the fullest extent permitted by law, CEPA and TNEI will accept no liability in respect of the report to any third parties. Should any third parties choose to rely on the report, then they do so at their own risk.

¹ "CEPA" is the trading name of Cambridge Economic Policy Associates Ltd (Registered: England & Wales, 04077684), CEPA LLP (A Limited Liability Partnership. Registered: England & Wales, OC326074) and Cambridge Economic Policy Associates Pty Ltd (ABN 16 606 266 602).

© 2022 CEPA.

² "TNEI" is the trading name of TNEI Services Ltd (Registered: England & Wales, 03891836).

Contents

1. INTRODUCTION	4
2. SPECIFICATION	4
2.1. Overview	4
2.2. Reference files.....	4
2.3. New files.....	4
2.4. Assumptions and clarifications	5
2.5. Outstanding legal text issues	5
3. MODEL REVISIONS.....	6
3.1. Structural changes.....	6
3.2. Additional or modified information sections.....	6
3.3. Additional or modified input sections.....	6
3.4. Additional or modified calculation sections.....	6
3.5. Additional or modified output sections	6
4. IMPACT STATEMENT.....	7
4.1. Summary.....	7
4.2. Inputs	7
4.3. Validation.....	7
4.4. Impacts	7

1. INTRODUCTION

This document describes charging models and supporting documentation developed for DCUSA to support DCUSA Change Proposal (DCP) 395. The following sections set out the:

- specification for the new files, including the identity of the reference files for the revisions noted here within and the new file names;
- revisions to the models; and
- the impact of those changes.

2. SPECIFICATION

2.1. OVERVIEW

The models and supporting documentation described herein were developed in response to a request to produce versions of the CDCM and PCDM models that implement DCP 395 – “Allocation of Smart Meter Communication Licence costs within LDNO tariffs”.

The intent of DCP 395 is to better reflect the total costs associated with Smart Meter Communication Licence Fees (also known as DCC Charges) within LDNO discounts and discounted LDNO tariffs. The modelling specification says that this should “enable the downstream LDNO to recover the costs associated with DCC charges in full”.

The reference files noted below were developed in line with draft DCUSA text shared with the modelling team on 31st January 2022, which we understand is based on the text that has been used to set 2023/24 charges.

The legal text specifies that DCC Charges should be considered explicitly within the PCDM, and that they should be considered as indirect Opex and applied directly to the LV services level. This is very similar to the treatment of Ofgem licence fees, with the main difference being the source of the costs. Ofgem licence fees are available within the 2007 RRP data that is used to calculate discounts, but DCC Charges are provided within Schedule 15.

Therefore, an inflationary adjustment is needed so that all costs within the PCDM are being compared in the same price base.

Although the change is principally concerned with the PCDM, the specification also includes a request to adjust the CDCM. The CDCM includes a full copy of Schedule 15 and therefore contains the most up to date version of the DCC Charges. These are to be taken as an output from the CDCM to the PCDM to ensure consistency when populating the full suite of models.

2.2. REFERENCE FILES

The following table sets out the reference versions of the charging models and user guides used as the starting point for the revisions described in this document.

Table 2.1: Reference files

Model	Model file name	Date sent
PCDM	PCDM_v4_20211122	22/11/2021
CDCM	CDCM_v8_20211122	22/11/2021

2.3. NEW FILES

The following table sets out the versions of the charging models and impact assessment provided to the DCP 395 Working Group in response to the request described above.

Table 2.2: New files

Model	Model file name	Date sent
PCDM	PCDM_v4_DCP328_20220307	07/03/2022
CDCM	CDCM_v8_DCP328_20220307	07/03/2022
Impact assessment	ImpactAssessment_D04-1-DCP395_20220307	07/03/2022

We understand that the new files listed in Table 2.2 will be considered by the DCP 395 Working Group and may be shared for consultation.

2.4. ASSUMPTIONS AND CLARIFICATIONS

This section lists assumptions that we have made in our interpretation of the draft legal text. Some of these assumptions were informed by clarifications given by the DCP 395 working group. Others are our own interpretation of the intent of the DCP where the meaning of the text is vague.

2.4.1. PCDM

Inflation

The legal text specifies that Smart Meter Communication Licence Costs should be taken from Table 1 of Schedule 15 (via the CDCM) and expressed in 2007/08 prices. However, it does not specify how the adjustment from base prices to 2007/08 prices should be made. Further guidance was provided by the DCP 395 working group:

“Conversion to 2007/08 prices should be undertaken using indexation as defined in the condition relating to the Restriction of Electricity Distribution Revenue in the Electricity Distribution licence by multiplying the input from the CDCM by the price index adjuster

$$\text{Price Index Adjuster} = \frac{PI_{2007/08}}{PI_t}$$

Where $PI_{2007/08}$ is the indexation in 2007/08 and PI_t is the indexation in the current charging year.”

The working group also provided values for $PI_{2007/08}$ and PI_t for the 2023/24 charging year, which we have adopted within the modelling and impact assessment. These values are 208.592 for $PI_{2007/08}$ and 336.24 for PI_t for $t = 2023/24$.

2.5. OUTSTANDING LEGAL TEXT ISSUES

The clarifications and assumptions noted above would benefit from being reflected within the legal text (where they are not already) to avoid the need for assumptions being made within the models’ assumptions logs. We understand that the working group is already considering whether the quoted text in the preceding subsection should be added to the legal text.

3. MODEL REVISIONS

3.1. STRUCTURAL CHANGES

New rows and columns have been added throughout the PCDM to introduce Pass-through Smart Meter Communication Licence Costs as a new cost category. New rows have been added on the Fixed inputs and DNO inputs sheets, and new columns on the Expenditure, Expensed and Direct sheets.

3.2. ADDITIONAL OR MODIFIED INFORMATION SECTIONS

In the CDCM and PCDM, changes were made in the following sheets:

- ‘Version control’.
- ‘Model map’.
- ‘Index’.

3.3. ADDITIONAL OR MODIFIED INPUT SECTIONS

In the PCDM, changes were made in the following input sheets:

- ‘Fixed inputs’. As described above, a row was added to several tables on this sheet for Pass-through Smart Meter Communication Licence Costs. The allocation rule chosen for these costs is “LV Services”, and the entry for these costs in the “Direct Cost Indicator” sheet was left blank, indicating that these are indirect costs.
- ‘DNO inputs’. As described above, a row was added to two tables on this sheet for Pass-through Smart Meter Communication Licence Costs. New input sections were added for Pass-through Smart Meter Communication Licence Costs (taken from the CDCM), and inflation indices.

3.4. ADDITIONAL OR MODIFIED CALCULATION SECTIONS

In the PCDM, the following calculation sheet was modified:

- ‘Expenditure’. In addition to the new column (as described above) a new section was added to this sheet. This section applies inflation indices to the DCC Charges to express them in 2007/08 prices, and then adds these charges to the “remaining expenditure for allocation”, which is then allocated to the LV Services.
- ‘Expensed’. Other than the addition of a new column (as described above) no further changes were made to this sheet.
- ‘Direct’. Other than the addition of a new column (as described above) no further changes were made to this sheet.

3.5. ADDITIONAL OR MODIFIED OUTPUT SECTIONS

In the CDCM, the following calculation sheet was modified:

- ‘Output to other models’. A new output to the PCDM was added to this sheet. This takes the value of the Pass-through Smart Meter Communication Licence Costs (i.e., the DCC charges) directly from the General inputs tab.

4. IMPACT STATEMENT

4.1. SUMMARY

The impact assessment submitted under this service request sets out the impact of DCP 395 on:

- LDNO discount percentages;
- CDCM typical bills recoverable by the incumbent DNO with respect to all-the-way and LDNO-connected customers (i.e. excluding LDNO margins); and
- CDCM net revenue expected to be recovered from all-the-way and LDNO-connected customers.

This impact assessment does not include EDCM outputs because we do not have access to actual EDCM data. Likewise, all impacts are presented before resolution of inter-model circularities, as we do not have access to the actual EDCM data needed to resolve these.

4.2. INPUTS

Inputs were taken from:

- published CDCM inputs for the 2023/24 charging year;
- published PCDM inputs for the 2023/24 charging year; and
- price indices for 2007/08 and 2023/24 as provided by the DCP395 working group.

4.3. VALIDATION

The following steps were used to check and validate post-DCP 395 models:

- impact assessment results were sense-checked and explained – for example:
 - discounts *increase* with respect to LDNO-connected end-users with respect to boundaries at LV, as expected;
 - discounts *decrease* with respect to LDNO-connected end-users with respect to boundaries at LV Sub and higher, as expected;
 - there is no impact for the four DNOs which do not report any smart meter licence fees, as expected;
- workbook review software was used to demonstrate model changes and highlight inconsistent formulae; and
- impact assessment results were replicated manually.

4.4. IMPACTS

DCP395 raises the proportion of cost deemed to be associated with the LV network level in the PCDM, and therefore reduces the proportion of cost deemed to be associated with higher network levels. Consequently, the proportion of the bill which should be retained by LDNOs, as calculated in the PCDM, is increased with respect to connections at the LV network level but decreased for connections at higher network levels.

In percentage terms, and for the value of Pass-through Smart Meter Communication Licence Costs specified in 2023/24 CDCM models, impacts on LDNO discounts range from +0.8% for LV-connected users with an LV LDNO

boundary (EMID; WMID) to -0.2% for some connections with an HVplus LDNO boundary (NPgN; SSES; WMID), as illustrated in Figure 4.1.

DCP 395 has no impact on the four DNOs which report no Pass-through Smart Meter Communication Licence Costs in 2023/24 CDCM models. That is, the value of DCC costs being allocated to the LV network in the PCDM is £0 for these DNOs, which therefore does not have any effect on LDNO discounts.

Figure 4.1: LDNO discounts (%), 2023-24, impact of DCP395

Boundary : user connection	ENWL	NPgN	NPgY	SSEH	SSES	SPD	SPMW	LPN	SPN	EPN	EMID	WMID	WEST	VALES
LDNO LV: LV user	0.0%	0.6%	0.6%	0.6%	0.7%	0.6%	0.6%	0.0%	0.0%	0.0%	0.8%	0.8%	0.6%	0.8%
LDNO HV: LV user	0.0%	0.3%	0.4%	0.3%	0.4%	0.3%	0.4%	0.0%	0.0%	0.0%	0.5%	0.5%	0.4%	0.4%
LDNO HV: LV Sub user	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%
LDNO HV: HV user	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LDNO 0000: LV demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LDNO 0000: LV Sub demand or LV generation	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%
LDNO 0000: HV demand or LV Sub generation	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%
LDNO 0000: HV generation	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO 132kV: LV demand	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	0.1%
LDNO 132kV: LV Sub demand or LV generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO 132kV: HV demand or LV Sub generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO 132kV: HV generation	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.1%	-0.1%
LDNO 132kV/EHV: LV demand	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.2%	0.1%	0.2%
LDNO 132kV/EHV: LV Sub demand or LV generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO 132kV/EHV: HV demand or LV Sub generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO 132kV/EHV: HV generation	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LDNO EHV: LV demand	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.3%	0.3%	0.2%	0.2%
LDNO EHV: LV Sub demand or LV generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO EHV: HV demand or LV Sub generation	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO EHV: HV generation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LDNO HVplus: LV demand	0.0%	0.2%	0.2%	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.4%	0.3%	0.2%	0.2%
LDNO HVplus: LV Sub demand or LV generation	0.0%	-0.2%	-0.1%	-0.1%	-0.2%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.2%	-0.1%	-0.1%
LDNO HVplus: HV demand or LV Sub generation	0.0%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
LDNO HVplus: HV generation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

In £ terms, DCP395 implies that LDNOs will be obliged to pass less of the end-user's charge onto the incumbent DNO with respect to LV-connected customers, but more with respect to customers connected at higher network levels. For a Domestic Aggregated customer (with typical volumes), LDNOs would be permitted to retain up to £0.94 more per year with respect to an LV boundary level or £0.60 more with respect to an HV boundary level (SPMW). For the largest band of HV Site Specific customer (with typical volumes), LDNOs would be obliged to pass up to £3,692.44 more to the incumbent DNO with respect to an HV boundary level (SSEH).

The aggregate impact on LDNO revenues cannot be calculated without information on EDCM charges or the customer base of individual LDNOs. However, LDNO portfolios with a high proportion of LV-connected customers are likely to retain more charge revenue as a result of DCP395. Indeed, based on the LDNO volumes in published CDCM models, the net revenue accruing to DNOs with respect to LDNO-connected CDCM customers would fall by £600,227 (aggregated across GB). That is, LDNOs would retain £600,227 more with respect to CDCM customers. This amount may change after interactions between models are resolved. We cannot say what the impact on net revenue accruing from EDCM customers would be, or whether it would be positive or negative. For context, the sum of Pass-through Smart Meter Communication Licence Costs in 2023/24 CDCM models was £28,665,188.

Because DNOs are permitted to recover a fixed revenue allowance, a net shortfall in revenue from LDNO-connected customers must be made up for by higher charges for all-the-way customers, as determined by the revenue-matching stage in the CDCM model. DCP395 would therefore increase bills by up to £0.04 per year for a Domestic Aggregated customer and up to £25.71 per year for the largest band of HV Site Specific customer (NPgN).

Figure 4.2 illustrates the difference in net revenue recovered from all-the-way, LDNO LV and LDNO HV-connected customers charged under the CDCM, aggregated across GB. Note that the increase in net revenue from all-the-way customers does not perfectly offset the decrease from LDNO-connected customers due to charge rounding.

Figure 4.2: Difference in CDCM net revenue recovered from all-the-way and LDNO-connected customers due to DCP395, GB aggregate, 2023/24



The intent of DCP395, as described in the modelling specification for this service request, is to “enable the downstream LDNO to recover the costs associated with DCC charges in full”. This intent cannot be implemented precisely because DCC charges are not apportioned in a precise manner in the CDCM – they are spread across network levels as part of the residual banded fixed charge. Yet we can compare the impact of DCP395 to the component of the residual fixed charge through which DCC costs are currently recovered and which LDNOs are not currently permitted to retain. From a cursory analysis, these seem to be in the same order of magnitude (but should not be expected to be exactly equivalent).



UK

Queens House
55-56 Lincoln's Inn Fields
London WC2A 3LJ

T. +44 (0)20 7269 0210

E. info@cepa.co.uk

www.cepa.co.uk



cepa-ltd



@cepald

Australia

Level 20, Tower 2 Darling Park
201 Sussex St
Sydney NSW2000

T. +61 2 9006 1307

E. info@cepa.net.au

www.cepa.net.au