

Model documentation: Update models and guidance for DCP 452, second request (Request H03-1)

DCUSA/ElectraLink

6 August 2025



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1. INTRODUCTION

This document describes charging models and supporting documentation developed relating to DCUSA Change Proposal (DCP) 452. It was originally developed in response to a request received on 2nd May 2025, and has now been updated for a second request received on 18th July 2025 – requiring minor revisions.

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;
- the revisions to the models; and
- the impact of those changes.

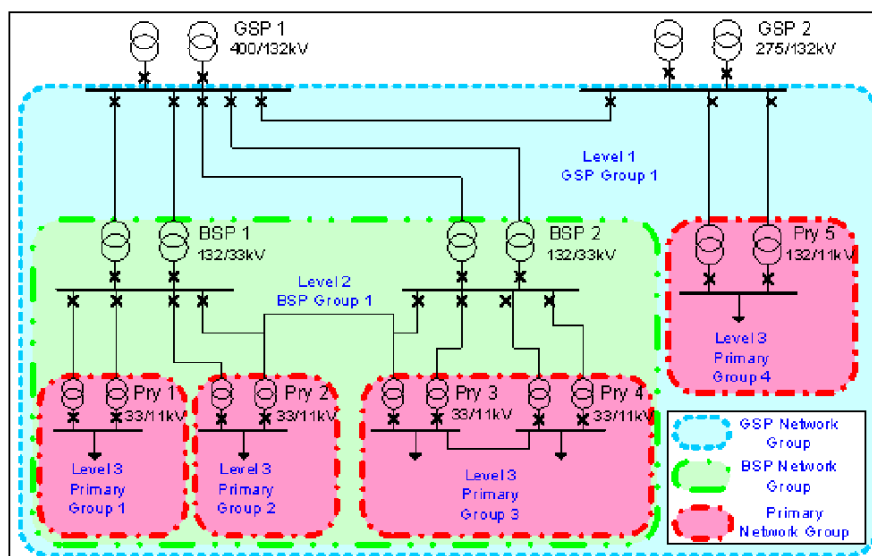
2. SPECIFICATION

2.1. OVERVIEW

The models and supporting documentation described herein were developed in response to a request to produce versions of the EDCM (LRIC & FCP) models that implement DCP 452 – “Correct application of Forward Cost Pricing EDCM charges to users connected directly to a Grid Supply Point”.

The changes of DCP 452 are relevant to the Forward Cost Pricing (FCP) variant of the Extra High Voltage (EHV) Distribution Charging Methodology (EDCM). The intent of DCP 452 is to ensure that network users connected directly to a Grid Supply Point (GSP), are deemed to not use any shared network assets, and are therefore not exposed to forward looking charges/credits for the downstream FCP network group in that location. Figure 1 is the diagram from the DCUSA legal text which shows the network groups within the FCP. From this diagram it can be seen that any customers connected directly to the GSP would not use any of the assets within the GSP Group 1 (or any other group). There is no equivalent issue under the Long Run Incremental Cost (LRIC) variant of the EDCM as the LRIC approach derives a cost-reflective charge of zero for all users which are connected direct to the GSP.

Figure 1: Forward Cost Pricing group diagram from DCUSA legal text



2.2. LEGAL TEXT VERSION

Model changes were originally implemented in line with the draft DCUSA text shared with the modelling team on 2nd May 2025, which included amendments to paragraphs 6.2 and 6.3 of schedule 17 stating that, for customers

connected directly to the GSP (Customer Category 0000), the super-red rate, capacity charge and super-red export rate are all set to zero.

Further model changes have now been made to incorporate amendments added to the draft DCUSA text shared with the modelling team on 18th July, introducing a distinction in paragraphs 2.7, 6.2, and 6.3 (and in paragraph 6.3 of the 'Annex 1 – implementation guide' to Schedule 17) **restricting the set of 0000 customers whose super-red rate, capacity charge and super-red export rate are set to zero to those connected at GSP substations which are not operated in parallel**. The restriction is introduced in the Definition of Network Groups (paragraph 2.7) by stating that such customers shall be excluded from the relevant network group for that GSP substation, and restated in the 'Annex 1 – implementation guide' to Schedule 17 (paragraph 6.3) on Network Group exemptions.

2.3. REFERENCE FILES

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

Table 1a: Reference files – Original service request

Model	Model file name	Date sent
EDCM (FCP)	EDCM-FCP_v12_20241025	29/10/2024
EDCM (LRIC)	EDCM-LRIC_v12_20241025	29/10/2024

Table 1b: Reference files – Second service request

Model	Model file name	Date sent
EDCM (FCP)	EDCM-FCP_v12_20241025_DCP452	23/05/2025
EDCM (LRIC)	EDCM-LRIC_v12_20241025_DCP452	23/05/2025

2.4. NEW FILES

The following table sets out the versions of the charging models and impact assessment provided to the DCP 452 Working Group in response to the request described above.

Table 2a: New files – Original service request

Model	Model file name	Date sent
EDCM (FCP)	EDCM-FCP_v12_20241025_DCP452	23/05/2025
EDCM (LRIC)	EDCM-LRIC_v12_20241025_DCP452	23/05/2025

Table 2b: New files – Second service request

Model	Model file name	Date sent
EDCM (FCP)	EDCM-FCP_v12_20241025_DCP452_v2	06/08/2025
EDCM (LRIC)	EDCM-LRIC_v12_20241025_DCP452_v2	06/08/2025

We understand that the new files listed in Table 2b will be considered by the DCP 452 working group and may be shared for consultation.

2.5. ASSUMPTIONS AND CLARIFICATIONS

No assumptions or clarifications were required in our interpretation of the service request or the draft legal text.

3. MODEL REVISIONS

3.1. STRUCTURAL CHANGES

There are no structural changes in the EDCM (LRIC) or EDCM (FCP).

3.2. ADDITIONAL OR MODIFIED INFORMATION SECTIONS

In the EDCM (LRIC) and EDCM (FCP), changes were made in the following sheets:

- 'Cover'.
- 'Version control'.
- 'Tariff inputs transposed'. To include the new row added to 'tariff inputs' (described below).

3.3. ADDITIONAL OR MODIFIED INPUT SECTIONS

In the EDCM (LRIC) and EDCM (FCP), changes were made in the following input sheets:

- 'Tariff inputs'.
 - A new row has been added to the "Input 305-A: Customer Info" sub-section named "0000 customer connected to non-parallel GSP: FCP only". The row contains TRUE/FALSE drop-down cells to indicate whether the description applies to a given customer. The legal text reference is to "Para 2.7 (FCP)". The row can be left blank in the LRIC version.
 - A new row has been added to the "Checks" section named "Customer connected to non-parallel GSP without a 0000 label?". The check flags if the new row contains the value "TRUE" to indicate that a 0000 customer is connected to a non-parallel GSP but the customer category entered for that customer is not 0000.

3.4. ADDITIONAL OR MODIFIED CALCULATION SECTIONS

In the EDCM (LRIC) and EDCM (FCP), changes were made in the following calculation sheets:

- 'Charge 1 (FCP).'
 - In "Tariff information" a row has been added, labelled as "0000 customer connected to non-parallel GSP: FCP only".
 - In "Section 304-A: Identification of FCP parent and grandparent group" a row has been added, labelled as "Override FCP Charge 1 if connected directly to non-parallel GSP".
 - In "Section 304-D: Super-red charge" the calculations were changed for the 'Super-red rate' for all tariffs.
 - In "Section 304-E: Capacity charge" the calculations were changed for the 'Capacity charge' for all tariffs.
 - In "Section 304-G: Export charge 1" the calculations were changed for the 'Super-red export rate' for all tariffs.

3.5. ADDITIONAL OR MODIFIED OUTPUT SECTIONS

There are no additional or modified output sections in the EDCM (LRIC) or EDCM (FCP).

4. IMPACT STATEMENT

This section is unchanged from the original service request, as no further assessment was necessary or possible without access to DNOs' EDCM input data. Version 2 of the service request did not make any change to the mechanics of how calculations work, but only the process by which customers are identified as being eligible for reduced charge components. The Working Group has confirmed that it will request that DNOs undertake their own impact assessments.

4.1. SUMMARY OF THE CHANGE

DCP 452 sets the “charge 1 (FCP)” import capacity charge, import super-red rate and export super-red rate to zero for 0000 customers connected to non-parallel GSPs.

The super-red import rate for 0000 customers connected to non-parallel GSPs is already always zero because the super-red import rate is calculated using the parent and grandparent groups of a connection. But 0000 customers are connected directly to the GSP and therefore do not have parent or grandparent groups to contribute to the calculation. As a result, DCP 452 has no impact on the super-red import rate.

Zeroing-out the other two charge components can affect EHV customers both directly (for 0000 customers connected to non-parallel GSPs) and indirectly (via impacts on residual revenue recovery). It can also have knock-on effects in the CDCM model if revenue recovered in the EDCM changes overall.

4.2. IMPACT ASSESSMENT APPROACH

The impact assessment under this service request sets out how DCP 452 would affect **EDCM customers** – directly (for non-parallel GSP-connected 0000 customers) and indirectly (by reallocating the EDCM residual revenue across import customers) – and how it might affect **CDCM customers** by changing revenue recovery across the EDCM and CDCM models.

This impact assessment is largely **qualitative** in nature. CEPA-TNEI has not been given access to real EDCM data, which would be needed to undertake a proper impact assessment – including full resolution of inter-model circularities. Since we do not have access to real EDCM data, the dummy data that was provided to CEPA-TNEI during model redevelopment in 2017 and 2018 has been used to explore the general nature of the impacts that will arise from DCP 452. This should help DNO working group members to confirm these impacts and quantify them precisely using actual data.

The DCP 452 working group shared a file (“Attachment C_DCP 452 Collated RFI Results”) with the service request containing specific data from their populated EDCM models. The data related to the number of GSP-connected customers for DNOs that currently use the EDCM-FCP, and the value of export super-red credits and charge 1 capacity charges which could be directly affected. While this information helps to demonstrate that some DNOs have large numbers of directly affected customers, while others have none, it cannot be used to estimate the magnitude of direct or indirect impacts without access to the fully populated EDCM models. Therefore, the file was not used for the purposes of this impact assessment.

4.3. INPUTS

Inputs were taken from:

- The EDCM dummy data that was provided by DNOs to TNEI-CEPA during model redevelopment in 2017 and 2018.

4.4. VALIDATION

The following steps were used to check and validate post-DCP 452 models:

- EDCM models (filled with dummy data) with and without DCP 452 applied were compared;
- dummy data was manipulated to cover various credible scenarios and edge cases;
- impact assessment results were sense-checked and explained; and
- model review software was used to confirm that the changes made were as expected, and no unintended changes were introduced.

4.5. IMPACTS

Effects on 0000 customers connected to non-parallel GSPs

0000 customers connected to non-parallel GSPs no longer receive credits from the charge 1 super-red export rate. The export capacity and fixed charge are not impacted for these customers. As a result, the only change in export revenue is an increase in net revenue recovered from the super-red units for generation 0000 customers connected to non-parallel GSPs.

The import capacity charge for all 0000 customers connected to non-parallel GSPs decreases since these customers no longer receive a charge 1 capacity charge. However, there is an increase in the import fixed charge for final demand customers. The loss of revenue from the charge 1 capacity charge for 0000 customers connected to non-parallel GSPs leads to a shortfall in total import capacity charge revenue. This shortfall is compensated for via an increase in the residual added to the fixed charge for final demand sites. The impact on charges for generation and demand 0000 customers connected to non-parallel GSPs are shown in the Table below.

Table 2: Summary of impact on charges for EHV customers connected to non-parallel GSPs

Charge	Import (final demand)	Import (non-final demand)	Export
Capacity charge	Decrease	Decrease	-
Super-red unit charge	-	-	Decrease in credits (set to zero)
Fixed charge	Increase	-	-

Effects on other EHV customers (not directly connected to non-parallel GSPs)

DCP 452 has no impact on any of the three export charges (capacity charge, super-red and fixed) for other EHV customers. However, there is an indirect effect on import fixed charge for EHV final demand customers. As explained in the section above, the import fixed charge increases for final demand customers to recover the residual revenue shortfall. The effects on import charges experienced by EHV customers not directly connected to non-parallel GSPs is summarised in Table 3 below.

Table 3: Summary of impact on charges for EHV customers not directly connected to non-parallel GSPs

Charge	Import (final demand)	Import (non-final demand)	Export
Capacity charge	-	-	-
Super-red unit charge	-	-	-
Fixed charge	Increase	-	-

Cumulative effects on EDCM revenue

The reduction in revenue recovered from customers not directly connected to non-parallel GSPs (via a decrease in import capacity charge) is compensated for by an increase in revenue recovered from EHV final demand customers (via an increased import fixed charge for these customers). However, there is a slight decrease in total revenue recovered from import charges in total. This is partially due to the rounding permitted by the EDCM and an indirect effect on import fixed charge revenue caused by the change in super-red export credits (no longer given to 0000 customers connected to non-parallel GSPs). In short, the increase in revenue from super-red units causes a small decrease in the EDCM demand revenue target, thus decreasing the residual added to the fixed charge for final demand sites. The resulting impact is a small decrease in total revenue recovered from import charges.

The cumulative effect on total revenue recovered from export charges is an increase. The magnitude of this increase is dependent on the number of 0000 customers connected to non-parallel GSPs and the value of credits they no longer receive from the super-red export rate. The working group will need to use real data in the EDCM to determine the exact magnitude of increase in revenue recovered from export charges for each licence area.

The cumulative effect on total revenue collected from the EDCM is an increase, again dependent on the number of 0000 customers connected to non-parallel GSPs and the value of credits they no longer receive from the super-red export rate. This is because the increase in revenue recovered from export charges will always exceed the decrease in revenue recovered from import charges. This is summarised in Table 4 below.

Table 4: Summary of cumulative effects of DCP452 on revenue recovered in the EDCM

Type of revenue recovered	Impact
Export	Net increase
Import	Net decrease
Total	Net increase

Effects on customers in CDCM and PCDM models

There is **no impact on the PCDM** from DCP 452 since neither the EDCM outputs to the PCDM (notional EHV asset values) nor CDCM outputs to the PCDM (CDCM notional EHV asset values; Pass-through Smart Meter Communication Licence Costs) are affected.

As explained previously, DCP 452 can only increase revenue recovered from the EDCM. Any increase in EDCM revenue will reduce CDCM target revenue via the “*Revenue raised outside CDCM - EDCM and Certain Interconnector Revenue*” input on the CDCM ‘General inputs’ sheet. As a result, **DCP 452 may reduce CDCM customers’ residual charges** (typically through the banded fixed charge, but sometimes through volumetric charges if the residual is sufficiently negative).

Any decrease in CDCM charges may be small to the point of being negligible because: (i) EDCM revenue is small relative to CDCM revenue; and (ii) changes to EDCM revenue primarily come from 0000-connected export customers, which DNOs may not have many (or even any) of. The working group will need to use actual EDCM data to determine the exact magnitude of effects on CDCM charges.

Changes to CDCM charges should be carried across to the EDCM to calculate discounted LDNO tariffs for customers connected at LV/HV network levels but served by an LDNO with an EHV boundary. Lower EDCM revenue from discounted LDNO tariffs will need to be passed back into the CDCM. It may require several iterations to fully resolve this circularity between the EDCM and CDCM.



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