

## DCP 123 “hybrid solution” CDCM model r6432

1. This document describes a CDCM tariff model revision r6432 produced to implement the DCP 123 working group’s hybrid solution.
2. The reference version is model 102 published by the DCUSA Panel in 2013.

### Structural changes

3. The sheet “Scaler” has been removed. In its place (and reusing the same table numbers) there is a new sheet called “Adder”. In tariff matrices, the Scaler entry has been removed and replaced with an Adder entry.

### Additional input data

4. There are no additional input data.

### Modified input data

5. There are no other changes to input data.

### Additional or modified outputs

6. There are no changes to the structure of outputs.

### New or modified calculation tables

7. Tables 3501 to 3510 (the Scaler sheet) have been deleted and replaced with tables 3501 to 3528 on the new Adder sheet. The new tables calculate adjustments to tariff components needed for revenue matching and operate as described in table 1.

**Table 1     Hybrid revenue matching (Adder) calculations**

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<b>3501</b>	<b>Analysis of annual revenue by tariff before matching (£/year)</b>  This calculates the net revenue before revenue matching for each tariff, split between unit rates, fixed charges, capacity charges and reactive power unit charges. Credits to generators are included in the calculation for unit rates, which is in line with the RFI. (It would be a minor change with a small tariff impact to exclude generation credits from this calculation.)
<b>3502</b>	<b>Analysis of total annual revenue before matching (£/year)</b>  This aggregates the figures from table 3501 across all tariffs. (In the hyperlinks above that table, the long names used for the columns in table 3501 suggests that only demand tariffs are included; this is a cosmetic error with no modelling consequences.)
<b>3503</b>	<b>Allocation of matching revenue target (£/year)</b>  This allocates the total amount of revenue to be recovered from revenue matching (from table 3403 on the Revenue sheet) in proportions inferred from table 3502.

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<b>3504</b>	<b>Adder value at which the minimum is breached</b>
	<p>This is the first table of the allocation between tariffs of the amount of revenue matching allocated to unit rates.</p> <p>This table shows, for each tariff and for each unit rate, the minimum (i.e. most negative) amount of p/kWh adder that can be applied to that unit rate whilst complying with the rule that no demand unit rate can be negative. (It would be possible to amend the model to vary that rule, e.g. impose a minimum value different from zero.)</p> <p>Generation tariffs are excluded from the p/kWh adder; these tariffs are identified by a negative “load coefficient” from table 2302 on the Loads sheet).</p>
<b>3505</b>	<b>Marginal revenue effect of adder</b>
	<p>This table shows, for each tariff and for each unit rate, the effect on revenues (£) of applying 1 p/kWh of adder.</p>
<b>3506</b>	<b>Constraint-free solution</b>
	<p>This table uses the data from tables 3503 (target income from p/kWh adder) and 3505 (impact of 1 p/kWh adder) to calculate the amount of p/kWh adder that would apply if the constraints identified in table 3504 did not apply.</p>
<b>3507–3508</b>	<b>Starting point; Solve for General adder rate (p/kWh)</b>
	<p>These tables calculate the p/kWh fixed adder necessary to match the table 3503 revenue target for that adder, taking account of the constraints identified in table 3504. The method (which avoids scripting or iteration) is the same as in tables 3507–3508 of the reference model (version 102).</p>
<b>3509</b>	<b>General adder rate (p/kWh)</b>
	<p>This is the p/kWh adder rate that applies in cases where the constraints identified in table 3504 do not bite. Otherwise, the adder determined by the constraint will apply.</p>
<b>3510</b>	<b>Adder value at which the minimum is breached</b>
	<p>This table shows, for each tariff, the minimum (i.e. most negative) amount of p/MPAN/day adder that can be applied whilst complying with the rule that no fixed charge can be negative.</p>
<b>3511</b>	<b>Marginal revenue effect of adder</b>
	<p>This table shows, for each tariff to which the fixed charge adder applies, the effect on revenues (£) of applying 1 p/MPAN/day of adder.</p>
<b>3512–3515</b>	<b>Constraint-free solution; Starting point; Solve for General adder rate (p/MPAN/day); General adder rate (p/MPAN/day)</b>
	<p>These tables solve the constrained revenue matching problem in a way similar to tables 3506–3509.</p>
<b>3516</b>	<b>Adder value at which the minimum is breached</b>
	<p>This table shows, for each demand tariff, the minimum (i.e. most negative) amount of p/kVA/day adder that can be applied whilst complying with the rule that no demand capacity charge can be negative.</p>

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<b>3517</b>	<b>Marginal revenue effect of adder</b>
	This table shows, for each tariff to which the capacity charge adder applies, the effect on revenues (£) of applying 1 p/kVA/day of adder.
<b>3518– 3521</b>	<b>Constraint-free solution; Starting point; General adder rate (p/kVA/day); General adder rate (p/kVA/day)</b>
	These tables solve the constrained revenue matching problem in a way similar to tables 3506–3509.
<b>3522</b>	<b>Adder value at which the minimum is breached</b>
	This table shows, for each tariff, the minimum (i.e. most negative) amount of p/kVArh adder that can be applied whilst complying with the rule that no reactive power charge can be negative.
<b>3523</b>	<b>Marginal revenue effect of adder</b>
	This table shows, for each tariff to which a reactive power charge adder applies, the effect on revenues (£) of applying 1 p/kVArh of adder.
<b>3524– 3527</b>	<b>Constraint-free solution; Starting point; General adder rate (p/kVArh); General adder rate (p/kVArh)</b>
	These tables solve the constrained revenue matching problem in a way similar to tables 3506–3509.
<b>3528</b>	<b>Adder</b>
	This takes each of the individual adders from tables 3509, 3515, 3521 and 3527 and allocates them to tariffs taking account of the restrictions about the application of adders to generation tariffs and to tariffs with no fixed charges, and of the constraints in tables 3504, 3510, 3516 and 3522.
	The resulting adder is used in subsequent stages of the model in a similar way as table 3510 Scaler in the reference model (version 102).

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## Other changes

- The only other changes are the implementation of DCP 163 (removal of HV Sub tariffs) and the correction of a few cosmetic defects in model 102. Of those, the only significant amendments are the restructuring of table 1001 to separate inputs and calculations into different columns and the incorporation of table 1001 within the Input sheet with all the other input data.