Appendix G: Changes made to the CDCM model and mapping to draft legal text

1.   The following changes have been made to the CDCM model:

(a)   The list of unmetered supply tariffs has been changed by replacing the single NHH UMS line with four lines, one for each category (A, B, C and D).

(b)   Space for additional input data has been inserted in the Input sheet, to enable information related to the black, yellow and green set of time bands to be used in the modelling.

(c)   Additional calculation tables have been appended to the Multi sheet to use the black, yellow and green set of time bands alongside the red, amber and green set.

(d)   The rules for the calculation of unit rates for unmetered tariffs have been changed to reflect the use of the black, yellow and green time bands and the use of a single aggregated load coefficient correction factor.

(e)   A few cosmetics defects have been corrected.

2.   The remainder of this appendix gives detail of these changes, including cross references showing which elements or tables within the spreadsheet model implement which paragraph of the draft legal text.

Changes in tariff list

3.   The following tariffs have been removed across the model:

(a)   NHH UMS

(b)   LDNO LV: NHH UMS

(c)   LDNO HV: NHH UMS

4.   The following tariffs have been added across the model:

(a)   NHH UMS category A

(b)   NHH UMS category B

(c)   NHH UMS category C

(d)   NHH UMS category D

(e)   LDNO LV: NHH UMS category A

(f)   LDNO LV: NHH UMS category B

(g)   LDNO LV: NHH UMS category C

(h) LDNO LV: NHH UMS category D

(i) LDNO HV: NHH UMS category A

(j) LDNO HV: NHH UMS category B

(k) LDNO HV: NHH UMS category C

(l) LDNO HV: NHH UMS category D

5.   These changes implement paragraphs 141 and 147 of the draft legal text.

Change to table 1026. Matrix of applicability of LV service models to unmetered tariffs

6.   Table 1026 has been restructured so that it has a single line. This ensures that the same service model assumptions are automatically made for all unmetered supply tariffs, whether half hourly or non half hourly. This is not a material change from the current model, since DNOs have used the same data for both lines of table 1026 in its previous form.

Additional input data table 1064: Average split of rate 1 units by special distribution time band

7.   Table 1064 is new. It has one line for each non half hourly settled unmetered supply tariff in the model.

8.   The data in each line represent the proportion of consumption that falls within each of the black, yellow or green time bands. This is in line with paragraph 42(c) of the draft legal text read in conjunction with paragraph 40 of the draft legal text.

Additional input data table 1066: Typical annual hours by special distribution time band

9.   For each of the black, yellow and green time bands, table 1066 contains the number of hours that fall within that time band in the year. These data are needed to implement paragraph 72(a) of the draft legal text.

Additional input data column in table 1069: Peaking probabilities by network level

10.   A fourth column has been added to table 1069 to enable the user to enter black peaking probabilities for each network level.

11.   For each line in which the "Black peaking probabilities" column is left blank, then the model will use a default estimate of the peaking probability in the black and yellow time bands based on an apportionment of peaking probabilities that ensures that the probability of peaking per hour is the same in yellow as in amber.

12.   The model infers the peaking probability in the yellow time band from the figures provided or estimated for the green and black time bands.

Additional calculation tables in the Multi sheet

13.   The following tables have been appended to the Multi sheet.

2417   Adjust annual hours by special distribution time band to match days in year

This adjusts the number of annual hours by special distribution time band provided in table 1066 on the Input sheet to ensure that it agrees with the number of days in the charging year.

2418–   **Split of rate 1–3 units between distribution time bands**
2421
These tables combine data for non half hourly unmetered and pseudo half hourly unmetered tariffs in order to construct a consolidated table of the proportion of consumption under each tariff and unit rate which falls within each special distribution time band. Values are normalised to add up to 100 per cent where appropriate.

2422–   **Calculation of implied special load coefficients for one/three-rate users**
2423
These tables calculate implied load coefficients from the distribution of units between special distribution time bands, if there were no correlation between user and system peaking within each distribution time band. This assumes that the time of system peak is always in the red time band. Separate calculations are done for the relevant single-rate tariffs (non half hourly unmetered) and for the relevant three-rate tariffs (pseudo half hourly unmetered).

2424   Estimated contributions to peak demand

The first column of this table combines data from tables 2422 and 2423. The second column uses these data to calculate the contribution of each unmetered user category to load during the black time band. The third column uses load factor and coincidence factor data to calculate the contribution of each unmetered user category to peak-time demand (where peak time is the coincidence factor concept).

2425   Mapping of tariffs to tariff groups for coincidence adjustment factor

This constant table embeds the rule used in this version of the model that a single load coefficient correction factor should be applied to a group comprising all unmetered supply tariffs.

2426–   **Group contributions to peak demand**
2427
These two tables aggregate the data in the second and third columns of table 2424 using the user groups defined by table 2425.

2428   Load coefficient correction factor for each group

This computes the ratio of the numbers in tables 2426 and 2427. Given table 2425, this implements the rule at paragraph 72(d) of the methodology that the correction factor for unmetered tariffs is a single number based on the aggregation of data for all unmetered tariffs.

2429   Load coefficient correction factor (based on group)

This copies the number from table 2428 so that it applies to each unmetered supply tariff.

2430   Calculation of special peaking probabilities

This table calculates black and yellow peaking probabilities, either by inferring them from the data in table 1069 (if present) or by applying a rule that the peaking probability per hour should be the same in yellow as in amber.

2431–2432	**Special peaking probabilities by network level**
	These tables bring together and reshape the black, yellow and green peaking probabilities into a form suitable for use in subsequent calculations.

2433	**Pseudo load coefficient by time band and network level**
	This is what would be used in the case of unmetered supply tariffs instead of the coincidence factor to load factor ratio to calculate contributions of each network level to charges within each special distribution time band. It is an intermediate step in the implementation of paragraph 72 of the draft legal text.

2434-2436	**Unit rate 1–3 pseudo load coefficient by network level (special)**
	This is what needs to be used in the case of unmetered supply tariffs instead of the coincidence factor to load factor ratio to calculate each unit rate. This calculation is a step in the implementation of paragraph 72 of the draft legal text.

2437-2439	**Unit rate 1–3 pseudo load coefficient by network level (combined)**
	This combines data from tables 2414–2416 and 2434–2436 in order to compile a table providing for each tariff to which the rule at paragraph 72 of the methodology applies, whether metered or unmetered, the numbers that needs to be used in the case of unmetered supply tariffs instead of the coincidence factor to load factor ratio to calculate unit rates.

Change in calculation rules for unmetered supply tariffs

14. Tables 2437 to 2439 implement the rule that unmetered supply tariffs are derived on the basis of an analysis using the black, yellow and green time bands, whereas relevant metered tariffs are calculated using data for red, amber and green time bands.

15. As noted in the description of the additional tables in the Multi sheet, the model implements the rule at paragraph 72(d) of the methodology that the load coefficient correction factor for unmetered tariffs is a single number based on the aggregation of data for all unmetered tariffs.

16. Tables 2505 and 3301 implement the rule in paragraph 68 of the methodology that non half hourly unmetered tariffs are calculated using a black yellow green analysis rather than on the basis of coincidence and load factors only. In table 2505, this is achieved by drawing unmetered tariff data from table 2501 rather than table 2504. In table 3301, this is achieved by drawing unmetered tariff data from table 2903 rather than table 2902.

Cosmetic improvements

17. The order of the sheets has been changed from model 100 so as to reflect more transparently the logic of the model's calculations.

18. The number formatting rules have been adjusted to ensure that an overflow indicator is visible if a column is made to be too narrow.

19.   The model is now more compatible with recent versions of Microsoft Excel, including by better preserving colours when copy-pasting. The workbook can be produced as a .xlsx file rather than a .xls file if desired.

20.   The Adjust sheet has been reordered, and a ROUND function has been inserted in the calculation of LDNO tariffs so as to ensure that the underlying data in table 3701 are rounded (instead of relying on formatting rules for rounding as model 100 did).

21.   The use of blank lines and of space for user notes has been rethought in order to increase consistency of the layout (notes are now always to the right of data), and to facilitate the use of Microsoft Excel's auto filter tool when experimenting with changes to the model.

22.   Table titles are now black so that they do not look like links. The title at the top of each sheet is now also black, and is a contiguous block of text rather than scattered across several cells.