r6029: Overview for #VALUE! in #VALUE! (#VALUE!)

This version of the model is a draft for testing only.

This workbook is structured as a series of named and numbered tables. Above each calculation table, the
algorithm used in the calculations is stated together with hyperlinks to all source data tables.

Some versions of Microsoft Excel have a "Back" button which can be useful when using hyperlinks to navigate
around the workbook. The "Back" button might be in the "Web" toolbar (Microsoft Excel versions up to 2004), or
an additional command which can be added to the "Quick Access Toolbar" (Microsoft Excel versions 2007 and 2010).

Unless stated otherwise, all the data in this model are for illustration only.

Colour coding
Data input
Unused cell in input data table
Calculation
Copy data
Unused cell in calculation table
Constant value
Unlocked cell for notes

List of data tables

This table lists the data tables (inputs and calculations) in the model. Each line contains a link is to the first data cell of the table.

Worksheet	Data table	Type of table
Input	1000. Company, charging year, data version	Input data
Input	1010. Financial and general assumptions	Composite
Input	1017. Diversity allowance between top and bottom of network level	Input data
Input	1018. Proportion of relevant load going through 132kV/HV direct transformation	Input data
Input	1019. Network model GSP peak demand (MW)	Input data
Input	1020. Gross asset cost by network level (£)	Input data
Input	1022. LV service model asset cost (£)	Input data
Input	1023. HV service model asset cost (£)	Input data
Input	1025. Matrix of applicability of LV service models to tariffs with fixed charges	Input data
Input	1026. Matrix of applicability of LV service models to unmetered tariffs	Input data
Input	1028. Matrix of applicability of HV service models to tariffs with fixed charges	Input data
Input	1032. Loss adjustment factors to transmission	Input data
Input	1037. Embedded network (LDNO) discounts	Input data
Input	1041. Load profile data for demand users	Input data
Input	1053. Volume forecasts for the charging year	Input data
Input	1055. Transmission exit charges (£/year)	Input data
Input	1059. Other expenditure	Input data
Input	1060. Customer contributions under current connection charging policy	Input data
Input	1061. Average split of rate 1 units by distribution time band	Input data
Input	1062. Average split of rate 2 units by distribution time band	Input data
Input	1068. Typical annual hours by distribution time band	Input data
Input	1069. Peaking probabilities by network level	Input data
Input	1076. Target revenue	Input data
Input	1092. Average kVAr by kVA, by network level	Input data
Input	1095. Current tariffs (those in force immediately before the tariffs calculated by this model would come into effect)	Input data
Input	1096. If modelling an in-year tariff change, volumes within the charging year to which tariffs in table 1095 apply (if any)	Input data
Input	1097. If modelling a second in-year tariff change, tariffs that applied before the first in-year tariff change	Input data
Input	1098. If modelling a second in-year tariff change, volumes within the charging year to which tariffs in table 1097 apply (if any)	Input data
LAFs	2001. Loss adjustment factors to transmission	Composite
LAFs	2002. Mapping of DRM network levels to core network levels	Fixed data
LAFs	2003. Loss adjustment factor to transmission for each DRM network level	Sum-product calculation
LAFs	2004. Loss adjustment factor to transmission for each network level	Combine tables
LAFs	2005. Network use factors	Fixed data
LAFs	2006. Proportion going through 132kV/EHV	Calculation
LAFs	2007. Proportion going through EHV	Calculation
LAFs	2008. Proportion going through EHV/HV	Calculation
LAFs	2009. Rerouteing matrix for all network levels	Combine tables
LAFs	2010. Network use factors: interim step in calculations before adjustments	Sum-product calculation
LAFs	2011. Network use factors for all tariffs	Combine tables
LAFs	2012. Loss adjustment factors between end user meter reading and each network level, scaled by network use	Calculation
DRM	2101. Annuity rate	Calculation
DRM	2102. Loss adjustment factor to transmission for each core level	Combine tables
DRM	2103. Loss adjustment factors	Composite
DRM	2104. Diversity calculations	Special calculation
DRM	2105. Network model total maximum demand at substation (MW)	Calculation
DRM	2106. Network model contribution to system maximum load measured at network level exit (MW)	Calculation
DRM	2107. Rerouteing matrix for DRM network levels	Combine tables
DRM	2108. GSP simultaneous maximum load assumed through each network level (MW)	Sum-product calculation
DRM	2109. Network model annuity by simultaneous maximum load for each network level (£/kW/year)	Calculation
SM	2201. Asset £/customer from LV service models	Sum-product calculation
SM	2202. Asset £/(MWh/year) from LV service models	Sum-product calculation
SM	2203. Service model asset p/kWh charge for unmetered tariffs	Calculation
SM	2204. Asset £/customer from HV service models	Sum-product calculation
SM	2205. Service model assets by tariff (£)	Combine tables
SM	2206. Replacement annuities for service models	Composite
Loads	2301. Demand coefficient (load at time of system maximum load divided by average load)	Calculation
Loads	2302. Load coefficient	Combine tables
Loads	2303. Discount map	Fixed data
Loads	2304. LDNO discounts and volumes adjusted for discount	Composite
Loads	2305. Number of days in period for which new tariffs are to apply	Calculation
Loads	2306. Volumes in period to which tariffs calculated in this model would apply	Calculation
Loads	2307. All units after tariff change (MWh)	Calculation
Loads	2308. Volumes in period to which tariffs calculated in this model would apply, adjusted for IDNO discounts	Calculation
Loads	2309. Equivalent volume for each end user, in period to which new tariffs are to apply	Cell summation
Loads	2310. Equivalent volume for each end user	Cell summation
Multi	2401. Adjust annual hours by distribution time band to match days in year	Composite
Multi	2402. Normalisation of split of rate 1 units	Composite
Multi	2403. Split of rate 1 units between distribution time bands	Combine tables
Multi	2404. Normalisation of split of rate 2 units	Composite
Multi	2405. Split of rate 2 units between distribution time bands	Combine tables
Multi	2406. Split of rate 3 units between distribution time bands (default)	Fixed data
Multi	2407. All units (MWh)	Calculation
Multi	2408. Calculation of implied load coefficients for two-rate users	Calculation
Multi	2409. Calculation of implied load coefficients for three-rate users	Calculation
Multi	2410. Calculation of adjusted time band load coefficients	Composite
Multi	2411. Normalisation of peaking probabilities	Composite
Multi	2412. Peaking probabilities by network level (reshaped)	Reshape table
Multi	2413. Pseudo load coefficient by time band and network level	Calculation
Multi	2414. Unit rate 1 pseudo load coefficient by network level	Sum-product calculation
Multi	2415. Unit rate 2 pseudo load coefficient by network level	Sum-product calculation
Multi	2416. Unit rate 3 pseudo load coefficient by network level	Sum-product calculation
SMD	2501. Contributions of users on one-rate multi tariffs to system simultaneous maximum load by network level (kW)	Calculation
SMD	2502. Contributions of users on two-rate multi tariffs to system simultaneous maximum load by network level (kW)	Calculation
SMD	2503. Contributions of users on three-rate multi tariffs to system simultaneous maximum load by network level (kW)	Calculation
SMD	2504. Estimated contributions of users on each tariff to system simultaneous maximum load by network level (kW)	Calculation
SMD	2505. Contributions of users on each tariff to system simultaneous maximum load by network level (kW)	Combine tables
SMD	2506. Forecast system simultaneous maximum load (kW) from forecast units	Cell summation
AMD	2601. Pre-processing of data for standing charge factors	Composite
AMD	2602. Standing charges factors adapted to use 132kV	Combine tables
AMD	2603. Capacity-based contributions to chargeable aggregate maximum load by network level (kW)	Calculation
AMD	2604. Unit-based contributions to chargeable aggregate maximum load (kW)	Calculation
AMD	2605. Contributions to aggregate maximum load by network level (kW)	Combine tables
AMD	2606. Forecast chargeable aggregate maximum load (kW)	Cell summation
AMD	2607. Forecast simultaneous load subject to standing charge factors (kW)	Calculation
AMD	2608. Forecast simultaneous load replaced by standing charge (kW)	Cell summation
AMD	2609. Calculated LV diversity allowance	Calculation
AMD	2610. Network level mapping for diversity allowances	Fixed data
AMD	2611. Diversity allowances including 132kV/HV	Sum-product calculation
AMD	2612. Diversity allowances (including calculated LV value)	Combine tables
AMD	2613. Forecast simultaneous maximum load (kW) adjusted for standing charges	Calculation
Otex	2701. Operating expenditure coded by network level (£/year)	Combine tables
Otex	2702. Network model assets (£) scaled by load forecast	Calculation
Otex	2703. Annual consumption by tariff for unmetered users (MWh)	Copy cells
Otex	2704. Service model asset data	Composite
Otex	2705. Data for allocation of operating expenditure	Composite
Otex	2706. Amount of expenditure to be allocated according to asset values (£/year)	Calculation
Otex	2707. Total operating expenditure by network level (£/year)	Calculation
Otex	2708. Operating expenditure percentage by network level	Calculation
Otex	2709. Unit operating expenditure based on simultaneous maximum load (£/kW/year)	Calculation
Otex	2710. Operating expenditure for customer assets p/MPAN/day	Composite
Otex	2711. Operating expenditure for unmetered customer assets (p/kWh)	Calculation
Contrib	2801. Network level of supply (for customer contributions) by tariff	Fixed data
Contrib	2802. Contribution proportion of asset annuities, by customer type and network level of assets	Calculation

Contrib	2803. Proportion of assets annuities deemed to be covered by customer contributions	Sum-product calculation
Contrib	2804. Proportion of annual charge covered by contributions (for all charging levels)	Combine tables
Yard	2901. Unit cost at each level, £/kW/year (relative to system simultaneous maximum load)	Combine tables
Yard	2902. Pay-as-you-go yardstick unit costs by charging level (p/kWh)	Calculation
Yard	2903. Pay-as-you-go unit rate 1 p/kWh	Composite
Yard	2904. Pay-as-you-go unit rate 2 p/kWh	Composite
Yard	2905. Pay-as-you-go unit rate 3 p/kWh	Composite
Standing	3001. Costs based on aggregate maximum load (£/kW/year)	Calculation
Standing	3002. Capacity elements p/kVA/day	Calculation
Standing	3003. Yardstick unit rate p/kWh (taking account of standing charges)	Composite
Standing	3004. Unit rate 1 (taking account of standing charges)	Composite
Standing	3005. Unit rate 2 (taking account of standing charges)	Composite
Standing	3006. Unit rate 3 (taking account of standing charges)	Composite
NHH	3101. Average maximum kVA/MPAN by end user class, for user classes without an agreed import capacity	Calculation
NHH	3102. Capacity-driven fixed charge elements from standing charges factors p/MPAN/day	Calculation
NHH	3103. Capacity used by LV users without an agreed capacity	Composite
NHH	3104. Aggregate data for LV users without agreed capacity for allocation of LV circuit costs	Composite
NHH	3105. LV fixed charge elements from standing charges factors p/MPAN/day	Calculation
NHH	3106. Fixed charge elements from standing charges factors p/MPAN/day	Combine tables
Reactive	3201. Standard components p/kWh for reactive power (absolute value)	Calculation
Reactive	3202. Standard reactive p/kVArh	Calculation
Reactive	3203. Network use factors for generator reactive unit charges	Fixed data
Reactive	3204. Absolute value of load coefficient (kW peak / average kW)	Calculation
Reactive	3205. Pay-as-you-go components p/kWh for reactive power (absolute value)	Calculation
Reactive	3206. Pay-as-you-go reactive p/kVArh	Calculation
Aggreg	3301. Unit rate 1 p/kWh (elements)	Combine tables
Aggreg	3302. Unit rate 2 p/kWh (elements)	Combine tables
Aggreg	3303. Unit rate 3 p/kWh (elements)	Combine tables
Aggreg	3304. Fixed charge p/MPAN/day (elements)	Combine tables
Aggreg	3305. Capacity charge p/kVA/day (elements)	Copy cells
Aggreg	3306. Reactive power charge p/kVArh (elements)	Combine tables
Aggreg	3307. Summary of charges before revenue matching	Cell summation
Revenue	3401. Revenue summary (period 1)	Composite
Revenue	3402. Total net revenue in the period covered by tables 1097/1098 (£)	Cell summation
Revenue	3403. Revenue summary (period 2)	Composite
Revenue	3404. Total net revenue in the period covered by tables 1095/1096 (£)	Cell summation
Revenue	3405. Net revenues by tariff before matching (£)	Calculation
Revenue	3406. Target net income from all use of system charges (£/year)	Calculation
Revenue	3407. Revenue surplus or shortfall	Composite
Scaler	3501. Factor to scale to £1/kW at transmission exit level	Calculation
Scaler	3502. Applicability factor for £1/kW scaler	Combine tables
Scaler	3503. Scalable elements of tariff components	Sum-product calculation
Scaler	3504. Marginal revenue effect of scaler	Calculation
Scaler	3505. Scaler value at which the minimum is breached	Calculation
Scaler	3506. Constraint-free solution	Special calculation
Scaler	3507. Starting point	Special calculation
Scaler	3508. Solve for General scaler rate	Composite
Scaler	3509. General scaler rate	Optimisation result
Scaler	3510. Scaler	Calculation
Adjust	3601. Tariffs before rounding	Calculation
Adjust	3602. Decimal places	Fixed data
Adjust	3603. Tariff rounding	Calculation
Adjust	3604. All the way tariffs	Calculation
Adjust	3605. Tariffs	Calculation
Adjust	3606. Net revenues by tariff from rounding	Calculation
Adjust	3607. Revenue if applied to the whole year (£/year)	Calculation
Adjust	3608. Revenue forecast summary	Composite
Tariffs	3701. Tariffs	Composite
Summary	3801. Workbook build options and main parameters	Composite
Summary	3802. Revenue summary (annualised basis)	Composite
Summary	3803. Revenue summary by tariff component (annualised basis)	Cell summation
Summary	3804. Revenue summary by tariff component (period 1)	Cell summation
Summary	3805. Revenue summary by tariff component (period 2)	Cell summation
Summary	3806. Revenue summary (after tariff change)	Composite
Summary	3807. Revenue summary by tariff component (after tariff change)	Cell summation
Summary	3808. Revenue summary (aggregate)	Composite
Summary	3809. Revenue summary by tariff component (aggregate)	Cell summation
M-Rev	3901. Revenue matrix by tariff	Composite
M-Rev	3902. Revenues by charging element and network level	Cell summation
CData	4001. Revenues under current tariffs (£)	Calculation
CData	4002. All-the-way volumes	Copy cells
CData	4003. Normalised to	Fixed data
CData	4004. Normalised volumes for comparisons	Calculation
CData	4005. LDNO LV charges (normalised £)	Copy cells
CData	4006. LDNO HV charges (normalised £)	Copy cells
CTables	4101. Comparison with current all-the-way demand tariffs	Composite
CTables	4102. LDNO margins in use of system charges	Composite
M-ATW	Tariff matrices	Notes

Model identification and configuration

PerlModule: CDCM
drm: top500gsp
extraLevels: 1
inYear: targetbeforetwiceadjust
inputData: Input
matrices: big
noReplacement: blanket
pcd: 1
portfolio: 1
protect: 1
revisionText: r6029
scaler: levelledpickexitnogenminzero
standing: sub132
summary: consultationdisclosure
tariffs: commongensub
template: DCP088-%
validation: lenientnomsg
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  CDCM/Aggregation.pm: 8a6292837d6a9cc1fe44f3f35c5b75f67110bcdf
  CDCM/Contributions.pm: 221f3967ab34285cb088fa1751c8e14e498e9668
  CDCM/InYearAdjust.pm: dd25316ba7852c81c5e0e4d1048f2cb4127aeed7
  CDCM/InYearSummaries.pm: f1352cd7d8d3f20c4c3705232d08022128589878
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  CDCM/Tariffs.pm: b2142a2d04c6867991d87d91ddc9bdc9f356c189
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  CDCM/Use.pm: b3970b3091a92248ce96ee9b109957d1dd473b87
  CDCM/Yardsticks.pm: 5f92c6bdc583b4f870c023ae8296d30b6056f1b6
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