MODIFICATION PROPOSAL ENW/2009/004.1

Electricity North West Limited

Proposal to implement an Interim IDNO charging methodology and charges

Date of Issue: 16 June 2009

FOR APPROVAL BY THE GAS AND ELECTRICITY MARKETS AUTHORITY

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1. Introduction

Electricity North West Limited (ENW) currently charges Licensed Distribution Network Operators (LDNOs) who connect to ENW's network using our published tariffs for commercial customers. In July 2008 ENW proposed a charging modification to introduce new LDNO specific tariffs: this proposal was vetoed by the Authority. In its decision, the Authority recognised that the proposal had some benefits but its assessment was that there were other aspects of the proposals which outweighed these benefits.

ENW has remained committed to introducing new charging arrangements for LDNOs and, over the last eight months, has actively participated in a working group, facilitated by Ofgem, and including all LDNOs. The aim of this working group has been to develop an interim charging methodology for LDNOs to be implemented by each DNO pending the introduction of a common charging methodology, to be mandated by Ofgem by way of a collective licence modification. This common charging methodology will be implemented from 1 April 2010 and does not form part of this modification proposal.

This modification proposal therefore seeks the introduction of interim LDNO tariffs for the period to 1 April 2010 that have been developed in accordance with methodology produced by the working group.

2. Description of the modification

2.1 The proposed methodology

ENW has based its interim LDNO charging methodology on the "net capital expenditure" approach discussed at the industry working group.

The methodology calculates a discount percentage to be applied to ENW's All-The-Way tariffs to reflect an estimate of the 'as efficient' costs of the networks provided by the LDNO. Interface costs are then added to the estimate of 'as efficient' costs to reflect the additional costs incurred by ENW with regard to LDNOs which are primarily related to billing services. The methodology is set out in the following five-step procedure.

Step 1

The first step is to allocate overall revenues from LV users between the different levels of ENW's network, using a top-down allocation method based primarily on data from the regulatory reporting pack[1], namely:

(a) Units distributed at each voltage level and total distribution losses;

(b) Total distribution operating and faults expenditure excluding network rates;

(c) Transmission exit charges;

[1] 2007/08 data has been used which is the latest available.

(d) Faults, inspection, maintenance and tree cutting expenditure, by network level;

(e) Asset replacement capital expenditure, by network level;

(f) General reinforcement capital expenditure, by network level; and

(g) Average income per unit distributed (p/kWh) from users supplied at LV.

Costs that are not recorded by network level (excluding network rates) are allocated to network levels in the same proportions as faults, inspection, maintenance and tree cutting expenditure.

The network levels used are as follows:

- LV service cables
- LV network
- HV/LV transformation (including HV/LV substations)
- HV network
- EHV/HV transformation (including EHV/HV substations)
- EHV network (excluding 132kV assets)
- EHV/132kV transformation (including EHV/132kV substations)
- 132kV network

The allocation to substations is undertaken in proportion to the gross Modern Equivalent Asset Values (MEAV) of the network and substations assets in that network level.

The number of units flowing through each level of ENW's network is estimated using the data on units distributed at each voltage level and total distribution losses.

The expenditure recorded or allocated to network levels is converted from £million to p/kWh, using the estimated number of units flowing through each level of ENW's network. This gives a matrix of p/kWh figures by network level and by the following expenditure categories:

- Operating and faults expenditure excluding network rates;
- Asset replacement capital expenditure; and
- General reinforcement capital expenditure.

The expenditure matrix is used to allocate revenues by a single net capital expenditure allocation, as described below.

The total operating and faults expenditure (in p/kWh) is deducted from LV revenues (also p/kWh). The result is an estimate of the amount of revenue attributable to assets (both depreciation/replacement and return on capital) rather than operations.

The asset replacement p/kWh and general reinforcement p/kWh are aggregated for each network level. The result is an estimate of the amount of capital expenditure net of customer contributions at each voltage level, scaled

to take account of the units distributed at HV and EHV. This is because the values exclude customer-specific extension and reinforcement expenditure.

The estimated revenue attributable to assets is then allocated to network levels in the same proportions as estimated scaled net capital expenditure (i.e. using the allocations of asset replacement and general reinforcement expenditure across network levels, weighted by their respective proportions of total capital expenditure). This gives an allocation to network levels of revenue attributable to assets.

The revenue attributable to LV assets is aggregated with the LV operating and faults revenue to give an allocation to network levels of LV revenue. This allocation to network levels of LV revenue is then converted to percentages for each network level.

Step 2

The second step is to determine the proportion[2] of the LV network that is typically used by an embedded network, relative to the amount of LV network used by a typical domestic customer.

This proportion is based on the following information:

- the average LV network length to the embedded network connection per embedded network end user; and
- the average LV network length per LV end user on the LDNO network, estimated as the average LV network length per LV end user on the DNO network.

ENW has reviewed the data that it has on the embedded networks connected to its distribution network. Analysis of all[3] 48 sites in ENW's DSA shows that the total length from ENW's distribution substation to the LDNO connection point is 9,296 metres. These sites had a total of 3,568 customers. Therefore the average LV network length per LDNO customer is 2.61 metres.

The average LV network length per LV end user is calculated as 13.08 metres, using the data from the RRP tables. An LDNO has also indicated to ENW that the LDNO's average LV network length per customer is in the range 15 metres which is consistent with our expectations for LV developments.

The output from the second step is a single percentage, representing the proportion of the LV network that, on average, LV-connected embedded networks use in respect of each end user, relative to the amount of LV network used by ENW's LV end users. This figure rounded is 84%[4].

Step 3

The third step is to determine the discount percentage to apply in the calculation of embedded network tariffs. These are as follows:

[2] This approach was classified as option 4 in a paper presented to the industry working group on 5 March 2009.
[3] All the sites with the relevant information as at December 2008.
[4] Result from the calculation, 13.08/(2.61+13.08).

LV Connected Networks	100% of LV Services 84% of LV Network
HV Connected Networks	100% of LV Services 100% of LV Network 100% of HV/LV Substation
EHV Connected Networks	100% of LV Services 100% of LV Network 100% of HV/LV Substation 100% of HV Network 100% of EHV/HV Substation

Step 4

The new IDNO tariffs are derived by applying the percentage discount calculated in step 3 to the annual charge for an average customer for each tariff. The discount is applied first to the fixed charge, and if there a residual amount then, if applicable a p/kVA/annum discount to capacity charges and, finally, if there is still a residual, a p/kWh discount is applied to all unit rates. In determining boundary tariffs, unit rates are reduced to reflect the losses on the LDNO network using ENW's published loss adjustment factors.

Step 5

The cost per annum for administration and billing processes associated with LDNOs is obtained from the model(s) used to set regulated demand tariffs.

2.2 Structure of the new IDNO tariffs

LDNOs are currently charged on a site-by-site basis using metering installed at the boundary of the LDNO network. As ENW does not know what type of customers will connect to the LDNO network, it is for the LDNO to determine the most appropriate tariff to request at the boundary based on the type of customers it plans to connect. As these customers may also be commercial, ENW will continue to make tariffs for commercial customers available to LDNOs as part of this interim proposal.

ENW proposes to offer the following three tariff arrangements for the interim period:

Existing Boundary Tariffs

ENW will continue to offer the current commercial tariff set to LDNOs connecting embedded networks to its distribution network.

New Boundary Tariffs

Alongside the current commercial tariffs ENW will make available the following additional boundary tariffs:

- LV Connected with predominantly Domestic Unrestricted customers;
- LV Connected with predominantly Domestic Economy 7 customers;
- HV Connected with predominantly Domestic Unrestricted customers;

- HV Connected with predominantly Domestic Economy 7 customers;
- EHV Connected with predominantly Domestic Unrestricted customers; and
- EHV Connected with predominantly Domestic Economy 7 customers.

The above listed tariffs have the same structure as ENW's Domestic Unrestricted and Economy 7 tariffs.

Portfolio Tariffs

The Ofgem facilitated industry working group also developed tariffs for embedded networks based on a portfolio approach. This involves applying embedded network charges on the basis of the same tariff components as our other charges, applied to the number and load data for the users on the embedded network.

The main advantage of a portfolio approach is that it helps demonstrate compliance with competition objectives, and better caters for developments which comprise different types of customer. It will help demonstrate that all new developments can benefit from competition between potential network operators by addressing perceived discrepancies in tariff structures between standard All-The-Way charges and the applicable boundary charges. This approach could also reduce the interface costs associated with LDNOs.

ENW will introduce the following portfolio tariffs as part of this proposal:

Figure 1: Illustrative Portfolio Tariffs

	Voltage of Connection		
End User Tariff	**LV**	**HV**	**EHV**
UD	Y	Y	Y
E7	Y	Y	Y
PC3	Y	Y	Y
PC4	Y	Y	Y
PC5 – 8	Y	Y	Y
HH LV	Y	Y	Y
Unmetered	Y	Y	Y

The portfolio approach requires the provision of data about the users on embedded networks in order to calculate charges for the use of ENW's distribution system. ENW will introduce portfolio tariffs in the interim period which LDNOs may use as an alternative to boundary tariffs. These portfolio tariffs will only be available to LDNOs who can provide the data necessary to bill on that basis, to the satisfaction of ENW. The information required is shown in Appendix A.

2.3 Metering Requirements and Data Provision

For the avoidance of doubt boundary meters will still be required to be fitted, at the LDNO's cost, in accordance with Ofgem's current requirements for

reporting units[5], until such time as an alternative approach for reporting such units has been agreed with Ofgem.

Until alternative arrangements are agreed all DNO/LDNO network interface points are to be metered, and that metering must have the capability to provide all data necessary for use of system billing as set out above.

Where metering is required at the network interface points the LDNO will provide the metering equipment assets and arrange for its installation. The LDNO will also be responsible for the maintenance of the metering equipment and its continuing accuracy to the standards set out in the Balancing and Settlement Code (BSC) and related procedures. Any person(s) appointed by the LDNO to provide, install and maintain the metering equipment must be accredited to undertake said activities under the relevant clauses from the BSC and Meter Operation Code of Practice Agreement (MOCOPA).

For new LDNO embedded network sites involving boundary metering connected at EHV or at HV the metering equipment will have four-quadrant capability and half-hour active and reactive consumption/generation measuring capability.

LDNOs must provide information necessary to allow accurate bills to be produced on a monthly basis, with actual readings provided at least once every six months. All billing data should be provided within five working days of the calendar month end.

3. Reasons for the change with an explanation of how the proposed change better meets the relevant objectives

These proposals build on the previous proposals from ENW to introduce new LDNO tariffs and specifically address the concerns raised by Ofgem in its November 2008 veto decision[6].

(a) Ofgem had concerns about imposing a two-rate tariff on LDNOs serving mainly domestic premises on an unrestricted tariff. This issue has been resolved by introducing more LDNO tariffs to enable the LDNO to choose a tariff which better reflects the end users connected to its networks. This revised approach to determining the LDNO tariffs will also ensure that no tariff components will exceed the All The Way charges that an LDNO can levy.

(b) Ofgem had concerns regarding the mismatch of tariff structures. The proposal also addresses this issue as discussed in (a) above.

(c) Ofgem noted that the proposals did not offer commercial LDNO tariffs: these tariffs are now available under this proposal.

(d) Finally, Ofgem considered that there was not enough detail within the description of the method to fully understand its effects. A more detailed

[5] SI 3263/2001 The Electricity (Unmetered Supply) Regulations 2001. See also 'Regulation of Independent Electricity Distribution Network Operators', Ofgem Decision document 176/05, July 2005, at paragraphs 4.13 to 4.21.

[6] Ofgem decision letter, relating to ENW/2009/001.1, dated 12 November 2008

description has been included in this modification proposal and the methodology itself was developed in an industry working group (including all distribution licensees) facilitated by Ofgem.

ENW's previous modification proposal included banded charges which reflected the distance from the LDNO connection on the ENW network to the feeding substation. As a result of the analysis in Appendix B we have re-evaluated this approach and no longer consider it appropriate to use it. This is because the approach took no account of the size of the development and numbers of customers being connected by the LDNO and therefore did not address the proportion of the network that the LDNO is providing per customer compared to ENW. This approach therefore may not have correctly reflected costs.

ENW must demonstrate that any proposed changes to its charging methodology better meets the relevant objectives set out in SLC 13.3 of the distribution licence. This justification is set out below.

3.1 Competition

Relevant objective 13.3(b)[7], states "that compliance with the use of system charging methodology … does not restrict, distort, or prevent competition in the transmission or distribution of electricity".

The introduction of new LDNOs' tariffs that closely match the structure of ENW's tariffs to end users, which the LDNOs must not exceed, will remove any potential mismatch in tariff structures which could limit the income available to LDNOs and will ensure that a sufficient margin is available. The proposals therefore better meet relevant objective 13.3(b).

3.2 Cost reflectivity

Relevant objective 13.3(c)[8], requires "that compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable (taking account of implementation costs), the costs incurred by the licensee in its distribution business".

The current approach to LDNO tariffs of using commercial tariffs for medium or large commercial users is appropriately cost-reflective. However, the introduction of specific LDNO tariffs based on the end user tariffs of the customers that an LDNO is serving and identifying the 'as efficient' costs of the network provided by the LDNO will represent a further improvement in cost-reflectivity. The proposals therefore better meet relevant objective 13.3(c).

3.3 Consultation with users

The methodology has been developed in an industry working group, facilitated by Ofgem, which included all distribution licensees.

ENW has based its interim LDNO charging methodology on the "net capital expenditure" approach discussed at the industry working group. We have chosen not to base our interim methodology on the original "top down" approach devised by the working group as a preference was indicated by

[7] SLC 13.3(b).
[8] SLC 13.3(c).

LDNOs in the industry working group for a net capital expenditure approach, which provides greater margins to the LDNOs. Nor have we chosen to base our interim methodology on the alternative "replacement expenditure adjuster" approach for two reasons: the first is that the methodology was devised outside the industry working group and has not received the appropriate scrutiny from the LDNOs and Ofgem; and second, although ENW understands the principle that the approach is trying to achieve, it is concerned that the methodology and its results do not in fact deliver upon that principle.

ENW believes that the net capital expenditure approach for estimating 'as efficient' costs in fact over-estimates these costs. The allocation of revenues attributable to assets is in the same proportion as capital expenditure (which is what creates these assets in the first instance) and risks allocating insufficient revenue to the network levels at which significant general reinforcement expenditure is required. New LV network assets are largely covered by customer contributions, so that almost all capital expenditure (net of contributions) at LV comes from asset replacement. New HV, EHV and 132kV network assets are not generally covered by customer contributions to the same extent, so that a substantial part of capital expenditure (net of contributions) at these network levels comes from general reinforcement involving the provision of new capital by the network operator.

For these reasons, ENW considers that the enduring method for determining LDNO charges will, when agreed in due course, need to depart from the net capital expenditure approach used as the basis of this interim pricing modification. Otherwise, the approach would over time lead to an over-allocation of costs to LV users in general and an unjustifiable increase in the charges to these users. For this interim proposal, however, this is not the case and ENW is therefore content to submit the pricing modification on the basis of this approach in order to reach early agreement with the IDNOs on appropriate interim tariffs.

ENW paid an active role in the development of the methodology devised in the industry working group and it had intended to be able to implement the developed methodology on the 1 April 2009. Regrettably, this was not possible due to the time that has been required to develop a common methodology and the fact that the working group has not yet reached agreement on this. Therefore, ENW intends to make the new LDNO tariffs available on a retrospective basis as of 1 April 2009. Appendix D contains information on the impact of the change.

4. Proposed Changes

ENW proposes to introduce:

- a new section 4 in its Use of System Charging Methodology statement and renumber the subsequent section; and
- a new Table 3.8 detailing the new LDNO tariffs in its Use of System Charging statement and add a section of accompanying notes for the application of these tariffs.

Appendices E1 and E2 contain the proposed changes.

5. Proposed illustrative structure and charges

Figure 2 and Figure 3 below shows the set of illustrative IDNO Boundary Tariffs and the set of illustrative IDNO Portfolio Tariffs respectively:

Figure 2: Boundary Tariffs

		Voltage of Connection		
IDNO Boundary Tariff	**Tariff Components**	**LV**	**HV**	**EHV**
Embedded networks with Dom Unres customers	Fixed Charge, p/MPAN/day	0.03	0.00	0.00
	Unit Rate, p/kWh	1.240	0.979	0.605
	Administration Costs, £ per site	£67.91	£67.91	£67.91
Embedded networks with E7 customers	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Day Unit Rate, p/kWh	1.388	1.093	0.676
	Night Unit Rate, p/kWh	0.108	0.085	0.053
	Administration Costs, £ per site	£67.91	£67.91	£67.91

Figure 3: Portfolio Tariffs

		Voltage of Connection		
End User Tariff	**Tariff Components**	**LV**	**HV**	**EHV**
Domestic Unrestricted	Fixed Charge, p/MPAN/day	0.03	0.00	0.00
	Unit Rate, p/kWh	1.240	0.979	0.605
Domestic E7	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Day Unit Rate, p/kWh	1.388	1.093	0.676
	Night Unit Rate, p/kWh	0.108	0.085	0.053
PC3	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Unit Rate, p/kWh	1.022	0.805	0.497
PC4	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Day Unit Rate, p/kWh	1.139	0.898	0.555
	Night Unit Rate, p/kWh	0.075	0.059	0.036
PC5 – 8	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Capacity charge, p/kVA/day	3.844	2.590	0.811
	Day Unit Rate, p/kWh	0.380	0.380	0.380
	Night Unit Rate, p/kWh	0.090	0.090	0.090
LV MD HH	Fixed Charge, p/MPAN/day	0.00	0.00	0.00
	Capacity charge, p/kVA/day	3.710	2.546	0.893
	Day Unit Rate, p/kWh	0.380	0.380	0.380
	Night Unit Rate, p/kWh	0.090	0.090	0.090
Unmetered	Fixed Charge, p/MPAN/day	19.03	17.98	8.85
	Demand charge, p/kW/day	12.53	11.83	5.82

Portfolio Administration Costs, £ per IDNO per month	£100.00

6. A timetable for the implementation of the modification and charges changes

ENW intends to publish the amended Licence Condition Statements within one week following a non-veto decision from the Authority and will implement the proposed changes by 1 October 2009. ENW will seek agreement with the LDNOs, under the Distribution Connection and Use of System Agreement arrangements, to implement the new proposals at an earlier date and apply the new LDNO charges on a back-dated basis as of 1 April 2009.

Appendix A: Data requirements for portfolio billing

For each monthly billing period each IDNO will send to ENW the following information derived from the settlement data-flows. The aggregated settlement data provided shall indicate reconciliation adjustments from previous settlement runs in order to identify the adjustments made in settlements.

Figure A1: Template of data required for portfolio billing

LLFC	Number of MPANs	Day Units	Night Units	Total Maximum Capacity	Total Maximum Demand
LV					
UD				n/a	n/a
E7				n/a	n/a
PC3				n/a	n/a
PC4				n/a	n/a
PC5 – 8					
HH LV					
Unmetered	n/a	n/a	n/a	n/a	
Total LV					
HV					
UD				n/a	n/a
E7				n/a	n/a
PC3				n/a	n/a
PC4				n/a	n/a
PC5 – 8					
HH LV					
Unmetered	n/a	n/a	n/a	n/a	
Total HV					
EHV					
UD				n/a	n/a
E7				n/a	n/a
PC3				n/a	n/a
PC4				n/a	n/a
PC5 – 8					
HH LV					
Unmetered	n/a	n/a	n/a	n/a	
Total EHV					

The above table is populated with aggregated data for each LDNO and supplied to ENW every month.

Appendix B: Supporting analysis for ENW's LV main allocation approach

For each of the embedded networks connected to ENW's distribution network at LV ENW has recorded the distance (i.e. the LV main employed) from ENW's feeding substation to the LDNO connection. This data was used in the calculation of the LV main split in Step 2 of Section 2 above. ENW has also used this data to compare the results of applying ENW's allocation approach to the banding approach (currently applied by WPD). Figures B1 and B2 below illustrate the under/over estimation of the LV network provided by an LDNO for the two approaches.

Figure B1: Results from the comparison of ENW's LV main allocation against the actual LV main sharing for each site

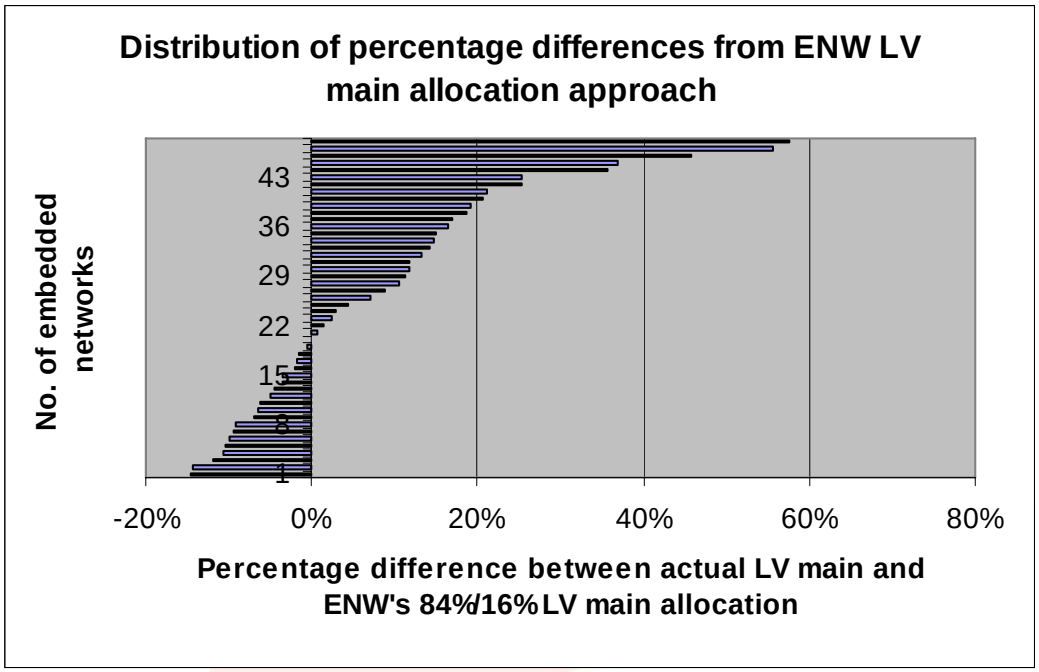


Figure B2: Results from the comparison of banding approach against the actual LV main for each site

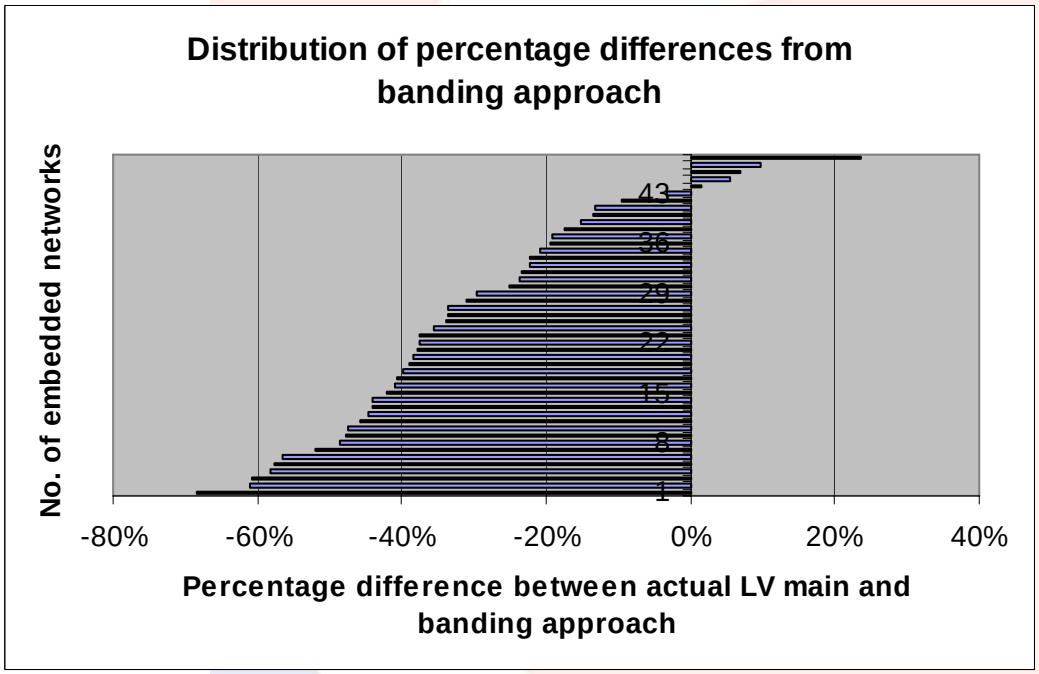


Figure B1 above shows that for the a large proportion of embedded network connections to ENW's distribution network ENW's allocation of LV main over-estimates the amount of LV network provided by the LDNOs; and for a smaller proportion ENW's approach under-estimates the amount of LV network provided by the LDNO. Importantly, this analysis shows that, on average, there is no systematic error in the approach. In contrast, Figure B2 above shows that the banding approach systematically under-estimates the amount of LV network provided by an LDNO as in only a few cases does the banding approach over-estimate the amount of LV network provided by an LDNO. This analysis raises concerns over the cost reflectiveness of the banding approach which, if applied, has the potential to distort competition in distribution.

Appendix C: Illustrative margins for a notional LDNO development

Figure C1: LDNO margin per customer for end customers on Domestic Unrestricted tariff with embedded networks connected at LV using proposed LDNO boundary tariffs

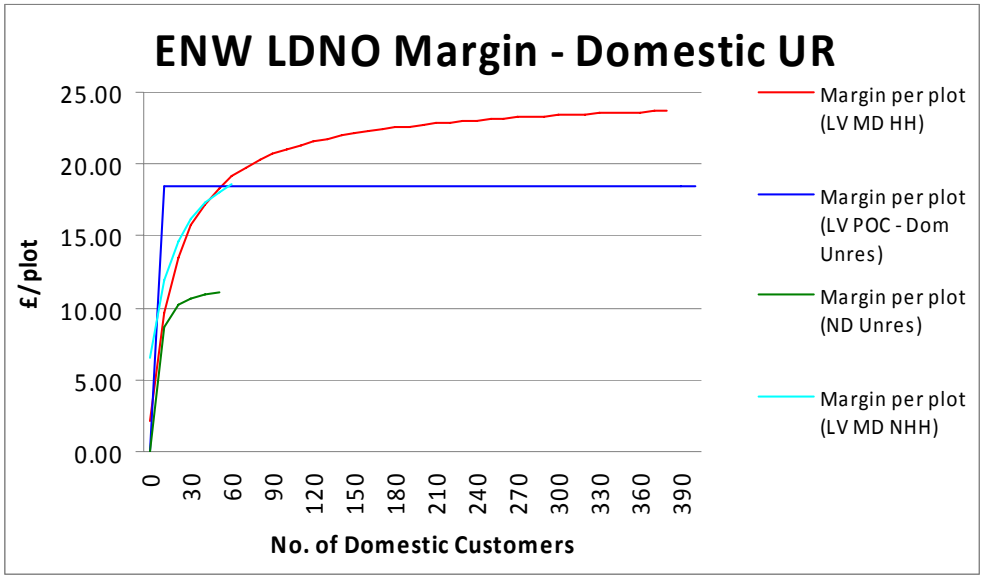


Figure C2: LDNO margin per customer for end customers on Domestic Unrestricted tariff with embedded networks connected at HV using proposed LDNO boundary tariffs

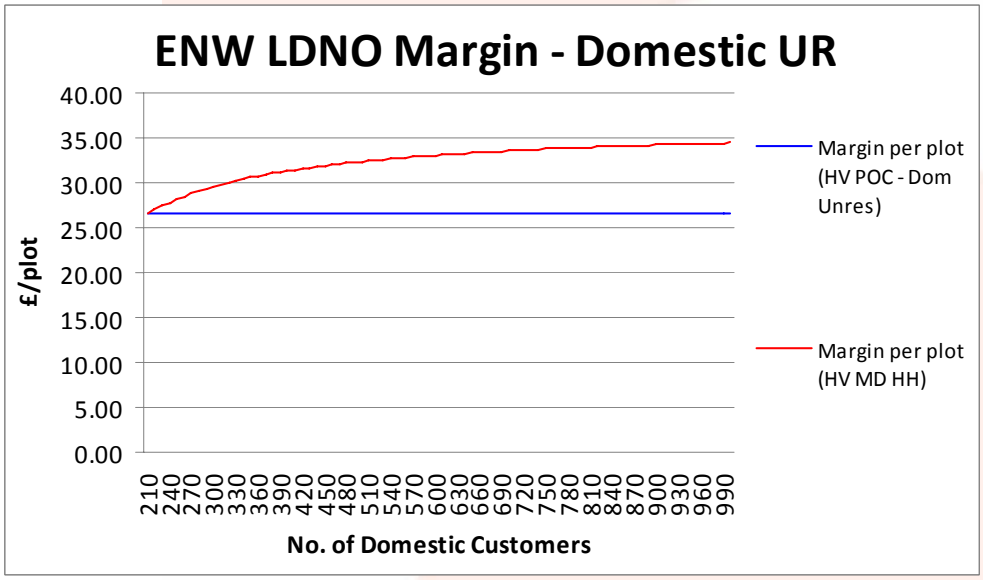


Figure C3: LDNO margin per customer for end customers on Domestic Economy tariff with embedded networks connected at LV and HV using proposed LDNO boundary tariffs

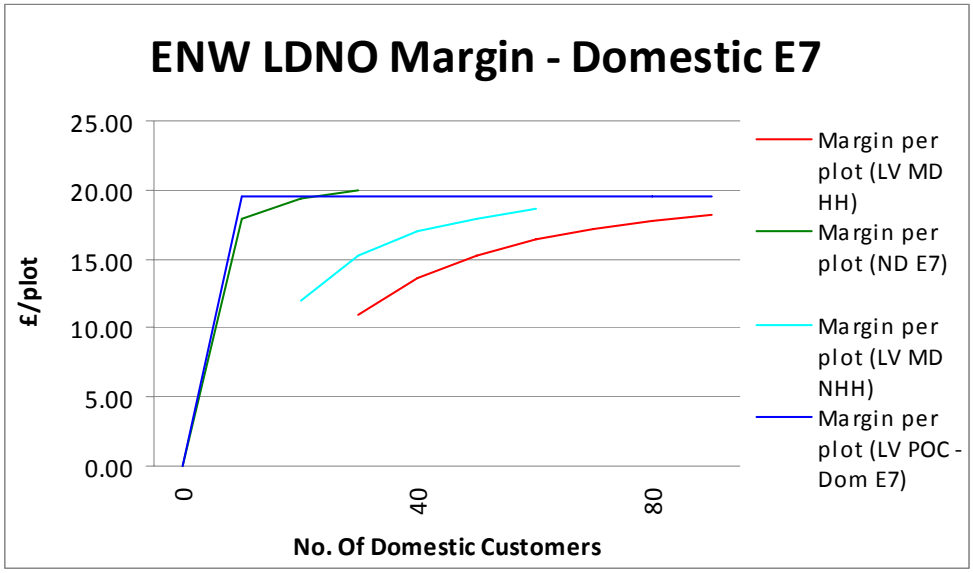
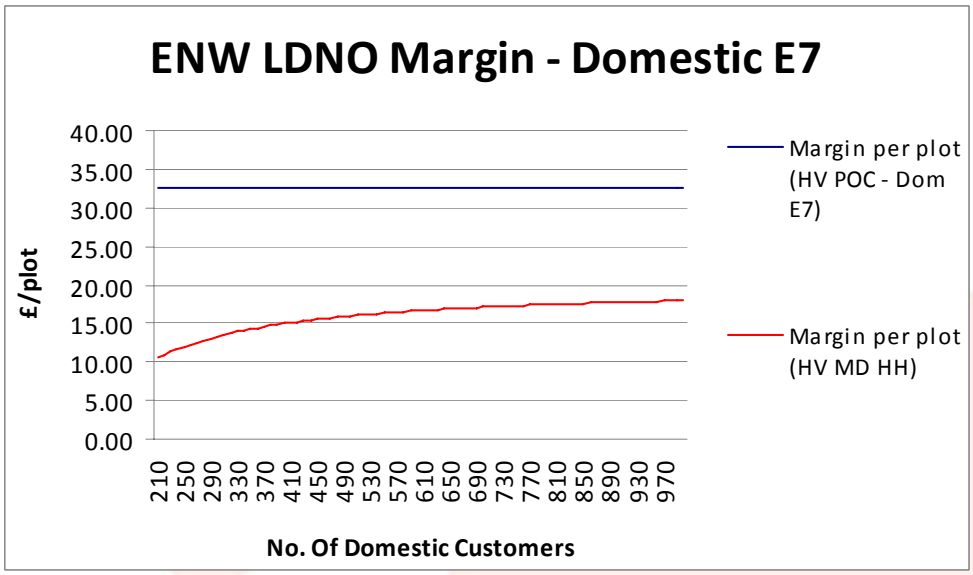


Figure C4: LDNO margin per customer for end customers on Domestic Economy tariff with embedded networks connected at HV using proposed LDNO boundary tariffs



Appendix D: Impact of tariff change on income

If the arrangements proposed in this modification proposal are implemented an LDNO will be able to choose the tariff applicable to each of its embedded networks or to apply the portfolio tariffs across all its embedded networks, provided it is able to disclose the data necessary for ENW to bill use of system charges. It is not for ENW to prescribe which approach should be applied to the disclosure of this data as the LDNOs are best placed to make the choice.

If the LDNOs choose to continue with the current tariff and billing arrangements then there will be no change to the budgeted income expected from LDNOs, ceritus paribus. This option is a strong possibility.

It is difficult to predict the income ENW would expect to receive from the existing (or future) connected LDNO embedded networks as it has little or no information on the type of end customers connected to the networks. Assuming that all of the currently-connected embedded networks were fully developed and the LDNOs choose to adopt any of the new arrangements proposed in this modification then ENW expects to receive a small amount of additional income. With all other things being equal, ENW would expect to over-recover and so there would be minimal or no impact on other customers.

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Appendix E: Proposed changes to Licence Condition Statements

E1 Use of System Charging Methodology Statement

The following sections detail the proposed changes to Use of System Charging Methodology Statement for the introduction of new LDNO tariffs.

4. Use of System Methodology – LDNO Charges

4.1 The methodology to calculate LDNO tariffs is designed to secure cost reflectivity by understanding the costs incurred at each network level.

4.2 ENW is utilising the Net Capex variant of the methodology developed in the Ofgem facilitated LDNO/DNO Working Group during 2008/9. This methodology calculates a discount percentage which is applied to ENW's All-The-Way tariffs to reflect an estimate of the 'as efficient' costs of the networks provided by an LDNO. Interface costs are then added to the estimate of 'as efficient' costs to reflect the additional costs incurred by ENW with regard to LDNOs (which are primarily related to billing services).

The Model

4.3 The Net Capex variant of the methodology is outlined in the following five-steps:

Step 1: The first step is to determine the allocation of costs across the different levels of ENW's network, using a top-down allocation method based on data from the Regulatory Reporting Pack[9].

The network levels are identified as:

- LV service cables;
- LV network;
- HV/LV transformation (including HV/LV substations);
- HV network;
- EHV/HV transformation (including EHV/HV substations);
- EHV network (excluding 132kV assets);
- EHV/132kV transformation (including EHV/132kV substations);
- 132kV network.

The following cost categories are identified and the costs are recorded by network levels:

- Faults, inspection, maintenance and tree cutting expenditure, by network level;
- Asset replacement capital expenditure, by network level; and
- General reinforcement capital expenditure, by network level.

Distribution operating expenditure, excluding network rates and Transmission Exit Charges that is not recorded by network level is allocated to network levels in the same proportions as faults, inspection, maintenance and tree cutting expenditure. Transmission exit charges are allocated to the GSP level.

The number of units flowing through each level of ENW's network is estimated using the data on units distributed at each voltage level and total distribution losses.

[9] 2007/08 data has been used which is the latest available.

The expenditure recorded or allocated to network levels is converted from £million to p/kWh, using the estimated number of units flowing through each level of ENW's network. This gives a matrix of p/kWh figures by network level and by the following expenditure categories:

- Operating and faults expenditure excluding network rates;
- Asset replacement capital expenditure; and
- General reinforcement capital expenditure.

Step 2: The second step is to calculate the percentage allocation of LV revenue to each network level.

The average income per unit distributed (p/kWh) from users supplied at LV is calculated. The total operating and faults expenditure (in p/kWh) is deducted from LV revenues (also p/kWh). The result is an estimate of the amount of revenue attributable to assets (both depreciation/replacement and return on capital) rather than operations.

The asset replacement p/kWh and general reinforcement p/kWh are aggregated for each network level. The result is an estimate of the amount of capital expenditure net of customer contributions at each voltage level, scaled to take account of the units distributed at HV and EHV. This is because the values exclude customer-specific extension and reinforcement expenditure.

The estimated revenue attributable to assets is then allocated to network levels in the same proportions as estimated scaled net capital expenditure (i.e. using the allocations of asset replacement and general reinforcement expenditure across network levels, weighted by their respective proportions of total capital expenditure). This gives an allocation to network levels of revenue attributable to assets.

The revenue attributable to LV assets is aggregated with the LV operating and faults revenue to give an allocation to network levels of LV revenue. This allocation to network levels of LV revenue is then converted to percentages for each network level.

Step 3: The third step is to determine the proportion of the LV network that is typically used by an embedded network, relative to the amount of LV network used by a typical domestic customer. This proportion is based on the following information:

- the average LV network length to the embedded network connection per embedded network end user; and
- the average LV network length per LV end user on the LDNO network, estimated as the average LV network length per LV end user on the DNO network.

This percentage is applied to the LV network percentage derived from step 2 above to derive an overall LV network percentage allocation.

Step 4: The fourth step is the derivation of new LDNO tariffs by applying the percentage discount calculated in steps 3 and 4 to the annual charge for an average customer for each tariff. The discount is applied first to the fixed charge, and if there a residual amount then a £/kVA discount is applied to the availability charge for tariffs with availability charge element else a p/kWh discount is applied to all unit rates. In determining boundary tariffs, unit rates are reduced to reflect the losses on the LDNO network using ENW's published loss adjustment factors.

Step 5: The fifth step is to determine the cost per annum for administration and billing processes, associated with LDNO, derived from the model(s) used to set regulated demand tariffs.

Format of Charges

4.4 The structure of LDNO tariffs will match the structure of the ENW tariff applied by the LDNO to its end customers.

4.5 For portfolio billing ENW will offer the following LDNO tariffs categorised by end user tariff and voltage of connection:

Table 1: Set of LDNO portfolio tariffs

	Voltage of Connection		
End User Tariff	**LV**	**HV**	**EHV**
UD	Y	Y	Y
E7	Y	Y	Y
PC3	Y	Y	Y
PC4	Y	Y	Y
PC5 – 8	Y	Y	Y
HH LV	Y	Y	Y
Unmetered	Y	Y	Y

4.6 For site-specific billing ENW will offer the following LDNO boundary tariffs in additional to the existing tariffs applied to LDNO embedded networks:

Table 2: Set of LDNO boundary tariffs

	Voltage of Connection		
Boundary Tariff	**LV**	**HV**	**EHV**
LDNO network with predominantly Domestic Unrestricted customers	Y	Y	Y
LDNO network with predominantly Domestic E7customers	Y	Y	Y

D2 Use of System Charging Statement

The following sections detail the proposed changes to Use of System Charging Statement for the introduction of new LDNO tariffs. The new table 3.8 to be embedded within Section 3 of the statement is shown below.

UoS Charges for Licensed Distributor Connections – available from 1 April 2009

Table 3.8 Licensed Distributor Tariffs for embedded distribution networks

A Licensed Distributor connecting to ENW's distribution network may choose from the following types of tariffs.

Boundary

Description	LLFC	Market	PC	Fixed charge (p/site/month)	Day unit Charge (p/kWh)	Night unit Charge (p/kWh)	Other unit charge (p/kWh)	UMS charge £/kW/month	Reactive Power charge (p/kVArh)	Tariff closed to new customers
LDNO network connected at LV predominantly serving Domestic Unrestricted customers	n/a	LDNO	n/a							N
LDNO network connected at HV predominantly serving Domestic Unrestricted customers	n/a	LDNO	n/a							N
LDNO network connected at EHV predominantly serving Domestic Unrestricted customers	n/a	LDNO	n/a							N
LDNO network connected at LV predominantly serving Domestic E7 customers	n/a	LDNO	n/a							N
LDNO network connected at HV predominantly serving Domestic E7 customers	n/a	LDNO	n/a							N
LDNO network connected at EHV predominantly serving Domestic E7 customers	n/a	LDNO	n/a							N

Accompanying Notes

- The criteria for deciding suitability are:
  - a) Above tariffs only applicable to Licensed Distributor connections, servicing only domestic customers;
  - b) All LDNO network interface points are to be metered, and that metering must have the capability to provide all data necessary for billing the use of system charges set out above;
  - c) An LDNO is to provide information necessary to allow accurate bills to be produced on a monthly basis, with actual readings provided at

least once every six months;

d) All billing data is to be provided within five working days of the calendar month end.

- All LDNO network interface points are to be metered:
  - At all LDNO network interface points the metering equipment is to have the capability to record day and night units and the site's maximum demand; and
  - At all EHV or HV LDNO network interface points the metering equipment is to have four-quadrant capability and half-hour active and reactive consumption/generation measuring capability.
- No excess reactive power charges will be applied to the above tariffs.

Portfolio

Description	LLFC	Market	PC	Fixed charge (p/site/month)	Day unit Charge (p/kWh)	Night unit Charge (p/kWh)	Other unit charge (p/kWh)	UMS charge £/kW/month	Reactive Power charge (p/kVArh)	Tariff closed to new customers
LDNO network connected at LV serving a Domestic Unrestricted customer	n/a	LDNO	n/a							N
LDNO network connected at HV serving a Domestic Unrestricted customer	n/a	LDNO	n/a							N
LDNO network connected at EHV serving a Domestic Unrestricted customer	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N
	n/a	LDNO	n/a							N

	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N
	n/a		n/a							N

Accompanying Notes

- The criteria for deciding suitability are:
  - a) Above tariffs only applicable to Licensed Distributor connections;
  - b) An LDNO is to provide information necessary to allow accurate bills to be produced on a monthly basis, with actual readings provided at least once every six months;
  - c) For each monthly billing period each LDNO is to send to ENW information derived from the settlement data-flows and the LDNO's billing engine. The aggregated settlement data provided shall indicate reconciliation adjustments from previous settlement runs in order to identify the adjustments made in settlements.
  - d) ENW requires the number of MPANs, the day units and night units, the total maximum capacity and total maximum demand (where applicable) for each end user tariff for each voltage of connection for the LDNO network.
  - e) All billing data is to be provided within five working days of the calendar month end.
- All LDNO network interface points are to be metered:
  - o At all LDNO network interface points the metering equipment is to have the capability to record day and night units and the site's maximum demand; and
  - o At all EHV or HV LDNO network interface points the metering equipment is to have four-quadrant capability and half-hour active and reactive consumption/generation measuring capability.