



MODIFICATION PROPOSAL

Changes to the Use of System
Charging Methodology to provide
interim LDNO charges

Use of System Modification - 29

For Approval by the Gas and Electricity
Markets Authority

27th November 2009

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1. Version Control

Author	Version	Date
Oliver Day Pricing Development Manager	Draft Modification Report utilising PCDM Scenario 8	13 November 2009
Oliver Day Pricing Development Manager	1 st Draft review	16 November 2009
Oliver Day Pricing Development Manager	Final	27 November 2009

2. Scope

- 2.1. This modification proposal is submitted under standard condition 13 of the Electricity Distribution Licence by EDF Energy Networks Ltd on behalf of EDF Energy Networks (EPN) plc, EDF Energy Networks (LPN) plc, EDF Energy Networks (SPN) plc, hereafter referred to as “EDF Energy Networks”.
- 2.2. Enquiries about this proposal should be made to:
Oliver Day, Pricing Development Manager, EDF Energy Networks, 01293 577224, oliver.day@edfenergy.com.

3. Summary of the Proposed Modification

- 3.1. EDF Energy Networks proposes to modify its Use of System Charging Methodology for its Distribution Systems to provide tariffs and a method of applying these tariffs specifically for Licensed Distribution Network Operators (LDNO) connected to our distribution system.
- 3.2. These LDNO tariffs will mirror the tariffs applied to existing settlement metered customers. They will contain a price reduction which has been calculated to reflect the services that would be provided by EDF Energy Networks, but which are now being provided by a LDNO instead. The price reduction will be calculated using cost data from forecast Capital Expenditure (CapEx) plans and the regulatory reporting pack (RRP), applicable to the relevant EDF Energy Networks distribution area.
- 3.3. The methodology is based on the price control disaggregation model developed and submitted as part of the Common Distribution Charging Methodology (CDCM) by all the Distribution Service Providers. This approach builds on the work that has been discussed at the Ofgem facilitated LDNO/DNO boundary charging workgroups and introduces an element of self billing. This approach is similar to other modification proposals which have received non-veto decisions from the Authority.
- 3.4. The reduced tariffs will be applied using a portfolio approach based on the metered volume at the boundary between EDF Energy Networks’ system and that of the LDNO system.
- 3.5. EDF Energy Networks propose implementation from the first day of the month following a non-veto. We will seek individual agreement with LDNOs to implement the proposals retrospectively from the original intended date of implementation, this being 1st April 2009.
- 3.6. This proposal covers high voltage (HV) and low voltage (LV) connected LDNO networks and for the avoidance of doubt this proposal would not exclude LDNOs choosing to continue to be charged on an appropriate existing tariff subject to the applicable settlement standard metering data being provided.

4. How the proposed change better meets the relevant objectives

- 4.1. EDF Energy Networks currently charges embedded networks for use of its systems on the basis of its ‘normal’ UoS tariffs. Many embedded networks serve predominantly domestic loads, which may have different load characteristics than medium or large non-domestic users. Our current methodology for setting use of system charges uses an allocation of reinforcement costs which is based on load characteristics (coincidence and load factors) of each customer type. It has been suggested that applying medium or large non-domestic user tariffs to embedded networks is not

consistent with the principles of our cost allocation methodology, and may not be cost reflective.

- 4.2. The changes that we propose will help us meet our licence objective “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”.
- 4.3. We wish to modify our methodology to ensure that our charges to LDNOs take account of the service that they provide and therefore meet our licence objective “that compliance with the use of system charging methodology ... does not restrict, distort, or prevent competition in the transmission or distribution of electricity”.

5. Description of the modification

- 5.1. EDF Energy Networks has based its interim LDNO charging methodology on an approach that is consistent with the CDCM for the enduring LDNO charging solution.¹
- 5.2. The methodology calculates a LDNO tariff reduction percentage to be applied to EDF Energy Networks appropriate all the-way tariffs. The methodology utilises the price control disaggregation model developed and submitted as part of the Common Distribution Charging Methodology (CDCM) by all the Distribution Service Providers.
- 5.3. The population of data into the price control disaggregation model has been investigated by EDF Energy Networks to ensure that capital expenditure more accurately reflects costs by network voltage level. The result of these investigations are detailed within paragraph 6.
- 5.4. Additionally we have included an element of HV network costs to the HV connected LDNOs by updating the HV:LV reduction formula and the HV:LV Sub reduction formula. This is detailed in paragraph 6.13.
- 5.5. Detail of the impact of these changes on the tariff reduction percentage is provided in Table 1 - Price Disaggregation Model Analysis and Table 2 – Scenario 8 impact.

Calculation of the LDNO tariff reduction percentage

- 5.6. The price control disaggregation model calculates the LDNO tariff reduction percentages using a three-step procedure.
- 5.7. The first step is to calculate the percentage of total distribution costs in each level of our network, and to calculate the proportion of the costs allocated to each network tier which are directly attributable to distribution activity in that network tier and those which represent an allocation of indirect costs. For the purposes of LDNO charging we split out network into four tiers, these being LV, HV/LV, HV and EHV. The allocation methodology is described below.
- 5.8. The outputs from that first step are an allocation of price control revenues weighted by units distributed between the LV, HV/LV, HV and EHV network levels. Incentives are removed from the allowed revenue allocation as it is not

¹ We have removed specific reference to Forecast Business Planning Questionnaire data as detailed in the CDCM. Ofgem have also made this a condition of approval of the CDCM as detailed in paragraphs 2.25 – 2.30 of the CDCM decision document. This document is available on the Ofgem website reference 140/09 published on the 20 November 2009.

appropriate to reflect the DNO's performance under its financial incentive schemes in the LDNO tariffs.

- 5.9. From the allocation process we can determine the percentage of our total costs allocated to each level and the proportion of the allocation which can be categorised as direct and indirect costs (which forms the Operational Expenditure (OpEx) allocation).
- 5.10. The second step is to determine the proportion of our LV network that is typically used by an embedded network, relative to the amount of LV network used by a typical LV customer.
- 5.11. The output from the second step is a single percentage, which we call the LV split, 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 our LV end users. This percentage is used to reduce the direct proportion of the LV allocation to reflect the split of LV costs between our network and average LDNO embedded network.
- 5.12. The third step is to combine steps one and two above in order to determine the LDNO tariff reduction to apply in the calculation of embedded network tariffs.
- 5.13. Embedded networks connected at LV receive a LDNO tariff reduction equal to the LV percentage network level allocation after the direct proportion of the allocation has been adjusted for the LV split.
- 5.14. Effectively the LDNO is charged for all amounts allocated to HV/LV, HV or EHV, and for the direct costs associated the average proportion of our network provided used by each LDNO end user.
- 5.15. Embedded networks connected at HV receive a LDNO tariff reduction equal to the sum of the LV and HV/LV percentage network allocations for LV customers connected to them.

Allocation of revenues to network levels

- 5.16. To calculate the network level percentage allocations we calculate separate network level percentages for the operating cost, depreciation and return on Regulatory Asset Value (RAV) elements of our allowed revenue. The final network level percentages are a weighted average of all of these. In order to allocate our revenues to network levels, we have used allocation drivers calculated from the following sources:
 - 5.16.1. A breakdown of price control allowed revenue over the period 2005/06–2009/10 between operating expenditure, depreciation and return on RAV.
 - 5.16.2. 2007/08 RRP data on units distributed and operating expenditure broken down by network level.
 - 5.16.3. Forecast data on elements of CapEx and customer contributions for the period 2005/06–2014/15, broken down by network level, and on gross Modern Equivalent Asset Values (MEAV) for various asset types.
- 5.17. For the part of operating expenditure that is included in allowed revenue under the price control, the RRP data allows us to distinguish between direct and indirect costs, with direct costs allocated directly to network level. Thus a direct operating costs percentage for each network level can be established from the RRP data. We allocated indirect operating costs to network levels on the basis of MEAV. Transmission exit charges are allocated to the EHV level, so that they get allocated to all users in the same way as other EHV charges.

- 5.18. The operating cost percentage for each level is a weighted average of the direct and indirect percentages. Estimated gross modern equivalent asset values used for this purpose were derived from asset counts and unit costs from forecast CapEx plans.
- 5.19. Both the depreciation and return on capital elements of allowed revenue are allocated to network levels on the basis of net CapEx data derived from the forecasts. All figures are aggregated over the 10-year period 2005/06–2014/15, taking in actual data or forecasts for each year as available.
- 5.20. For each network level, net capital expenditure was calculated by adding up total condition based replacement (proactive and reactive), combined in the case of LV, HV and EHV with connections spend minus customer contributions for connections at that voltage level, general reinforcement capital expenditure at that voltage level, and fault reinforcement capital expenditure at that voltage level. Some of these categories explicitly identify HV substation and HV transformer costs. These costs (and no other costs) are allocated to the HV/LV network level. Some of the expenditure categories do not separately identify HV substation/transformer costs. For these categories costs are allocated to the HV/LV in the same proportion as for the other categories (where these costs are separately identified).
- 5.21. As the LDNO tariffs relate to demand customers we have not included generation CapEx calculation of the percentage of net CapEx attributable to each network level.
- 5.22. These allocations of the operating expenditure, depreciation and return elements of allowed revenue are combined using weights from the price control breakdown.
- 5.23. These allocations are then rescaled by the estimated number of units flowing through each network level.
- 5.24. Finally, for operating expenditure attributed to LV, a breakdown is made between direct and indirect expenditure, using the proportions from the analysis of RRP data.

6. Changes to the Price Disaggregation Model

- 6.1. EDF Energy Networks' has adapted the population of data into the price control disaggregation model to ensure all appropriate cost allocation has been considered. This work has been conducted following concerns raised by Ofgem.
- 6.2. The review was initiated following publication of the CDCM submission to identify whether there was any rationale for the low cost allocation of EDF Energy Networks compared to the average of all the DNOs.
- 6.3. During the course of the investigation several areas have been identified and through this eight scenarios have been developed to identify the impact of the change.
- 6.4. Table 1 - Price Disaggregation Model Analysis provides a description of the scenarios and the detail of the impact on the LV reduction. The eighth scenario does not alter the LV LDNO:LV reduction as these only impacts HV connected LDNOs. While only LV LDNO:LV ATW are shown the impact is similar to other connections.

Table 1 - Price Disaggregation Model Analysis

Scenario	Description	LV LDNO: LV ATW Reduction %		
		EPN	LPN	SPN
Base Model	CDCM submission	18.81	18.73	20.95
Scenario 1	LR1 updated with latest submission	19.50	18.82	22.01
Scenario 2	Scenario 1 + NL1 updated with latest submission	19.92	19.41	22.18
Scenario 3	Scenario 2 + NL9 (ESQCR) data	22.64	19.41	26.17
Scenario 4	Scenario 3 + LR4 Updated with latest submission	22.83	19.41	26.23
Scenario 5	Scenario 4 + Incentive revenue based on assumption used in charge year	25.72	19.93	27.46
Scenario 6	Scenario 4 + Zero Incentive revenue	26.87	20.53	27.58
Scenario 7	Scenario 5 + adjustments CapEx from IP appendix 6 and 7	26.26	19.99	27.93
Scenario 8	Scenario 7 + HV allocation formula updated to allocate a proportion of HV network costs to the LDNO	26.26	19.99	27.93

Scenario details

- 6.5. The CDCM submission price disaggregation models were populated with February 2009 Forecast Business Planning Questionnaire (FBPQ) data. During the course of the price control the FBPQ data is updated often following improvements to the guidelines provided by Ofgem. Some of the scenarios implemented simply make use of later data submissions.
- 6.6. Scenario 1 utilises a later submission of connections driven load related data from the LR1 table of the FBPQ. The later submission provides an improved breakdown of the costs driven by LV connections.
- 6.7. Scenario 2 utilises a later submission of non-load related data from the NL1 table of the FBPQ. The later submission has an increase in the costs driven by LV condition based replacement.
- 6.8. Scenario 3 provides for the addition of ESQCR expenditure on overhead lines to the same allocation as NL1 data in the model. In our FBPQ submission EDF Energy Networks overhead line condition based expenditure for DPCR 5 is driven by safety needs ahead of other condition based reasons and had, therefore, been correctly allocated to the FBPQ NL9 table. The costs in this NL9 table are not directly allocated to voltage level by the standard price control disaggregation model.
- 6.9. Scenario 4 utilises a later submission of general reinforcement load related data from the NL4 table of the FBPQ. The later submission essentially has a reduced EHV and 132kV CapEx.
- 6.10. Scenario 5 aligns the incentive revenue with the April 2009 charging year. The original submission used the incentive revenue from the April 2007 charging year as determined by the standard price control disaggregation model. The incentive revenue for 2007 was higher than the incentive revenue forecast for 2009 and this caused more cost to be removed from allocation to LDNOs. We

believe that it is more cost reflective to allocate the forecast incentive revenue for the relevant charging year as this is what the ATW charges are actually based on.

- 6.11. Scenario 6 experiments with removing the incentive revenue completely. However, this scenario has not been utilised as it is felt that this is not representative.
- 6.12. Scenario 7 makes changes to the total CapEx allocations by voltage level based on the headline cost adjustments in Ofgem's Initial Proposals. These adjustments are based on Ofgem's view that our EHV and 132kV unit cost are above average while our LV and HV unit cost are lower than average.
- 6.13. This submission is based on scenario 8 of the disaggregation model. Scenario 8 does not affect the LDNO LV reduction but is included in the table for completeness. Scenario 8 has a change to the formula of the HV cost allocation. This enables a proportion of the HV network cost to be allocated to LDNOs who have LV and LV sub end users. We believe this corrects an oversight in the original CDCM version. The affect of this change between Scenario 7 and 8 for HV LDNO:LV ATW reduction is detailed in Table 2.

Table 2 – Scenario 8 impact

Scenario	Description	HV LDNO: LV ATW Reduction %		
		EPN	LPN	SPN
Scenario 7	Scenario 5 + adjustments CapEx from IP appendix 6 and 7	36.5	31.7	38.4
Scenario 8	Scenario 7 + HV allocation formula updated to allocate a proportion of HV network costs to the LDNO	42.1	38.0	44.8

- 6.14. Further work identified that none of EDF Energy Networks' three regions are impacted by low voltage Consac cable replacement programmes. DNOs who have Consac cables that are corroding typically have an LDNO LV margin approximately 2% higher than DNOs that don't have Consac replacement work. Consac cables, installed in the 50's and 60's have a protective sheath that is corroding necessitating early replacement.
- 6.15. It is noted that there is less movement and hence a smaller percentage reduction in the LPN area when compared to EPN and SPN. The lower cost allocation in the LPN area can be attributed to the fact that there are no overhead lines in the LPN area and therefore the LV network is not subject to as much cost allocation.

7. Structure of LDNO Tariffs

- 7.1. The structure of our LDNO tariffs will mirror the structure of the tariffs used by the LDNO and the charges that are applied will depend on the voltage of DNO to LDNO connection.
- 7.2. We propose to implement DNO to LDNO charges based on the application of a percentage reduction to the published DNO 'All The Way' (ATW) charges using a 'portfolio' billing approach. The portfolio billing approach bases charges on the aggregated data for each tariff that the LDNO utilises. In order to achieve this approach we will need the support of LDNOs to supply aggregated data for each tariff based on their SVA data.

- 7.3. The aggregated SVA data will allow EDF Energy Networks to allocate the boundary metered consumption to the appropriate ATW tariff. The charges will then be calculated based on the reduced ATW tariff. The LDNO will take their NHH D0030 and HH D0275 data and provide the number of MPANs on each of their tariffs and the percentage split of consumption by tariff time pattern regime for NHH metered sites and by time band for HH metered sites. The LDNO will also support this approach by providing the sum of the chargeable capacity for HH metered sites. LDNOs will need to provide the data separately by LV and HV connection voltage.
- 7.4. Charges will be based on:
 - 7.4.1. The fixed and unit charges of the applicable settlement registered end user tariff, (ATW tariff), less the LDNO Voltage of Connection Reduction.
 - 7.4.2. A capacity charge, where applicable, in the ATW tariff.
 - 7.4.3. A reactive charge, where applicable, in the ATW tariff.
- 7.5. The main advantage of this ‘portfolio’ approach is that the margin available to the LDNO is clearly identifiable in respect of each end user.
- 7.6. The portfolio approach places the onus on LDNOs to provide the data on their customers. We acknowledge that LDNOs will need to support this approach by providing data and there is no standard requirement for them to do so.

8. Proposed changes

- 8.1. EDF Energy Networks proposes to make the following changes to its statements:
 - 8.1.1. Introduce a new section in the Use of System Charging Methodology, which will be placed after the section “Use of System Methodology – Site-Specific Charges for Demand and Generation”. The new section will be “Use of System Methodology – HV/LV Boundary charges for Licensed Distribution Network Operators”.
 - 8.1.2. A new table 3.8 in the Use of System Charging Statement, detailing the LDNO reductions including a section of accompanying notes for the application of the reductions.
- 8.2. Details of the proposed Use of System Charging Statement changes are provided in section 13.

9. LDNO Tariff Reduction Percentages

- 9.1. The output from the price control disaggregation model yields the following tariff reduction percentages, which will be applied to the appropriate ATW tariff.
- 9.2. The charges that will apply to LDNOs will be the relevant published ATW tariff less the tariff reduction from the following table applied to the LDNOs portfolio of end user data.

Table 3 - Allocation of reduction to ATW tariffs

	EPN		LPN		SPN	
LDNO Boundary connection voltage >	LV	HV	LV	HV	LV	HV
LV ATW connection	26.3	42.1	20.0	38.0	27.9	44.8
LV Sub ATW connection (EPN only)		15.2				
HV ATW connection		8.8		9.3		10.4

10. Timetable for implementation of the modification

- 10.1. EDF Energy Networks propose to implement this methodology from the first day of the month following a non-veto. Additionally, we will seek agreement with LDNOs to implement the proposals at the earliest possible date and apply the new LDNO charges retrospectively from the original intended date of implementation, this being 1st April 2009.
- 10.2. As this is an interim proposal LDNOs will have the choice to continue to be charged on their existing tariff subject to the applicable settlement standard metering data being provided.

11. Portfolio Billing Requirements

Allocation of charges to LDNO aggregated data

- 11.1. This section details the data requirements and method for calculating the portfolio bills.
- 11.2. As this is intended to be an interim approach it is sensible to consider an appropriate implementation solution that does not have excessive implementation costs. We consider than an appropriate solution that utilises the existing available data infrastructure that could be implemented at relatively low start up cost is appropriate and would be based upon:
 - 11.2.1. The existing boundary metering that has been installed on the DNO-LDNO boundary.
 - 11.2.2. The access to settlement data, particularly D0030 and D0275 flows that go directly to LDNOs coupled with LDNOs' knowledge of their own customers.
 - 11.2.3. The proposition by LDNOs to perform self billing by analysing this settlement data.
- 11.3. We describe this solution as partial self billing and its operation is described below.
- 11.4. From each months settlement final (SF) data the LDNO would prepare an analysis of their settlement data received through D0030 and D0275 data flows, supplemented with appropriate additional information required from the LDNOs' own billing systems. This 'consumption month' data would be provided for each DNO to LDNO connection voltage (i.e. HV or LV) and contain the following information:

- 11.4.1. The number of Energised Traded MPANs on each tariff offered by the LDNO.
- 11.4.2. The percentage of the total amount of energy attributable to each unit rate on each tariff offered by the LDNO.
- 11.4.3. The total chargeable capacity of the LDNOs' customers.
- 11.4.4. The total chargeable kVAh of the LDNOs' customers.
- 11.4.5. This data will be supplied to EDF Energy Networks within 45 days from the end of the consumption month. EDF Energy Networks will estimate missing data, as provided for within DCUSA, in the absence of LDNO provided data.
- 11.5. The consumption month data will be sent to EDF Energy Networks as a simple spreadsheet. An example of what this might look like is provided in Table 4:

Table 4

LDNO A – Data for LV connected networks in DNO B area				
Consumption Month	ddmmyyy to ddmmyyy		Settlement run	SF
Tariff	Time Period	No. MPANs	Chargeable Capacity (kVA)	Percentage Energy
Domestic Unrestricted	Standard	500		33%
Domestic Two Rate	Day	200		9%
Domestic Two Rate	Night			17%
Business Unrestricted	Standard	20		10%
Business Two Rate	Day	10		4%
Business Two Rate	Night			6%
Low Voltage Half Hourly	Fixed	2	350	
Low Voltage Half Hourly	Night			4%
Low Voltage Half Hourly	Winter Peak			1%
Low Voltage Half Hourly	Winter Shoulder			2%
Low Voltage Half Hourly	Summer Peak			2%
Low Voltage Half Hourly	Other			12%
Check Total				100%

- 11.6. This analysis can be produced by the LDNO from the LDNOs settlement data.
- 11.7. The use of percentage energy in place of actual consumption data means that it would not be necessary for the LDNO to generate billing for each reconciliation run if the movement across the tariffs is not significant. This is similar to the work that the LDNO would have to undertake for a self billing proposal and is probably simpler.
- 11.8. EDF Energy Networks would then combine this self billing data from the LDNO with the metering data obtained from the boundary metering points. This would allow the calculation of the actual DNO/LDNO DUoS bill by taking the actual meter reading of the units distributed by the DNO to the LDNO, splitting it by the percentage allocation and then applying the LDNO tariff. This will ensure that the units charged for by the DNO to the LDNO fall into the same proportions as the units billed by the LDNO to suppliers and that fixed and capacity charges are based upon the quantities billed by the LDNO.
- 11.9. An example of the boundary metering values that will be summated from the D0275 data is provided in Table 5.

Table 5

LDNO A – Boundary metered data for LV connected networks in DNO B area	
Inset Network ID	Consumption (kWh)
Network M	30,000
Network N	60,000
Network O	10,000
Network P	40,000
Total	140,000

11.10. The LDNO data in Table 4 is then combined with the boundary metered data in Table 5 to provide a DNO/LDNO boundary charge invoice. An example of this for LV connected LDNO networks is provided in Table 6.

Table 6

LDNO A – Bill summary for LV connected networks in DNO B area							
Billing period: 1st October 2009 – 31st October 2009							
Total boundary consumption: 140,000 kWhs							
Tariff	Time Period	No. MPANs	Chargeable Capacity (kVA)	Percentage Energy	Charges with LV reduction applied²		Charged value (£)
					Fixed charge (p/day)	Unit/ Capacity Charge (p/kWh or p/kVA)	
Domestic Unrestricted	Standard	500		33%	4.00	0.600	897.2
Domestic Two Rate	Day	200		9%	4.00	0.850	355.10
Domestic Two Rate	Night			17%		0.300	71.40
Business Unrestricted	Standard	20		10%	6.00	0.600	121.20
Business Two Rate	Day	10		4%	6.00	0.500	46.60
Business Two Rate	Night			6%		0.200	16.80
Low Voltage Half Hourly	Fixed	2	350		45.00	150.000	552.90
Low Voltage Half Hourly	Night			4%		0.020	1.12
Low Voltage Half Hourly	Winter Peak			1%		1.000	14.00
Low Voltage Half Hourly	Winter Shoulder			2%		0.200	5.60
Low Voltage Half Hourly	Summer Peak			2%		0.060	1.68
Low Voltage Half Hourly	Other			12%		0.040	6.72
Total				100%			2,090.32

- 11.11. The data provided by LDNO A in this LV example would be repeated for their HV connected networks and the charges for the HV connected networks would have the HV reduction applied.

12. Proposed Tariff Impact

- 12.1. Examples of the impact on an LV LDNO connected network with Domestic Unrestricted customers is provided in the flowing tables for each network area.
- 12.2. Further impact examples of these reductions are detailed in the attached spreadsheet containing a wider variety of sample sites – EDF Energy Networks Interim LDNO Tariff Analysis - 27112009.xls
- 12.3. The consumptions used in the analysis are based on network averages from EPN, LPN and SPN. These are 4,170kWhs, 3,776kWhs and 4,103kWhs respectively.

	No. of Premises	Annual charge (ATW)	Gross Margin / plot (current)	% of ATW Tariff Retained by IDNO (current)	Gross Margin / plot (proposed)	% of ATW Tariff Retained by IDNO (proposed)
EPN LV connected domestic unrestricted	25	£64.37	£13.69	21%	£16.29	25%
	50	£64.37	£26.75	42%	£16.29	25%
	75	£64.37	£8.20	13%	£16.29	25%
	100	£64.37	£10.12	16%	£16.29	25%
	150	£64.37	£12.17	19%	£16.29	25%
	200	£64.37	£30.12	47%	£16.29	25%

	No. of Premises	Annual charge (ATW)	Gross Margin / plot (current)	% of ATW Tariff Retained by IDNO (current)	Gross Margin / plot (proposed)	% of ATW Tariff Retained by IDNO (proposed)
LPN LV connected domestic unrestricted	25	£61.71	£8.44	14%	£11.58	19%
	50	£61.71	£13.29	22%	£11.58	19%
	75	£61.71	£16.86	27%	£11.58	19%
	100	£61.71	£18.35	30%	£11.58	19%
	150	£61.71	£19.92	32%	£11.58	19%
	200	£61.71	£20.70	34%	£11.58	19%

	No. of Premises	Annual charge (ATW)	Gross Margin / plot (current)	% of ATW Tariff Retained by IDNO (current)	Gross Margin / plot (proposed)	% of ATW Tariff Retained by IDNO (proposed)
SPN LV connected domestic unrestricted	25	£56.68	£3.10	5%	£15.33	27%
	50	£56.68	£17.81	31%	£15.33	27%
	75	£56.68	£2.55	4%	£15.33	27%
	100	£56.68	£4.82	9%	£15.33	27%
	150	£56.68	£7.26	13%	£15.33	27%
	200	£56.68	£8.48	15%	£15.33	27%

13. Proposed wording for charging methodology

- 13.1. Paragraph numbering on the proposed methodology wording has been maintained for clarity in this proposal. This numbering will not feature in the methodology statement.
- 13.2. Proposed wording to be added after the section “Use of System Methodology – Site-Specific Charges for Demand and Generation” the following new section contained between paragraphs 13.3 and 13.40 will be added...
- 13.3. “Use of System Methodology – HV/LV Boundary charges for Licensed Distribution Network Operators

Rationale

- 13.4. Charges for Licenced Distribution Network Operators (LDNOs) are based on utilising boundary metering data and LDNO customer (settlements) metering data to provide a partial ‘self-billing’ approach to boundary tariffs.
- 13.5. We will calculate charges based on boundary metered data and the percentage unit split of the LDNOs customer metered consumption, based on D0030 and D0275 data flows. For each of its own ‘All the Way’ (ATW) tariffs, the LDNO will provide the percentage of total units sold and the number of MPANs. Where appropriate the LDNO will also provide the sum of the capacity for HH metered sites connected to their network.
- 13.6. This methodology calculates a price reduction percentage that is applied to applicable published end user ATW tariffs. The price reduction is calculated using cost data from forecast CapEx plans and the Regulatory Reporting Pack (RRP).
- 13.7. The approach requires the provision of data about the users on embedded networks in order to calculate charges for the use of our distribution system. This requires the cooperation of LDNOs to provide aggregated data on their end users. We acknowledge that LDNOs will need to support this approach by providing data and there is no standard requirement for them to do so.
- 13.8. This proposal continues to utilise existing data flows from boundary meters using the standard D0275 data flow format.

Model Inputs

- 13.9. The model utilises forecast CapEx plans and RRP information to allocate costs to the different voltage levels on our network.

The Price Control Disaggregation Model

- 13.10. The model produces a series of reduction percentages which are used to determine portfolio tariffs for LDNOs. For the purposes of price control disaggregation the network is split into four levels: LV, HV/LV, HV and EHV.
- 13.11. The determination of price reduction percentages involves the following steps:
- 13.11.1. (a) Allocation of price control revenue elements to network levels.
 - 13.11.2. (b) Determination of a percentage allocation of total revenue per unit to network levels.
 - 13.11.3. (c) Determination of the proportion of the LV network deemed to be used by LV connected embedded networks.
 - 13.11.4. (d) Determination of the proportion of the HV network deemed to be provided by HV-connected embedded networks with HV end users.
 - 13.11.5. (e) Calculation of the price reduction percentage for each combination of boundary network level and end user network level.
 - 13.11.6. (f) Application of price reduction percentages to determine portfolio tariffs.

Allocation of price control revenue elements to network levels

- 13.12. The calculation of percentage allocations of price control revenues to network levels is based on separate percentages by network level for the operating cost, depreciation and return on RAV elements of the licensee's allowed revenue.
- 13.13. In order to determine the allocation to network levels of each element of price control revenue, the licensee uses the costs allocation drivers calculated from the following sources:
- 13.13.1. (a) RRP data on units distributed and operating expenditure broken down by network level.
 - 13.13.2. (b) Data on elements of capital expenditure and customer contributions for the period 2005/06–2014/15, broken down by network level.
 - 13.13.3. (c) Data on gross modern equivalent asset values (replacement costs) for various asset types.
- 13.14. Data from the RRP are used to distinguish between direct and indirect costs, with direct costs coded by network level. For the purpose of this calculation, capital expenditure are included, net of customer contributions, but negative figures are replaced with zero. This analysis provides direct costs percentage for each network level, based on RRP data. The direct cost percentage for LV is denoted [LV direct proportion] and the direct cost percentage for HV is denoted [HV direct proportion].
- 13.15. Indirect operating costs are allocated to network levels on the basis of an estimate of MEAV by network level. The operating cost percentage for each level is a weighted average of the direct and indirect percentages. Estimated gross MEAV used for this purpose are derived from asset counts and unit costs from planning forecasts wherever available.

- 13.16. Transmission exit charges are allocated to the EHV network level.
- 13.17. Both the depreciation and return on capital elements of allowed revenue are allocated to network levels on the basis of net capital expenditure data derived from CapEx plans. All figures are aggregated over the 10-year period from 2005/2006 to 2014/2015, taking in actual data or forecasts for each year as available.
- 13.18. For each network level, the relevant net capital expenditure is calculated by adding up total condition based replacement (both proactive and reactive), combined in the case of LV, HV and EHV network levels with connections spend less customer contributions for connections at that voltage level, general reinforcement capital expenditure at that voltage level, and fault reinforcement capital expenditure at that voltage level.
- 13.19. Some of these categories allow HV substation and transformer costs to be identified. These costs (and no other costs) are allocated to the HV/LV network level.
- 13.20. Some of the expenditure categories do not separately identify HV substation/transformer costs. For these categories costs are allocated to the HV/LV in the same proportion as for the other categories (where these costs are separately identified).
- 13.21. Generation-related capital expenditure is not included in the net CapEx attributable to each network level.

Determination of a percentage allocation of total revenue per unit to network levels.

- 13.22. The percentage allocation of costs to network levels is determined as a weighted average of the percentage allocation for each of the elements of price control revenue, rescaled by units distributed.
- 13.23. The licensee determines a breakdown of price control allowed revenue over the period from 2005/2006 to 2009/2010 between operating expenditure, depreciation and return on regulatory asset value (RAV).
- 13.24. For the purpose of that calculation, allowed revenue is adjusted by deducting the net amount earned or lost by the licensee under price control financial incentive schemes.
- 13.25. These allocations of the operating expenditure, depreciation and return elements of allowed revenue are combined using weightings from the price control breakdown.
- 13.26. The weighted average allocations are then rescaled by the estimated number of units distributed through each network level, and normalised so that they sum to 100 per cent. The result of this calculation is a set of percentages for each of the LV, HV/LV, HV and EHV network levels.

LV split

- 13.27. The licensee determines the proportion of the LV network which LV-connected embedded networks are deemed to use by:
 - 13.27.1. (a) determining the total length of its LV mains used by LV-connected licensed embedded networks;
 - 13.27.2. (b) dividing that total length by the number of end users on LV-connected licensed embedded networks; and

- 13.27.3. (c) dividing the result by the average length of LV network by LV end user on the licensee's own LV network.

13.28. The result of this calculation is denoted [LV split].

HV split

13.29. For the purpose of this interim methodology and in advance of industry agreement of a suitable estimation method EDF Energy Networks has estimated the proportion of the HV network which is provided by the DNO at 90%. We believe this to be a sensible and pragmatic approach in the absence of suitable alternatives.

13.30. This proportion is denoted [HV split].

Calculation of price reduction percentages

13.31. The price reduction percentages are determined as follows.

13.32. For embedded networks with an LV boundary, the price reduction is equal to:
[LV: LV price reduction] = [LV allocation]*(1 – [LV split]*[LV direct proportion]).

13.33. For embedded networks with an HV boundary, three percentage price reduction figures are used.

13.34. The percentage price reduction applicable to tariffs for LV network end users is: [HV: LV price reduction] = [LV allocation] + [HV/LV allocation] + [HV allocation]*(1 – [HV split]*[HV direct proportion]).

13.35. The percentage price reduction applicable to tariffs for LV substation end users is: [HV: LV Sub price reduction] = [HV/LV allocation]/(1 – [LV allocation]) + [HV allocation]*(1 – [HV split]*[HV direct proportion]).

13.36. The percentage price reduction applicable to tariffs for HV end users is: [HV: HV price reduction] = [HV allocation]*(1 – [HV split]*[HV direct proportion])/(1 – [LV allocation] – [HV/LV allocation])

Application of price reduction percentages to determine portfolio tariffs

13.37. The price reduction percentages are applied to all tariff components in all-the-way tariffs in order to determine embedded network portfolio tariffs.

Format of Tariffs

13.38. The DNO's charges to LDNOs are based on the application of a percentage reduction to the published DNO ATW tariffs using a 'portfolio' billing approach, whereby LDNOs supply aggregated data based on their SVA data. The form of the aggregated data allows EDF Energy Networks to allocate the boundary metered consumption to the appropriate ATW reduced tariff.

13.39. The LDNO takes its NHH D0030 and HH D0275 data and provides the number of MPANs on each of their tariffs and the percentage split of consumption by tariff time pattern regime for NHH metered sites and by time band for HH metered sites. The LDNO also provides the sum of the chargeable capacity for HH metered sites. The LDNO provides the data separately by LV, LV Sub and HV connection voltage.

13.40. DNO charges to LDNOs will then be based on the applicable settlement registered end user tariff, (the ATW tariff), as detailed in our Use of System Charging Statement, less the LDNO Voltage of Connection Reduction."