WESTERN POWER DISTRIBUTION

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WESTERN POWER DISTRIBUTION (SOUTH WEST) PLC
WESTERN POWER DISTRIBUTION (SOUTH WALES) PLC

Modification Proposal

Amendment Proposal: WPD/WALES/WEST/UOS005

Title: Modification Request on changes to the Use of System Charging Methodology to incorporate IDNO Networks and consequential changes to the form of the Use of System Charging Statement

Date of Issue: 14/09/2007

FOR APPROVAL BY THE AUTHORITY

This Modification Proposal sets out Western Power Distribution (South West) plc and Western Power Distribution (South Wales) plc ("WPD") proposals to amend WPD's Use of System Charging Methodologies and consequential changes to the form of the Use of System Charging Statements.

Issue Record

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Western Power Distribution

Modification Request for changes to the Use Of System Methodology to incorporate IDNO Networks and consequential changes to the form of the Use of System Charging Statement

September 2007

1. Introduction

1.1 As of 1 April 2005, DNO's methodologies must conform to the objectives set out in Standard Licence Conditions 4(3) and 4B(3). These state that methodologies should:

- facilitate the discharge of the DNO's obligations under the Act and its licence; and
- facilitate competition in supply and generation, and not restrict competition in transmission or distribution; and
- be cost reflective, as far as is practicable once implementation costs are taken into account and
- take into account developments in the licensee's distribution business.

1.2 WPD are obliged, under SLC4(2) of their distribution licence, to keep their use of system charging methodologies under review and make modifications as necessary for the purpose of better achieving the relevant licence objectives.

1.3 The purpose of this document is to propose changes to WPD's use of system charging methodologies, which will better reflect the costs associated with Independent Distribution Network Operators (IDNO's).

1.4 In conjunction with these changes to the methodology statements it is proposed to include a list of the yardstick customers used to determine all tariffs to improve transparency.

1.5 At this time it is also necessary for us to make a number of changes to the form of our Use of System charging statements and the reasons for these changes are also included in this request.

2. Charging Arrangements

Existing arrangements

2.1 Currently IDNO's are charged by taking their voltage of connection and an appropriate business tariff is applied on the basis of that voltage of connection. For example a small housing estate with no land being leased for the site of a substation and taking a low voltage supply, would be charged under the

large non domestic supplies LV network tariff applicable to profile 5 to 8; a business tariff.

2.2 WPD has been in discussion with IDNO's regarding the cost reflective nature of its existing use of system charging methodology statement for formulating boundary tariffs in respect of IDNO's. It is with this background that WPD has decided to propose this modification to its present methodology statement.

2.3 For clarification WPD believes that it is not part of WPD's licence obligations to implement tariffs that are specifically designed to ensure that IDNO's can make a margin. However, the proposed IDNO tariffs produce margins in the range of 7% to 47% over the existing economy 7 tariffs offered in both licence areas, dependent upon whether the connection is LV or HV. The differences between the existing and IDNO tariffs reflect the costs that WPD expect to avoid when customers are connected via an IDNO network. In the case of the LV tariff these costs are the service costs and a proportion of the LV network costs.

Problems with the Existing Arrangements

2.4 There are two perceived problems with charging IDNO networks using existing tariffs. The first is that the load shapes of IDNO sites that supply domestic customers differ from the load shape used to determine the existing tariffs thus resulting in a charge that is not cost reflective.

2.5 The second problem is the application of capacity charges to predominantly domestic sites. The IDNO tariff is unlikely to include a capacity element so the IDNO and DNO tariff structures are different making it difficult for the IDNO to set an appropriate charge. Minimum capacity charges under the existing DNO tariffs also mean that the IDNO is at a disadvantage during the period where a site is being developed. Generally this is not a problem that will arise with commercial developments.

Proposed Arrangements

2.6 The proposal is to formulate new yardstick customers for two IDNO tariff categories which better reflect the basic characteristics of predominantly domestic embedded networks. One will be applicable for LV connections and the other for HV connections. Predominantly domestic sites will be defined as those where more than 50% of the site's maximum demand is due to domestic connections. . However due to the uncertainty of determining the relative contribution to the maximum demand of a site from domestic and non-domestic customers the following ranges are proposed:

- Predominantly domestic - greater than 60% of the maximum demand due to domestic connections;
- Predominantly non-domestic – less than 40% of the maximum demand due to domestic connections;
- Where between 40% and 60% of the site maximum demand is assessed to be due to domestic connections the attribution of the site to either predominantly domestic or non-domestic will

be made with the agreement of the IDNO after consideration of the characteristics of the connection.

The contribution to maximum demand will be based on the make-up of the load for the completed IDNO network and will not be subject to change for a minimum of 12 months.

Analysis work has shown that the proportion of developments that is likely to fall into the 40% to 60% is expected to be no more than 3% of all IDNO connections. Supporting data is included in Appendix 1.

2.7 Following approval of Modification Request WPD/WALES/WEST/002a from 1 April 2007 charges to IDNO sites connected at EHV are determined by the LRIC methodology. Charges to predominatly domestic site covered by this modification request will be implemented as follows: If the authority decides not to to veto this proposal before 15th October 2007 then it will be introduced on 1st November with the new prices implemented, allowing for 90 days notice, on 1st February 2008 otherwise it is proposed that implementation will take place on the 1st day of the month 4 months after a decision not to veto is made.

2.8 We do not have load research data for IDNO networks and we do not believe that such data exists on a weather corrected basis to match the data used for tariff setting purposes. Our low voltage network design program DEBUT (Demand Estimation by Units and Time) which uses profiled data to size equipment, has been used to obtain the load shape for domestic estates typical of those that IDNO's will operate.

2.9 An assumption, based on current practice, of what is a typical number of houses in an LV development and HV development is used. In the example prices attached, a typical LV development is assumed to have 50 dwellings and an HV 300 dwellings. These assumptions are consistent with evidence that has been presented to us about housing developments in the WPD distribution area.

2.10 Using the assumption from 2.6 above and an assumption regarding the proportion of developments which are off peak in nature (currently 10% are assumed to be), yardstick characteristics such as units/kW and coincidences have been determined from the load shapes.

2.11 The existing WPD LV tariff yardstick includes components which cover the capital cost and the operation, maintenance and asset replacement of the main. There is a further element of the yardstick that covers maintenance and asset replacement of the service. The yardstick capital cost of the LV main assumes that 50% of the cost has been covered by contributions. Similarly all the capital cost of the service is assumed to be covered by contributions.

2.12 4 IDNO tariffs are proposed based on the distance from the the source substation of the IDNO connection. The proposed bands are from 0% to 25%, 25% to 50%, 50% to 75% and more than 75% of the average WPD LV circuit length. The charge for each band reflects the elements of the yardstick costs that are avoided as a result of the connections being made via an IDNO network. WPD will assume that for any band the IDNO connects at the nearest

point to the substation. In band 1 all the capital, O& M and replacement of the main is excluded, in band 2 25% in band 3 50% and in band 4 75%. In all bands the O&M and replacement of the services is excluded. See Appendix 2 for details.

2.13 The approach of using 4 bands has been adopted to provide additional cost reflectivity whilst retaining the benefits of simplicity. Using a larger number of bands, or at the limit using site specific charges, would increase complexity and the cost of implementation and administration for both WPD and the IDNO. It would also increase the risk of misapplication of the tariff.

2.14 For a predominantly domestic HV connection it is assumed that a feed from our HV system is the method by which an IDNO connects at that voltage level.

2.15 After revenue reconciliation to the total target income, the next stage is to determine the tariff structure and since this is for predominantly domestic connections that are unrestricted or off peak, the structure consists of a day and night charge only. The night period is defined as a seven hour period matching the default night period for the E7 tariff.

2.16 Where the IDNO connection is predominantly non domestic in nature the appropriate tariff will be the existing non domestic tariff.

2.17 It is proposed that the following amendment to the use of system charging methodology statement be made;

The following Yardstick customers are used to determine tariffs as these represent the major types of customer;

Domestic supplies profile class 1 and 2

Small Non domestic supplies profile class 3 and 4

Large non domestic supplies profile classes 5 to 8 HV supplies

Large non domestic supplies profile classes 5 to 8 LV substation supplies (not in South Wales)

Large non domestic supplies profile classes 5 to 8 LV network supplies

Large non domestic supplies half hourly metered HV supplies

Large non domestic supplies half hourly metered LV substation supplies (not in South Wales)

Large non domestic supplies half hourly metered LV network supplies

Unmetered supplies non half hourly metered

Unmetered supplies half hourly metered

Site specific charges

Licensed distributor tariff – predominantly domestic LV connected- Band 1

Licensed distributor tariff – predominantly domestic LV connected- Band 2

Licensed distributor tariff – predominantly domestic LV connected- Band 3

Licensed distributor tariff – predominantly domestic LV connected- Band 4

2.18 WPD has considered the implication for customer service and billing costs of customers being connected via IDNO networks and have concluded that we cannot currently identify any cost reductions. Although some costs are in theory avoided or reduced, for example:

- provision of MPAS services
- billing via the normal UOS billing systems
- provision of call centre service
- raising MPAN's
- maintenance of addresses
- provision of supporting IT systems
- provision for special needs customers
- issue of shutdown notices

Until IDNO's have substantial numbers of MPAN's staff numbers and system cost savings will not be realised. It is possible that in the short term billing costs will be higher on a per MPAN basis and identifying and providing appropriate response to IDNO customers who contact the DNO add to the complexity of the customer service function. However it is not the intention of WPD to add in any additional costs in this area.

2.19 At present there are no unlicenced distributors in WPD's distribution area supplying predominantly domestic loads. However, where appropriate, WPD will make the new Licenced Distributor tariffs available to unlicenced operators.

2.20 In terms of metering WPD reserves the right to install its own metering in order to facilitate billing, assist with data verification, further aid the tariff formulation process and for system design purposes.

3. Impact on Prices

3.1 The table below shows the proposed predominantly domestic prices under the new Licenced Distributor tariffs.

Unit Charge:	p/kWh HV SUPPLIES	p/kWh LV Band 1	p/kWh LV Band 2	p/kWh LV Band 3	p/kWh LV Band 4
WPD South West					
For each night unit supplied.	0.29	0.45	0.46	0.48	0.50
For each unit supplied at other times.	1.29	1.98	2.06	2.14	2.22

Unit Charge:	p/kWh HV SUPPLIES	p/kWh LV Band 1	p/kWh LV Band 2	p/kWh LV Band 3	p/kWh LV Band 4
WPD South Wales					
For each night unit supplied.	0.20	0.31	0.32	0.34	0.35
For each unit supplied at other times.	1.35	2.04	2.13	2.22	2.30

3.2 The table below shows a comparison of the proposed new tariff rates with the equivalent domestic E7 rates charged in the host distribution network area.

	WPD Tariff Rate	Price Change for Proposed new predominantly domestic IDNO tariffs			
	p/kWh	Band 1	Band 2	Band 3	Band 4
LV connected					
WPD (South West)					
Economy 7 Night	0.54	-17.5%	-14.2%	-10.9%	-7.6%
Economy 7 Day	2.40	-17.5%	-14.2%	-10.9%	-7.6%
WPD (South Wales)					
Economy 7 Night	0.38	-18.8%	-15.3%	-11.5%	-8.4%
Economy 7 Day	2.51	-18.8%	-15.3%	-11.5%	-8.4%
WPD (South West)					
HV connected					
Economy 7 Night	0.54	-46%			
Economy 7 Day	2.40	-46%			
WPD (South Wales)					
HV connected					
Economy 7 Night	0.38	-47%			
Economy 7 Day	2.51	-46%			

3.3 The table below shows a comparison of the proposed new tariff rates with the equivalent domestic rates charged in the host distribution network area assuming 15.7% of domestic unrestricted units are used at night.

	Current WPD Tariff Rate	Price Change for Proposed new predominantly domestic IDNO tariffs			
	p/kWh	Band 1	Band 2	Band 3	Band 4
LV Connected					
WPD (South West)					
Domestic Unrestricted	2.10	-17.1%	-13.8%	-10.5%	-7.1%
WPD (South Wales)					
Domestic Unrestricted	2.17	-18.4%	-14.7%	-11.5%	-8.3%
HV connected					
WPD (South West)					
Domestic unrestricted	2.10	-46%			
WPD (South Wales)					
Domestic unrestricted	2.17	-46%			

4 Boundary Metering Arrangements

4.1 In their July 2005 decision document on the Regulation of Independent Electricity Distribution Network Operators, Ofgem stated that it is necessary to identify a suitable mechanism that ensures flows at the boundary can be measured or estimated accurately. In addition, they stated that proportionate mechanisms should be used and that the cost of any such mechanism should be borne by the IDNO. The decision document gave the main arguments against boundary metering to be:

- If the DNO had extended the network there would be no metering and charges would be based largely on profiled metering
- Additional enclosure to accommodate metering
- Exposure of IDNO's to profile errors when the same profiles are used across all networks

4.2 Following this decision document Ofgem held a joint IDNO/DNO workshop on boundary issues on 28th September 2005. The notes of that workshop state that there was general agreement that metering may be necessary at HV and for bulk LV but a proxy for a metered system could be acceptable at LV. An IDNO took an action at this workshop to develop (with input from other IDNO's) a matrix setting out the proposed boundary metering

4.3 Each licence holder decides on the design criteria they employ. Our low voltage design programme, DEBUT, takes into account the value of losses and hence sizes equipment to provide an economic design. This can result in larger transformers and cable sizes being used than necessary for purely thermal capacity reasons as a value is placed on losses. The economic driver to do this is the loss incentive and the sliding scale capex incentive introduced at the last price control. IDNO's are not subject to these incentives and hence any penalty or benefit resulting from a different level of losses would be passed on to WPD if the IDNO used a different design standard and boundary metering was not used.

4.4 The concerns over accommodation do not apply to HV connections as there will already be a need for accommodation for the HV point of isolation. Given this, the long term benefits of accurately knowing system flows and the concern over the differing incentive on losses between IDNO's and DNO's which become more significant as the size of the IDNO network increase, WPD believes that a proportionate response is that metering is required for HV connections. At LV we are prepared to accept aggregated profiled data, adjusted for losses to the connection point, derived from settlements for each connection point to our network as an alternative to metering if the IDNO can provide it. Aggregation of data to site level is need to allow us to calculate each site's demand so that we can assess local network loading and economically develop the network. We would need suitable assurance of the audit processes being in place to ensure that this estimate was accurate. We believe that it would be beneficial for Ofgem to develop a losses mechanism for IDNO's so that they are incentivised/required to consider the cost of losses in their design criteria.

4.5 The proposed changes to our Use of System Charging statement reflect our stance on boundary metering.

The conditions applied to boundary metering are:

i. Licenced Distributors connecting at low voltage may provide aggregated profiled data, adjusted for losses to the connection point, derived from settlements, for each connection to the WPD plc network as an alternative to metering.
ii. For connections at HV, metering will be required.
iii. Where metering is used, or aggregated data per site is provided, it will be at the connected Licenced distributors' cost.
iv. We reserve the right to install and own metering, at our cost, at the point of connection of any Licenced Distribution networks to enable data collection for tariff formulation, data verification and system design purposes.

5. Proposals versus licence obligations

5.1 Predominately domestic IDNO networks have a different load shape to non-domestic connections and hence applying non-domestic charges to these networks will not be cost reflective as they are likely to be more coincident with peak demand and to have a different load factor. This would be a particular issue on networks with substantial off peak demand. The introduction of an IDNO tariff specifically designed for predominantly domestic load will be more cost reflective as it reflects the underlying characteristics of the load.

5.2 The introduction of banded prices reflecting the point of connection of the IDNO network also gives more cost reflective prices as it more accurately represents the avoided network cost of WPD.

5.3 Withdrawal of standing charges for predominantly domestic networks puts IDNO's on a similar footing to WPD during the development phase of a connection and does not restrict competition in distribution.

5.4 The boundary metering proposals facilitate WPD's ability to develop an economic network by the provision of demand data for system design purposes. The proposals also facilitate competition by not burdening the connecting IDNO with metering requirements above the minimum levels needed to meet WPD's requirements.

6 Changes of form to the Use of System Charging Statement

6.1 The following changes are proposed to the Statement of Charges for Use of Western Power Distribution plc's Electricity Distribution System. The same changes will be required for both the WPD (South West) and WPD (South Wales) statements:

Explanation of the metering requirements for Licenced Distributors connecting to the WPD system

Notes on charges for Licenced Distribution networks covering the application of tariffs for licenced and unlicenced operators.

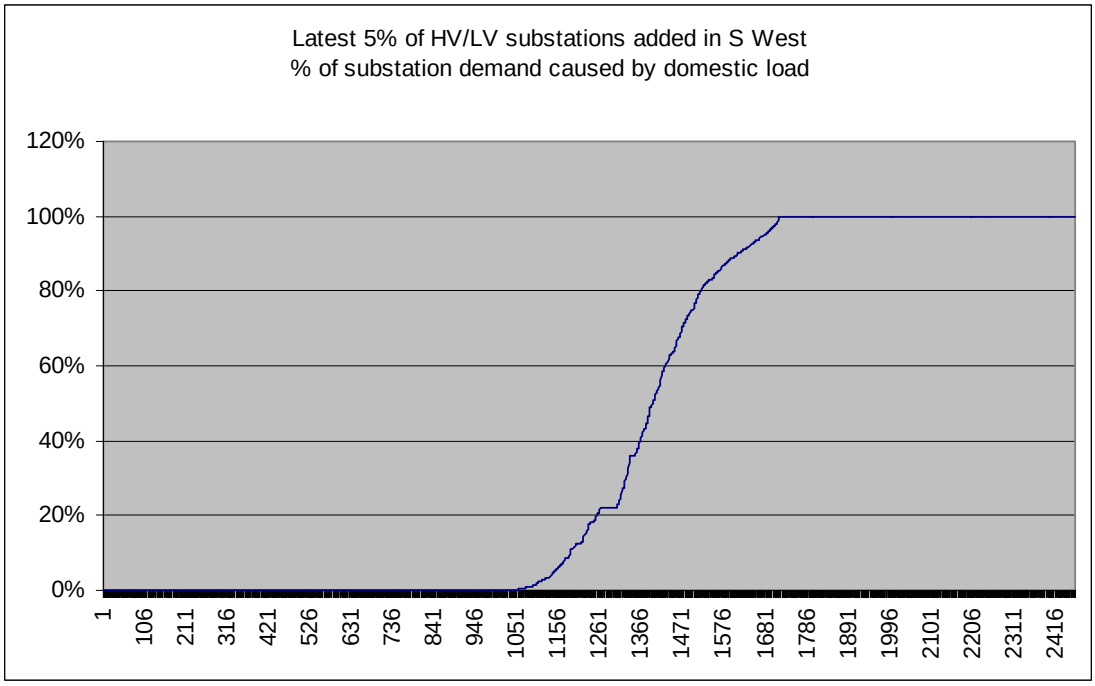
6.2 Change marked versions of the proposed Use of System Charging Statements for WPD (South West) and WPD (South Wales) are included with this modification request.

Appendix 1

Analysis of the most recent 5% of transformers connected in WPD – Domestic and Non-Domestic Contribution to Maximum Demand

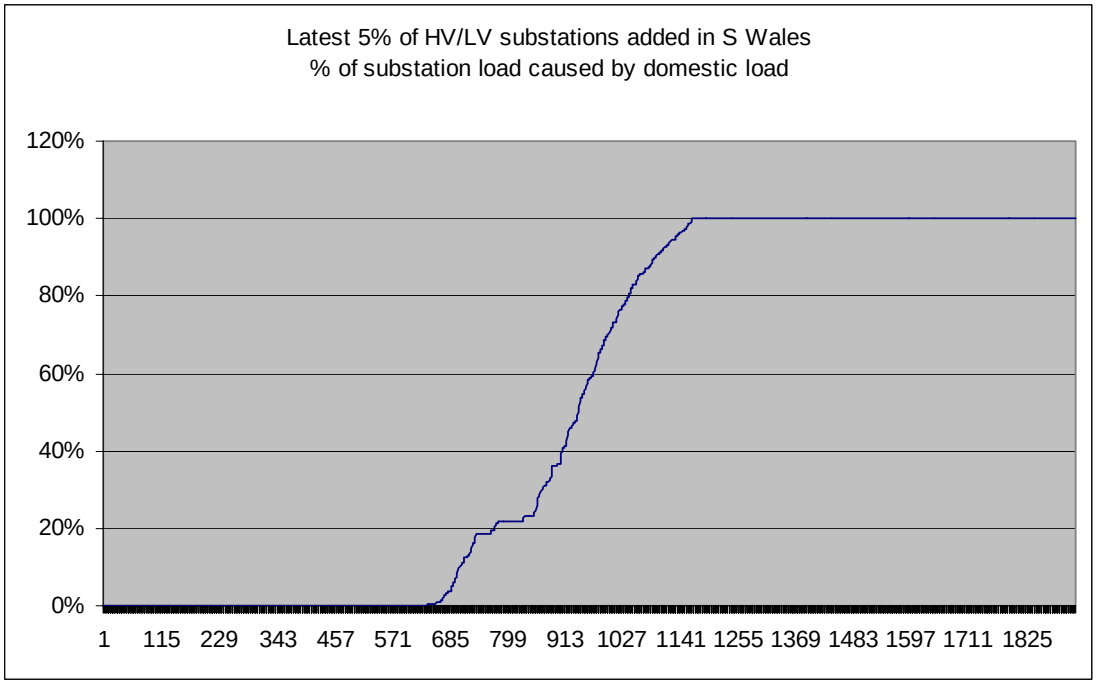
WPD S West

Total Number of Transformers	2,467	
Transformers where domestic contribution is in the range of 40% to 60% of total demand	58	(2% of total)



WPD S Wales

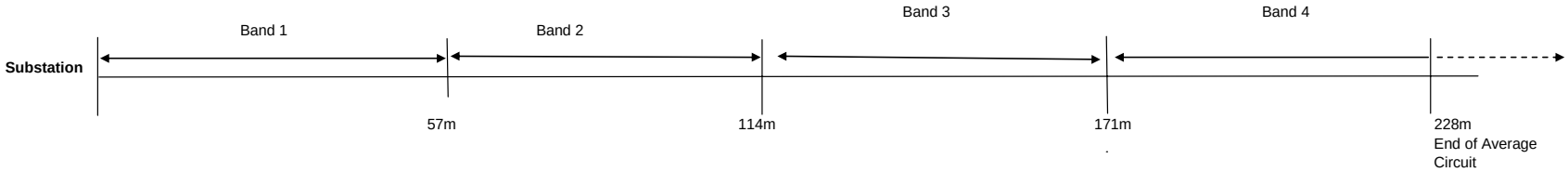
Total Number of Transformers	1.922	
Transformers where domestic contribution is in the range of 40% to 60% of total demand	58	(3% of total)



Appendix 2

LV IDNO Prices - South Wales
Predominantly Domestic Connections

1 The average LV circuit length is 228m
2 It is assumed that 50% of capital cost of the LV mains are contributed to by the developer.
This is reflected in the costs included in the yardstick model.
3 Operation and Maintenance charges are not covered by contributions so are fully recovered via the Use of System charge
4 It is assumed that all service costs are contributed to by the developer.
5 The proposed IDNO tariffs are set up to reflect the costs that are avoided when customers connect to IDNO networks.
6 In order to reflect a range of IDNO connections a banded approach has been adopted.
The WPD proposal assumes 4 bands.
7 The point of connection will be measured from the substation along the main to the exit point.
8 WPD has chosen to assume that any connection made within the band will be treated as if it is at the start of the band.
9 The table below shows the proportion of the capital cost and O+M that are retained in each of the banded tariffs. Using these assumptions the yardstick prices are determined. These are compared with the full yardstick price and the percentage cost reduction is calculated.
For each banded tariff the percetage cost reduction is applied to the standard domestic E7 rate to determine the proposed new IDNo tariffs.
The table also shows a comparison between the new IDNO rates and the current domestic unrestricted rate assuming 15.7% of units are used at night.



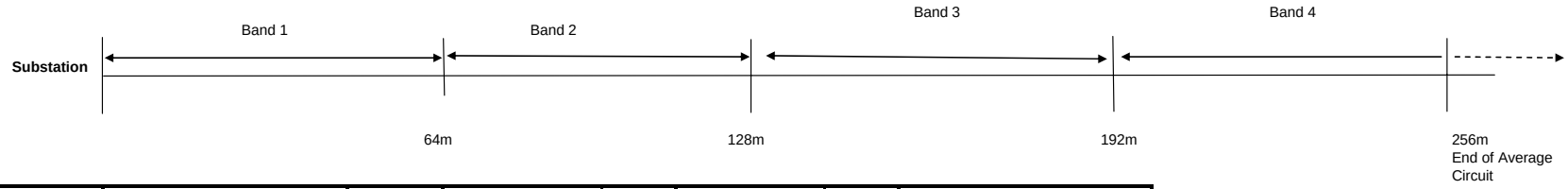
	Proportion of LV Main Yardstick Charge Retained in IDNO tariff										
	Capital Cost	Operation and Maintenance		Yardstick Price p/kWh	Avoided Cost %		Proposed IDNO Day rate p/kWh	Proposed IDNO Night rate p/kWh		Assumed unrestricted night %	Effective IDNO unrestricted rate p/kWh	Avoided Cost %
End to End				2.195								
Band 1	0%	0%		1.7829	-18.8%		2.04	0.31		15.7%	1.77	-18.4%
Band 2	25%	25%		1.8585	-15.3%		2.13	0.32		15.7%	1.85	-14.7%
Band 3	50%	50%		1.9431	-11.5%		2.22	0.34		15.7%	1.92	-11.5%
Band 4	75%	75%		2.0098	-8.4%		2.30	0.35		15.7%	1.99	-8.3%

	E7 (D) p/kWh	E7(N) p/kWh	Unrestricted p/kWh
Published WPD tariff rates	2.51	0.38	2.17

LV IDNO Prices - South West

Predominantly Domestic Connections

1 The average LV circuit length is 256m
2 It is assumed that 50% of capital cost of the LV mains are contributed to by the developer.
This is reflected in the costs included in the yardstick model.
3 Operation and Maintenance charges are not covered by contributions so are fully recovered via the Use of System charge
4 It is assumed that all service costs are contributed to by the developer.
5 The proposed IDNO tariffs are set up to reflect the costs that are avoided when customers connect to IDNO networks.
6 In order to reflect a range of IDNO connections a banded approach has been adopted.
The WPD proposal assumes 4 bands.
7 The point of connection will be measured from the substation along the main to the exit point.
8 WPD has chosen to assume that any connection made within the band will be treated as if it is at the start of the band.
9 The table below shows the proportion of the capital cost and O+M that are retained in each of the banded tariffs. Using these assumptions the yardstick prices are determined. These are compared with the full yardstick price and the percentage cost reduction is calculated.
For each banded tariff the percetage cost reduction is applied to the standard domestic E7 rate to determine the proposed new IDNo tariffs.
The table also shows a comparison between the new IDNO rates and the current domestic unrestricted rate assuming 15.7% of units are used at night.



	Proportion of LV Main Yardstick Charge Retained in IDNO tariff										
	Capital Cost	Operation and Maintenance	Yardstick Price p/kWh	Avoided Cost %	Proposed IDNO Day rate p/kWh	Proposed IDNO Night rate p/kWh	Assumed unrestricted night %	Effective IDNO unrestricted rate p/kWh	Avoided Cost %
End to End			2.0721						
Band 1	0%	0%	1.70887	-17.5%	1.98	0.45	15.7%	1.74	-17.1%
Band 2	25%	25%	1.7771	-14.2%	2.06	0.46	15.7%	1.81	-13.8%
Band 3	50%	50%	1.8455	-10.9%	2.14	0.48	15.7%	1.88	-10.5%
Band 4	75%	75%	1.9139	-7.6%	2.22	0.50	15.7%	1.95	-7.1%

	E7 (D) p/kWh	E7(N) p/kWh	Unrestricted p/kWh
Published WPD tariff rates	2.4	0.54	2.1