

# London Power Networks plc

## Use of System Charging Statement

### Notice of Charges

Effective from 1 April 2019

Version 2.2

Revised in February 2019 for the Supplier of Last Resort Payment Claim from Octopus Energy Ltd. Changes to fixed charges for Domestic Unrestricted, Domestic Two Rate and LV Network Domestic tariff fixed charges as set out in paragraph 2.5 and noted in Annex 1.

This statement is in a form to be approved by the Gas and Electricity Markets Authority.



## Version Control

Version	Date	Description of version and any changes made
V1.0	20/12/2017	Final Charges
V1.1	12/10/2018	Update to Annexes 5 & 6
V2.0	13/02/2019	Revised for the Supplier of Last Resort Payment Claim from Octopus Energy Ltd. Changes to fixed charges for Domestic Unrestricted, Domestic Two Rate and LV Network Domestic tariff fixed charges as set out in paragraph 2.5 and noted in Annex 1.
V2.1	30/04/2019	Update to Annexes 2 & 6
V2.2	28/10/2019	Update to Annex 1

A change-marked version of this statement can be provided upon request.

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## 1. Introduction

- 1.1. This statement tells you about our charges and the reasons behind them. It has been prepared consistent with Standard Licence Condition 14 of our Electricity Distribution Licence. The main purpose of this statement is to provide our schedule of charges<sup>1</sup> for the use of our Distribution System and to provide the schedule of adjustment factors<sup>2</sup> that should be applied in Settlement to account for losses from the Distribution System. We have also included guidance notes in Appendix 2 to help improve your understanding of the charges we apply.
- 1.2. Within this statement we use terms such as 'Users' and 'Customers' as well as other terms which are identified with initial capitalisation. These terms are defined in the glossary.
- 1.3. The charges in this statement are calculated using the following methodologies as per the Distribution Connection and Use of System Agreement (DCUSA)<sup>3</sup>:
  - Common Distribution Charging Methodology (CDCM); for Low Voltage (LV) and High Voltage (HV) Designated Properties as per DCUSA Schedule 16; and
  - Extra High Voltage (EHV) Distribution Charging Methodology (EDCM); for Designated EHV Properties as per DCUSA Schedule 18.
- 1.4. Separate charges are calculated depending on the characteristics of the connection and whether the use of the Distribution System is for demand or generation purposes. Where a generation connection is seen to support the Distribution System the charges will be negative and the Supplier will receive credits for exported energy.
- 1.5. The application of charges to premises can usually be referenced using the Line Loss Factor Class (LLFC) contained in the charge tables. Further information on how to identify and calculate the charge that will apply for your premises is provided in the guidance notes in Appendix 2.
- 1.6. All charges in this statement are shown **exclusive** of VAT. Invoices will include VAT at the applicable rate.
- 1.7. The annexes that form part of this statement are also available in spreadsheet format. This spreadsheet contains supplementary information used for charging purposes and a simple model to assist you to calculate charges. This spreadsheet can be downloaded from [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk).

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<sup>1</sup> Charges can be positive or negative.

<sup>2</sup> Also known as Loss Adjustment Factors or Line Loss Factors. The schedule of adjustment factors will be provided in a revised statement shortly after the adjustment factors for the relevant year have been successfully audited by Elexon.

<sup>3</sup> The Distribution and Connection Use of System Agreement (DCUSA) available from <http://www.dcusa.co.uk/SitePages/Documents/DCUSA-Documents.aspx>.

### Validity period

- 1.8. This charging statement is valid for services provided from the effective date stated on the front of the statement and remains valid until updated by a revised version or superseded by a statement with a later effective date.
- 1.9. When using this charging statement, care should be taken to ensure that the relevant statement or statements covering the period that is of interest are used.
- 1.10. Notice of any revision to the statement will be provided to Users of our Distribution System. The latest statements can be downloaded from [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk).

### Contact details

- 1.11. If you have any questions about this statement please contact:  
  
Mark James, Pricing Manager  
Email: [distributionpricing@ukpowernetworks.co.uk](mailto:distributionpricing@ukpowernetworks.co.uk)
- 1.12. For enquiries regarding Connection Agreements and changes to maximum capacities please contact:  
  
Connection Agreements Administration  
Email: [connection.agreements@ukpowernetworks.co.uk](mailto:connection.agreements@ukpowernetworks.co.uk)  
  
Post: Agreements Manager, UK Power Networks, Energy House, Hazelwick Avenue, Crawley, RH10 1EX
- 1.13. For all other queries please contact General Enquiries on: 0800 029 4285
- 1.14. You can also find us on Facebook [www.facebook.com/ukpowernetworks](http://www.facebook.com/ukpowernetworks) and Twitter [www.twitter.com/UKPowerNetworks](http://www.twitter.com/UKPowerNetworks).

## 2. Charge application and definitions

- 2.1. The following section details how the charges in this statement are applied and billed to Users of our Distribution System.
- 2.2. We utilise two billing approaches depending on the type of metering data received. The 'Supercustomer' approach is used for Non-Half Hourly (NHH) metered, NHH unmetered, Half Hourly (HH) metered premises with whole current Metering Systems, and all domestic premises. The 'Site-specific' approach is used for non-domestic current transformer (CT) metered premises or pseudo HH unmetered premises.
- 2.3. Typically, NHH metered or HH metered premises with whole current Metering Systems are domestic and small businesses; premises with non-domestic CT Metering Systems are generally larger businesses or industrial sites; and unmetered premises are normally streetlights.

### Supercustomer billing and payment

- 2.4. Supercustomer billing and payment applies to Meter Point Administration Numbers (MPANs) registered as NHH metered, NHH unmetered or aggregated HH metered. The Supercustomer approach makes use of aggregated data obtained from Suppliers using the 'Aggregated Distribution Use of System (DUoS) Report' data flow.
- 2.5. The fixed charge for Domestic Unrestricted, Domestic Two Rate and LV Network Domestic charges as set out in Annex 1 and calculated in accordance with the CDCM methodology will have a Supplier of Last Resort Claim adjustment applied for Supercustomer billing purposes. The Supplier of Last Resort Claim adjustment will be 0.08 pence per MPAN per day. Consequently Supercustomer billing will apply the net fixed charge 4.08 pence per MPAN per day to the Domestic Unrestricted, Domestic Two Rate and LV Network Domestic charges.
- 2.6. Invoices are calculated on a periodic basis and sent to each User for whom we transport electricity through our Distribution System. Invoices are reconciled over a period of approximately 14 months to reflect later and more accurate consumption figures.
- 2.7. The charges are applied on the basis of the LLFC assigned to an MPAN, and the units consumed within the time periods specified in this statement. These time periods may not necessarily be the same as those indicated by the Time Pattern Regime (TPR) assigned to the Standard Settlement Configuration (SSC). All LLFCs are assigned at our sole discretion, based on the tariff application rules set out in the appropriate charging methodology or elsewhere in this statement. Please refer

to the section '[Incorrectly allocated charges](#)' if you believe the allocated LLFC or tariff is incorrect.

### **Supercustomer charges**

2.8. Supercustomer charges include the following components:

- a fixed charge, pence/MPAN/day; there will only be one fixed charge applied to each MPAN; and
- unit charges, pence/kilowatt-hour (kWh); more than one kWh charge may apply depending on the type of tariff for which the MPAN is registered.

2.9. Users who supply electricity to a Customer whose MPAN is registered as Measurement Class A, B, F or G will be allocated the relevant charge structure set out in Annex 1.

2.10. Measurement Class A charges apply to Exit/Entry Points where NHH metering is used for Settlement.

2.11. Measurement Class B charges apply to Exit Points deemed to be suitable as Unmetered Supplies as permitted in the Electricity (Unmetered Supply) Regulations 2001<sup>4</sup> and where operated in accordance with Balancing and Settlement Code (BSC) procedure 520<sup>5</sup>.

2.12. Measurement Class F charges apply to Exit/Entry points at domestic premises where HH metering is used for Settlement.

2.13. Measurement Class G charges apply to Exit/Entry points at non-domestic premises with whole current Metering Systems where HH metering is used for Settlement.

2.14. Identification of the appropriate charge can be made by cross-reference to the LLFC.

2.15. Valid Settlement combinations, Profile Class (PC)/Standard Settlement Class (SSC)/Meter Timeswitch Code (MTC), for LLFCs where the Metering System is Measurement Class A or B are detailed in Market Domain Data (MDD).

2.16. Where an MPAN has an invalid Settlement combination, the 'Domestic Unrestricted' fixed and unit charges will be applied as default until the invalid combination is corrected. Where there are multiple SSC/TPR combinations, the default 'Domestic Unrestricted' fixed and unit charges will be applied for each invalid SSC/TPR combination.

<sup>4</sup> The Electricity (Unmetered Supply) Regulations 2001 available from <http://www.legislation.gov.uk/uksi/2001/3263/made>.

<sup>5</sup> Balancing and Settlement Code Procedure on unmetered supplies is available from <https://www.elexon.co.uk/bsc-related-documents/related-documents/bscps/>.

- 2.17. The time periods for unit charges where the Metering System is Measurement Class A and B are as specified by the SSC. To determine the appropriate charge rate for each SSC/TPR a lookup table is provided in the spreadsheet that accompanies this statement<sup>6</sup>.
- 2.18. The time periods for unit charges where the Metering System is Measurement Class F or G are set out in the table 'Time Bands for Half Hourly Metered Properties' in Annex 1.
- 2.19. The 'Domestic Off-Peak' and 'Small Non-Domestic Off-Peak' charges are supplementary to either an unrestricted or a two-rate charge.

### **Site-specific billing and payment**

- 2.20. Site-specific billing and payment applies to MPANs registered as Measurement Class C, D and E or any other relevant Metering System Identifier (MSID). The site-specific billing and payment approach to Use of System (UoS) billing makes use of HH metering data at premises level received through Settlement.
- 2.21. Invoices are calculated on a periodic basis and sent to each User for whom we transport electricity through our Distribution System. Where an account is based on estimated data, the account shall be subject to any adjustment that may be necessary following the receipt of actual data from the User.
- 2.22. The charges are applied on the basis of the LLFCs assigned to the MPAN (or the (MSID) for Central Volume Allocation (CVA) sites), and the units consumed within the time periods specified in this statement.
- 2.23. All LLFCs are assigned at our sole discretion, based on the tariff application rules set out in the appropriate charging methodology or elsewhere in this statement. Please refer to the section '[Incorrectly allocated charges](#)' if you believe the allocated LLFC or tariff is incorrect.

### **Site-specific billed charges**

- 2.24. Site-specific billed charges may include the following components:
- a fixed charge, pence/MPAN/day or pence/MSID/day;
  - a capacity charge, pence/kilovolt-ampere (kVA)/day, for Maximum Import Capacity (MIC) and/or Maximum Export Capacity (MEC);
  - an excess capacity charge, pence/kVA/day, if a site exceeds its MIC and/or MEC;
  - unit charges, pence/kWh, more than one unit charge may be applied; and

<sup>6</sup> London Power Networks- Schedule of charges and other tables – 2019 V2.2.xlsx



- an excess reactive power charge, pence/kilovolt-ampere reactive hour (kVARh), for each unit in excess of the reactive charge threshold.
- 2.25. Users who wish to supply electricity to Customers whose Metering System is Measurement Class C, D or E or is settled via CVA will be allocated the relevant charge structure dependent upon the voltage and location of the Metering Point.
  - 2.26. Measurement Class C, E or CVA charges apply to Exit/Entry Points where HH metering data is used for Settlement purposes for non-domestic premises that have CT metering.
  - 2.27. Measurement Class D charges apply to Exit Points deemed to be suitable as Unmetered Supplies as permitted in the Electricity (Unmetered Supply) Regulations 2001 and where operated in accordance with BSC procedure 520<sup>7</sup>.
  - 2.28. Fixed charges are generally levied on a pence per MPAN/MSID per day basis. Where two or more HH MPANs/MSIDs are located at the same point of connection (as identified in the Connection Agreement), with the same LLFC, and registered to the same Supplier, only one daily fixed charge will be applied.
  - 2.29. LV and HV Designated Properties will be charged in accordance with the CDCM and allocated the relevant charge structure set out in Annex 1.
  - 2.30. For LV and HV Designated Properties that utilise a combination of Intermittent and Non-Intermittent generation technologies metered through a single MPAN/MSID, we will allocate the tariff based on the dominant technology. The dominant technology will have a higher combined installed capacity as evidenced in ratings contained in the Connection Agreement.
  - 2.31. Designated EHV Properties will be charged in accordance with the EDCM and allocated the relevant charge structure set out in Annex 2.
  - 2.32. Where LV and HV Designated Properties or Designated EHV Properties have more than one point of connection (as identified in the Connection Agreement) then separate charges will be applied to each point of connection.
  - 2.33. Due to the seasonal nature of charges for Unmetered Supplies, changes between Measurement Classes B and D (or vice versa) shall not be agreed except with effect from 1 April in any charging year.

<sup>7</sup> Balancing and Settlement Code Procedure on unmetered supplies is available from <https://www.elexon.co.uk/bsc-related-documents/related-documents/bscps/>.

### **Time periods for half hourly metered properties**

- 2.34. The time periods for the application of unit charges to LV and HV Designated Properties that are HH metered are detailed in Annex 1. We have not issued a notice to change the time bands.
- 2.35. The time periods for the application of unit charges to Designated EHV Properties are detailed in Annex 2. We have not issued a notice to change the time bands.

### **Time periods for pseudo half hourly unmetered properties**

- 2.36. The time periods for the application of unit charges to Unmetered Supply Exit Points that are pseudo HH metered are detailed in Annex 1. We have not issued a notice to change the time bands.

### **Application of capacity charges**

- 2.37. The following sections explain the application of capacity charges and exceeded capacity charges.

#### **Chargeable capacity**

- 2.38. The chargeable capacity is, for each billing period, the MIC/MEC, as detailed below.
- 2.39. The MIC/MEC will be agreed with us at the time of connection or pursuant to a later change in requirements. Following such an agreement (be it at the time of connection or later) no reduction in MIC/MEC will be allowed for a 12 month period.
- 2.40. Reductions to the MIC and/or MEC may only be permitted once in a 12 month period. Where the MIC and/or MEC is reduced the new lower level will be agreed with reference to the level of the Customer's maximum demand. The new MIC and/or MEC will be applied from the start of the next billing period after the date that the request was received. It should be noted that, where a new lower level is agreed, the original capacity may not be available in the future without the need for network reinforcement and associated charges.
- 2.41. In the absence of an agreement, the chargeable capacity, save for error or omission, will be based on the last MIC and/or MEC previously agreed by the distributor for the relevant premises' connection. A Customer can seek to agree or vary the MIC and/or MEC by contacting us using the contact details in section 1.

#### **Exceeded capacity**

- 2.42. Where a Customer takes additional unauthorised capacity over and above the MIC/MEC, the excess will be classed as exceeded capacity. The exceeded portion of the capacity will be charged at the excess capacity charge p/kVA/day rate, based on the difference between the MIC/MEC and the actual capacity used. This will be charged for the full duration of the billing period in which the breach occurs.

### Demand exceeded capacity

$$\text{Demand exceeded capacity} = \max(2 \times \sqrt{AI^2 + \max(RI, RE)^2} - MIC, 0)$$

Where:

AI = Active import (kWh)

RI = Reactive import (kVArh)

RE = Reactive export (kVArh)

MIC = Maximum import capacity (kVA)

- 2.43. Only reactive import and reactive export values occurring at times of active import are used in the calculation. Where data for two or more MPANs is aggregated for billing purposes the HH consumption values are summated prior to the calculation above.
- 2.44. This calculation is completed for every half hour and the maximum value from the billing period is applied.

### Generation exceeded capacity

$$\text{Generation exceeded capacity} = \max(2 \times \sqrt{AE^2 + \max(RI, RE)^2} - MEC, 0)$$

Where:

AE = Active export (kWh)

RI = Reactive import (kVArh)

RE = Reactive export (kVArh)

MEC = Maximum export capacity (kVA)

- 2.45. Only reactive import and reactive export values occurring at times of active export are used in the calculation. Where data for two or more MPANs is aggregated for billing purposes the HH consumption values occurring at times of kWh export are summated prior to the calculation above.
- 2.46. This calculation is completed for every half hour and the maximum value from the billing period is applied.

### Standby capacity for additional security on site

- 2.47. Where standby capacity charges are applied, the charge will be set at the same rate as that applied to normal MIC. Should a Customer's request for additional security of supply require the provision of capacity from two different sources, we reserve the right to charge for the capacity held at each source.

### Minimum capacity levels

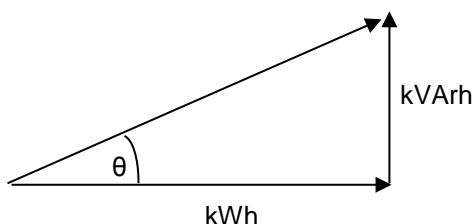
2.48. There is no minimum capacity threshold.

### Application of charges for excess reactive power

2.49. When an individual HH metered MPAN's reactive power (measured in kVArh) at LV and HV Designated Properties exceeds 33% of its total active power (measured in kWh), excess reactive power charges will apply. This threshold is equivalent to an average power factor of 0.95 during the period. Any reactive units in excess of the 33% threshold are charged at the rate appropriate to the particular charge.

2.50. Power Factor is calculated as follows:

$\text{Cos } \theta = \text{Power Factor}$



2.51. The chargeable reactive power is calculated as follows:

### Demand chargeable reactive power

$$\text{Demand chargeable kVArh} = \max \left( \max(RI, RE) - \left( \sqrt{\left( \frac{1}{0.95^2} - 1 \right)} \times AI \right), 0 \right)$$

Where:

AI = Active import (kWh)

RI = Reactive import (kVArh)

RE = Reactive export (kVArh)

2.52. Only reactive import and reactive export values occurring at times of active import are used in the calculation. Where data for two or more MPANs is aggregated for billing purposes the HH consumption values are summated prior to the calculation above.

2.53. The square root calculation will be to two decimal places.

2.54. This calculation is completed for every half hour and the values summated over the billing period.

## Generation chargeable reactive power

$$\text{Generation chargeable kVArh} = \max\left(\max(RI, RE) - \left(\sqrt{\left(\frac{1}{0.95^2} - 1\right)} \times AE\right), 0\right)$$

Where:

AE = Active export (kWh)

RI = Reactive import (kVArh)

RE = Reactive export (kVArh)

- 2.55. Only reactive import and reactive export values occurring at times of active export are used in the calculation. Where data for two or more MPANs is aggregated for billing purposes the HH consumption values are summated prior to the calculation above.
- 2.56. The square root calculation will be to two decimal places.
- 2.57. This calculation is completed for every half hour and the values summated over the billing period.

## Incorrectly allocated charges

- 2.58. It is our responsibility to apply the correct charges to each MPAN/MSID. The allocation of charges is based on the voltage of connection, import/export details including multiple MPANs, metering information and, for some tariffs, the metering location. Where an MPAN/MSID is used for export purposes in relation to an LV or HV Designated Property, the type of generation (Intermittent or Non-Intermittent) also determines the allocation of charges.
- 2.59. We are responsible for deciding the voltage of connection. Generally, this is determined by where the metering is located and where responsibility for the electrical equipment transfers from us to the connected Customer.
- 2.60. The Supplier determines and provides us with the metering information and data. This enables us to allocate charges where there is more than one charge per voltage level. The metering information and data is likely to change over time if, for example, a Supplier changes from a two rate meter to a single rate meter. When we are notified this has happened we will change the allocation of charges accordingly.
- 2.61. If it has been identified that a charge may have been incorrectly allocated due to the metering information and/or data then a request for investigation should be made to the Supplier.
- 2.62. Where it has been identified that a charge may have been incorrectly allocated due to the voltage of connection, import/export details or metering location, then a

request to investigate the applicable charges should be made to us. Requests from persons other than the Customer or the current Supplier must be accompanied by a Letter of Authority from the Customer; the current Supplier must also acknowledge that they are aware a request has been made. Any request must be supported by an explanation of why it is believed that the current charge should be changed, along with supporting information including, where appropriate, photographs of metering positions or system diagrams. Any request to change the current charge that also includes a request for backdating must include justification as to why it is considered appropriate to backdate the change.

- 2.63. An administration charge (covering our reasonable costs) may be made if a technical assessment or site visit is required, but we will not apply any charge where we agree to the change request.
- 2.64. Where we agree that the current LLFC/charge should be changed, we will then allocate the appropriate set of charges for the connection. Any adjustment will be applied from the date of the request, back to either the date of the incorrect allocation or; up to the maximum period specified by the Limitation Act (1980) in England and Wales, which covers a six-year period from the date of the request; whichever is the shorter.
- 2.65. Any credit or additional charge will be issued to the relevant Supplier(s) effective during the period of the change.
- 2.66. Should we reject the request a justification will be provided to the requesting party. We shall not unreasonably withhold or delay any decision on a request to change the charges applied and would expect to confirm our position on the request within three months of the date of request.

#### **Generation charges for pre-2005 designated EHV properties**

- 2.67. Designated EHV Properties that were connected to the Distribution System under a pre-2005 connection charging policy are eligible for exemption from UoS charges for generation unless one of the following criteria has been met:
- 25 years have passed since their first energisation/connection date (i.e. Designated EHV Properties with connection agreements dated prior to 1st April 2005, and for which 25 years has passed since their first energisation/connection date will receive use of system charges for generation from the next charging year following the expiry of their 25 years' exemption, (starting 1st April)), or
  - the person responsible for the Designated EHV Property has provided notice to us that they wish to opt in to UoS charges for generation.

- 2.68. If a notice to opt in has been provided there will be no further opportunity to opt out. Furthermore, if an exempt Customer makes an alteration to its export requirement then the Customer may be eligible to be charged for the additional capacity required or energy imported or exported. For example, where a generator increases its export capacity the incremental increase in export capacity will attract UoS charges as with other non-exempt generators.

### **Provision of billing data**

- 2.69. Where HH metering data is required for UoS charging and this is not provided in accordance with the BSC or DCUSA, such metering data shall be provided to us by the User of the system in respect of each calendar month within five working days of the end of that calendar month.
- 2.70. The metering data shall identify the amount of energy conveyed across the Metering System in each half hour of each day and shall separately identify active and reactive import and export. Metering data provided to us shall be consistent with that received through the metering equipment installed.
- 2.71. Metering data shall be provided in an electronic format specified by us from time to time and, in the absence of such specification, metering data shall be provided in a comma-separated text file in the format of Master Registration Agreement (MRA) data flow D0036<sup>8</sup> (as agreed with us). The data shall be emailed to [UKPNDuosServices@ukpowernetworks.co.uk](mailto:UKPNDuosServices@ukpowernetworks.co.uk).
- 2.72. We require details of reactive power imported or exported to be provided for all Measurement Class C and E sites. It is also required for CVA sites and Exempt Distribution Network boundaries with difference metering. We reserve the right to levy a charge on Users who fail to provide such reactive data. In order to estimate missing reactive data, a power factor of 0.9 will be applied to the active consumption in any half hour.

### **Out of area use of system charges**

- 2.73. We do not operate networks outside our Distribution Services Area.

### **Licensed distribution network operator charges**

- 2.74. Licensed Distribution Network Operator (LDNO) charges are applied to LDNOs who operate Embedded Networks within our Distribution Services Area.
- 2.75. The charge structure for LV and HV Designated Properties embedded in networks operated by LDNOs will mirror the structure of the 'All-the-way' charge and is

<sup>8</sup> MRA Data Transfer Catalogue available from <https://dtc.mrasco.com/>.

dependent upon the voltage of connection of each embedded network to the host DNO's network. The relevant charge structures are set out in Annex 4.

- 2.76. Where a NHH metered MPAN has an invalid Settlement combination, the 'LDNO HV: Domestic Unrestricted' fixed and unit charges will be applied as default until the invalid combination is corrected. Where there are multiple SSC/TPR combinations, the default 'LDNO HV: Domestic Unrestricted' fixed and unit charges will be applied for each invalid SSC/TPR combination.
- 2.77. The charge structure for Designated EHV Properties embedded in networks operated by LDNOs will be calculated individually using the EDCM. The relevant charge structures are set out in Annex 2.
- 2.78. For Nested Networks the relevant charging principles set out in DCUSA Schedule 21 will apply.

### **Licence exempt distribution networks**

- 2.79. The Electricity and Gas (Internal Market) Regulations 2011<sup>9</sup> introduced new obligations on owners of licence exempt distribution networks (sometimes called private networks) including a duty to facilitate access to electricity and gas suppliers for Customers within those networks.
- 2.80. When Customers (both domestic and commercial) are located within a licence exempt distribution network and require the ability to choose their own Supplier this is called 'third party access'. These embedded Customers will require an MPAN so that they can have their electricity supplied by a Supplier of their choice.
- 2.81. Licence exempt distribution networks owners can provide third party access using either full settlement metering or the difference metering approach.

### **Full settlement metering**

- 2.82. This is where a licence exempt distribution network is set up so that each embedded installation has an MPAN and Metering System and therefore all Customers purchase electricity from their chosen Supplier. In this case there are no Settlement Metering Systems at the boundary between the licensed Distribution System and the licence exempt distribution network.
- 2.83. In this approach our UoS charges will be applied to each MPAN.

### **Difference metering**

- 2.84. This is where one or more, but not all, Customers on a licence exempt distribution network choose their own Supplier for electricity supply to their premises. Under this

<sup>9</sup> The Electricity and Gas (Internal Market) Regulations 2011 available from <http://www.legislation.gov.uk/uksi/2011/2704/contents/made>.



approach, the Customers requiring third party access on the licence exempt distribution network will have their own MPAN and must have a HH Metering System.

### **Gross settlement**

2.85. Where one of our MPANs is embedded within a licence exempt distribution network connected to our Distribution System, and difference metering is in place for Settlement purposes and we receive gross measurement data for the boundary MPAN, we will continue to charge the boundary MPAN Supplier for use of our Distribution System. No charges will be levied by us directly to the Customer or Supplier of the embedded MPAN(s) connected within the licence exempt distribution network.

2.86. We require that gross metered data for the boundary of the connection is provided to us. Until a new industry data flow is introduced for the sending of such gross data, gross metered data shall:

- be provided in a text file in the format of the D0036 MRA data flow;
- the text file shall be emailed to [UKPNDuosServices@ukpowernetworks.co.uk](mailto:UKPNDuosServices@ukpowernetworks.co.uk);
- the title of the email should also contain the phrase “gross data for difference metered private network” and contain the metering reference specified by us in place of the Settlement MPAN;
- the text filename shall be formed of the metering reference specified by us followed by a hyphen, followed by a timestamp in the format YYYYMMDDHHMMSS and followed by “.txt”.

2.87. For the avoidance of doubt, the reduced difference metered measurement data for the boundary connection that is to enter Settlement should continue to be sent using the Settlement MPAN.

### **Net settlement**

2.88. Where one of our MPANs is embedded within a licence exempt distribution network connected to one of our Distribution Systems, and difference metering is in place for Settlement purposes, and we do **not** receive gross measurement data for the boundary MPAN, we will charge the boundary MPAN Supplier based on the net measurement for use of our Distribution System. Charges will also be levied directly to the Supplier of the embedded MPAN(s) connected within the licence exempt distribution network based on the actual data received.

2.89. The charges applicable for the embedded MPANs are unit charges only. These will be the same values as those at the voltage of connection to the licence exempt

distribution network. The fixed charge and capacity charge, at the agreed MIC/MEC of the boundary MPAN, will be charged to the boundary MPAN Supplier.

### **3. Schedule of charges for use of the distribution system**

- 3.1. Tables listing the charges for the use of our Distribution System are published in annexes to this document.
- 3.2. These charges are also listed in a spreadsheet which is published with this statement and can be downloaded from [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk).
- 3.3. Annex 1 contains charges applied to LV and HV Designated Properties.
- 3.4. Annex 2 contains the charges applied to our Designated EHV Properties and charges applied to LDNOs for Designated EHV Properties connected within their embedded Distribution System.
- 3.5. Annex 3 contains details of any preserved and additional charges that are valid at this time. Preserved charges are mapped to an appropriate charge and are closed to new Customers.
- 3.6. Annex 4 contains the charges applied to LDNOs in respect of LV and HV Designated Properties connected in their embedded Distribution System.

## 4. Schedule of line loss factors

### Role of line loss factors in the supply of electricity

- 4.1. Electricity entering or exiting our Distribution System is adjusted to take account of energy that is lost<sup>10</sup> as it is distributed through the network. This adjustment does not affect distribution charges but is used in energy settlement to take metered consumption to a notional Grid Supply Point so that Suppliers' purchases take account of the energy lost on the Distribution System.
- 4.2. We are responsible for calculating the Line Loss Factors<sup>11</sup> (LLFs) and providing these to Elexon. Elexon is the company that manages the BSC.
- 4.3. LLFs are used to adjust the Metering System volumes to take account of losses on the Distribution System.

### Calculation of line loss factors

- 4.4. LLFs are calculated in accordance with BSC procedure 128 which sets out the process and principles with which our LLF methodology must comply. It also defines the procedure and timetable by which LLFs are reviewed and submitted.
- 4.5. LLFs are calculated for a set number of time periods during the year using either a generic or site-specific method. The generic method is used for sites connected at LV or HV and the site-specific method is used for sites connected at EHV or where a request for site-specific LLFs has been agreed. Generic LLFs will be applied as a default to all new EHV sites until sufficient data is available for a site-specific calculation.
- 4.6. The definition of EHV used for LLF purposes differs from the definition used for defining Designated EHV Properties in the EDCM. The definition used for LLF purposes can be found in our LLF methodology.
- 4.7. The Elexon website<sup>12</sup> contains more information on LLFs.

### Publication of line loss factors

- 4.8. The LLFs used in Settlement are published on the Elexon Portal<sup>13</sup>. The website contains the LLFs in standard industry data formats and in a summary form. A user guide with details on registering and using the portal is also available.
- 4.9. BSCP128 sets out the timetable by which LLFs are submitted and audited. The submission and audit occurs between September and December in the year prior

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<sup>10</sup> Energy can be lost for technical and non-technical reasons and losses normally occur by heat dissipation through power flowing in conductors and transformers. Losses can also reduce if a customer's action reduces power flowing in the distribution network. This might happen when a customer generates electricity and the produced energy is consumed locally.

<sup>11</sup> Also referred to as Loss Adjustment Factors.

<sup>12</sup> The following page has links to BSCP128 and to our LLF methodology: <http://www.elexon.co.uk/reference/technical-operations/losses/>.

<sup>13</sup> The Elexon Portal can be accessed from [www.elexonportal.co.uk](http://www.elexonportal.co.uk).

to the LLFs becoming effective. Only after the completion of the audit at the end of December and BSC approval are the final LLFs published.

- 4.10. At the time that this charging statement is first published, Annex 5 will be intentionally left blank, as this statement is published a complete year before the LLFs have been calculated and audited. Once the final BSCP128 Audit Report has been received, we will issue an updated version of Annex 5 containing the audited LLF values.
- 4.11. When using the tables in Annex 5, reference should be made to the LLFC allocated to the MPAN to find the appropriate values.

## 5. Notes for Designated EHV Properties

### EDCM nodal costs

- 5.1. A table which shows the underlying nodal costs used to calculate the current EDCM charges is provided in the 'Schedule of Charges and other tables' document. They can be found in the 'Nodal prices' tab of the published document on our website [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk).
- 5.2. These are illustrative of the modelled costs at the time that this statement was published. A new connection will result in changes to current network utilisations, which will then form the basis of future prices. The charge determined in this statement will not necessarily be the charge in subsequent years because of the interaction between new and existing network connections and any other changes made to our Distribution System which may affect charges.

### Charges for new Designated EHV Properties

- 5.3. Charges for any new Designated EHV Properties calculated after publication of the current statement will be published on our website in an addendum to that statement as and when necessary. The addendum will include charge information of the type found in Annex 2, and LLFs as found in Annex 5.
- 5.4. The form of the addendum is detailed in Annex 6 to this statement.
- 5.5. The addendum will also be sent to all relevant DCUSA parties (i.e. the registered Supplier) and where requested the Customer.
- 5.6. The new Designated EHV Properties' charges will be added to Annex 2 in the next full statement released.

### Charges for amended Designated EHV Properties

- 5.7. Where an existing Designated EHV Property is modified and energised in the charging year, we may revise the EDCM charges for the modified Designated EHV Property. If revised charges are appropriate, an addendum will be sent to all relevant parties and published as a revised 'Schedule of Charges and other tables' spreadsheet on our website. The modified Designated EHV Property charges will be added to Annex 2 in the next full statement released.

### Demand-side management

- 5.8. New or existing Designated EHV Property Customers may wish to offer part of their MIC to be interruptible by us (for active network management purposes other than normal planned or unplanned outages) in order to benefit from any reduced UoS charges calculated using the EDCM.

- 5.9. Several options exist in which we may agree for some or the entire MIC to be interruptible. Under the EDCM the applicable demand capacity costs would be based on the MIC minus the capacity subject to interruption.
- 5.10. If you are interested in making part or all of your MIC interruptible as an integral irrevocable feature of a new connection or modification to an existing connection, you should in the first instance contact our connections function;
- By emailing [connections.gateway@ukpowernetworks.co.uk](mailto:connections.gateway@ukpowernetworks.co.uk)
  - By telephone to **0800 029 4282**
  - By writing to UK Power Networks, Connections Gateway, Metropolitan House, Darkes Lane, Potters Bar, EN6 1AG

You must make an express statement in your application that you have an interest in some or all of the import capacity being interruptible for active network management purposes.

- 5.11. If you are proactively interested in voluntarily but revocably offering to make some or all of your existing connection's MIC interruptible you should in the first instance contact our Agreements Manager at the address in paragraph 1.12.
- 5.12. A guide to Demand Side Management (DSM) is also available. This provides more information on the type of arrangement that might be put in place should you request to participate in DSM arrangements. This document is available by contacting our Agreements Manager at the address in paragraph 1.12.

## 6. Electricity distribution rebates

- 6.1. We have neither given nor announced any DUoS rebates to Users in the 12 months preceding the date of publication of this version of the statement.

## 7. Accounting and administration services

- 7.1. We reserve the right to impose payment default remedies. The remedies are as set out in DCUSA where applicable or else as detailed in the following paragraph.
- 7.2. If any invoices that are not subject to a valid dispute remain unpaid on the due date, late payment interest (calculated at base rate plus 8%) and administration charges may be imposed.
- 7.3. Our administration charges are detailed in the following table. These charges are set at a level which is in line with the Late Payment of Commercial Debts Act;

Size of Unpaid Debt	Late Payment Fee
Up to £999.99	£40.00
£1,000 to £9,999.99	£70.00
£10,000 or more	£100.00

## 8. Charges for electrical plant provided ancillary to the grant of use of system

- 8.1. No charges for Electrical Plant Provided Ancillary to the Grant of Use of System are detailed within this statement. Please refer to our Statement of Miscellaneous Charges for details of transactional charges and other notices.



## Appendix 1 - Glossary

- 1.1. The following definitions, which can extend to grammatical variations and cognate expressions, are included to aid understanding:

Term	Definition
All-the-way Charge	A charge that is applicable to an end user rather than an LDNO. An end user in this context is a Supplier/User who has a registered MPAN or MSID and is using the Distribution System to transport energy on behalf of a Customer.
Balancing and Settlement Code (BSC)	The BSC contains the governance arrangements for electricity balancing and settlement in Great Britain. An overview document is available from <a href="http://www.elexon.co.uk/ELEXON/Documents/trading_arrangements.pdf">www.elexon.co.uk/ELEXON/Documents/trading_arrangements.pdf</a> .
Common Distribution Charging Methodology (CDCM)	The CDCM used for calculating charges to Designated Properties as required by standard licence condition 13A of the Electricity Distribution Licence.
Connection Agreement	An agreement between an LDNO and a Customer which provides that that Customer has the right for its connected installation to be and remain directly or indirectly connected to that LDNO's Distribution System.
Central Volume Allocation (CVA)	As defined in the BSC.
Customer	A person to whom a User proposes to supply, or for the time being supplies, electricity through an exit point, or from whom, a User or any relevant exempt supplier, is entitled to recover charges, compensation or an account of profits in respect of electricity supplied through an exit point;  Or  A person from whom a User purchases, or proposes to purchase, electricity, at an entry point (who may from time to time be supplied with electricity as a Customer of that User (or another electricity supplier) through an exit point).
Designated EHV Properties	As defined in standard condition 13B of the Electricity Distribution Licence.
Designated Properties	As defined in standard condition 13A of the Electricity Distribution Licence.
Distribution Connection and Use of System Agreement (DCUSA)	The DCUSA is a multi-party contract between the licensed electricity distributors, suppliers, generators and Offshore Transmission Owners of Great Britain.  It is a requirement that all licensed electricity distributors and suppliers become parties to the DCUSA.

Term	Definition																																																																											
Distributor IDs	<p>These are unique IDs that can be used, with reference to the MPAN, to identify your LDNO. The charges for other network operators can be found on their website.</p> <table border="1" data-bbox="657 367 1396 1827"> <thead> <tr> <th data-bbox="657 367 730 427">ID</th> <th data-bbox="730 367 1077 427">Distribution Service Area</th> <th data-bbox="1077 367 1396 427">Company</th> </tr> </thead> <tbody> <tr><td>10</td><td>East of England</td><td>UK Power Networks</td></tr> <tr><td>11</td><td>East Midlands</td><td>Western Power Distribution</td></tr> <tr><td>12</td><td>London</td><td>UK Power Networks</td></tr> <tr><td>13</td><td>Merseyside and North Wales</td><td>Scottish Power</td></tr> <tr><td>14</td><td>Midlands</td><td>Western Power Distribution</td></tr> <tr><td>15</td><td>Northern</td><td>Northern Powergrid</td></tr> <tr><td>16</td><td>North Western</td><td>Electricity North West</td></tr> <tr><td>17</td><td>Scottish Hydro Electric (and embedded networks in other areas)</td><td>Scottish Hydro Electric Power Distribution plc</td></tr> <tr><td>18</td><td>South Scotland</td><td>Scottish Power</td></tr> <tr><td>19</td><td>South East England</td><td>UK Power Networks</td></tr> <tr><td>20</td><td>Southern Electric (and embedded networks in other areas)</td><td>Southern Electric Power Distribution plc</td></tr> <tr><td>21</td><td>South Wales</td><td>Western Power Distribution</td></tr> <tr><td>22</td><td>South Western</td><td>Western Power Distribution</td></tr> <tr><td>23</td><td>Yorkshire</td><td>Northern Powergrid</td></tr> <tr><td>24</td><td>All</td><td>Independent Power Networks</td></tr> <tr><td>25</td><td>All</td><td>ESP Electricity</td></tr> <tr><td>26</td><td>All</td><td>Energetics Electricity Ltd</td></tr> <tr><td>27</td><td>All</td><td>The Electricity Network Company Ltd</td></tr> <tr><td>29</td><td>All</td><td>Harlaxton Energy Networks</td></tr> <tr><td>30</td><td>All</td><td>Leep Electricity Networks Limited</td></tr> <tr><td>31</td><td>All</td><td>UK Power Distribution Ltd</td></tr> <tr><td>32</td><td>All</td><td>Utility Distribution Networks Ltd</td></tr> <tr><td>33</td><td>All</td><td>G2 Energy IDNO Limited</td></tr> <tr><td>34</td><td>All</td><td>Murphy Power Distribution Ltd</td></tr> </tbody> </table>	ID	Distribution Service Area	Company	10	East of England	UK Power Networks	11	East Midlands	Western Power Distribution	12	London	UK Power Networks	13	Merseyside and North Wales	Scottish Power	14	Midlands	Western Power Distribution	15	Northern	Northern Powergrid	16	North Western	Electricity North West	17	Scottish Hydro Electric (and embedded networks in other areas)	Scottish Hydro Electric Power Distribution plc	18	South Scotland	Scottish Power	19	South East England	UK Power Networks	20	Southern Electric (and embedded networks in other areas)	Southern Electric Power Distribution plc	21	South Wales	Western Power Distribution	22	South Western	Western Power Distribution	23	Yorkshire	Northern Powergrid	24	All	Independent Power Networks	25	All	ESP Electricity	26	All	Energetics Electricity Ltd	27	All	The Electricity Network Company Ltd	29	All	Harlaxton Energy Networks	30	All	Leep Electricity Networks Limited	31	All	UK Power Distribution Ltd	32	All	Utility Distribution Networks Ltd	33	All	G2 Energy IDNO Limited	34	All	Murphy Power Distribution Ltd
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	Distribution Network Operator (DNO)	An electricity distributor that operates one of the 14 distribution services areas and in whose Electricity Distribution Licence the requirements of Section B of the standard conditions of that licence have effect.																																																																										
	Distribution Services Area	The area specified by the Gas and Electricity Markets Authority within which each DNO must provide specified distribution services.																																																																										

Term	Definition
Distribution System	<p>The system consisting (wholly or mainly) of electric lines owned or operated by an authorised distributor that is used for the distribution of electricity from:</p> <ul style="list-style-type: none"> <li>• Grid Supply Points or generation sets or other entry points</li> </ul> <p>to the points of delivery to:</p> <ul style="list-style-type: none"> <li>• Customers or Users or any transmission licensee in its capacity as operator of that licensee's transmission system or the Great Britain (GB) transmission system and includes any remote transmission assets (owned by a transmission licensee within England and Wales) that are operated by that authorised distributor and any electrical plant, electricity meters, and metering equipment owned or operated by it in connection with the distribution of electricity, but does not include any part of the GB transmission system.</li> </ul>
EHV Distribution Charging Methodology (EDCM)	The EDCM used for calculating charges to Designated EHV Properties as required by standard licence condition 13B of the Electricity Distribution Licence.
Electricity Distribution Licence	The Electricity Distribution Licence granted or treated as granted pursuant to section 6(1) of the Electricity Act 1989.
Electricity Distributor	Any person who is authorised by an Electricity Distribution Licence to distribute electricity.
Embedded LDNO	This refers to an LDNO operating a Distribution System which is embedded within another Distribution System.
Embedded Network	An electricity Distribution System operated by an LDNO and embedded within another Distribution System.
Engineering Recommendation P2/6	A document of the Energy Networks Association, which defines planning standards for security of supply and is referred to in Standard Licence Condition 24 of our Electricity Distribution Licence.
Entry Point	A boundary point at which electricity is exported onto a Distribution System from a connected installation or from another Distribution System, not forming part of the total system (boundary point and total system having the meaning given to those terms in the BSC).
Exit Point	A point of connection at which a supply of electricity may flow from the Distribution System to the Customer's installation or User's installation or the Distribution System of another person.
Extra High Voltage (EHV)	Nominal voltages of 22kV and above.
Gas and Electricity Markets Authority (GEMA)	As established by the Utilities Act 2000.
Grid Supply Point (GSP)	A metered connection between the National Grid Electricity Transmission system and the licensee's distribution system at which electricity flows to or from the Distribution System.

Term	Definition
GSP group	A distinct electrical system that is supplied from one or more GSPs for which total supply into the GSP group can be determined for each half hour.
High Voltage (HV)	Nominal voltages of at least 1kV and less than 22kV.
Intermittent Generation	Defined in DCUSA Schedule 16 as a generation plant where the energy source of the prime mover cannot be made available on demand, in accordance to the definitions in Engineering Recommendation P2/6.
Invalid Settlement Combination	A Settlement combination that is not recognised as a valid combination in market domain data - see <a href="https://www.elexonportal.co.uk/MDDVIEWER">https://www.elexonportal.co.uk/MDDVIEWER</a> .
kVA	Kilovolt ampere.
kVArh	Kilovolt ampere reactive hour.
kW	Kilowatt.
kWh	Kilowatt hour (equivalent to one "unit" of electricity).
Licensed Distribution Network Operator (LDNO)	The holder of a licence in respect of electricity distribution activities in Great Britain.
Line Loss Factor (LLF)	The factor that is used in Settlement to adjust the metering system volumes to take account of losses on the distribution system.
Line Loss Factor Class (LLFC)	An identifier assigned to an SVA metering system which is used to assign the LLF and use of system charges.
Load Factor	$= \frac{\text{annual consumption (kWh)}}{\text{maximum demand (kW)} \times \text{hours in year}}$
Low Voltage (LV)	Nominal voltages below 1kV.
Market Domain Data (MDD)	MDD is a central repository of reference data available to all Users involved in Settlement. It is essential to the operation of SVA trading arrangements.
Maximum Export Capacity (MEC)	The MEC of apparent power expressed in kVA that has been agreed can flow through the entry point to the Distribution System from the Customer's installation as specified in the connection agreement.
Maximum Import Capacity (MIC)	The MIC of apparent power expressed in kVA that has been agreed can flow through the exit point from the Distribution System to the Customer's installation as specified in the connection agreement.

Term	Definition
Measurement Class	<p>A classification of Metering Systems used in the BSC which indicates how consumption is measured, i.e.:</p> <ul style="list-style-type: none"> <li>• Measurement Class A – non-half hourly metering equipment;</li> <li>• Measurement Class B – non-half hourly unmetered supplies;</li> <li>• Measurement Class C – half hourly metering equipment at or above 100kW premises;</li> <li>• Measurement Class D – half hourly unmetered supplies;</li> <li>• Measurement Class E – half hourly metering equipment below 100kW premises with CT;</li> <li>• Measurement Class F – half hourly metering equipment at below 100kW premises with CT or whole current, and at domestic premises; and</li> <li>• Measurement Class G – half hourly metering equipment at below 100kW premises with whole current and not at domestic premises.</li> </ul>
Meter Timeswitch Code (MTC)	<p>MTCs are three digit codes allowing suppliers to identify the metering installed in Customers' premises. They indicate whether the meter is single or multi-rate, pre-payment or credit, or whether it is 'related' to another meter. Further information can be found in MDD.</p>
Metering Point	<p>The point at which electricity that is exported to or imported from the licensee's Distribution System is measured, is deemed to be measured, or is intended to be measured and which is registered pursuant to the provisions of the MRA. For the purposes of this statement, GSPs are not 'Metering Points'.</p>
Metering Point Administration Number (MPAN)	<p>A number relating to a Metering Point under the MRA.</p>
Metering System	<p>Particular commissioned metering equipment installed for the purposes of measuring the quantities of exports and/or imports at the exit point or entry point.</p>
Metering System Identifier (MSID)	<p>MSID is a term used throughout the BSC and its subsidiary documents and has the same meaning as MPAN as used under the MRA.</p>
Master Registration Agreement (MRA)	<p>The Master Registration Agreement (MRA) provides a governance mechanism to manage the processes established between electricity suppliers and distribution companies to enable electricity suppliers to transfer customers. It includes terms for the provision of Metering Point Administration Services (MPAS) Registrations.</p>
Nested Networks	<p>This refers to a situation where there is more than one level of Embedded Network and therefore nested Distribution Systems between LDNOs (e.g. host DNO→primary nested DNO→ secondary nested DNO→customer).</p>
Non-Intermittent Generation	<p>Defined in DCUSA Schedule 16 as a generation plant where the energy source of the prime mover can be made available on demand, in accordance to the definitions in Engineering Recommendation P2/6.</p>

Term	Definition
Ofgem	Office of Gas and Electricity Markets – Ofgem is governed by GEMA and is responsible for the regulation of the distribution companies.
Profile Class (PC)	A categorisation applied to NHH MPANs and used in settlement to group customers with similar consumption patterns to enable the calculation of consumption profiles.
Settlement	The determination and settlement of amounts payable in respect of charges (including reconciling charges) in accordance with the BSC.
Settlement Class (SC)	The combination of Profile Class, Line Loss Factor Class, Time Pattern Regime and Standard Settlement Configuration, by Supplier within a GSP group and used for Settlement.
Standard Settlement Configuration (SSC)	A standard metering configuration relating to a specific combination of Time Pattern Regimes.
Supercustomer	The method of billing Users for use of system on an aggregated basis, grouping together consumption and standing charges for all similar NHH metered Customers or aggregated HH metered Customers.
Supercustomer DUoS Report	A report of profiled data by Settlement Class providing counts of MPANs and units consumed.
Supplier	An organisation with a supply licence responsible for electricity supplied to and/or exported from a metering point.
Supplier Volume Allocation (SVA)	As defined in the BSC.
Time Pattern Regime (TPR)	The pattern of switching behaviour through time that one or more meter registers follow.
Unmetered Supplies	Exit points deemed to be suitable as unmetered supplies as permitted in the Electricity (Unmetered Supply) Regulations 2001 and where operated in accordance with BSC procedure 520 <sup>14</sup> .
Use of System Charges	Charges which are applicable to those parties which use the Distribution System.
User	Someone that has a use of system agreement with the DNO e.g. a supplier, generator or other LDNO.

<sup>14</sup> Balancing and Settlement Code Procedures are available from <http://www.elexon.co.uk/pages/bscps.aspx>

## Appendix 2 - Guidance notes<sup>15</sup>

### Background

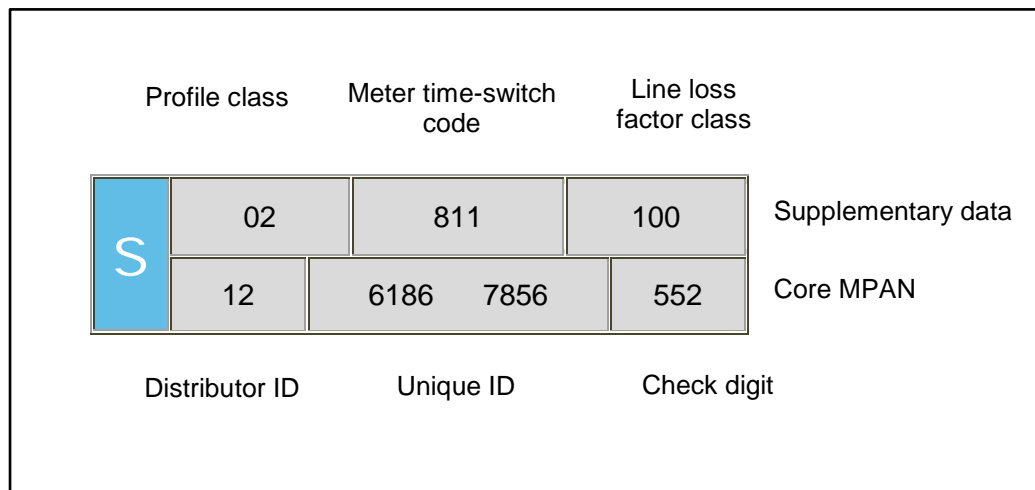
- 1.1. The electricity bill from your Supplier contains an element of charge to cover electricity distribution costs. This distribution charge covers the cost of operating and maintaining a safe and reliable Distribution System that forms the 'wires' that transport electricity between the national transmission system and end users such as homes and businesses. Our Distribution System includes overhead lines, underground cables, as well as substations and transformers.
- 1.2. In most cases, your Supplier is invoiced for the distribution charge and this is normally part of your total bill. In some cases, for example business users, the Supplier may pass through the distribution charge as an identifiable line item on the electricity bill.
- 1.3. Where electricity is generated at a premises your Supplier may receive a credit for energy that is exported on to the Distribution System. These credits are intended to reflect that the exported generation may reduce the need for traditional demand led reinforcement of the Distribution System.
- 1.4. Understanding your distribution charges could help you reduce your costs and increase your credits. This is achieved by understanding the components of the charge to help you identify whether there may be opportunities to change the way you use the Distribution System.

### Meter point administration

- 1.5. We are responsible for managing the electricity supply points that are connected to our Distribution System. Typically, every supply point is identified by a Meter Point Administration Number (MPAN). A few supply points may have more than one MPAN depending on the metering configuration (e.g. a school which may have an MPAN for the main supply and an MPAN for catering).
- 1.6. The full MPAN is a 21 digit number, preceded by an 'S' and includes supplementary data. The MPAN applicable to a supply point is found on the electricity bill from your Supplier. This number enables you to establish who your electricity distributor is, details of the characteristics of the supply and importantly the distribution charges that are applicable to your premises.
- 1.7. The 21-digit number is normally presented in two sections as shown in the following diagram. The top section is supplementary data which gives information about the characteristics of supply, while the bottom 'core' is the unique identifier.

<sup>15</sup> These guidance notes are provided for additional information and do not form part of the application of charges.

## Full MPAN diagram



- 1.8. Generally, you will only need to know the Distributor ID and line loss factor class to identify the distribution charges for your premises. However, there are some premises where charges are specific to that site. In these instances, the charges are identified by the core MPAN. The Distributor ID for London Power Networks is 12. Other Distributor IDs can be referenced in the glossary.
- 1.9. Additionally it can be useful to understand the profile class provided in the supplementary data. The profile class will be a number between 00 and 08. The following list provides details of the allocation of profile classes to types of customers:
- '01' – Domestic customers with unrestricted supply
  - '02' – Domestic customers with restricted load, for example off-peak heating
  - '03' – Non-domestic customers with unrestricted supply
  - '04' – Non-domestic customers with restricted load, for example off-peak heating
  - '05' – Non-domestic maximum demand customers with a Load Factor of less than 20%
  - '06' – Non-domestic maximum demand customers with a Load Factor between 20% and 30%
  - '07' – Non-domestic maximum demand customers with a Load Factor between 30% and 40%
  - '08' – Non-domestic maximum demand customers with a Load Factor over 40% or non-half hourly metered generation customers
  - '00' – Half-hourly metered demand and generation customers
- 1.10. Unmetered Supplies will be allocated to profile class 01, 08 or 00 depending on the type of load or the measurement method of the load.



- 1.11. The allocation of the profile class will affect your charges. If you feel that you have been allocated the wrong profile class, please contact your Supplier as they are responsible for this.

### **Your charges**

- 1.12. All distribution charges that relate to our Distributor ID are provided in this statement.
- 1.13. You can identify your charges by referencing your line loss factor class, from Annex 1. If the MPAN is for a Designated EHV Property, then the charges will be found in Annex 2. In a few instances, the charges may be contained in Annex 3 or Annex 6. When identifying charges in Annex 2, please note that some line loss factor classes have more than one charge. In this instance you will need to select the correct charge by cross referencing with the core MPAN provided in the table.
- 1.14. Once you have identified which charge structure applies to your MPAN then you will be able to calculate an estimate of your distribution charge using the calculator provided in the spreadsheet 'Schedule of charges and other tables' found in the sheet called 'Charge Calculator'. This spreadsheet can be downloaded from [www.ukpowernetworks.co.uk](http://www.ukpowernetworks.co.uk).

### **Reducing your charges**

- 1.15. The most effective way to reduce your energy charges is to reduce your consumption by switching off or using more energy efficient appliances. However, there are also other potential opportunities to reduce your distribution charges; for example, it may be beneficial to shift demand or generation to a better time period. Demand use is likely to be cheaper outside peak periods and generation credits more beneficial during peak periods, although the ability to directly benefit will be linked to the structure of your supply charges.
- 1.16. The calculator mentioned above provides the opportunity to establish a forecast of the change in distribution charges that could be achieved if you are able to change any of the consumption related inputs.

### **Reactive power and reactive power charges**

- 1.17. Reactive power is a separately charged component of connections that are half hourly metered. Reactive power charges are generally avoidable if 'best practice' design of the properties' electrical installation has been provided in order to maintain a power factor between 0.95 and unity at the Metering Point.
- 1.18. Reactive Power (kVA<sub>rh</sub>) is the difference between working power (active power measured in kW) and total power consumed (apparent power measured in kVA). Essentially it is a measure of how efficiently electrical power is transported through an electrical installation or a Distribution System.

- 1.19. Power flowing with a power factor of unity results in the most efficient loading of the Distribution System. Power flowing with a power factor of less than 0.95 results in much higher losses in the Distribution System, a need to potentially provide higher capacity electrical equipment and consequently a higher bill for you the consumer. A comparatively small improvement in power factor can bring about a significant reduction in losses since losses are proportional to the square of the current.
- 1.20. Different types of electrical equipment require some 'reactive power' in addition to 'active power' in order to work effectively. Electric motors, transformers and fluorescent lighting, for example, may produce poor power factors due to the nature of their inductive load. However, if good design practice is applied then the poor power factor of appliances can be corrected as near as possible to source. Alternatively, poor power factor can be corrected centrally near to the meter.
- 1.21. There are many advantages that can be achieved by correcting poor power factor. These include: reduced energy bills through lower reactive charges, lower capacity charges and reduced power consumption and reduced voltage drop in long cable runs.

#### **Site-specific EDCM charges**

- 1.22. A site classified as a Designated EHV Property is subject to a locational based charging methodology (referred to as EDCM) for higher voltage network users. Distributors use two approved approaches: Long Run Incremental Cost (LRIC) and Forward Cost Pricing (FCP) and we use the LRIC. The EDCM will apply to Customers connected at Extra High Voltage or connected at High Voltage and metered at a high voltage substation.
- 1.23. EDCM charges and credits are site-specific, reflecting the degree to which the local and higher voltage networks have the capacity to serve more demand or generation without the need to upgrade the electricity infrastructure. The charges also reflect the networks specifically used to deliver the electricity to the site as well as the usage at the site. Generators with non-intermittent output and deemed to be providing beneficial support to our networks may qualify to receive credit.
- 1.24. The charges under the EDCM comprise of the following individual components:
- a) **Fixed charge** - This charge recovers operational costs associated with those connection assets that are provided for the 'sole' use of the customer. The value of these assets is used as a basis to derive the charge.
  - b) **Capacity charge (pence/kVA/day)** - This charge comprises the relevant LRIC component, the National Grid Electricity Transmission cost and other regulated costs.

Capacity charges are levied on the MIC, MEC, and any exceeded capacity. You may wish to review your MIC or MEC periodically to ensure it remains appropriate for your needs as you may be paying for more capacity than you require. If you wish to make changes contact us via the details in paragraph 1.12.

The LRIC cost is locational and reflects our assessment of future network reinforcement necessary at the voltage of connection (local) and beyond at all higher voltages (remote) relevant to the customer's connection. This results in the allocation of higher costs in more capacity congested parts of the network reflecting the greater likelihood of future reinforcement in these areas, and the allocation of lower costs in less congested parts of the network. The local LRIC cost is included in the capacity charge.

Our regulated costs include direct and indirect operational costs and a residual amount to ensure recovery of our regulated allowed revenue. The capacity charge recovers these costs using the customer usage profile and the relevant assets being used to transport electricity between the source substation and customer's Metering Point.

c) **Super-red unit charge (pence/kWh)** - This charge recovers the remote LRIC component. The charge is positive for import and negative for export which means you can either reduce your charges by minimising consumption or increasing export at those times. The charge is applied to consumption during the Super-red time period as detailed in Annex 2.

- 1.25. Future charge rates may be affected by consumption during the Super-red period, therefore reducing consumption in the Super-red time period may be beneficial.
- 1.26. **Reactive Power** - The EDCM does not include a separate charge component for any reactive power flows (kVAr) for either demand or generation. However, the EDCM charges do reflect the effect on the network of the customer's power factor, for example unit charges can increase if your site power factor is poor (lower than 0.95). Improving your site's power factor will also reduce the maximum demand (kVA) for the same power consumed in kW thus providing scope to reduce your agreed capacity requirements.

# Annex 1 - Charges for use of the Distribution System by LV and HV Designated Properties

## London Power Networks - Effective from 1 April 2019 - Final LV and HV charges

Time Bands for Half Hourly Metered Properties			
Time periods	Red Time Band	Amber Time Band	Green Time Band
Monday to Friday (Including Bank Holidays) All Year	11:00 - 14:00 16:00 - 19:00	07:00 - 11:00 14:00 - 16:00 19:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Saturday and Sunday All Year			00:00 - 24:00
Notes	All times are in UK Clock time		

Time Bands for Half Hourly Unmetered Properties			
	Black Time Band	Yellow Time Band	Green Time Band
Monday to Friday (Including Bank Holidays) June to August Inclusive	11:00 - 14:00	07:00 - 11:00 14:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Monday to Friday (Including Bank Holidays) November to February Inclusive	16:00 - 19:00	07:00 - 16:00 19:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Monday to Friday (Including Bank Holidays) March, April, May and September, October		07:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Saturday and Sunday All year			00:00 - 24:00
Notes	All times are in UK Clock time		

Tariff name	Open LLFCs	PCs	Unit charge 1 (NHH) or red/black charge (HH) p/kWh	Unit charge 2 (NHH) or amber/yellow charge (HH) p/kWh	Green charge(HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVAh	Closed LLFCs
Domestic Unrestricted	902	1	1.947			[4.00] 4.08				903, 910
Domestic Two Rate	906	2	2.512	0.000		[4.00] 4.08				907
Domestic Off Peak (related MPAN)	911	2	0.000							914, 915
Small Non Domestic Unrestricted	952	3	1.205			4.00				953, 960, 961, 970, 971
Small Non Domestic Two Rate	956	4	1.687	0.000		4.00				957
Small Non Domestic Off Peak (related MPAN)	964	4	0.000							965
LV Medium Non-Domestic	400	5-8	1.694	0.000		39.88				404
LV Sub Medium Non-Domestic		5-8	0.868	0.000		6.43				
HV Medium Non-Domestic		5-8	0.267	0.000		73.61				
LV Network Domestic	1	0	9.557	0.481	0.000	[4.00] 4.08				
LV Network Non-Domestic Non-CT	200	0	5.227	0.086	0.000	4.05				
LV HH Metered	9	0	4.744	0.000	0.000	9.38	4.17	6.51	0.375	
LV Sub HH Metered	756	0	3.274	0.000	0.000	6.43	7.53	8.60	0.246	
HV HH Metered	359	0	2.447	0.000	0.000	73.61	7.50	8.46	0.192	
NHH UMS category A	420, 424, 428, 432	8	2.424							
NHH UMS category B	422, 426, 430, 434	1	2.104							
NHH UMS category C	423, 427, 431, 435	1	3.978							
NHH UMS category D	421, 425, 429, 433	1	2.812							
LV UMS (Pseudo HH Metered)	350	0	35.061	1.337	0.081					
LV Generation NHH or Aggregate HH	762	8 or 0	-1.167			0.00				753, 763
LV Sub Generation NHH		8	-1.038			0.00				
LV Generation Intermittent	980	0	-1.167			0.00			0.391	750
LV Generation Intermittent no RP charge	981	0	-1.167			0.00				
LV Generation Non-Intermittent	982	0	-5.633	-0.517	-0.009	0.00			0.391	765
LV Generation Non-Intermittent no RP charge	983	0	-5.633	-0.517	-0.009	0.00				
LV Sub Generation Intermittent	984	0	-1.038			0.00			0.353	781
LV Sub Generation Intermittent no RP charge	985	0	-1.038			0.00				
LV Sub Generation Non-Intermittent	986	0	-5.082	-0.417	-0.008	0.00			0.353	782
LV Sub Generation Non-Intermittent no RP charge	987	0	-5.082	-0.417	-0.008	0.00				
HV Generation Intermittent	988	0	-0.668			6.36			0.305	751
HV Generation Intermittent no RP charge	989	0	-0.668			6.36				
HV Generation Non-Intermittent	990	0	-3.549	-0.107	-0.002	6.36			0.305	767
HV Generation Non-Intermittent no RP charge	991	0	-3.549	-0.107	-0.002	6.36				

NOTE:  
The Supplier of Last Resort Claim adjustment of 0.08 pence per MPAN per day will be applied in addition to the CDCM calculated Domestic Unrestricted, Domestic Two Rate and LV Network Domestic Fixed Charge of 4.00. This will result in a revised Fixed Charge of 4.08 pence per MPAN per day applied to the Domestic Unrestricted, Domestic Two Rate and LV Network Domestic tariffs.

Note: Where a tariff only has a p/kWh unit rate in Unit Charge 1 then this unit rate applies at all times.

Annex 2 - Charges for use of the Distribution System by Designated EHV Properties (including LDNOs with Designated EHV Properties/end-users).

London Power Networks - Effective from 1 April 2019 - Final EDCM charges

Time Periods for Designated EHV Properties	
Time periods	Super Red Time Band
Monday to Friday (Including Bank Holidays) June to August Inclusive	11:00 - 14:00
Monday to Friday (Including Bank Holidays) November to February Inclusive	16:00 - 19:00
Notes	All times are in UK Clock time

Import Unique Identifier	LLFC	Import MPANs/MSIDs	Export Unique Identifier	LLFC	Export MPANs/MSIDs	Name	Import Super Red unit charge (p/kWh)	Import fixed charge (p/day)	Import capacity charge (p/kVA/day)	Import exceeded capacity charge (p/kVA/day)	Export Super Red unit charge (p/kWh)	Export fixed charge (p/day)	Export capacity charge (p/kVA/day)	Export exceeded capacity charge (p/kVA/day)
BELVED	815	1200060787109	BELVED	711	1200060787118	RIVERSIDE RESOURCE RECOVERY LIMITED	0.002	306.48	0.38	0.38	-0.002	580.52	0.05	0.05
BISHPC	796	1200061143976 1200061143985				MULTIPLEX GLOBAL C/O BROOKFIELD PARTNERSHIP	0.505	362.40	0.87	0.87				
BLMBGN	820	1200061385700 1200061385710				BLOOMBERG LP	0.326	181.20	1.00	1.00				
BLMBGS	821	1200061385729 1200061385738				BLOOMBERG LP	0.173	181.20	0.92	0.92				
BRDGTE	805	1200061148014 1200061148023				GOLDEN LANE	0.481	181.20	1.64	1.64				
BRKFLD	829	1200061148060 1200061148079				BROOKFIELD MULTIPLEX CONSTRUCTION EUROPE LIMITED	0.189	362.40	0.90	0.90				
BRMLEY	DNET	MSID: 1630				UK POWER NETWORKS	0.062		2.59	2.59				
CRLIMM	796	1200062090483 1200062090492				TFL CROSSRAIL	0.849	6,872.51	4.65	4.65				
DART11	DNET	MSID: 1032				UK POWER NETWORKS	0.266		5.55	5.55				
DART33	DNET	MSID: 1032				UK POWER NETWORKS	0.719		2.54	2.54				
EPNGIB	DNET	MSID: 7185				UK POWER NETWORKS	0.351		0.93	0.93				
EPNLEI	DNET	MSID: 1628				UK POWER NETWORKS	0.005		3.71	3.71				
FENAVE	796	1200062132168 1200062132159				SIR ROBERT MCALPINE LTD.	0.534	362.40	1.77	1.77				
FENCHS	800	1200061144029 1200061144038				20 FENCHURCH STREET LIMITED PARTNERSHIP	0.175	472.30	2.24	2.24				
GBLSWI	843	1200050913681 1200050913690 1200050913706 1200050913715				GLOBAL SWITCH LIMITED		6,975.72	4.11	4.11				
KNGLPN	DNET	MSID: 1027				UK POWER NETWORKS	0.110		0.97	0.97				
LEDNHS	808	1200061144065 1200061144074				LEADENHALL PROPERTY CO (JERSEY) LTD JV	0.546	406.36	2.01	2.01				
LIMEST	796	1200062132006 1200062132015				34 LEADENHALL STREET LIMITED	0.481	362.40	1.63	1.63				
LNWALL	796	1200061953070 1200061148200 1200061953089 1200061148194				TWO LONDON WALL PLACE LIMITED	0.481	1,046.82	0.68	0.68				
LU_ACT	1631	MSID: 1631				LONDON UNDERGROUND LIMITED		189.49	1.99	1.99				
LU_CAN	818	1200060323207 1200060323216				TFL RAIL FOR LONDON ELR (BSP)		6,115.08	0.90	0.90				
LU_CHA	801	1200061231921 1200061231930 1200061231940 1200061231959				TFL LONDON UNDERGROUND (BSP)	0.003	6,685.50	0.84	0.84				
LU_HOX	804	1200060323191				TFL RAIL FOR LONDON ELR (BSP)		6,028.24	0.37	0.37				
LU_LOT	838	1200050376902 1200050376911				TFL LONDON UNDERGROUND (BSP)		29,972.50	2.40	2.40				
LU_MAN	837	1200010200926				TFL LONDON UNDERGROUND (BSP)		21,070.92	1.20	1.20				
LU_STE	839	1200010157225 1200010157234				TFL LONDON UNDERGROUND (BSP)		5,673.87	2.94	2.94				

Note: The list of MPANs / MSIDs provided may be incomplete; the DNO reserves the right to apply the listed charges to any other MPANs / MSIDs associated with the site.

Import Unique Identifier	LLFC	Import MPANs/MSIDs	Export Unique Identifier	LLFC	Export MPANs/MSIDs	Name	Import Super Red unit charge (p/kWh)	Import fixed charge (p/day)	Import capacity charge (p/kVA/day)	Import exceeded capacity charge (p/kVA/day)	Export Super Red unit charge (p/kWh)	Export fixed charge (p/day)	Export capacity charge (p/kVA/day)	Export exceeded capacity charge (p/kVA/day)
MRKLNE	806	1200061378624 1200061378633				70 MARK LANE GP LTD	0.175	362.40	1.74	1.74				
NGC_BA	817	1200010151872				NATIONAL GRID ELECTRICITY TRANSMISSION PLC			0.53	0.53				
NR_BOW	807	1200060280440 1200060280468				NETWORK RAIL INFRASTRUCTURE LIMITED		4,904.70	4.24	4.24				
NR_BRO	847	1200010251559				NETWORK RAIL INFRASTRUCTURE LIMITED	0.062	2,010.97	1.77	1.77				
NR_CIT	846	1200010251521				NETWORK RAIL INFRASTRUCTURE LIMITED	1.510	63.16	2.21	2.21				
NR_MAD	840	1200010251540				NETWORK RAIL INFRASTRUCTURE LIMITED		126.32	0.93	0.93				
NR_NEW	845	1200010251530				NETWORK RAIL INFRASTRUCTURE LIMITED		7,183.41	1.78	1.78				
NR_W11	841	1200010251512				NETWORK RAIL INFRASTRUCTURE LIMITED		5,266.13	1.76	1.76				
NR_W25	842	1200010251498				NETWORK RAIL INFRASTRUCTURE LIMITED	0.002	4,503.28	0.71	0.71				
NR_WES	848	1200010251568	NR_WES	799	1200052486875	NETWORK RAIL INFRASTRUCTURE LIMITED	0.002	4,423.35	1.77	1.77		442.33	0.05	0.05
NR_WHI	849	1200050493611				NETWORK RAIL INFRASTRUCTURE LIMITED	2.821	63.16	1.45	1.45				
NR_WIM	844	1200010200874				NETWORK RAIL INFRASTRUCTURE LIMITED	0.594	7,629.91	1.49	1.49				
SELCHP	827	1200010175650	SELCHP	730	1200010258304	VEOLIA ES (UK) LIMITED	0.766	270.52	0.90	0.90	-0.766	2,869.20	0.05	0.05
TELEHW	809	1200060951114 1200060951123				TELEHOUSE INTERNATIONAL CORPORATION OF EUROPE LTD	0.319	887.00	3.20	3.20				
THAMEB	828	1200010146153				THAMES WATER UTILITIES LIMITED		3,046.37	0.67	0.67				
THAMEC	802	1200061171324 1200061171333	THAMEC	702	1200061171342 1200061171351	THAMES WATER UTILITIES LIMITED	0.002	2,665.67	0.96	0.96		623.57	0.05	0.05
TLRSLN	5538	MSID: 5538				E.ON UK PLC		30.08	0.92	0.92				
TWCHST	771	1200061990150				CVB JV		7,592.57	1.93	1.93				
TWGNCH	771	1200061990319				THAMES TIDEWAY TUNNEL	0.024	126.32	1.41	1.41				
TWKIRT	771	1200061999491 1200061999507 1200062001242 1200062001251				THAMES TIDEWAY TUNNEL	1.275	126.32	2.26	2.26				
VOLTDC	803	1200061148032 1200061148041				VOLTA DATA CENTRES LIMITED	0.190	508.94	1.08	1.08				

Annex 3 - Charges for use of the Distribution System to Preserved/Additional LLFC Classes

London Power Networks - Effective from 1 April 2019 - Final LV and HV tariffs									
NHH preserved charges/additional LLFCs									
	Closed LLFCs	PCs	Unit charge 1 (NHH) p/kWh	Unit charge 2 (NHH) p/kWh	Fixed charge p/MPAN/day				
Notes:	London Power Networks has no Preserved NHH Tariffs/Additional LLFC classes								

HH preserved charges/additional LLFCs									
	Closed LLFCs	PCs	Red/black charge (HH) p/kWh	Amber/yellow charge (HH) p/kWh	Green charge (HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVArh
Notes:	London Power Networks has no Preserved HH Tariffs/Additional LLFC classes								

## Annex 4 - Charges applied to LDNOs with HV/LV end users

### London Power Networks - Effective from 1 April 2019 - Final LDNO tariffs

Time Bands for Half Hourly Metered Properties			
Time periods	Red Time Band	Amber Time Band	Green Time Band
Monday to Friday (Including Bank Holidays) All Year	11:00 - 14:00 16:00 - 19:00	07:00 - 11:00 14:00 - 16:00 19:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Saturday and Sunday All Year			00:00 - 24:00
Notes	All times are in UK Clock time		

Time Bands for Half Hourly Unmetered Properties			
	Black Time Band	Yellow Time Band	Green Time Band
Monday to Friday (Including Bank Holidays) June to August Inclusive	11:00 - 14:00	07:00 - 11:00 14:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Monday to Friday (Including Bank Holidays) November to February Inclusive	16:00 - 19:00	07:00 - 16:00 19:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Monday to Friday (Including Bank Holidays) March, April, May and September, October		07:00 - 23:00	00:00 - 07:00 23:00 - 24:00
Saturday and Sunday All year			00:00 - 24:00
Notes	All times are in UK Clock time		

Tariff name	Unique billing identifier	PCs	Unit charge 1 (NHH) or red/black charge (HH) p/kWh	Unit charge 2 (NHH) or amber/yellow charge (HH) p/kWh	Green charge(HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVAh
LDNO LV: Domestic Unrestricted		1	1.427			2.93			
LDNO LV: Domestic Two Rate		2	1.842	0.000		2.93			
LDNO LV: Domestic Off Peak (related MPAN)		2	0.000						
LDNO LV: Small Non Domestic Unrestricted		3	0.883			2.93			
LDNO LV: Small Non Domestic Two Rate		4	1.237	0.000		2.93			
LDNO LV: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO LV: LV Medium Non-Domestic		5-8	1.242	0.000		29.24			
LDNO LV: LV Network Domestic		0	7.007	0.353	0.000	2.93			
LDNO LV: LV Network Non-Domestic Non-CT		0	3.832	0.063	0.000	2.97			
LDNO LV: LV HH Metered		0	3.478	0.000	0.000	6.88	3.06	4.77	0.275
LDNO LV: NHH UMS category A		8	1.777						
LDNO LV: NHH UMS category B		1	1.543						
LDNO LV: NHH UMS category C		1	2.917						
LDNO LV: NHH UMS category D		1	2.062						
LDNO LV: LV UMS (Pseudo HH Metered)		0	25.706	0.980	0.059				
LDNO LV: LV Generation NHH or Aggregate HH		8 or 0	-1.167			0.00			
LDNO LV: LV Generation Intermittent		0	-1.167			0.00			0.391
LDNO LV: LV Generation Non-Intermittent		0	-5.633	-0.517	-0.009	0.00			0.391
LDNO HV: Domestic Unrestricted		1	1.061			2.18			
LDNO HV: Domestic Two Rate		2	1.369	0.000		2.18			
LDNO HV: Domestic Off Peak (related MPAN)		2	0.000						
LDNO HV: Small Non Domestic Unrestricted		3	0.657			2.18			
LDNO HV: Small Non Domestic Two Rate		4	0.919	0.000		2.18			
LDNO HV: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO HV: LV Medium Non-Domestic		5-8	0.923	0.000		21.73			
LDNO HV: LV Network Domestic		0	5.209	0.262	0.000	2.18			
LDNO HV: LV Network Non-Domestic Non-CT		0	2.849	0.047	0.000	2.21			
LDNO HV: LV HH Metered		0	2.585	0.000	0.000	5.11	2.27	3.55	0.204
LDNO HV: LV Sub HH Metered		0	2.473	0.000	0.000	4.86	5.69	6.50	0.186
LDNO HV: HV HH Metered		0	2.056	0.000	0.000	61.85	6.30	7.11	0.161
LDNO HV: NHH UMS category A		8	1.321						
LDNO HV: NHH UMS category B		1	1.147						
LDNO HV: NHH UMS category C		1	2.168						
LDNO HV: NHH UMS category D		1	1.533						
LDNO HV: LV UMS (Pseudo HH Metered)		0	19.108	0.729	0.044				
LDNO HV: LV Generation NHH or Aggregate HH		8 or 0	-1.167			0.00			
LDNO HV: LV Sub Generation NHH		8	-1.038			0.00			
LDNO HV: LV Generation Intermittent		0	-1.167			0.00			0.391
LDNO HV: LV Generation Non-Intermittent		0	-5.633	-0.517	-0.009	0.00			0.391
LDNO HV: LV Sub Generation Intermittent		0	-1.038			0.00			0.353
LDNO HV: LV Sub Generation Non-Intermittent		0	-5.082	-0.417	-0.008	0.00			0.353
LDNO HV: HV Generation Intermittent		0	-0.668			0.00			0.305
LDNO HV: HV Generation Non-Intermittent		0	-3.549	-0.107	-0.002	0.00			0.305
LDNO HVplus: Domestic Unrestricted		1	0.972			2.00			

Note: Where a tariff only has a p/kWh unit rate in Unit Charge 1 then this unit rate applies at all times.



Tariff name	Unique billing identifier	PCs	Unit charge 1 (NHH) or red/black charge (HH) p/kWh	Unit charge 2 (NHH) or amber/yellow charge (HH) p/kWh	Green charge(HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVAh
LDNO HVplus: Domestic Two Rate		2	1.254	0.000		2.00			
LDNO HVplus: Domestic Off Peak (related MPAN)		2	0.000						
LDNO HVplus: Small Non Domestic Unrestricted		3	0.601			2.00			
LDNO HVplus: Small Non Domestic Two Rate		4	0.842	0.000		2.00			
LDNO HVplus: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO HVplus: LV Medium Non-Domestic		5-8	0.845	0.000		19.90			
LDNO HVplus: LV Sub Medium Non-Domestic		5-8	0.597	0.000		4.42			
LDNO HVplus: HV Medium Non-Domestic		5-8	0.204	0.000		56.12			
LDNO HVplus: LV Network Domestic		0	4.770	0.240	0.000	2.00			
LDNO HVplus: LV Network Non-Domestic Non-CT		0	2.609	0.043	0.000	2.02			
LDNO HVplus: LV HH Metered		0	2.368	0.000	0.000	4.68	2.08	3.25	0.187
LDNO HVplus: LV Sub HH Metered		0	2.251	0.000	0.000	4.42	5.18	5.91	0.169
LDNO HVplus: HV HH Metered		0	1.865	0.000	0.000	56.12	5.72	6.45	0.146
LDNO HVplus: NHH UMS category A		8	1.210						
LDNO HVplus: NHH UMS category B		1	1.050						
LDNO HVplus: NHH UMS category C		1	1.985						
LDNO HVplus: NHH UMS category D		1	1.403						
LDNO HVplus: LV UMS (Pseudo HH Metered)		0	17.498	0.667	0.040				
LDNO HVplus: LV Generation NHH or Aggregate HH		8	-0.802			0.00			
LDNO HVplus: LV Sub Generation NHH		8	-0.791			0.00			
LDNO HVplus: LV Generation Intermittent		0	-0.802			0.00			0.269
LDNO HVplus: LV Generation Non-Intermittent		0	-3.872	-0.355	-0.006	0.00			0.269
LDNO HVplus: LV Sub Generation Intermittent		0	-0.791			0.00			0.269
LDNO HVplus: LV Sub Generation Non-Intermittent		0	-3.874	-0.318	-0.006	0.00			0.269
LDNO HVplus: HV Generation Intermittent		0	-0.668			6.36			0.305
LDNO HVplus: HV Generation Non-Intermittent		0	-3.549	-0.107	-0.002	6.36			0.305
LDNO EHV: Domestic Unrestricted		1	0.748			1.54			
LDNO EHV: Domestic Two Rate		2	0.964	0.000		1.54			
LDNO EHV: Domestic Off Peak (related MPAN)		2	0.000						
LDNO EHV: Small Non Domestic Unrestricted		3	0.463			1.54			
LDNO EHV: Small Non Domestic Two Rate		4	0.648	0.000		1.54			
LDNO EHV: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO EHV: LV Medium Non-Domestic		5-8	0.650	0.000		15.31			
LDNO EHV: LV Sub Medium Non-Domestic		5-8	0.459	0.000		3.40			
LDNO EHV: HV Medium Non-Domestic		5-8	0.157	0.000		43.17			
LDNO EHV: LV Network Domestic		0	3.669	0.185	0.000	1.54			
LDNO EHV: LV Network Non-Domestic Non-CT		0	2.007	0.033	0.000	1.56			
LDNO EHV: LV HH Metered		0	1.821	0.000	0.000	3.60	1.60	2.50	0.144
LDNO EHV: LV Sub HH Metered		0	1.732	0.000	0.000	3.40	3.98	4.55	0.130
LDNO EHV: HV HH Metered		0	1.435	0.000	0.000	43.17	4.40	4.96	0.113
LDNO EHV: NHH UMS category A		8	0.931						
LDNO EHV: NHH UMS category B		1	0.808						
LDNO EHV: NHH UMS category C		1	1.527						
LDNO EHV: NHH UMS category D		1	1.080						
LDNO EHV: LV UMS (Pseudo HH Metered)		0	13.462	0.513	0.031				
LDNO EHV: LV Generation NHH or Aggregate HH		8	-0.617			0.00			
LDNO EHV: LV Sub Generation NHH		8	-0.609			0.00			
LDNO EHV: LV Generation Intermittent		0	-0.617			0.00			0.207
LDNO EHV: LV Generation Non-Intermittent		0	-2.979	-0.273	-0.005	0.00			0.207
LDNO EHV: LV Sub Generation Intermittent		0	-0.609			0.00			0.207
LDNO EHV: LV Sub Generation Non-Intermittent		0	-2.981	-0.245	-0.005	0.00			0.207
LDNO EHV: HV Generation Intermittent		0	-0.514			4.89			0.235
LDNO EHV: HV Generation Non-Intermittent		0	-2.730	-0.082	-0.002	4.89			0.235
LDNO 132kV/EHV: Domestic Unrestricted		1	0.466			0.96			
LDNO 132kV/EHV: Domestic Two Rate		2	0.602	0.000		0.96			
LDNO 132kV/EHV: Domestic Off Peak (related MPAN)		2	0.000						
LDNO 132kV/EHV: Small Non Domestic Unrestricted		3	0.289			0.96			
LDNO 132kV/EHV: Small Non Domestic Two Rate		4	0.404	0.000		0.96			

Note: Where a tariff only has a p/kWh unit rate in Unit Charge 1 then this unit rate applies at all times.

Tariff name	Unique billing identifier	PCs	Unit charge 1 (NHH) or red/black charge (HH) p/kWh	Unit charge 2 (NHH) or amber/yellow charge (HH) p/kWh	Green charge(HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVAh
LDNO 132kV/EHV: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO 132kV/EHV: LV Medium Non-Domestic		5-8	0.406	0.000		9.55			
LDNO 132kV/EHV: LV Sub Medium Non-Domestic		5-8	0.286	0.000		2.12			
LDNO 132kV/EHV: HV Medium Non-Domestic		5-8	0.098	0.000		26.94			
LDNO 132kV/EHV: LV Network Domestic		0	2.290	0.115	0.000	0.96			
LDNO 132kV/EHV: LV Network Non-Domestic Non-CT		0	1.252	0.021	0.000	0.97			
LDNO 132kV/EHV: LV HH Metered		0	1.137	0.000	0.000	2.25	1.00	1.56	0.090
LDNO 132kV/EHV: LV Sub HH Metered		0	1.080	0.000	0.000	2.12	2.48	2.84	0.081
LDNO 132kV/EHV: HV HH Metered		0	0.896	0.000	0.000	26.94	2.74	3.10	0.070
LDNO 132kV/EHV: NHH UMS category A		8	0.581						
LDNO 132kV/EHV: NHH UMS category B		1	0.504						
LDNO 132kV/EHV: NHH UMS category C		1	0.953						
LDNO 132kV/EHV: NHH UMS category D		1	0.674						
LDNO 132kV/EHV: LV UMS (Pseudo HH Metered)		0	8.400	0.320	0.019				
LDNO 132kV/EHV: LV Generation NHH or Aggregate HH		8	-0.385			0.00			
LDNO 132kV/EHV: LV Sub Generation NHH		8	-0.380			0.00			
LDNO 132kV/EHV: LV Generation Intermittent		0	-0.385			0.00			0.129
LDNO 132kV/EHV: LV Generation Non-Intermittent		0	-1.859	-0.171	-0.003	0.00			0.129
LDNO 132kV/EHV: LV Sub Generation Intermittent		0	-0.380			0.00			0.129
LDNO 132kV/EHV: LV Sub Generation Non-Intermittent		0	-1.860	-0.153	-0.003	0.00			0.129
LDNO 132kV/EHV: HV Generation Intermittent		0	-0.321			3.05			0.146
LDNO 132kV/EHV: HV Generation Non-Intermittent		0	-1.704	-0.051	-0.001	3.05			0.146
LDNO 132kV: Domestic Unrestricted		1	0.331			0.68			
LDNO 132kV: Domestic Two Rate		2	0.427	0.000		0.68			
LDNO 132kV: Domestic Off Peak (related MPAN)		2	0.000						
LDNO 132kV: Small Non Domestic Unrestricted		3	0.205			0.68			
LDNO 132kV: Small Non Domestic Two Rate		4	0.286	0.000		0.68			
LDNO 132kV: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO 132kV: LV Medium Non-Domestic		5-8	0.288	0.000		6.77			
LDNO 132kV: LV Sub Medium Non-Domestic		5-8	0.203	0.000		1.50			
LDNO 132kV: HV Medium Non-Domestic		5-8	0.069	0.000		19.09			
LDNO 132kV: LV Network Domestic		0	1.623	0.082	0.000	0.68			
LDNO 132kV: LV Network Non-Domestic Non-CT		0	0.888	0.015	0.000	0.69			
LDNO 132kV: LV HH Metered		0	0.806	0.000	0.000	1.59	0.71	1.11	0.064
LDNO 132kV: LV Sub HH Metered		0	0.766	0.000	0.000	1.50	1.76	2.01	0.058
LDNO 132kV: HV HH Metered		0	0.635	0.000	0.000	19.09	1.95	2.19	0.050
LDNO 132kV: NHH UMS category A		8	0.412						
LDNO 132kV: NHH UMS category B		1	0.357						
LDNO 132kV: NHH UMS category C		1	0.675						
LDNO 132kV: NHH UMS category D		1	0.477						
LDNO 132kV: LV UMS (Pseudo HH Metered)		0	5.953	0.227	0.014				
LDNO 132kV: LV Generation NHH or Aggregate HH		8	-0.273			0.00			
LDNO 132kV: LV Sub Generation NHH		8	-0.269			0.00			
LDNO 132kV: LV Generation Intermittent		0	-0.273			0.00			0.091
LDNO 132kV: LV Generation Non-Intermittent		0	-1.318	-0.121	-0.002	0.00			0.091
LDNO 132kV: LV Sub Generation Intermittent		0	-0.269			0.00			0.092
LDNO 132kV: LV Sub Generation Non-Intermittent		0	-1.318	-0.108	-0.002	0.00			0.092
LDNO 132kV: HV Generation Intermittent		0	-0.227			2.16			0.104
LDNO 132kV: HV Generation Non-Intermittent		0	-1.207	-0.036	-0.001	2.16			0.104
LDNO 0000: Domestic Unrestricted		1	0.141			0.29			
LDNO 0000: Domestic Two Rate		2	0.182	0.000		0.29			
LDNO 0000: Domestic Off Peak (related MPAN)		2	0.000						
LDNO 0000: Small Non Domestic Unrestricted		3	0.087			0.29			
LDNO 0000: Small Non Domestic Two Rate		4	0.122	0.000		0.29			
LDNO 0000: Small Non Domestic Off Peak (related MPAN)		4	0.000						
LDNO 0000: LV Medium Non-Domestic		5-8	0.123	0.000		2.89			
LDNO 0000: LV Sub Medium Non-Domestic		5-8	0.087	0.000		0.64			
LDNO 0000: HV Medium Non-Domestic		5-8	0.030	0.000		8.14			

Note: Where a tariff only has a p/kWh unit rate in Unit Charge 1 then this unit rate applies at all times.

Tariff name	Unique billing identifier	PCs	Unit charge 1 (NHH) or red/black charge (HH) p/kWh	Unit charge 2 (NHH) or amber/yellow charge (HH) p/kWh	Green charge(HH) p/kWh	Fixed charge p/MPAN/day	Capacity charge p/kVA/day	Exceeded capacity charge p/kVA/day	Reactive power charge p/kVAh
LDNO 0000: LV Network Domestic		0	0.692	0.035	0.000	0.29			
LDNO 0000: LV Network Non-Domestic Non-CT		0	0.378	0.006	0.000	0.29			
LDNO 0000: LV HH Metered		0	0.343	0.000	0.000	0.68	0.30	0.47	0.027
LDNO 0000: LV Sub HH Metered		0	0.326	0.000	0.000	0.64	0.75	0.86	0.025
LDNO 0000: HV HH Metered		0	0.270	0.000	0.000	8.14	0.83	0.94	0.021
LDNO 0000: NHH UMS category A		8	0.175						
LDNO 0000: NHH UMS category B		1	0.152						
LDNO 0000: NHH UMS category C		1	0.288						
LDNO 0000: NHH UMS category D		1	0.203						
LDNO 0000: LV UMS (Pseudo HH Metered)		0	2.537	0.097	0.006				
LDNO 0000: LV Generation NHH or Aggregate HH		8	-0.116			0.00			
LDNO 0000: LV Sub Generation NHH		8	-0.115			0.00			
LDNO 0000: LV Generation Intermittent		0	-0.116			0.00			0.039
LDNO 0000: LV Generation Non-Intermittent		0	-0.562	-0.052	-0.001	0.00			0.039
LDNO 0000: LV Sub Generation Intermittent		0	-0.115			0.00			0.039
LDNO 0000: LV Sub Generation Non-Intermittent		0	-0.562	-0.046	-0.001	0.00			0.039
LDNO 0000: HV Generation Intermittent		0	-0.097			0.92			0.044
LDNO 0000: HV Generation Non-Intermittent		0	-0.515	-0.016	0.000	0.92			0.044

Note: Where a tariff only has a p/kWh unit rate in Unit Charge 1 then this unit rate applies at all times.

## Annex 5 – Line Loss Factors

This table has intentionally been left blank. The line loss factors that are approved by the BSC Panel for the applicable year and consequently published on the Elexon website will take precedence and be used in Settlement. This annex will be re-published once these values are available.

London Power Networks - Illustrative LLFs for year beginning 1 April 2019					
Time periods	Period 1	Period 2	Period 3	Period 4	Period 5
	Winter Peak	Summer Peak	Winter Shoulder	Night	Other
Monday to Friday November to February	16:00 - 19:59		07:00 - 15:59		
Monday to Friday June to August		07:00 - 19:59			
Monday to Friday March			07:00 - 19:59		
All Year				00:00 - 06:59	All Other Times
Notes	All times are in UK Clock time				

Generic demand and generation LLFs						
Metered voltage, respective periods and associated LLFCs						
Metered voltage	Period 1	Period 2	Period 3	Period 4	Period 5	Associated LLFC
Low-voltage network	1.104	1.082	1.095	1.065	1.082	1, 9, 200, 350, 400, 404, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 750, 753, 762, 763, 765, 902, 903, 906, 907, 910, 911, 914, 915, 952, 953, 956, 957, 960, 961, 964, 965, 970, 971, 980, 981, 982, 983
Low-voltage substation	1.073	1.06	1.068	1.048	1.059	756, 781, 782, 984, 985, 986, 987
High-voltage network	1.039	1.034	1.037	1.026	1.032	359, 751, 767, 988, 989, 990, 991
High-voltage substation	1.026	1.024	1.025	1.023	1.024	771, 791, 792
33kV generic	1.016	1.015	1.016	1.015	1.015	796, 797
132kV generic	1.002	1.002	1.002	1.002	1.002	798, 799

EHV site specific LLFs							
Demand							
LLFC	Site	Period 1	Period 2	Period 3	Period 4	Period 5	
800	Fenchurch Street - IMPORT	1.009	1.007	1.009	1.006	1.007	
801	LU Chapel Street - IMPORT	1.010	1.010	1.010	1.008	1.009	
802	TW, CROSSNESS SW - IMPORT	1.004	1.003	1.004	1.003	1.003	
803	Volta Data Centre - IMPORT	1.006	1.005	1.006	1.005	1.006	
804	LU Hoxton - IMPORT	1.016	1.015	1.016	1.015	1.015	
805	Broadgate - IMPORT	1.029	1.030	1.027	1.029	1.029	
806	70 Mark Lane - IMPORT	1.019	1.017	1.017	1.015	1.016	
807	NR Bow - IMPORT	1.012	1.012	1.012	1.011	1.011	
808	Leadenhall St. - IMPORT	1.010	1.007	1.010	1.006	1.008	
809	Telehouse West - IMPORT	1.004	1.003	1.005	1.000	1.009	
815	RRRL Belvedere - Import	1.002	1.002	1.002	1.002	1.002	
817	NGC Barking Sub-station	1.000	1.000	1.000	1.000	1.000	
818	LUL CANAL JUNCTION - IMPORT	1.000	1.000	1.000	1.000	1.000	
820	BLOOMBERG - NORTH Import	1.010	1.009	1.007	1.006	1.008	
821	BLOOMBERG - SOUTH Import	1.009	1.008	1.008	1.005	1.007	
827	SELCHP Deptford - IMPORT	1.002	1.002	1.002	1.002	1.002	
828	TW Beckton STW - IMPORT	1.003	1.003	1.002	1.002	1.003	
829	BROOKFIELD MULTIPLEX - IMPORT	1.023	1.020	1.023	1.020	1.021	
837	LU Mansell Street - IMPORT	1.012	1.011	1.011	1.007	1.010	
838	LU Lots Road - IMPORT	1.007	1.008	1.006	1.004	1.007	
839	LU Stephenson St E16 - IMPORT	1.007	1.006	1.007	1.003	1.006	
840	NR Maiden Lane BR	1.011	1.011	1.011	1.011	1.011	
841	NR Willesden 11kV BR	1.008	1.008	1.008	1.006	1.008	
842	NR Willesden 25kV - IMPORT	1.013	1.012	1.012	1.010	1.011	
843	GLOBAL SWITCH - IMPORT	1.012	1.012	1.012	1.012	1.011	
844	NR Wimbledon BR	1.005	1.005	1.005	1.005	1.005	
845	NR New Cross BR	1.002	1.002	1.002	1.001	1.002	
846	NR Poole St (City Rd)	1.011	1.010	1.010	1.008	1.009	
847	NR Bromley 33kV BR	1.012	1.010	1.012	1.007	1.009	
848	NR Bidder Street 25kV BR	1.025	1.022	1.023	1.021	1.021	
849	NR Poole St (Whiston Rd)	1.021	1.021	1.018	1.016	1.019	

EHV site specific LLFs							
Generation							
LLFC	Site	Period 1	Period 2	Period 3	Period 4	Period 5	
701	TW Beckton STW - EXPORT	0.999	0.999	0.999	0.999	0.999	
702	TW, CROSSNESS SW - EXPORT	1.016	1.015	1.016	1.015	1.015	
706	NR Willesden 25kV - EXPORT	0.946	0.947	0.946	0.945	0.946	
707	NR Bow - EXPORT	0.955	0.954	0.954	0.954	0.954	
711	RRRL Belvedere - Export	0.999	0.999	0.999	0.999	0.999	
716	NR Bidder Street 25kV - EXPORT	0.976	0.975	0.969	0.975	0.975	
728	SPARE	1.016	1.015	1.016	1.015	1.015	

730	SELCHP Deptford - EXPORT	0.999	0.997	0.999	0.995	0.996
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CVA site specific LLFs						
MSID	Site	Period 1	Period 2	Period 3	Period 4	Period 5
5538	Taylors Lane Generation	1.039	1.034	1.037	1.026	1.032
1000	Beddington Tee	1.000	1.000	1.000	1.000	1.000
1027	Kingston	1.005	1.003	1.005	1.002	1.002
1436	Brimsdown - Buckhurst Hill	1.006	1.003	1.004	1.002	1.004
1608	Hurst 132 kV	1.000	0.999	1.000	1.000	1.000
1625	Bulwer Street (Willesden 66 KV)	1.008	1.006	1.007	1.004	1.006
7167	Townmead Road FMS Substation	1.006	1.004	1.005	1.002	1.004
7198	Barking Network Rail S/S - (Barking C)	1.001	1.001	1.001	1.000	1.000

Annex 6 - New Designated EHV Properties. Addendum to Schedule of Charges for use of the Distribution System by Designated EHV Properties (including LDNOs with Designated EHV Properties/end-users).

Annex 6 - Charges for New or Amended Designated EHV Properties

London Power Networks - Effective from 1 April 2019 - Final new designated EHV charges														
Import Unique Identifier	LLFC	Import MPANs/MSIDs	Export Unique Identifier	LLFC	Export MPANs/MSIDs	Name	Import Super Red unit charge (p/kWh)	Import fixed charge (p/day)	Import capacity charge (p/kVA/day)	Import exceeded capacity charge (p/kVA/day)	Export Super Red unit charge (p/kWh)	Export fixed charge (p/day)	Export capacity charge (p/kVA/day)	Export exceeded capacity charge (p/kVA/day)
BLAWAL	771	1200062237580 1200062237599 1200062237604 1200062237613				THOMSON REUTERS		378.92	1.12	1.12				
22BSHP	796	1200062355497 1200062355502				22 BISHOPSGATE	0.505	362.31	1.17	1.17				

London Power Networks - Effective from 1 April 2019 - Final new designated EHV line loss factors																
Import Unique Identifier	LLFC	Import MPANs/MSIDs	Export Unique Identifier	LLFC	Export MPANs/MSIDs	Name	Import LLF period 1	Import LLF period 2	Import LLF period 3	Import LLF period 4	Import LLF period 5	Export LLF period 1	Export LLF period 2	Export LLF period 3	Export LLF period 4	Export LLF period 5

This table has intentionally been left blank. The line loss factors that are approved by the BSC Panel for the applicable year and consequently published on the Elexon website will take precedence and be used in Settlement. This annex will be re-published once precedence and will be used in Settlement if they differ from these values.