

DCP328 – Legal Drafting

Use of System charging for private networks with competition in supply

Solution A

Charging the boundary supplier for Difference Metering installations and providing a rebate for Private Network Operators in the CDCM and charging embedded suppliers in the EDCM for fully settled installations.

Add new definitions in Clause 1

Difference Metering	means an arrangement defined in the BSC (BSCP514) for the purposes of Settlement, whereby the flows of electricity measured by metering equipment embedded within a Licence Exempt System are deducted from the flows of electricity measured by the metering equipment at the Entry Point or Exit Point by which electricity flows from or to that Licence Exempt System.
Licence Exempt System	means an electricity distribution system that is not owned or operated by a DNO/IDNO Party.
Non-Settlement MPAN	means a 13-digit reference number for a Metering Point at an Entry Point or Exit Point, in the same format as an MPAN, which reference number is only to be used for the purposes described in this Agreement.
Meter Timeswitch Code	has the meaning given to that term in Data Transfer Catalogue (J0220).

Add a new Clause 29.5A

29.5A The following provisions shall apply in the case of an Entry Point or Exit Point on the Company's Distribution System that is subject to Difference Metering:

29.5A.1 the User shall ensure that the MPAN for the Metering Point at that Entry Point or Exit Point has Meter Timeswitch Code 996 applied to it by MPAS;

29.5A.2 the Supplier Party that is registered under the MRA in respect of an MPAN for metering equipment embedded within that Licence Exempt System shall ensure that such MPAN has Meter Timeswitch Code 997 applied to it by MPAS;

29.5A.3 the Company shall ensure that MPAS identifies the relevant Licence Exempt System for the data item 'Metering Point Address Line 1' (as described in the Data Transfer Catalogue) for each of the MPANs referred to in Clauses 29.5A.1 and 29.5A.2;

29.5A.4 the Company shall procure that the User is provided with a Non-Settlement MPAN for the Metering Point at that Entry Point or Exit Point;

29.5A.5 in addition to the Metering Data to be provided in respect of that Entry Point or Exit Point under Clause 29.4, the User shall (without charge) provide (or ensure that its BSC Party Agent provides) the Company with the metering data the User would have been obliged to procure the provision of in respect of that Entry Point or Exit Point under the BSC if Difference Metering did not apply, using the Data Transfer Catalogue D0036 or D0275 (as specified by the Company) and quoting the Non-Settlement MPAN (instead of the actual MPAN);

29.5A.6 the User shall ensure that the data referred to in Clause 29.5A.5 is provided to the Company in the same timescales as would have applied under the BSC if Difference Metering did not apply; and

29.5A.7 the Supplier Party referred to in Clause 29.5A.2 agrees that the User may receive and manipulate the Metering Data relating to consumption by the Supplier Party's Customers connected to the Licence Exempt System in

order to comply with the User's obligations under Clause 29.5A.5 and for the purpose of matters provided for or envisaged by its Supply Licence.

Add a new Clause 29.5B

29.5B Notwithstanding Clause 15.3, it is agreed that Clause 29.5A.2 creates binding obligations between the Company and the Supplier Party referred to in that Clause, and that Clause 29.5A.7 creates binding obligations between the User and the Supplier Party referred to in that Clause.

SCHEDULE 16 – COMMON DISTRIBUTION CHARGING METHODOLOGY

Introduction

This Schedule 16, version [TBC]¹, is to be used for the calculation of Use of System Charges which will become effective from, 01 April 2022 and remain effective until superseded by a revised version.

1. This Schedule 16 sets out the Common Distribution Charging Methodology (CDCM), which gives the methods, principles, and assumptions underpinning the calculation of Use of System Charges by each DNO Party (except where the DNO Party is acting as an LDNO).
- 1A. The CDCM is applicable to “Designated Properties”, as defined in Standard Condition 13A (Common Distribution Charging Methodology) of the DNO Party’s Distribution Licences [and properties connected to Licence Exempt Systems at Low Voltage \(LV\), Low Voltage substation \(LVS\) and High Voltage \(HV\).](#)
2. This Schedule 16 comprises two main parts. Part 1 describes the cost allocation rules. Part 2 describes the tariff structures and their application.

PART 1 — COST ALLOCATION

Main steps in the allocation

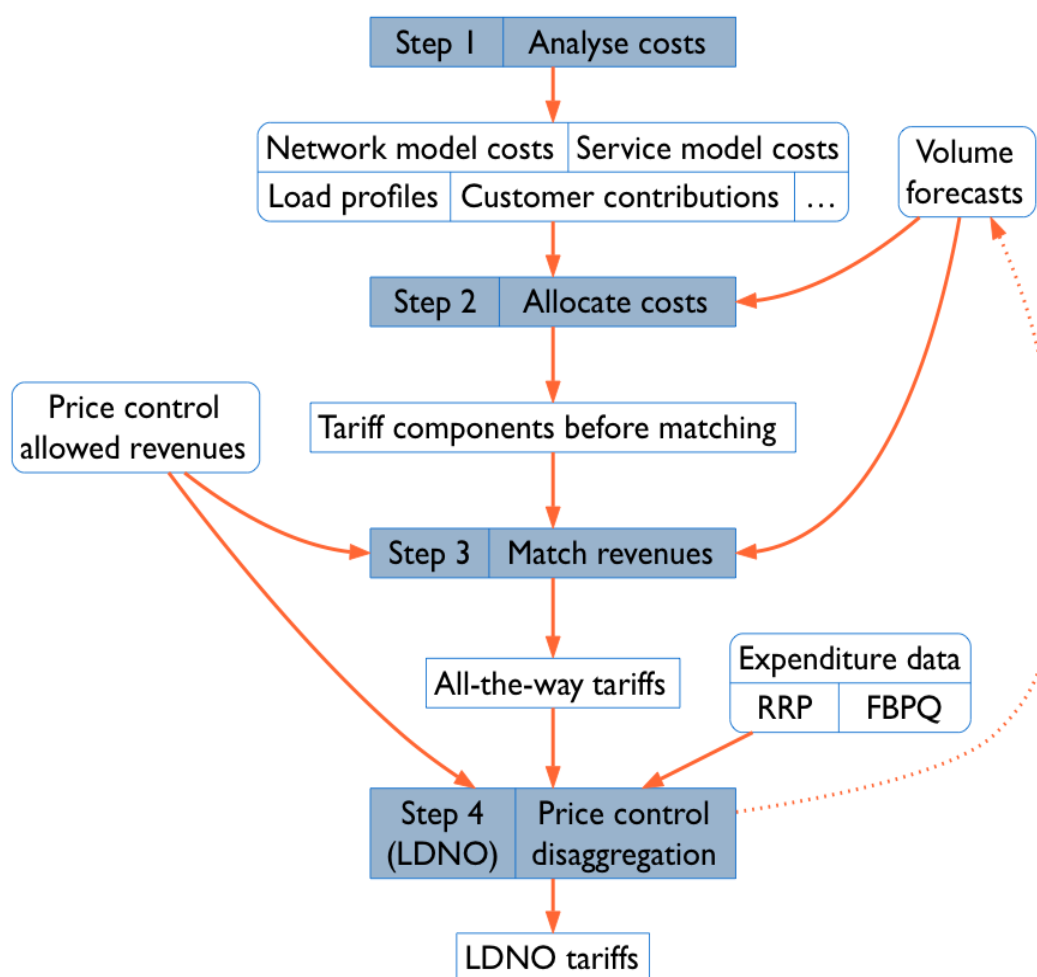
6. Figure 1 gives a general overview of how the four main steps in the methodology relate to each other.

Figure 1 Overview of the main steps in the methodology

¹ To be completed on implementation

² To be completed on implementation of this DCP 379.

³ To be completed on implementation of this DCP 379.



7. Step 1 involves the gathering of information about the network, the costs of assets and operations, the users of the network, and the forecast level of use and level of allowed revenue in the charging year.
8. Step 2 is the application of the cost allocation rules set out below. These rules are only for tariffs before revenue matching [and tariffs used to determine rebates in respect of Fully Settled and Shared Metering customers connected to Licence Exempt Systems](#) and do not apply to LDNO tariffs.

Allocation of costs on the basis of contribution to system simultaneous maximum load

67. All £/kW/year unit costs and revenue are used in the calculation of yardstick charges for each tariff before revenue matching
68. For demand tariffs before revenue matching, [tariffs used to determine rebates in respect of Fully Settled and Shared Metering customers connected to Licence Exempt Systems](#)

and portfolio tariffs before revenue matching related to demand users, the contributions of each network level to the unit rate are calculated as follows:

$$[\text{p/kWh from network model assets}] = 100 * [\text{network level } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * [\text{pseudo load coefficient}] * (1 - [\text{contribution proportion}]) / [\text{days in charging year}] / 24$$

$$[\text{p/kWh from operations}] = 100 * [\text{transmission exit or other expenditure } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * [\text{pseudo load coefficient}] / [\text{days in charging year}] / 24$$

71. For generation tariffs before revenue matching, [tariffs used to determine rebates in respect of Fully Settled and Shared Metering generation users connected to Licence Exempt Systems](#) and portfolio tariffs before revenue matching, no contribution to the unit rate is calculated in respect of the network level corresponding to circuits at the Entry Point, and a negative contribution to the unit rate (i.e. a credit) comes from each network level above the Entry Point. That contribution is calculated as follows:

$$[\text{p/kWh from network model assets}] = -100 * [\text{network level } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] * (1 - [\text{contribution proportion}]) / [\text{days in year}] / 24$$

$$[\text{p/kWh from operations}] = -100 * [\text{transmission exit or other expenditure } \text{£/kW/year}] * [\text{user loss factor}] / [\text{network level loss factor}] / [\text{days in year}] / 24$$

88. For the purpose of the calculation of reactive power unit charges, generation users are taken to make a full contribution to the reactive power flows in the network at their Entry Point and at each network level above their Entry Point.

Derivation of tariffs before revenue matching and tariffs to be used for the calculation of rebates in respect of Fully Settled and Shared Metering customers connected to Licence Exempt Systems

88A [Tariffs before revenue matching are determined by summing across all voltages:](#)

- [the contribution to each unit rate at each voltage calculated in accordance with paragraph 77 and 86 as applicable;](#)

- the contribution to fixed charges at each voltage calculated in accordance with paragraph 85;
- the contribution to capacity charges at each voltage calculated in accordance with paragraph 81; and
- the contribution to reactive power charges at each voltage calculated in accordance with paragraph 87.

88B Tariffs for the calculation of rebates for customers connected to Licence Exempt Systems are determined in accordance with paragraph 88A, save that lower voltage elements are excluded as follows:

- where the Licence Exempt System is connected to the LV network, the costs associated with the LV customer level are excluded;
- where the Licence Exempt System is connected at LV substation, the costs associated with the LV customer and LV network levels are excluded; and
- where the Licence Exempt System is connected at HV network, the costs associated with the LV customer, LV network and LV substation levels are excluded.

88C Capacity charge elements (p/kVA/day) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the capacity charge by the average kVA per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage.

88D Reactive power charge elements (p/kVArh) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the reactive power charge by the average kVArh per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage, and dividing by the number of days in the charging year.

88E For NHH settled or HH Aggregate settled users connected to Licence Exempt Systems, a rebate is calculated in £/customer/year for each customer group and each voltage of connection of a Licence Exempt System as follows:

- a) The average kWh usage per customer per year in each timeband is determined from the DNO Party's volume forecast for that customer group;
- b) The average charge for that customer group is calculated by applying the DNO Party's tariff to the usage derived under part a).
- c) The average charge applicable for a customer in that customer group connected to a Licence Exempt System with that voltage of connection is calculated by applying the tariffs determined under paragraph 88B to the usage derived under part a).
- d) The rebate per customer per year is calculated as the results of part b) less the result of part c).

88F For HH Site Specific settled users connected to Licence Exempt Systems, a rebate is calculated in £/customer/year for each customer by applying the tariff calculated under paragraphs 88B, 88C and 88D to that customer's usage data, and subtracting this total from the amount billed in respect of that customer.

95. Tariffs for generation do not have any revenue matching element.

95A. For the tariffs to be used to calculate rebates for Fully Settled and Shared Metering customers connected to Licence Exempt Systems, calculated in paragraphs 88E and 88F, the residual surplus or residual shortfall for customers connected to Licence Exempt Systems will be scaled by multiplying the residual surplus or short fall for all-the-way customers calculated in paragraph 92 by the ratio of the revenue before matching for a customer connected to a Licence Exempt System calculated using the tariffs in paragraph 88B-88D, to the revenue before matching for a customer connected to a Licence Exempt System calculated using the tariffs in paragraph 88A.

For each customer group this is:

$$\begin{aligned}
 &[\text{Residual surplus or shortfall for Licence Exempt Systems customers}] = \\
 &\quad [\text{Residual surplus or shortfall for all – the – way customers}] \times \\
 &\quad \frac{[\text{Revenue before matching from License Exempt System tariffs}]}{[\text{Revenue before matching from all–the–way tariffs}]}
 \end{aligned}$$

Tariff structures for Licence Exempt Systems using Difference Metering

146A The tariffs charged in respect of Licence Exempt Systems using Difference Metering shall be charged to the Supplier at the DNO Party's boundary based on the units imported or exported at the boundary between the network and the Licence Exempt System. No charges will be applied by the DNO Party to the boundary settlements

[data received by the DNO Party, or to the settlements data received in respect of any settlement meters within the Licence Exempt System.](#)

Glossary of Terms used in this Schedule 16

In this Schedule 16, except where the context otherwise requires, the expressions in the left-hand column below shall have the meaning given to them in the right-hand column below:

<i>Term</i>	<i>Meaning</i>
allowed revenue	the DNO Party's "Combined Allowed Distribution Network Revenue" (as defined in the DNO Party's price control conditions).
all-the-way tariff	a tariff applicable to an end user rather than an LDNO.
boundary tariff	a tariff for use of the DNO Party's network by an LDNO where charges are based on boundary flows.
CDCM	the Common Distribution Charging Methodology.
charging year	the 12-month period ending on a 31st March for which charges and credits are being calculated.
coincidence factor	for a user category, aggregate load at the time of the DNO Party's system simultaneous maximum load divided by maximum aggregate load.
Common Distribution Charging Methodology	the methodology of that name with which the DNO Party is obliged to comply under its Distribution Licence.
contribution proportion	the proportion of asset annuities which are deemed covered by customer contributions. This is defined for each combination of a tariff and a network level.

<i>Term</i>	<i>Meaning</i>
customer contribution	capital charges payable by customers under the DNO Party's connection charging policy.
CT	Current Transformer, indicating metering which uses current transformers to induce a reference current which is then passes through the meter (as compared to non-CT or whole current metering, where the full electrical current passes through the meter).
distribution time bands	the time bands described in paragraphs 40, 41 and 135.
diversity allowance	the extent, expressed as a percentage, to which the sum of the maximum load across all assets in the modelled network level is expected to exceed the simultaneous maximum load for the network level as a whole, as per paragraph 27.
DRM	distribution reinforcement model. This may refer either to a 500 MW network model or to a cost allocation method based on such a model.
EDCM	means the EHV distribution charging methodology as described in Schedule 17 or Schedule 18 (as applicable to each DNO Party).
EHV	EHV refers to nominal voltages of at least 22kV and less than 132kV; network elements with a nominal voltage of 132kV are excluded from EHV for the purpose of this Schedule 16.
Eligible Bad Debt	means any bad debts with respect to Use of System Charges that the DNO Party can recover in accordance with the DNO Party's Distribution Licence. For the avoidance of doubt, this definition includes the DNO Party's bad debt and bad debt which the DNO Party is recovering on behalf of LDNOs.

<i>Term</i>	<i>Meaning</i>
embedded network	an electricity distribution system operated by an LDNO and embedded within the DNO Party's network.
end user	is a user, but excluding LDNOs.
excluded revenue	revenue from "Excluded Services" (as defined in the price control conditions).
Forecast Business Plan Questionnaire or FBPQ	the questionnaire that the DNO Party is required to submit under the Regulatory Instructions and Guidance issued by the Authority under the DNO Party's Distribution Licence.
<u>Fully Settled</u>	<u>Where every customer on a Licence Exempt System is to have or has a Supplier, its own MPAN and metering equipment and there is no metering equipment at the boundary between the Distribution System and the Licence Exempt System. The BSC refers to these circumstances as an 'Associated Distribution System'.</u>
GSP	grid supply point: where the network is connected to a transmission network.
HV	nominal voltages of at least 1kV and less than 22kV.
kV	Kilovolt (1,000 Volts): a unit of voltage.
kVAr	Kilo Volt Ampere reactive: a unit of reactive power flow.
kVArh	Kilo Volt Ampere reactive hour: a unit of total reactive power flow over a period of time.
kW	Kilowatt (1,000 Watts): a unit of power flow.
kWh	Kilowatt hour: a unit of energy.

LDNO	a licensed distribution network operator, meaning an IDNO Party or DNO Party operating an electricity distribution system outside of its Distribution Services Area.
load factor	for a user category, average load divided by maximum aggregate load.
LV	nominal voltages of less than 1kV.
LV Mains	LV distributing mains where: <ul style="list-style-type: none">(a) the upper boundary is at the secondary side (LV) of a distributor transformer; and(b) the lower boundary is the point of connection associated with the LV service.
LV Services	the service line from the LV main to the DNO's protection device situated upon the customer's premises, including the joint and associated components connecting the service line to the distributing main.
Measurement Class	has the meaning given to that expression in the BSC.
modern equivalent asset and modern equivalent asset value	is a reference to the cost of replacing an asset at the time of the calculation.
MPAN	the unique number identifying a particular Metering Point or Metering System.
MVA	Mega Volt Ampere (1,000 kVA): a unit of network capacity.
MW	Megawatt (1,000 kW): a unit of power flow.
MWh	Megawatt hour (1,000 kWh): a unit of energy.

network	the DNO Party's Distribution System within the DNO Party's Distribution Services Area.
network level	the network is modelled as a stack of circuit and transformation levels between supplies at LV and the transmission network. A network level is any circuit or transformation level in that stack. Additional network levels are used for transmission exit and for LV and HV customer assets.
network model	a costed design for a 500 MW extension to the DNO Party's network, as described in paragraph 16.
peaking probability	is the peaking probability described in paragraph 49.
power factor	the ratio of energy transported (kW) to network capacity used (kVA).
portfolio tariff	a tariff for use of the DNO Party's network by an LDNO where charges are based on flows out of/into the LDNO's electricity distribution system from its end users or further nested networks.
price control conditions	the charge restriction conditions contained as special conditions within the DNO Party's Distribution Licence.
profile class	has the meaning given to that expression in the Balancing and Settlement Code.
regulatory asset value	is the DNO Party's regulatory asset value as described in the Regulatory Instructions and Guidance issued by the Authority under the DNO Party's Distribution Licence.
Related MPAN	has the meaning given to the expression "Related Metering Points" in the Master Registration Agreement.
RRP	regulatory reporting pack, a dataset produced each year by each DNO Party for the Authority.

service model a costed design for the typical dedicated assets of a category of network users.

Shared Metering Where meter readings recorded by Settlement metering equipment at the boundary between the Distribution System and the Licence Exempt System are apportioned between Suppliers based on readings from non-Settlement meters on a Licence Exempt System.

standing charge any fixed or capacity charge that does not depend on actual use of the network.

Supercustomer in relation to billing, is billing by Settlement Class.

Supplier of Last Resort a supply licensee to which a Last Resort Supply Direction applies, where Last Resort Supply Direction has the meaning given to that expression in the Supply Licence.

system simultaneous maximum load the maximum load for the GSP Group as a whole.

time pattern regime or TPR means a code that is used to identify the switching times of a meter register.

unit where the context permits, the word unit refers to kWh.

unit rate a charging or payment rate based on units distributed or units generated. Unit rates are expressed in p/kWh. Tariffs applied to multi-rate meters and/or using several time bands for charging have several unit rates.

user refers to customers (whether demand customers or generators) and (where relevant) LDNOs.

SCHEDULE 17 – EHV CHARGING METHODOLOGY (FCP MODEL)

1. INTRODUCTION

This Schedule 17, version [TBC]⁴, is to be used for the calculation of Use of System Charges which will become effective from, 01 April 2022 and remain effective until superseded by a revised version.

28. DNO PARTY TO UNLICENCED NETWORKS LICENCE EXEMPT SYSTEMS

~~Not used. Unlicensed networks have a choice. If they are part of the Total System under the Balancing and Settlement Code with the network open to supply competition, and if they are party to the DCUSA, and have accepted the obligations to provide the necessary data, they can, if they wish, be treated as LDNOs.~~

~~Otherwise the~~ The DNO Party applies the EDCM to calculate an import and export charge based on ~~capacity and~~ power flow data ~~metered~~ at the boundary and the agreed capacity at the boundary. Prior to paragraph 28.3 and 28.4, for Final Demand Sites the residual charge will be calculated in accordance with Paragraph 18.18 and for Non-Final Demand Sites will be calculated in accordance to Paragraph 18.21A. ~~Any sole use assets specific to the unlicensed network are charged as a p/day sole use asset charge calculated as applicable to a normal EDCM Connectee~~

28.3 The tariffs charged in respect of Licence Exempt Systems using Difference Metering shall be charged to the Supplier at the DNO Party's boundary based on the units imported or exported at the boundary between the network and the Licence Exempt System. No charges will be applied by the DNO Party to the boundary

⁴ To be completed on implementation

⁵ To be completed on implementation of this DCP 379.

⁶ To be completed on implementation of this DCP 379.

settlements data received by the DNO Party, or to the settlements data received in respect of the settlements meter within the Licence Exempt System.

28.4 The tariffs charged in respect of Licence Exempt Systems using Fully Settled and Shared Metering shall be charged to the Supplier of each customer within the Licence Exempt System. To derive the charges there will be a two-step approach as follows:

- The first step will be to use the settlement metering data of each embedded customer within the relevant Licence Exempt System to determine the power flow data at the boundary for both import and export charges. No losses are assumed between the boundary and each embedded customers' premises on the relevant Licence Exempt System.
- The second step will be the allocation of the fixed charge and capacity charge derived under paragraph 28.2 to each embedded customer for both import and export charges for the relevant Licence Exempt System. These will be calculated as follows:

[embedded customer fixed charge in p/day] = [fixed charge at the boundary] x [installed capacity of the embedded customer's Import MPAN or Export MPAN] / [total installed capacity of all embedded customers' Import MPANs and Export MPANs];

[embedded customer Import capacity charge in p/kVA/Day] = [Import capacity charge at the boundary] x ([the Import agreed capacity at the boundary] / [total installed Import capacity of all embedded customers]); and

[embedded customer Export capacity charge in p/kVA/Day] = [Export capacity charge at the boundary] x ([the Export agreed capacity at the boundary] / [total installed Export capacity of all embedded customers])

28.5 CDCM Tariffs for customers connected to Licence Exempt Systems are determined in accordance with paragraph 88Aa of schedule 16, save that lower voltage elements are excluded as follows:

- where the Licence Exempt System is connected at an EHV/HV substation, the costs associated with the LV customer, LV network, LV substation and HV network levels are excluded;

- where the Licence Exempt System is connected to the EHV network, the costs associated with the LV customer, LV network, LV substation, HV network and EHV/HV levels are excluded;
- where the Licence Exempt System is connected at a 132kV/EHV substation, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV and EHV network levels are excluded;
- where the Licence Exempt System is connected to the 132kV network, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV, EHV network and 132kV/EHV levels are excluded;
- where the Licence Exempt System is connected direct to a GSP, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV, EHV network, 132kV/EHV and 132kV network levels are excluded.

28.5A Capacity charge elements (p/kVA/day) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the capacity charge by the average kVA per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage as determined under schedule 16.

28.5B Reactive power charge elements (p/kVArh) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the reactive power charge by the average kVArh per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage as determined under schedule 16, and dividing by the number of days in the charging year.

SCHEDULE 17 - EHV CHARGING METHODOLOGY (FCP MODEL)

Annex 1 – Implementation Guide

1. SCOPE

This Annex describes the definitions, input data and power flow analyses required for modelling the DNO Party's Distribution System to enable the FCP methodology to be implemented as set out in the EDCM. The output data are also described.

2. POWER SYSTEMS ANALYSIS

The DNO Parties routinely analyse their Distribution Systems using power system analysis tools to identify where limitations exist on the network; this information is used to plan reinforcements.

Planning of a Distribution System (to satisfy the requirements of the Act and the Distribution Licences) using a power system analysis tool requires the development of a network model which represents the actual Distribution System and the application of demand data that represent the demands that the Distribution System will be required to deliver whilst satisfying the nationally defined security standard, ER P2/6.

The aim of using power flow analysis for pricing purposes is to replicate the reinforcement assessment process and determine the costs of future network reinforcements in order to generate cost-reflective incremental charges.

The DNO Parties use a variety of software tools to model their respective Distribution Systems for the purposes of operating and planning Distribution Systems. The Authority and the DNO Parties have agreed that it is not appropriate to prescribe which software tool is used for the analysis of the Distribution System, as it is for each DNO Party to satisfy itself that it is using the appropriate tools for planning and operation of its Distribution System.

The following sections describe the definitions, input data and the power flow analyses required to model the Distribution System for pricing purposes. The calculation of reinforcement costs and the main outputs are discussed.

3. DEFINITIONS

In this Schedule 17, unless the context otherwise requires, the expressions below shall have the meanings set out below.

Term	Definition
Active Power	The product of the voltage, current and cosine of the phase angle between them, measured in watts.
Allowed Revenue	The amount of revenue that the DNO Party can earn on its regulated business in accordance the special conditions within the DNO Party's Distribution Licence.
Authorised Network Model	The model that represents the DNO Party's entire EHV network (from the GSP level down to and including the HV busbar at the EHV/HV transformation level), as described in Paragraph 2.3 and section 4 of this Annex 1.
Branch	<p>A representation of an asset, collection of assets or part of an asset of the DNO Party's EHV network through which Active Power flows as a consequence of supply to or export from a Connectee or busbar on the DNO Party's HV or EHV networks. A Branch must only be connected between two Nodes. A Branch should conform to the following:</p> <ul style="list-style-type: none"> • there can be more than one Branch between the same two Nodes; • a three winding transformer may be represented by three Branches (one Branch for each of the windings) configured in a star formation; • the Active Power flowing out of one end of a Branch should equal the Active Power flowing into the other end of the Branch less any losses within the Branch; • shunt reactors and capacitors are not Branches;

	<ul style="list-style-type: none"> earthing transformers, resistors and reactors are not Branches; and a Branch may constitute a collection of assets e.g. a circuit constituting overhead lines and cables. When combining assets into a Branch, there is a need to consider the reinforcement solution for the Branch in the next stages for the Use of System Charging calculation.
Branch Rating	The Branch Ratings selected for the Authorised Network Model should be derived by appropriate consideration of the time of day / season / general nature of load profile (i.e. continuous, cyclic, etc.) represented within the model.
Bulk Supply Point (BSP)	A supply point on the DNO Party's Distribution System representing an EHV/EHV transformation level e.g. 132/33kV.
Charging Year	The financial year (12 month period ending on a 31st March) for which charges and credits are being calculated.
Circuit	The part of a Distribution System between two or more circuit breakers, switches and/or fuses inclusive. For the avoidance of doubt a circuit can contain a number of Branches and Nodes. A Circuit may include transformers, reactors, cables and overhead lines. Busbars are not considered as Circuits.
Circuit Branch	A categorisation used in the derivation of Branch reinforcement costs for Branches that represent an interconnection (or part of an interconnection) between substations and which operate at a single voltage level.
Connection Node	<p>A Node which is a point of connection to one of the following:</p> <ul style="list-style-type: none"> an Entry Point or the Sole Use Assets connecting the Entry Point; or an Exit Point or the Sole Use Assets connecting the Exit Point; or

-
- the DNO Party's HV network; or
 - a Distribution System of another DNO Party or IDNO Party.

Contingency Analysis	The analysis to determine the effect on power flows for the Authorised Network Model under N-1 and where necessary, N-2 contingencies.
Diversity Allowance	The extent, expressed as a percentage, to which the sum of the maximum load across all assets in the modelled network level is expected to exceed the simultaneous maximum load for the network level as a whole.
Diversity Factor	A scaling factor calculated as the ratio of the maximum demand observed at a given location on the network and the aggregate of the individual maximum demands observed at multiple locations connected downstream (i.e. further from source) of the given location, taking account of losses. Such factors provide a means of recognising that the maximum demands observed at individual locations (e.g. substations at a given voltage level) on a section of network may not be coincident. Details of the calculation of Diversity Factors are set out in section 5.9 (Diversity Factors) of Annex 1.
EDCM	has the meaning given to that expression in Paragraph 1
EDCM Connectee	means a Connectee whose Connected Installation is a Designated EHV Property as defined in Standard Conditions 50A.11 and 13B.6 of the DNO Party's Distribution Licence.
EDCM Customer	means a Customer whose Customer Installation is a Designated EHV Property as defined in Standard Conditions 50A.11 and 13B.6 of the DNO Party's Distribution Licence.

EDCM Generation	means a Generator Installation that is a Designated EHV Property as defined in Standard Conditions 50A.11 and 13B.6 of the DNO Party's Distribution Licence.
EHV	Extra High Voltage.
Eligible Bad Debt	means any bad debts with respect to Use of System Charges that the DNO Party can recover in accordance with the DNO Party's Distribution Licence. For the avoidance of doubt, this definition includes the DNO Party's bad debt and bad debt which the DNO Party is recovering on behalf of LDNOs.
Embedded	means connected to a LDNO's Distribution System.
ER P2/6	Energy Network Association's Engineering Recommendation P2/6 which is the planning standard for security of supply to be used by the DNO Parties.
ETR 130	Energy Network Association's Engineering Technical Report 130 which is the Application Guide for assessing the capacity of Distribution Systems to which Generation Installations are connected.
Extra High Voltage (EHV)	Refers to voltages operating on the Authorised Network Model at 22kV or higher.
Forecast Business Plan Questionnaire or FB PQ	means the questionnaire that the DNO Party is required to submit under the Regulatory Instructions and Guidance issued by the Authority under the DNO Party's Distribution Licence.
FCP	Has the meaning given to that expression in Paragraph 2.1
<u>Fully Settled</u>	<u>Where every customer on a Licence Exempt System is to have or has a Supplier, its own MPAN and metering equipment and there is no metering equipment at the boundary between the Distribution</u>

	<u>System and the Licence Exempt System. The BSC refers to these circumstances as an ‘Associated Distribution System’.</u>
Grid Supply Point (GSP)	A point of supply from the National Electricity Transmission System to the DNO Party’s Distribution System.
High Voltage (HV)	Refers to voltages operating on the Authorised Network Model above 1000 volts but lower than 22kV.
kV	Kilovolt (1,000 Volts): a unit of voltage.
kVA	Kilo Volt Ampere: a unit of network capacity.
kVAr	Kilo Volt Ampere reactive: a unit of reactive power flow.
	The network capacity used by a flow of A kW and B kVAr is $\text{SQRT}(A^2+B^2)$ kVA.
kVArh	kVA reactive hour: a unit of total reactive power flow over a period of time. Reactive power meters usually register kVArh.
kW	Kilowatt (1,000 Watts): a unit of power flow.
kWh	Kilowatt hour: a unit of energy. Meters usually register kWh.
LDNO	refers to a licensed distribution network operator, meaning an IDNO Party or a DNO Party operating an electricity distribution system outside of its Distribution Services Area.
Long Term Development Statement (LTDS)	The Long Term Development Statement as detailed by Licence Condition 25 of the Distribution Licences.
LV	Nominal voltages of less than 1kV.
Maximum Demand Data	The Network Demand Data that is applied to the demand (load) analysis for N-1 contingency testing. The construction of Maximum

	Demand Data is described in section 5.35 (Maximum Demand Data for Demand (Load) Analysis) of Annex 1.
Maintenance Demand Data	The Network Demand Data that is applied to the demand (load) analysis for N-2 contingency testing (by supposition, this would consider N-1 contingencies). The construction of Maintenance Demand Data is described in section 5.41 (Maintenance Demand Data for Demand (Load) Analysis) of Annex 1.
MVA	Mega Volt Ampere (1,000 kVA): a unit of network capacity.
MW	Megawatt (1,000 kW): a unit of power flow.
MWh	Megawatt hour (1,000 kWh): a unit of energy. Energy trading is usually conducted in MWh.
N-1 Contingency	An N-1 Contingency considers an N-1 Event occurring on the Authorised Network Model and models the consequential network actions and where appropriate constraints on customer demands. This is used to ensure that the resultant flows in Branches that remain in service are within rated capacity.
N-1 Event	An N-1 Event is a First Circuit Outage (FCO) as explained in ER P2/6. It signifies a fault or arranged outage on the network which would result in a section of the network defined by the relevant protection scheme to sectionalise and isolate the faulty section, or isolates the section to be worked on for maintenance, resulting in zero power flow in the affected network. N-1 Events should consider an outage of a complete Circuit and only consider faults or arranged outages occurring with the network initially running under Normal Running Arrangements.
N-2 Contingency	An N-2 Contingency considers an N-2 Event occurring on the Authorised Network Model and models the consequential network actions and where appropriate constraints on customer demands.

	<p>This is used to ensure that the resultant flows in Branches that remain in service are within rated capacity.</p>
N-2 Event	<p>An N-2 Event is a Second Circuit Outage (SCO) as explained in ER P2/6. It signifies the occurrence of a fault on the network at the same time as a planned outage which would result in a section of the network defined by the relevant protection scheme to sectionalise and isolate the faulty section. As N-2 Events are considered to have occurred at the same time as a planned outage, they are confined to the maintenance period, as designated by the DNO Party. Maintenance Demand Data is used when considering N-2 Events.</p>
National Electricity Transmission System	<p>Has the meaning given to that expression in the CUSC</p>
Negative Load Injection	<p>A Negative Load Injection is a negative value of load calculated and applied to a source substation within the network model to represent the effects of diversity between associated downstream demands upon the actual demand observed at the source substation.</p>
Net Diversity Factor	<p>A scaling factor that represents the diversity between the maximum demands observed at substations at different levels of a network, which may be derived by multiplying Diversity Factors representing the diversity between interim levels.</p>
Network	<p>This is a reference to the DNO Party's Distribution System, or to a particular part of that Distribution System.</p>
Network Demand Data	<p>This is the load and generation which is used to populate the Authorised Network Model. Network Demand Data is constructed of Network Demand Data (Load) and Network Demand Data (Generation).</p>

Network Demand Data (Generation)	Generation export applied within the Authorised Network Model at Nodes representing the Entry Point for each EHV connected customer with an agreed Maximum Export Capacity factored according to ER P2/6, where appropriate.
Network Demand Data (Load)	The load applied within the Authorised Network Model at Nodes representing the Exit Point for each EHV customer and the lower voltage busbars at substations representing transformation points between Network Groups or EHV/HV substations.
Network Group	This is one of the parts of the Authorised Network Model described in Paragraph 2.7 and section 6 (Network Groups) of Annex 1.
Network level	The network is modelled as a stack of circuit and transformation levels between supplies at LV and the National Electricity Transmission System. A network level is any circuit or transformation level in that stack. An additional network level is used for transmission exit.
Node	<p>A representation of a point on the DNO Party's EHV network that is a point of connection between a Branch and one or more of the following:</p> <ul style="list-style-type: none"> • another Branch; or • an Entry Point or the Sole Use Assets connecting the Entry Point; or • an Exit Point or the Sole Use Assets connecting the Exit Point; or • the DNO Party's HV network; or • the Distribution System of another DNO Party or IDNO Party; or • the National Electricity Transmission System.
Non-Final Demand Site	as defined in Schedule 32

Normal Running Arrangements	The DNO Party's EHV network with no system outages i.e. with no planned outages (e.g. for maintenance) and no unplanned outages (e.g. subsequent to a fault).
Point of Common Coupling	The point on the network where the power flow associated with the single Connectee under consideration, may under some (or all) possible arrangements interact with the power flows associated with other Connectees, taking into account all possible credible running arrangements
Power factor	The ratio of energy transported (kW) to network capacity used (kVA).
Portfolio tariff	A tariff for use of the network by another DNO/IDNO Party where charges are linked to flows out of/into the other DNO/IDNO Party's network from its Connectees or further nested networks.
Primary Substation	A substation on the DNO Party's Distribution System transforming the voltage from EHV to HV, e.g. 33/11kV
Reactive Power	The product of the voltage and current and the sine of the phase angle between them, measured in units of voltamperes reactive.
Regulatory Year	has the meaning given to that expression in the DNO Party's Distribution Licence.
RRP	Regulatory reporting pack, a dataset produced each year by each DNO Party for the Authority.
<u>Shared Metering</u>	<u>Where meter readings recorded by Settlement metering equipment at the boundary between the Distribution System and the Licence Exempt System are apportioned between Suppliers based on readings from non-Settlement meters on a Licence Exempt System.</u>
Sole Use Assets	Assets in which only the consumption or output associated with a single Connectee can directly alter the power flow in the asset, taking into consideration all possible credible running

	arrangements, i.e. all assets between the Connectee's Entry/Exit Point(s) and the Point(s) of Common Coupling with the general network.
Source Substation	Any substation which connects, via transformers and under Normal Running Arrangements, a particular Network Group to its "upstream" source. For example, for a 33kV group, the Source Substation is taken as the interconnecting 132/33kV grid transformers. A single Network Group may have more than one Source Substation.
Supplier of Last Resort	a supply licensee to which a Last Resort Supply Direction applies, where Last Resort Supply Direction has the meaning given to that expression in the Supply Licence.
System simultaneous maximum load	The maximum load for the GSP Group as a whole.
Transformer Branch	A categorisation used in the derivation of Branch reinforcement costs, for Branches that represent transformation between different voltage levels.
Unit	Where the context permits, the word unit refers to kWh.
Unit rate	A charging or payment rate based on units distributed or units generated. Unit rates are expressed in p/kWh. Tariffs applied to multi-rate meters and/or using several time bands for charging have several unit rates.

⁸ Network security is a licence condition embodied in ER P 2/6

⁹ ER P2/6 specifies the normal level of system security for distribution networks, classified in ranges of group demand. ER P2/6 Class E specifies the security of supply requirements where the group demand is classified as over 300MW and up to 1500MW

SCHEDULE 18 – EHV CHARGING METHODOLOGY (LRIC MODEL)

This Schedule 18, version [TBC]¹³, is to be used for the calculation of Use of System Charges which will become effective from, 01 April 2022 and remain effective until superseded by a revised version.

28. DNO PARTY TO UNLICENCED NETWORKS LICENCE EXEMPT SYSTEMS

~~Not used. Unlicensed networks have a choice. If they are part of the Total System under the Balancing and Settlement Code with the network open to supply competition, and if they are party to the DCUSA, and have accepted the obligations to provide the necessary data, they can, if they wish, be treated as LDNOs.~~

~~28.2 Otherwise~~ The DNO Party applies the EDCM to calculate an import charge and an export charge based on ~~capacity and~~ power flow data ~~metered~~ at the boundary and agreed capacity at the boundary. Prior to paragraph 28.3 and 28.4, for Final Demand Sites the residual charge will be calculated in accordance with Paragraph 18.18 and for Non-Final Demand Sites will be calculated in accordance to Paragraph 18.21A. ~~Any sole use assets specific to the unlicensed network are charged as a p/day sole use asset charge calculated as applicable to a normal EDCM Connectee~~

28.3 The tariffs charged in respect of Licence Exempt Systems using Difference Metering shall be charged to the Supplier at the DNO Party's boundary based on the units imported or exported at the boundary between the network and the Licence

¹³ To be completed on implementation

¹⁴ To be completed on implementation of this DCP 379.

¹⁵ To be completed on implementation of this DCP 379.

¹⁶ Guidance on creation of a suitable network model is provided in section 4 Authorised Network Model of Annex 1.

¹⁷ Guidance on the power-flow analysis required to consider these conditions is provided in sections 6.3 and 6.10 of Annex 1.

¹⁸ Guidance on the demand data required to represent the maximum demand period is provided in section 5.31 of Annex 1.

¹⁹ Guidance on the application of diversity to demand data is provided in section 5.11 of Annex 1.

²⁰ Guidance on the demand data required to represent the minimum demand period is provided in section 5.37 of Annex 1.

²¹ Guidance on the generation data required to represent the maximum demand period is provided in section 5.31 of Annex 1.

²² Guidance on the generation data required to represent the minimum demand period is provided in section 5.37 (of Annex 1)

²³ Guidance on suitable cleansed demand data is provided in section 5.2 of Annex 1

²⁴ Guidance on the derivation of Security Factors is provided in section 6.6 of Annex 1.

²⁵ Guidance on the Contingency Analysis used in the derivation of Security Factors is provided in section 6.4 of Annex 1.

Exempt System. No charges will be applied by the DNO Party to the boundary settlements data received by the DNO Party, or to the settlements data received in respect of the settlements meter within the Licence Exempt System.

28.4 The tariffs charged in respect of Licence Exempt Systems using Fully Settled and Shared Metering shall be charged to the Supplier of each customer within the Licence Exempt System. To derive the charges there will be a two-step approach as follows:

- The first step will be to use the settlement metering data of each embedded customer within the relevant Licence Exempt System to determine the power flow data at the boundary for both import and export charges. No losses are assumed between the boundary and each embedded customers' premises on the relevant Licence Exempt System.
- The second step will be the allocation of the fixed charge and capacity charge derived under paragraph 28.2 to each embedded customer for both import and export charges for the relevant Licence Exempt System. These will be calculated as follows:

[embedded customer fixed charge in p/day] = [fixed charge at the boundary] x [installed capacity of the embedded customer's Import MPAN or Export MPAN] / [total installed capacity of all embedded customers' Import MPANs and Export MPANs]; and

[embedded customer Import capacity charge in p/kVA/Day] = [Import capacity charge at the boundary] x ([the Import agreed capacity at the boundary] / [total installed capacity of all embedded customers])

[embedded customer Export capacity charge in p/kVA/Day] = [Export capacity charge at the boundary] x ([the Export agreed capacity at the boundary] / [total installed Export capacity of all embedded customers])

28.5 CDCM Tariffs for customers connected to Licence Exempt Systems are determined in accordance with paragraph 88Aa of schedule 16, save that lower voltage elements are excluded as follows:

- where the Licence Exempt System is connected at an EHV/HV substation, the costs associated with the LV customer, LV network, LV substation and HV network levels are excluded;
- where the Licence Exempt System is connected to the EHV network, the costs associated with the LV customer, LV network, LV substation, HV network and EHV/HV levels are excluded;
- where the Licence Exempt System is connected at a 132kV/EHV substation, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV and EHV network levels are excluded;
- where the Licence Exempt System is connected to the 132kV network, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV, EHV network and 132kV/EHV levels are excluded;
- where the Licence Exempt System is connected direct to a GSP, the costs associated with the LV customer, LV network, LV substation, HV network, EHV/HV, EHV network, 132kV/EHV and 132kV network levels are excluded

28.5A Capacity charge elements (p/kVA/day) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the capacity charge by the average kVA per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage as determined under schedule 16.

28.5B Reactive power charge elements (p/kVArh) for half-hourly site-specific settled customers connected to Licence Exempt Systems are allocated to the fixed charge (in p/day) by multiplying the reactive power charge by the average kVArh per customer for an equivalent customer, determined from the DNO Party's volume forecast for the equivalent half-hourly metered tariff at that voltage as determined under schedule 16, and dividing by the number of days in the charging year.

3. DEFINITIONS

In this Schedule 18, unless the context otherwise requires, the expressions below shall have the meanings set out below.

Term	Definition
Active Power	The product of the voltage, current and cosine of the phase angle between them, measured in watts.
Allowed Revenue	The amount of revenue that the DNO Party can earn on its regulated business in accordance the special conditions within the DNO Party's Distribution Licence.
Authorised Network Model	The model that represents the DNO Party's entire EHV network (from the GSP level down to and including the HV busbar at the EHV/HV transformation level), as described in Paragraph 2(f) and section 4 of this Annex 1.
Base Case Analysis	The analysis to determine the utilisation of the Authorised Network Model under Normal Running Arrangements. Note the Base Case Analysis is performed for each demand scenario (the Maximum Demand Scenario and the Minimum Demand Scenario).
Base Case Flows	The power flows in each Branch as determined under Base Case Analysis. Base Case Flow _b is the power flow in Branch b. Note a separate set of Base Case Flows is determined for each demand scenario (the Maximum Demand Scenario and the Minimum Demand Scenario).
Branch	A representation of an asset, collection of assets or part of an asset of the DNO Party's EHV network through which Active Power flows as a consequence of supply to or export from a Connectee or busbar on the DNO Party's HV or EHV networks. A Branch must only be connected

between two Nodes. A Branch should conform to the following:

- there can be more than one Branch between the same two Nodes;
- a three winding transformer may be represented by three Branches (one Branch for each of the windings) configured in a star formation;
- the Active Power flowing out of one end of a Branch should equal the Active Power flowing into the other end of the Branch less any losses within the Branch;
- shunt reactors and capacitors are not Branches;
- earthing transformers, resistors and reactors are not Branches; and
- a Branch may constitute a collection of assets e.g. a circuit constituting overhead lines and cables. When combining assets into a Branch, there is a need to consider the reinforcement solution for the Branch in the next stages for the incremental costing calculation.

Branch Rating The branch ratings selected for the Authorised Network Model should be derived by appropriate consideration of the time of day/ season/ general nature of load profile (i.e. continuous, cyclic etc.) represented within the model.

Bulk Supply Point (BSP) A supply point on the DNO Party's Distribution System representing an EHV/EHV transformation level e.g. 132/33kV.

Charging Year The financial year (12 month period ending on a 31st March) for which charges and credits are being calculated.

Circuit The part of a Distribution System between two or more circuit breakers, switches and/or fuses inclusive. For the

avoidance of doubt a circuit can contain a number of Branches and Nodes. A Circuit may include transformers, reactors, cables and overhead lines. Busbars are not considered as Circuits.

Circuit Branch

A categorisation, used in the derivation of Branch reinforcement costs, for Branches that represent an interconnection (or part of an interconnection) between substations and which operate at a single voltage level.

Connection Node

A Node which is a point of connection to one of the following:

- an Entry Point or the Sole Use Assets connecting the Entry Point; or
- an Exit Point or the Sole Use Assets connecting the Exit Point; or
- the DNO Party's HV network; or
- a Distribution System of another DNO Party or IDNO Party.

Contingency Analysis

The analysis to determine the effect on power flow on the Authorised Network Model under N-1 Contingencies. Note that Contingency Analysis is performed for each demand scenario (the Maximum Demand Scenario and the Minimum Demand Scenario).

Diversity Allowance

The extent, expressed as a percentage, to which the sum of the maximum load across all assets in the modelled network level is expected to exceed the simultaneous maximum load for the network level as a whole.

Diversity Factor

A scaling factor calculated as the ratio of the maximum demand observed at a given location on the network and the aggregate of the individual maximum demands observed at

multiple locations connected downstream (i.e. further from source) of the given location, taking account of losses. Such factors provide a means of recognising that the maximum demands observed at individual locations (e.g. substations at a given voltage level) on a section of network may not be coincident. Details of the calculation of Diversity Factors are set out in section 5.11 (Diversity Factors) of Annex 1.

EDCM	has the meaning given to that expression in Paragraph 1.
EDCM Connectee	means a Connectee whose Connected Installation is a Designated EHV Property as defined in Standard Conditions 50A.11 and 13B.6 of the DNO Party's Distribution Licence.
EHV	Extra High Voltage.
Eligible Bad Debt	means any bad debts with respect to Use of System Charges that the DNO Party can recover in accordance with the DNO Party's Distribution Licence. For the avoidance of doubt, this definition includes the DNO Party's bad debt and bad debt which the DNO Party is recovering on behalf of LDNOs.
Embedded	means connected to a LDNO's Distribution System.
ER P2/6	Energy Network Association's Engineering Recommendation P2/6 which is the planning standard for security of supply to be used by the DNO Parties.
ETR 130	Energy Network Association's Engineering Technical Report 130 which is the Application Guide for assessing the capacity of Distribution Systems to which Generation Installations are connected.
Extra High Voltage (EHV)	Refers to voltages operating at 22kV or higher.

Forecast Business Plan Questionnaire or FBPQ	means the questionnaire that the DNO Party is required to submit under the Regulatory Instructions and Guidance issued by the Authority under the DNO Party's Distribution Licence.
<u>Fully Settled</u>	<u>Where every customer on a Licence Exempt System is to have or has a Supplier, its own MPAN and metering equipment and there is no metering equipment at the boundary between the Distribution System and the Licence Exempt System. The BSC refers to these circumstances as an 'Associated Distribution System'.</u>
Generation Coincidence Factor	A factor which is calculated for each Grid Supply Point (or group of normally interconnected Grid Supply Points) and applied to Network Demand Data (Generation) in the Minimum Demand Scenario, to reflect the coincidence of generation export.
Grid Supply Point (GSP)	A point of supply from the National Electricity Transmission System to the DNO Party's Distribution System.
High Voltage (HV)	Refers to voltages operating above 1000 volts but lower than 22kV.
Incremented Flow Analysis	The analysis to determine the effects of a demand increment or decrement at a Node on each Branch of the Authorised Network Model under Normal Running Arrangements. Note the Incremented Flow Analysis is performed for each demand scenario (the Maximum Demand Scenario and the Minimum Demand Scenario).
Incremented Flows	The new power flows in each Branch as a consequence of the effect of a specified increment of demand at each Node. A separate set of Incremented Flows is produced for each

demand scenario. The specified increment of demand at each Node may be different for each demand scenario. Incremented Flow_{nb} is the new power flow in Branch b as a result of a change of demand at Node n.

Iterative Approach

A numerical approach for the calculation of Incremented Flows. The approach is described in section 0 (Iterative Approach) of Annex 1.

kV

Kilovolt (1,000 Volts): a unit of voltage.

kVA

Kilo Volt Ampere: a unit of network capacity.

kVAr

Kilo Volt Ampere reactive: a unit of reactive power flow.

The network capacity used by a flow of A kW and B kVAr is $\text{SQRT}(A^2+B^2)$ kVA.

kVArh

kVA reactive hour: a unit of total reactive power flow over a period of time. Reactive power meters usually register kVArh.

kW

Kilowatt (1,000 Watts): a unit of power flow.

kWh

Kilowatt hour: a unit of energy. Meters usually register kWh.

LDNO

refers to a licensed distribution network operator, meaning an IDNO Party or a DNO Party operating an electricity distribution system outside of its Distribution Services Area.

Long Term Development Statement (LTDS)

The Long Term Development Statement as detailed by Licence Condition 25 of the Distribution Licences.

LRIC

Has the meaning given to that expression in Paragraph 0.

LV

Nominal voltages of less than 1kV.

Maximum Contingency Flows	The maximum power flows in each Branch as determined under Contingency Analysis. Maximum Contingency Flowb is the maximum power flow in Branch b under all N-1 Contingencies for the demand scenario. Note a separate set of Maximum Contingency Flows is determined for each demand scenario (the Maximum Demand Scenario and the Minimum Demand Scenario).
Maximum Demand Data	The Network Demand Data that is applied to the Maximum Demand Scenario. The construction of Maximum Demand Data is described in section 0 (Maximum Demand Data for the Authorised Network Model) of Annex 1.
Maximum Demand Scenario	The analysis scenario of the Authorised Network Model populated with demands that reflect maximum loading conditions.
Minimum Demand Data	The Network Demand Data that is applied to the Minimum Demand Scenario. The construction of Minimum Demand Data is described in section 0 (Minimum Demand Data for the Authorised Network Model) of Annex 1.
Minimum Demand Scenario	The analysis scenario of the Authorised Network Model populated with demands that reflect minimum loading conditions.
MVA	Mega Volt Ampere (1,000 kVA): a unit of network capacity.
MW	Megawatt (1,000 kW): a unit of power flow.
MWh	Megawatt hour (1,000 kWh): a unit of energy. Energy trading is usually conducted in MWh.
N-1 Contingency	An N-1 Contingency considers an N-1 Event occurring on the Authorised Network Model and models the

consequential network actions and where appropriate constraints on Connectee demands to ensure that the flow on each Branch is within its rated capacity and so is ER P2/6 compliant.

N-1 Event

An N-1 Event is a First Circuit Outage (FCO) as explained in ER P2/6. It signifies a fault or arranged outage on the network which would result in a section of the network defined by the relevant protection scheme to sectionalise and isolate the faulty section, or isolate the section to be worked on for maintenance, resulting in zero power flow in the affected network. N-1 Events should consider an outage of a complete Circuit and only consider faults or arranged outages occurring with the network initially running under Normal Running Arrangements.

**National
Electricity
Transmission
System**

Has the meaning given to that expression in the CUSC

**Negative Load
Injection**

Negative Load Injection is a negative value of load calculated and applied to a source substation within the network model to represent the effects of diversity between associated downstream demands upon the actual demand observed at the source substation.

**Net Diversity
Factor**

A scaling factor that represents the diversity between the maximum demands observed at substations at different levels of a network, which may be derived by multiplying Diversity Factors representing the diversity between interim levels.

network

This is a reference to the DNO Party's Distribution System, or to a particular part of that Distribution System.

Network Demand Data	<p>This is the load and generation which is used to populate the Authorised Network Model. Network Demand Data is constructed of Network Demand Data (Load) and Network Demand Data (Generation). A description of Network Demand Data is given in section 5 of (Network Demand Data) of Annex 1.</p>
Network Demand Data (Generation)	<p>Generation export applied within the Authorised Network Model at Nodes representing the Entry Point for each EDCM Connectee with an agreed Maximum Export Capacity, factored according to ER P2/6 or coincidence with other generation export, where appropriate.</p>
Network Demand Data (Load)	<p>The load applied within the Authorised Network Model at Nodes representing the Exit Point for each EDCM Connectee and/or the lower voltage busbars at each EHV/HV substation.</p>
network level	<p>The network is modelled as a stack of circuit and transformation levels between supplies at LV and the National Electricity Transmission System. A network level is any circuit or transformation level in that stack. An additional network level is used for transmission exit.</p>
Node	<p>A representation of a point on the DNO Party's EHV network that is a point of connection between a Branch and one or more of the following:</p> <ul style="list-style-type: none">• another Branch; or• an Entry Point or the Sole Use Assets connecting the Entry Point; or• an Exit Point or the Sole Use Assets connecting the Exit Point; or• the DNO Party's HV network; or

- the Distribution System of another DNO Party or IDNO Party; or
- the National Electricity Transmission System,
- and “Nodal” shall be construed accordingly.

Non-Final Demand Site	as defined in Schedule 32
Normal Running Arrangements	The DNO Party’s network with no system outages i.e. with no planned outages (e.g. for maintenance) and no unplanned outages (e.g. subsequent to a fault).
Off-Peak Charge	The Nodal marginal charge (£/kVA/annum) calculated for the Minimum Demand Scenario. The calculation of this Nodal marginal charge is discussed in section 8 (Output results) of Annex 1.
Peak Charge	The Nodal marginal charge (£/kVA/annum) calculated for the Maximum Demand Scenario. The calculation of this Nodal marginal charge is discussed in section 8 (Output results) of Annex 1.
Point of Common Coupling	The Point of Common Coupling for a particular single Connectee is the point on the network where the power flow associated with the single Connectee under consideration, may under some (or all) possible arrangements interact with the power flows associated with other Connectees, taking into account all possible credible running arrangements.
Power factor	The ratio of energy transported (kW) to network capacity used (kVA).
Portfolio tariff	A tariff for use of the network by another DNO/IDNO Party where charges are linked to flows out of/into the

other DNO/IDNO Party's network from its Connectees or further nested networks.

Reactive Power	The product of the voltage and current and the sine of the phase angle between them, measured in units of voltamperes reactive.
Recovery Factor	A factor which is applied to the Branch incremental costs to limit the level of Branch cost recovery to being no greater than the actual reinforcement cost of the Branch.
Regulatory Year	Has the meaning given to that expression in the DNO Party's Distribution Licence.
RRP	Regulatory reporting pack, a dataset produced each year by each DNO Party for the Authority.
Scaling Factor	A factor which is calculated for each Grid Supply Point (or group of normally interconnected Grid Supply Points) to calculate the Network Demand Data (Load) element of the Minimum Demand Data.
Security Factor	These describe the change in utilisation of Branches between the Maximum Contingency Flows determined by Contingency Analysis and the Base Case Flows determined by Base Case Analysis. Section 0 (Security Factor Calculation) of Annex 1 describes how Security Factors are calculated.
Sensitivity Coefficients Approach	An analytical approach for the calculation of Incremented Flows, which approach is described in section 0 (Sensitivity Coefficients Approach) of Annex 1.
Seven Year Statement	This is the statement of that name required to be produced by the National Electricity Transmission System Operator under its Licence in respect of the whole of Great Britain.

The statement includes information on demand, generation, plant margins, the characteristics of the existing and planned National Electricity Transmission System, its expected performance and capability now and in the future.

Shared Metering

Where meter readings recorded by Settlement metering equipment at the boundary between the Distribution System and the Licence Exempt System are apportioned between Suppliers based on readings from non-Settlement meters on a Licence Exempt System.

Sole Use Assets

Sole Use Assets are assets in which only the consumption or output associated with a single Connectee can directly alter the power flow in the asset, taking into consideration all possible credible running arrangements, i.e. all assets between the Connectee's Entry/Exit Point(s) and the Point(s) of Common Coupling with the general network.

Supplier of Last Resort

a supply licensee to which a Last Resort Supply Direction applies, where Last Resort Supply Direction has the meaning given to that expression in the Supply Licence.

System simultaneous maximum load

The maximum load for the GSP Group as a whole.

Transformer Branch

A categorisation used in the derivation of Branch reinforcement costs, for Branches that represent transformation between different voltage levels.

unit

Where the context permits, the word unit refers to kWh.

unit rate

A charging or payment rate based on units distributed or units generated. Unit rates are expressed in p/kWh. Tariffs applied to multi-rate meters and/or using several time bands for charging have several unit rates.

²⁷ Distributors should use the specifications and costs of similar, past reinforcement projects as a means for determining the requirements and costs of a particular future reinforcement project.

Amend Paragraph 4.1 of Schedule 19

4. MPAN REPORT

4.1 On or before the 15th day of each month, the EDNO shall send to the DNO Party a list of the EDNO's MPANs for half-hourly settled Connectees, together with the following information (in separate columns) for each such MPAN (as at the start of that month):

(a) its trading status;

(b) the date from which such trading status has been effective;

(c) its energisation status; ~~and~~

(d) the date from which such energisation status has been effective;

(e) its Meter Timeswitch Code; and

(f) the date from which such Meter Timeswitch Code has been effective.

4.2. Where there are no half-hourly-settled Connectees, the EDNO shall submit a nil return.

