

## SCHEDULE 2D – CURTAILABLE CONNECTIONS

### 1. SCOPE

- 1.1 This Schedule sets out the methodology for defining curtailable access arrangements (i.e. a Curtailable Connection); specifically:
- (a) how the Company will determine the Curtailment Limit;
  - (b) how the Company will measure Curtailment;
  - (c) reporting requirements on the Company to Customers regarding their Curtailable Connections;
  - (d) measures to be taken by the Company to avoid exceeding the Curtailment Limit, and what happens if the Company exceeds the Curtailment Limit;
  - (e) how the Exceeded Curtailment Price is determined; and
  - (f) end dates for converting a Curtailable Connection into a Non-Curtailable Connection.
- 1.2 This Schedule applies only to DNO/IDNO Parties (each of which is referred to in this Schedule as the Company).
- 1.3 This Schedule does not apply to connection offers for: (a) domestic and non-domestic Customers that are billed on an aggregated and non-site-specific basis or who are metered directly using whole current meters; or (b) Unmetered Supplies.
- 1.4 A Curtailable Connection will only be offered where the Company has identified a requirement for Reinforcement to facilitate provision of the requested connection, and where the Curtailment will provide a network benefit. Reinforcement required solely for fault level and reactive power requirements is not suitable for a Curtailable Connection, because the Curtailment would not provide any network benefit.
- 1.5 When offering a Curtailable Connection, the Company will also provide (if not provided already) the supporting information on the expected costs of a Non-Curtailable Connection.

## **2. SETTING THE CURTAILMENT LIMIT**

- 2.1 Unless otherwise directed by the Authority, the Import Curtailment Limit and Export Curtailment Limit will be determined by assessing the parts of the existing Distribution System that require reinforcement under the Minimum Scheme, in accordance with Paragraphs 2.3 to 2.8.
- 2.2 If the Authority directs the Company to use an alternative approach to determine either the Import Curtailment Limit and/or the Export Curtailment Limit for a Customer, then the Company shall provide to the Customer details of the methodology and data used in the calculation.

### **Input data**

- 2.3 The following data shall be used for the calculation of the Curtailment Limit.
- (a) Profile data (in/converted to kVA based on an assumed 0.95 power factor) relating to the most recent 12 months of available data, including:
- (i) annual half-hourly observed/measured data from the asset to be reinforced;
  - (ii) half-hourly metered data from generation connected to or downstream of the asset to be reinforced;
  - (iii) half-hourly representative daylight profile (1 to signify day, 0 to signify night) for the asset to be reinforced; and
  - (iv) half-hourly data from battery storage connected to or downstream of the asset to be reinforced,
- or equivalent data from other sources. The Company shall correct for missing data, erroneously shown negative values and abnormal running arrangements and/or similar anomalies. Where data for the asset is not available, data from the following shall be used (A) the feeding primary substation for HV and LV assets, (B) the relevant bulk supply point for 33kV and 66kV assets, and (C) the relevant grid supply point data for 132kV assets.
- (b) For a Demand Connection, the following data (in kVA unless otherwise stated) shall also be used for the calculation of the Import Curtailment Limit:

- (i) Network Asset Demand Capacity, being the capacity based on the Company's assessment of the thermal ratings, voltage change and upstream restrictions and compliance with its relevant design, planning and security of supply policies;
- (ii) Inflight Demand Acceptances, being the aggregated Maximum Import Capacity of all connection offers that utilise the asset being assessed but have yet to be connected/energised and hence are not included in the current maximum demand;
- (iii) Largest Inflight Demand Offers, being the aggregate Maximum Import Capacity of the two largest connection offers that utilise the asset being assessed that have been issued to a Customer but have yet to be accepted;
- (iv) Other Inflight Demand Offers, being the aggregated Maximum Import Capacity of all other connection offers that utilise the asset being assessed that have been issued to a Customer but have yet to be accepted;
- (v) Demand Confidence Factor, being a confidence factor representing the likelihood of the Other Inflight Demand Offers being accepted by Customers, which has the value 50%; and
- (vi) New Demand Connection Capacity, being the requested Maximum Import Capacity of the connection for which the Curtailment Limit is being calculated.

However, for meshed networks, the figures applying under sub-paragraphs (ii), (iii), (iv) and (vi) above may be adjusted by a factor determined through power flow analysis to reflect the extent the asset being assessed is utilised by these connections.

- (c) For a Generation Connection, the following data (in kVA unless otherwise stated) shall also be used for the calculation of the Export Curtailment Limit:
  - (i) Network Asset Generation Capacity, being the capacity based on the Company's assessment of the thermal ratings, voltage change and upstream restrictions and compliance with its relevant design, planning and security of supply policies;

- (ii) Inflight Generation Acceptances, being the aggregated Maximum Export Capacity of all connections offers that utilise the asset being assessed but have yet to be connected/energised and hence are not included in the current maximum generation/minimum demand. The aggregated values shall be categorised as either PV Generation or Non-PV Generation;
- (iii) Largest Inflight Generation Offers, being the aggregate Maximum Export Capacity of the two largest connection offers that utilise the asset being assessed that have been issued to a Customer but not have to be accepted. The aggregated values shall be categorised as either PV Generation or Non-PV Generation;
- (iv) Other Inflight Generation Offers, being the aggregated Maximum Export Capacity of all other connection offers that utilise the asset being assessed that have been issued to a Customer but have yet to be accepted. The aggregated values shall be categorised as either PV Generation or Non-PV Generation;
- (v) Generation Confidence Factor, being a confidence factor representing the likelihood of the Other Inflight Generation Offers being accepted by the Customers, which has the value 50%; and
- (vi) New Generation Connection Capacity, being the requested Maximum Export Capacity of the connection for which the Curtailment Limit is being calculated. This shall be categorised as either PV Generation or Non-PV Generation.

However, for meshed networks, the figures applying under sub-paragraphs (ii), (iii), (iv) and (vi) may be adjusted by a factor determined through power flow analysis to reflect the extent the asset being assessed is utilised by these connections.

- (d) Curtailment Threshold, being the percentage of the Network Asset Demand Capacity or Network Asset Generation Capacity, which, if exceeded by the Committed Demand Capacity or Committed Generation Capacity, will determine the number of hours where curtailment may be required, which is set at 95%.

## Calculating the Import Curtailment Limit

2.4 The following process shall be used for the calculation of the Import Curtailment Limit.

- (a) The underlying true demand will be assessed as follows:
  - (i) Take the annual half-hourly observed/measured data, from the asset as calculated in accordance with Paragraph 2.3(a)(i).
  - (ii) Adjust for 'latent demand' by subtracting data from half-hourly metered generation (negative values) connected to the asset as provided in accordance with Paragraph 2.3(a)(ii).
  - (iii) This gives annual half-hourly true (gross) demand profile. For cases where this demand profile is not available at the asset in question (for example, because it is available at substation level and not at circuits supplied by that substation), the true (gross) demand profile can be scaled to the expected maximum and minimum true demand of the asset in question.
  - (iv) Take this true (gross) demand profile, and subtract the import data for half-hourly battery storage connected to the asset (provided in accordance with Paragraph 2.3(a)(iv)) to calculate the underlying true demand profile (baseline).
  - (v) Adjust for battery storage (if any) that currently utilises the asset to be reinforced by adding the maximum import from the import data for half-hourly battery storage connected to the asset (provided in accordance with Paragraph 2.3(a)(iv)). This is added to the underlying true demand profile (baseline) as a continuous constant profile.
- (b) The underlying true demand profile calculated under Paragraph (v) is then sorted in descending order to produce the underlying true demand duration curve.
- (c) Calculate the Committed Demand Capacity for each half-hour as follows:
  - (i) Take the adjusted demand duration curve under Paragraph 2.4(b).
  - (ii) Add the Maximum Import Capacity of Inflight Demand Acceptances and the Largest Inflight Demand Offers, plus the Other Inflight Demand

Offers multiplied by the Demand Confidence Factor (as each such expression is defined in Paragraph 2.3(b)).

- (iii) Add the Maximum Import Capacity of the new connection for which the Curtailment Limit is being calculated.
  - (iv) The sum of (i) to (iii) above is then divided by the Network Asset Demand Capacity to represent it as a percentage of the firm capacity of the asset.
- (d) The Import Curtailment Limit will be determined by assessing the number of hours for which demand exceeds the capacity threshold as follows:
- (i) Quantify the number of hours that the Committed Demand Capacity relative to the Network Asset Demand Capacity exceeds the Curtailment Threshold.
  - (ii) If the true demand profile does not correspond to a whole year, the calculated hours from the previous step is divided by the number of hours in the true demand profile to determine the percentage curtailed. This is then multiplied by 8760 to determine an annual figure for the Import Curtailment Limit.
- (e) Where multiple assets require reinforcement, the Import Curtailment Limit for each asset will be calculated and the largest value so calculated will be used as the Import Curtailment Limit.

### **Calculating the Export Curtailment Limit**

2.5 The Export Curtailment Limit will be calculated as follows.

- (a) Assessment of underlying generation:
  - (i) Take the underlying true demand profile (baseline) as calculated in accordance with Paragraph 2.4(a)(iv) and add in the annual half-hourly generation from assets (generation is treated as negative values) as provided under with Paragraph 2.3(a)(ii). The generation data may need to be scaled to the expected output of the generation where this profile is not available at the asset in question (for example, because it is available at substation level and not at circuits supplied by that substation), in which

case the generation profile can be scaled to the expected maximum gross generation (excluding battery charging) of the asset in question.

- (ii) This gives annual half-hourly generation profile without the effects of battery charging.
- (b) The Committed Generation Capacity will then be calculated as follows:
- (i) Take the generation profile determined under Paragraph 2.5(a)(ii).
  - (ii) Add the Maximum Export Capacity (expressed as a negative value) of Inflight Generation Acceptances and the Largest Inflight Generation Offers, plus the Other Inflight Generation Offers multiplied by the Generation Confidence Factor (as each such expression is defined in Paragraph 2.3(c)). PV Generation is only added to half-hourly periods where it is daylight by multiplying the PV Generation data by the representative daylight profile provided under Paragraph 2.3(a)(iii).
  - (iii) Add the Maximum Export Capacity (expressed as a negative value) of the connection for which the Curtailment Limit is being calculated. PV Generation is only added to half-hourly periods where it is daylight by multiplying the PV Generation data by the representative daylight profile provided under Paragraph 2.3(a)(iii).
  - (iv) The sum of (i) to (iii) above is then divided by the Network Asset Generation Capacity to represent it as a percentage of the firm capacity of the asset.
- (c) The Committed Generation Capacity as a percentage of the Network Asset Generation Capacity calculated under Paragraph 2.5(b)(iv) is then sorted in descending order to produce the committed generation duration curve.
- (d) The Export Curtailment Limit is determined by assessing the number of hours reverse power flows exceed the capacity threshold, as follows:
- (i) Quantify the number of hours that the Committed Generation Capacity relative to the Network Asset Generation Capacity exceeds the Curtailment Threshold.
  - (ii) If the generation profile (excluding battery charging) does not correspond to a whole year, the calculated hours from the previous step is divided by

the number of hours in the profile to determine the percentage curtailed. This is then multiplied by 8760 to determine an annual figure for the Export Curtailment Limit.

- (e) Where multiple assets require reinforcement, the Export Curtailment Limit for each asset will be calculated and largest value used for the Export Curtailment Limit.

### **General**

- 2.6 The Curtailment Limit(s) applying to a connection offer (and to the Curtailable Connection Agreement pursuant to that offer) will not be recalculated once the connection offer has been issued to the Customer; unless there has been material change in circumstances and both the Company and the Customer agree to the recalculation or the Authority directs that a different Curtailment Limit is to be used. Where the Company and Customer cannot agree, the matter should be resolved through the disputes process set out in the Curtailable Connection Agreement.
- 2.7 A worked example of a calculation modelling tool will be published and made available on the Website.
- 2.8 The Company may use whatever software tool it chooses providing it gives the same answer as the tool described in Paragraph 2.7. The Company should make available data used in its calculations when requested by the Customer.

## **3. MEASURING CURTAILMENT**

### **Quarterly Reporting**

- 3.1 The Full Import Curtailment Hours for each Curtailable Connection shall be calculated as follows at the end of each Quarter for that Quarter and the previous three Quarters (i.e., a rolling four Quarters):

$$= \sum_{i=1}^n di_i \times civ_i \div cic$$

where,



$d_i$  = the duration of each period of Curtailment (in hours, partial or full) determined from the time at which the Company instructs the Customer to Curtail its Maximum Import Capacity to the time at which the Company notifies the Customer that there is no longer a requirement to Curtail;

$n$  = the number of Curtailment instructions in those four Quarters;

$civ$  = the Curtailment Instruction Value for each Curtailment instruction; and

$cic$  = the Curtailable Import Capacity.

- 3.2 The Full Export Curtailment Hours for each Curtailable Connection shall be calculated as follows at the end of each Quarter for that Quarter and the previous three Quarters (i.e., a rolling four Quarters):

$$= \sum_{i=1}^n de_i \times civ_i \div cec$$

where,

$de$  = the duration of each period of Curtailment (in hours, partial or in full) determined from the time at which the Company instructs the Customer to Curtail its Maximum Export Capacity to the time at which the Company notifies the Customer that there is no longer a requirement to Curtail;

$n$  = the number of Curtailment instructions in those four Quarters;

$civ$  = the Curtailment Instruction Value for each Curtailment instruction; and

$cec$  = the Curtailable Export Capacity.

### **Annual Payment**

- 3.3 At the end of every fourth Quarter (ending after energisation of the connection), if the Full Import Curtailment Hours exceed the Import Curtailment Limit, then the Company shall make a payment to the Customer (within 30 days following the end of such fourth Quarter), with the payment amount calculated as follows:

$$= (fich - icl) \times cic \times eicp$$

where,

fich = the Full Import Curtailment Hours;

icl = the Import Curtailment Limit;

cic = Curtable Import Capacity (MVA); and

eicp = the Exceeded Import Curtailment Price at the end of such fourth Quarter.

- 3.4 At the end of every fourth Quarter (ending after energisation of the connection), if the Full Export Curtailment Hours exceeds the Export Curtailment Limit, then the Company shall make a payment to the Customer (within 30 days following the end of such fourth Quarter), with the payment amount calculated as follows:

$$= (fech - ecl) \times cec \times eecp$$

where,

fech = the Full Export Curtailment Hours;

ecl = the Export Curtailment Limit;

cec = Curtable Export Capacity (MVA); and

eecp = the Exceeded Export Curtailment Price at the end of such fourth Quarter.

#### **4. CURTAILMENT REPORTING**

- 4.1 Where a Customer has been subject to Curtailment within a Quarter, the Company shall notify the Customer of the number of Full Import Curtailment Hours and/or Full Export Curtailment Hours that the Customer has been instructed to make.
- 4.2 Each such notification shall be made within 30 days after the end of the Quarter, and shall include:

- (a) each period of Curtailment during the Quarter (with start and end dates and times); and
- (b) the applicable Exceeded Curtailment Price.

## **5. EXCEEDING CURTAILMENT LIMITS**

- 5.1 The Company shall use reasonable endeavours to provide the required network capacity or procure Distribution Flexibility Services such that the Full Import Curtailment Hours do not exceed the Import Curtailment Limit and the Full Export Curtailment Hours do not exceed the Export Curtailment Limit.
- 5.2 The Company shall use reasonable endeavours to notify the Customer in advance if it appears likely that the Full Import Curtailment Hours and/or Full Export Curtailment Hours will exceed the Import Curtailment Limit and/or Export Curtailment Limit respectively.
- 5.3 If the Company fails to notify a Customer in advance, the Company shall use reasonable endeavours to notify the Customer as soon as reasonably possible after the event.

## **6. EXCEEDED CURTAILMENT PRICE**

- 6.1 Unless otherwise directed by the Authority, the Exceeded Import Curtailment Price and Exceeded Export Curtailment Price shall be determined by the Company in accordance with this Paragraph 6.
- 6.2 The Exceeded Import Curtailment Price applies to demand turn down/generation turn up and the Exceeded Export Curtailment Price applies to demand turn up/generation turn down.
- 6.3 An IDNO Party should use the Exceeded Import Curtailment Price and the Exceeded Export Curtailment Price determined by the DNO Party in whose Distribution Services Area a Customer is seeking to connect to the Distribution System of that IDNO Party.

### **Market prices for flexibility**

- 6.4 From 1 April 2023, and then by the first Working Day of each April and October thereafter, each DNO Party shall determine the Flexibility Market Import Price (in £/MWh) and the Flexibility Market Export Price (in £/MWh).

- 6.5 The Flexibility Market Import Price shall be one of the following (as applicable):
- (a) the highest contracted price for pre-fault Distribution Flexibility Services, for demand turn down/generation turn up, under contracts (if any) entered into by the DNO Party for delivery in the current Regulatory Year (at the time of setting the price) or in the two previous Regulatory Years (subject to Paragraph 6.7); or
  - (b) if (within the period referred to in Paragraph 6.5(a)) the DNO Party has not entered into a contract for pre-fault Distribution Flexibility Services for demand turn down/generation turn up but has issued and published tenders for Distribution Flexibility Services for those requirements, then the Flexibility Market Import Price shall be the highest maximum utilisation price from those tenders (subject to Paragraph 6.7); or
  - (c) if neither (a) nor (b) above apply, then the Flexibility Market Import Price shall be zero.
- 6.6 The Flexibility Market Export Price shall be one of the following (as applicable):
- (a) the highest contracted price for pre-fault Distribution Flexibility Services, demand turn up/generation turn down, under contracts (if any) entered into by the DNO Party for delivery in the current Regulatory Year (at the time of setting the price) or in the two previous Regulatory Years (subject to Paragraph 6.7); or
  - (b) if (within the period referred to in Paragraph 6.6(a)) the DNO Party has not entered into a contract for pre-fault Distribution Flexibility Services for demand turn up/generation turn down but has issued and published tenders for Distribution Flexibility Services for those requirements, then the Flexibility Market Export Price shall be the highest maximum utilisation price from those tenders (subject to Paragraph 6.7); or
  - (c) if neither (a) nor (b) above apply, then the Flexibility Market Export Price shall be equal to the Flexibility Market Import Price.
- 6.7 In making any assessment under Paragraph 6.5 or 6.6, the DNO Party shall exclude any prices that are equal to or greater than the Outlier Import Threshold or Outlier Export Threshold, respectively. The Outlier Import Threshold and Outlier Export Threshold shall be the lowest of the prices contained within the Flexibility Market Import Price

Data or Flexibility Market Export Price Data (respectively, and determined separately) that meets all the following criteria:

- (a) the price is greater than the 95<sup>th</sup> percentile when the price data is arranged in descending price order;
- (b) the price is more than 20% greater than the next lowest unique value in the price data; and
- (c) the volume (in MW) associated with the price (in aggregate with any other prices caught within the threshold) is less than 5% of the total aggregated volume (in MW) covered by all of the prices.

### **Flexibility Market Price Statement**

6.8 By the fifth Working Day of April and October in each year, each DNO Party shall provide to the Secretariat a completed version of the table in Appendix A (the Flexibility Market Price Statement) to this Schedule showing:

- (a) the Flexibility Market Import Price and Flexibility Market Export Price which will apply to the 6 months from such April or October (converted to £/MVAh and uplifted in accordance with Paragraph 6.12(a)); and
- (b) the Flexibility Market Import Price Data and Flexibility Market Export Price Data used in calculating such prices.

6.9 The Secretariat shall, within three Workings Days of receiving each Flexibility Market Price Statement, publish the Flexibility Market Price Statement on the Website.

### **Cost of reinforcement**

6.10 The Reinforcement Cost is identified in the Minimum Scheme at the voltage of the Point of Connection and the voltage above, less any contribution by the Customer for costs in excess of the high-cost project threshold. This is converted to a £/MVA by dividing by the requested Maximum Import Capacity or Maximum Export Capacity as applicable.

6.11 The annualised Reinforcement Cost per MVA is converted to £/MVAh using the formula:

$$\frac{\text{Reinforcement Cost (£ per MVA per year)} \times \text{Pseudo Load Coefficient}}{\text{hours in year}}$$

where the Pseudo Load Coefficient is determined in accordance with paragraph 70(c) of Schedule 16 (Common Distribution Charging Methodology), and the Pseudo Load Coefficient for the HV Site Specific tariff shall be used for this purpose.

### **Exceeded Curtailment Price**

6.12 The Company's Exceeded Import Curtailment Price and Exceeded Export Curtailment Price for each period of 6 months starting with April or October shall be (subject to Paragraph 6.3):

- (a) the applicable Flexibility Market Import Price and Flexibility Market Export Price (respectively), converted to £/MVAh by dividing by an assumed 0.95 power factor, and then multiplied by 1.2; or
- (b) where such Flexibility Market Import Price or Flexibility Market Export Price (as applicable) is zero, then the Cost of Reinforcement determined under Paragraph 6.11 multiplied by 1.2.

## **7. CURTAILABLE CONNECTION END DATES**

7.1 Subject to Paragraph 7.2, the Curtailment End Date will be the date on which the Customer and the Company agree to make the Curtailable Connection a Non-Curtailable Connection.

7.2 The Company may amend the Curtailment End Date to such reasonable date as the Company may specify in a written notice to the Customer; always provided that the Company gives such notice to the Customer within a reasonable period of time after the Company becomes aware of any of the circumstances necessitating such amendment (as described in Paragraph 7.3).

7.3 The circumstances described in Paragraph 7.2 are as follows:

- (a) severe weather conditions that either of themselves prevent the Company from carrying out the requisite work or (being of any of the categories 1, 2 or 3 of severity as defined in the Electricity (Standards of Performance) Regulations

2015), cause the Company (acting reasonably) to postpone pre-planned works in order to restore supplies to Customers as quickly as possible;

- (b) a network system emergency that causes the Company (acting reasonably) to redirect its resources and thereby prevents it from completing any action required to convert the Curtailable Connection to a Non-Curtailable Connection;
- (c) an inability to undertake live working on the Distribution System because of compliance with safety procedures in circumstances where the Company would normally expect to undertake such working and where this restriction has a material impact on the timescale for completion of the works needed to convert the Curtailable Connection to a Non-Curtailable Connection;
- (d) delays imposed by a requirement to obtain a notice and/or permit for street works under the Traffic Management Act 2004 or the New Roads and Street Works Act 1991;
- (e) delays in obtaining any necessary consents or rights, and/or in acquiring any necessary interest in land, in relation to the location of electric lines and electrical plant needed to provide the Non-Curtailable Connection;
- (f) that works that are stated in the accepted connection offer needed to convert the Curtailable Connection to a Non-Curtailable Connection to be prerequisite to the commencement or completion (as appropriate) of the works needed to convert the Curtailable Connection to a Non-Curtailable Connection, and that are not the responsibility of the Company, have not been completed in the agreed manner or within the time agreed; and
- (g) that any other matters stated in the accepted connection offer needed to convert the Curtailable Connection to a Non-Curtailable Connection to be prerequisite to the commencement or completion (as appropriate) of the works needed to convert the Curtailable Connection to a Non-Curtailable Connection, and that are not the responsibility of the Company, have not been satisfied in the manner or within the time envisaged by the accepted offer.

7.4 If the Customer does not request a Non-Curtailable Connection, or does not accept the cost of converting the Curtailable Connection to a Non-Curtailable Connection, the Connection shall continue to be a Curtailable Connection until such a time as the

Customer requests a Non-Curtailable Connection and accepts the cost of converting the Curtailable Connection to a Non-Curtailable Connection.

## **8. CURTAILABLE CONNECTION AGREEMENT**

- 8.1 The Company must use the form of agreement set out in Appendix B when entering into a contract for the ongoing provision of a Curtailable Connection, unless otherwise agreed with the Customer.

## **9. DEFINITIONS**

- 9.1 Words beginning with a capital letter that are not otherwise defined in this Schedule have the meanings given to them in Clause 1 of the main body of this Agreement, and the rules of interpretation set out in that Clause 1 also apply.
- 9.2 In this Schedule, unless the context otherwise requires, the expressions below shall have the meanings set out below:

<b>Committed Demand Capacity</b>	is calculated in accordance with Paragraph 2.4(c).
<b>Committed Generation Capacity</b>	is calculated in accordance with Paragraph 2.5(c).
<b>Company</b>	means a DNO/IDNO Party.
<b>Connection Point</b>	means an Exit Point or Entry Point.
<b>Curtail/Curtailment</b>	means any action taken by the Company to restrict the flow of electricity at the Connection Point, except where that restriction is caused by: (a) an Interruption to the Customer's supply; and/or (b) curtailment as a result of constraints on the transmission network.
<b>Curtailable Connection</b>	means a connection to the Company's Distribution System which is made on the basis that it is expressly



	subject to Curtailment (and for which the connection application was received on or after 1 April 2023).
<b>Curtailable Connection Agreement</b>	means an agreement between the Company and a Customer on the terms set out in Appendix 2.
<b>Curtailable Export Capacity</b>	means the Maximum Export Capacity less the Non-Curtailable Export Capacity.
<b>Curtailable Import Capacity</b>	means the Maximum Import Capacity less the Non-Curtailable Import Capacity.
<b>Curtailment End Date</b>	means the date (if any) from which the Company has agreed to make the Curtailable Connection a Non-Curtailable Connection (subject to amendment in accordance with Paragraph 7.2).
<b>Curtailment Instruction Value</b>	means the value by which the Company instructs the Customer to limit their Maximum Import Capacity or Maximum Export Capacity. This cannot be greater than the Curtailable Import Capacity or Curtailable Export Capacity (as applicable).
<b>Curtailment Limit</b>	means Import Curtailment Limit and/or Export Curtailment Limit.
<b>Customer</b>	means an owner or occupier of premises whose premises are (or are required to be) connected to the Company's Distribution System (whether for the purposes of receiving a supply of electricity and/or exporting electricity), and includes an electricity supplier when acting on behalf of such an owner/occupier.
<b>Demand Connection</b>	has the meaning given to it in Schedule 22 (Common Connection Charging Methodology).

<b>Distribution Flexibility Services</b>	has the meaning given to that term in the Distribution Licence.
<b>Exceeded Curtailment Price</b>	means the Exceeded Import Curtailment Price and/or Exceeded Export Curtailment Price.
<b>Exceeded Export Curtailment Price</b>	means the price calculated in accordance with Paragraph 6.12. For the purposes of calculating any payments under Paragraph 3, the Company shall use the price applying at the end of the four-Quarter period to which the payment applies.
<b>Exceeded Import Curtailment Price</b>	means the price calculated in accordance with Paragraph 6.12. For the purposes of calculating any payments under Paragraph 3, the Company shall use the price applying at the end of the four-Quarter period to which the payment applies.
<b>Export Curtailment Limit</b>	means the number of full hours per annum (measured over a twelve-month period) during which the Customer could be required to reduce its Maximum Export Capacity to the Non-Curtailable Export Capacity.
<b>Flexibility Market Export Price</b>	means the value calculated in accordance with Paragraph 6.6.
<b>Flexibility Market Import Price</b>	means the value calculated in accordance with Paragraph 6.5.
<b>Flexibility Market Export Price Data</b>	means either: (a) the prices referred to in Paragraph 6.5(a) (if any); or (b) if there are no such prices, the prices referred to in Paragraph 6.6(b).
<b>Flexibility Market Import Price Data</b>	means either: (a) the prices referred to in Paragraph 6.6(a) (if any); or (b) if there are no such prices, the prices referred to in Paragraph 6.5(b).

<b>Full Export Curtailment Hours</b>	means the value calculated in accordance with Paragraph 3.2.
<b>Full Import Curtailment Hours</b>	means the value calculated in accordance with Paragraph 3.1.
<b>Generation Connection</b>	has the meaning given to it in Schedule 22 (Common Connection Charging Methodology).
<b>Import Curtailment Limit</b>	means, the number of full hours per annum (measured over a twelve-month period) during which the Customer could be required to reduce its Maximum Import Capacity to the Non-Curtailable Import Capacity.
<b>Interruption</b>	has the meanings given to it in Annex F of the Regulatory Instructions and Guidance under the Distribution Licences of the DNO Parties.
<b>Minimum Scheme</b>	has the meaning given to it in Schedule 22 (Common Connection Charging Methodology).
<b>Network Asset Demand Capacity</b>	has the meaning given to it in Paragraph 2.3(b).
<b>Network Asset Generation Capacity</b>	has the meaning given to it in Paragraph 2.3(c).
<b>Non-Curtailable Connection</b>	means a connection which is not a Curtailable Connection.
<b>Non-Curtailable Connection Offer</b>	means an offer provided by the Company to provide a Non-Curtailable Connection.
<b>Non-Curtailable Export Capacity</b>	means the amount of export capacity (expressed in kW or kVA) which the Customer is permitted to use that is not subject to Curtailment. This is determined as the amount

	of capacity which can be connected at the Point of Connection without the need for network Reinforcement.
<b>Non-Curtailable Import Capacity</b>	means the amount of import capacity (expressed in kW or kVA) which the Customer is permitted to use that is not subject to Curtailment. This is determined as the amount of capacity which can be connected at the Point of Connection without the need for network Reinforcement.
<b>Non-PV Generation</b>	means electricity generation other than PV Generation.
<b>Outlier Import Threshold</b>	means the value calculated in accordance with Paragraph 6.7.
<b>Outlier Export Threshold</b>	means the value calculated in accordance with Paragraph 6.7.
<b>Point of Connection</b>	has the meaning given to it in Schedule 22 (Common Connection Charging Methodology).
<b>PV Generation</b>	means electricity generation from solar PV which can only export onto the Distribution System during hours of daylight (i.e. it is not combined with a storage capability).
<b>Reinforcement</b>	has the meaning given to it in Schedule 22 (Common Connection Charging Methodology).
<b>Reinforcement Cost</b>	means the cost of Reinforcement as calculated in accordance with Schedule 22 (Common Connection Charging Methodology).

**APPENDIX A:****FLEXIBILITY MARKET PRICE STATEMENT**

<b>[DNO Party]</b>	
<b>Flexibility Market Price Data (contracted)</b>	
Flexibility Market Import Price (£/MWh)	
Flexibility Market Export Price (£/MWh)	
<b>Flexibility Market Price Data (tendered)</b>	
Flexibility Market Import Price (£/MWh)	
Flexibility Market Export Price (£/MWh)	
<b>Exceeded Import Curtailment Price (demand turn down/generation turn up)</b>	
Exceeded Import Curtailment Price (£/MVAh)	
<b>Exceeded Export Curtailment Price (demand turn up/generation turn down)</b>	
Exceeded Export Curtailment Price (£/MVAh)	

<b>DISTRIBUTION FLEXIBILITY SERVICES CONTRACT DATA</b>					
<b>[DNO Party]</b>					
Import Prices (£/MWh)	Capacity requirement (MW)	Regulatory Year of Delivery	Export Prices (£/MWh)	Capacity requirement (MW)	Regulatory Year of Delivery

<b>DISTRIBUTION FLEXIBILITY SERVICES TENDER DATA</b>					
<b>[DNO Party]</b>					
Import Prices (£/MWh)	Capacity requirement (MW)	Regulatory Year of Delivery	Export Prices (£/MWh)	Capacity requirement (MW)	Regulatory Year of Delivery

**APPENDIX B:**

**FORM OF CURTAILABLE CONNECTION AGREEMENT**

**BETWEEN:**

(1) [Distributor Name] [Company Number] [Registered Address] (the “**Company**”) **AND**

(2) [Connectee Name] [Company Number] [Registered Address] (the “**Customer**”)

1. The Company agrees to the Connection of the Customer’s Installation to the Company’s Distribution System on the terms and conditions of this Curtailable Connection Agreement.
2. Subject to the express provisions of this Curtailable Connection Agreement, Section 3 of the National Terms of Connection (the “Applicable NTC Section”) will apply (as amended from time to time) and as amended by Appendix 2 of this Agreement as if it was set out in this Curtailable Connection Agreement, and as if references in the Applicable NTC Section to “this agreement” or to “this Agreement” were to this Curtailable Connection Agreement.
3. The National Terms of Connection are available in writing from the Energy Networks Association, 1st Floor, 4 More London Riverside, London, SE1 2AU, or from the website at [www.connectionterms.co.uk](http://www.connectionterms.co.uk).
4. Expressions used in this Curtailable Connection Agreement shall have the same meanings as is given to them in the Applicable NTC Section.
5. Details of the Premises, the Connection Points, the technical characteristics of the Connection Points and other matters are set out in Annex 1 to this Curtailable Connection Agreement.
6. The Parties may agree variations to this Curtailable Connection Agreement, which variations must be recorded in writing and signed by an authorised representative of each Party. Each Party shall negotiate in good faith the terms of any variation proposed by the other. If any variation has not been agreed within 1 month of its being proposed, either Party may refer the matter to the Authority for resolution pursuant to section 23

of the Act. The Parties shall give effect to any such determination, and shall enter into any agreement as shall be necessary to give effect to any such determination.

7. Address for notices

(a) to the Company: for the attention of [name], [address], [email address]

(b) to the Customer: for the attention of [name], [address], [email address]

**SIGNED** by (signature) .....

for and on behalf of the **Company** (print name) .....

(job title) .....

(date) .....

**SIGNED** by (signature) .....

for and on behalf of the **Customer** (print name) .....

(job title) .....

(date) .....

**ANNEX 1****GENERAL PARTICULARS OF THE CURTAILABLE CONNECTION**

The characteristics of the connection shall be as follows:

- (a) characteristics of supply:
  - (i) number of phases: [Number]
  - (ii) current: [Alternating current]
  - (iii) voltage: [Enter Statutory Voltage kV  $\pm 6\%$  / +10%/-6%]
  - (iv) frequency: [50 Hertz  $\pm 1\%$ ]
- (b) Connection Point(s): either
  - (i) where the connection is provided from the Company's final cut-out fuse, isolator, switch, metering switch fuse or metering circuit breaker, unless otherwise stated in this Curtailable Connection Agreement the Connection Points are the outgoing terminals of the Company's final cut-out fuse, isolator, switch, metering switch fuse or metering circuit breaker, or
  - (ii) where the Company's electric lines connect directly to a Customer's intake isolator, switch, metering switch fuse or metering circuit breaker, unless otherwise stated in this Curtailable Connection Agreement the Connection Points are the incoming terminals of the Customer's intake isolator, switch, metering switch fuse or metering circuit breaker,

and, for the avoidance of doubt, the Connection Points may be remote from the Customer's Installation where third party electric lines and/or electric plant provide the intermediate electrical connection from the Company's Distribution System to the Customer's Installation.
- (c) use of system tariff type: [state here or else "Rates published in relevant charging statement"]
- (d) Details of Premises:



- (i) Address: [SITE ADDRESS HERE]
- (ii) MPANs: [IMPORT MPANS HERE]  
[EXPORT MPANS HERE]
- (iii) Commencement Date: [COMMENCEMENT DATE DD/MM/YYYY]
- (e) Capacity Information:
- (i) Maximum Import Capacity: [xxx] kVA  
With effect from [DD/MM/YYYY]  
First date for Reduction [DD/MM/YYYY]
- (ii) Maximum Export Capacity: [xxx] kVA  
With effect from [DD/MM/YYYY]  
First date for Reduction [DD/MM/YYYY]
- (f) Curtailment Information:
- (i) Non-Curtailable Import Capacity: [xxx] kVA
- (ii) Non-Curtailable Export Capacity: [xxx] kVA
- (iii) Curtailable Import Capacity: [xxx] kVA
- (iv) Curtailable Export Capacity: [xxx] kVA
- (v) Curtailment End Date: [[N/A] or DD/MM/YYYY]
- (vi) Import Curtailment Limit: [hours]
- (vii) Export Curtailment Limit: [hours]
- (viii) Exceeded Import Curtailment Price (subject to change): [£/MVAh]
- (ix) Exceeded Export Curtailment Price (subject to change): [£/MVAh]

## ANNEX 2

### AMENDMENTS TO THE APPLICABLE NTC SECTION

Section 3 of the National Terms of Connection (the “Applicable NTC Section”) shall be amended as set out below.

#### **1. DEFINITIONS & INTERPRETATION**

*The following additional definitions shall be included and the following amendments to existing definition shall be made:-*

**“Curtail”/ “Curtailment”/ “Curtailed”** means any action taken by the Company to restrict the flow of electricity at the Connection Point, except where that restriction is caused by: (a) an Interruption to the Customer’s supply; and/or (b) curtailment as a result of constraints on the transmission network.

**“Curtable Export Capacity”** means the Maximum Export Capacity less the Non-Curtable Export Capacity.

**“Curtable Import Capacity”** means the Maximum Import Capacity less the Non-Curtable Import Capacity.

**“Curtailment End Date”** means the date (if any) from which the Company has agreed to make the connection a Non-Curtable Connection, as set in Annex 1 or as otherwise agreed between the Parties (but always subject to Clause 12.18);

**“Curtailment Instruction”** has the meaning given to that expression in Clause 12.16;

**“Curtailment Instruction Value”** means the value by which the Company instructs the Customer to limit its Maximum Import Capacity and/or Maximum Export Capacity (which cannot be greater than the Curtable Import Capacity or Curtable Export Capacity, as applicable).

**“Curtailment Period”** means the period from the date of Energisation of the Connection Point to the Curtailment End Date (inclusive).

**“Exceeded Export Curtailment Price”** means: the price specified on the Company’s website or as provided by the Company to the Customer, calculated in accordance with Schedule 2D of the DCUSA. For the purposes of calculating any payments under Clause 12.23, the Company shall use the price applying at the end of the four-Quarter period to which the payment applies.

**“Exceeded Import Curtailment Price”** means: the price specified on the Company’s website or as provided by the Company to the Customer, calculated in accordance with Schedule 2D of the DCUSA. For the purposes of calculating any payments under Clause 12.22, the Company shall use the price applying at the end of the four-Quarter period to which the payment applies.

**“Export Curtailment Limit”** means the number of full hours per annum (measured over a twelve-month period) during which the Customer could be required to reduce its Maximum Export Capacity to the Non-Curtailable Export Capacity;

**“Interruption”** has the meaning given to it in Annex F of the Regulatory Instructions and Guidance as defined in the Electricity Distribution Licence.

**“Full Export Curtailment Hours”** means the value calculated in accordance with Clause 12.21.

**“Full Import Curtailment Hours”** means the value calculated in accordance with Clause 12.20.

**“Import Curtailment Limit”** means the number of full hours per annum (measured over a twelve-month period) during which the Customer could be required to reduce its Maximum Import Capacity to the Non-Curtailable Import Capacity.

**“Non-Curtailable Connection”** means that the connection is no longer subject to Curtailment.

**“Non-Curtailable Export Capacity”** means the amount of export capacity (expressed in kW or kVA) which the Customer is permitted to use that is not subject to Curtailment, as set out in Annex 1.

**“Non-Curtailable Import Capacity”** means the amount of import capacity (expressed in kW or kVA) which the Customer is permitted to use that is not subject to Curtailment, as set out in Annex 1.

“**Monitoring Equipment**” means any monitoring and metering equipment that may be used by the Company for the purposes of managing Curtailment, and for measuring or checking consumption otherwise than for settlement;

“**Quarter**” means, the period of three months commencing on 1 January, 1 April, 1 July and 1 October respectively in each year.

## **5. DE-ENERGISATION**

*The following additional clause 5.12 shall be included:-*

### **Curtailment**

5.12 The Company may De-energise a Connection Point if the Customer fails to comply with a Curtailment Instruction, but only for such time as the Company requires the Connection Point to be Curtailed or until the Customer complies with the Curtailment Instruction.

## **12. LIMITATION OF CAPACITY**

*Clause 12.2 shall be amended to read as follows:-*

12.2 Subject to the other provisions of this Agreement, the Company shall use reasonable endeavours to:

12.2.1 ensure that the Maximum Import Capacity and the Maximum Export Capacity is available at the Connection Point at all times during the period of this Agreement except where the Capacity is Curtailed under provisions of Clause 12.16; and

12.2.2 maintain the connection characteristics at the Connection Point.

*The following new clauses 12.15 to 12.26 shall be added:-*

### **Curtailment**

12.15 During the Connection Period, the Company may install additional equipment at the Connection Point designed to limit the import and/or export of electricity from or to the

Distribution System to the Non-Curtailable Import Capacity and/or the Non-Curtailable Export Capacity (as applicable).

- 12.16 The Company may give the Customer a “**Curtailment Instruction**” at any time during the Curtailment Period. The Company shall notify the Customer when the need to Curtail has finished.
- 12.17 The Company shall not instruct the Customer to reduce its Maximum Import Capacity and/or the Maximum Export Capacity to less than the Non-Curtailable Import Capacity or the Non-Curtailable Export Capacity (as applicable) and the Customer is not obliged to reduce its Maximum Import Capacity and/or the Maximum Export Capacity to below these levels even if the Company instructs it to do so.
- 12.18 The Company may amend the Curtailment End Date to such reasonable date as the Company may specify in a written notice of such amendment to the Customer; always provided that the Company gives such notice to the Customer within a reasonable period of time after the Company becomes aware of any of the circumstances necessitating such amendment (as described in Clause 12.19).
- 12.19 The circumstances described in Clause 12.18 are as follows:
- (a) severe weather conditions that either of themselves prevent the Company from carrying out the requisite work or (being of any of the categories 1, 2 or 3 of severity as defined in the Electricity (Standards of Performance) Regulations 2015), cause the Company (acting reasonably) to postpone pre-planned works in order to restore supplies to customers as quickly as possible;
  - (b) a network system emergency that causes the Company (acting reasonably) to redirect its resources and thereby prevents it from completing any action required to convert the Curtailable connection to a Non-Curtailable Connection;
  - (c) an inability to undertake live working on the Distribution System because of compliance with safety procedures in circumstances where the Company would normally expect to undertake such working and where this restriction has a material impact on the timescale for completion of the works needed to convert the Curtailable connection to a Non-Curtailable Connection;

- (d) delays imposed by a requirement to obtain a notice and/or permit for street works under the Traffic Management Act 2004 or the New Roads and Street Works Act 1991;
- (e) delays in obtaining any necessary consents or rights, and/or in acquiring any necessary interest in land, in relation to the location of electric lines and electrical plant needed to provide the Non-Curtailable Connection;
- (f) that works that are stated in the accepted connection offer needed to convert the Curtailable connection to a Non-Curtailable Connection to be prerequisite to the commencement or completion (as appropriate) of the works needed to convert the Curtailable connection to a Non-Curtailable Connection, and that are not the responsibility of the Company, have not been completed in the agreed manner or within the time agreed; and
- (g) that any other matters stated in the accepted connection offer needed to convert the Curtailable connection to a Non-Curtailable Connection to be prerequisite to the commencement or completion (as appropriate) of the works needed to convert the Curtailable connection to a Non-Curtailable Connection, and that are not the responsibility of the Company, have not been satisfied in the manner or within the time envisaged by the accepted offer.

12.20 The Full Import Curtailment Hours shall be calculated as follows at the end of each Quarter for that Quarter and the previous three Quarters (i.e., a rolling four Quarters):

$$= \sum_{i=1}^n di_i \times civ_i \div cic$$

Where,

$di$  = the duration of each period of Curtailment (in hours, partial or full) determined from the time at which the Customer instructs the Customer to Curtail its Maximum Import Capacity to the time at which the Company notifies the Customer that there is no longer a requirement to Curtail;

$n$  = the number of Curtailment Instructions in those four Quarters;

$civ$  = the Curtailment Instruction Value for each Curtailment Instruction; and

$cic$  = the Curtailable Import Capacity.

12.21 The Full Export Curtailment Hours shall be calculated as follows at the end of each Quarter for that Quarter and the previous three Quarters (i.e., a rolling four Quarters):

$$= \sum_{i=1}^n de_i \times civ_i \div cec$$

Where,

$de$  = the duration of each period of Curtailment (in hours, partial or in full) determined from the time at which the Company instructs the Customer to Curtail its Maximum Export Capacity to the time at which the Company notifies the Customer that there is no longer a requirement to Curtail;

$n$  = the number of Curtailment Instructions in those four Quarters;

$civ$  = the Curtailment Instruction Value for each Curtailment Instruction; and

$cec$  = the Curtailable Export Capacity.

12.22 At the end of every fourth Quarter (ending after energisation of the connection), if the Full Import Curtailment Hours exceeds the Import Curtailment Limit, then the Company shall make a payment to the Customer (within 30 days following the end of such fourth Quarter), with the payment calculated as follows:

$$= (fich - icl) \times cic \times eicp$$

Where,

$fich$  = the Full Import Curtailment Hours;

$icl$  = the Import Curtailment Limit;

$cic$  = Curtailable Import Capacity (MVA); and

$eicp$  = the Exceeded Import Curtailment Price at the end of such fourth Quarter.

12.23 At the end of every fourth Quarter (ending after energisation of the connection), if the Full Export Curtailment Hours exceeds the Export Curtailment Limit, the Company

shall make a payment to the Customer (within 30 days following the end of such fourth Quarter), with the payment amount calculated as follows:

$$= (fech - ecl,) \times cec \times eecp$$

Where,

fech = the Full Export Curtailment Hours;

ecl = the Export Curtailment Limit;

cec = Curtailable Export Capacity (MVA); and

eecp= the Exceeded Export Curtailment Price at the end of such fourth Quarter.

12.24 Where a Customer has been subject to Curtailment within a Quarter, the Company shall notify the Customer of the number of Full Import Curtailment Hours and/or Full Export Curtailment Hours that the Customer has been instructed to make.

12.25 Each such notification shall be made within 30 days after the end of the Quarter, and shall include:

- (a) each period of Curtailment during the Quarter (with start and end dates and times); and
- (b) the applicable Exceeded Curtailment Price.

12.26 Any and liability of the Company for exceeding the Import Curtailment Limit and/or the Export Curtailment Limit shall be limited to the payments calculated in accordance with Clauses 12.22 and 12.23.



## **ANNEX 3 – TECHNICAL CONDITIONS**

### **Part 1 – Connection Points**

### **Part 2 – Technical Supply Capacities and Sole Use Assets**

### **Part 3 – Site Responsibility Schedules**

### **Part 4 – Site Specific Operating Arrangements**

### **Part 5 – Site Specific Technical Conditions**

### **Part 6 – Geographic Plans**

### **Part 7 – Operational Diagrams**

### **Part 8 – Generating Equipment**

### **Part 9 – Technical Derogations**

### **Part 10 – Property Documents**

### **Part 11 – Technical Arrangements for Curtailment**