DGD

Demand Facility	An installation under the control of a **Customer** where electrical energy is consumed and is connected at one or more connection points to the **DNO's Distribution System**.
Demand Services Provider	A party who contracts with the **DNO** to provide a demand side service. The party might be a **Customer** contracting bilaterally with the **DNO** for the provision of services, or may be a third party providing an aggregated service from many individual **Customer**s. In the latter case there will be a specific contract for the provision of the services to the **DNO** and will include compliance by that third party with the requirements of DPC9 in relation to each **Demand Unit** included in the aggregated service.
Demand Unit	An appliance or a device whose **Active Power Demand** or Reactive Power production or consumption is being actively controlled by the Customer in whose Demand Facility it is installed and which has been commissioned on or after 9 September 2019 in pursuance of a contract to this end with the **DNO**. Such an appliance or device commissioned before this date, but which has been materially altered will also be included in this definition.
Manufacturers' Information	Information in suitable form provided by a manufacturer in order to demonstrate compliance with one or more of the requirements of the Distribution Code. Where equipment certificate(s) as defined in EU 2016/631, or 2016/1388 cover all or part of the relevant compliance points, the equipment certificate(s) demonstrate compliance without need for further evidence for those aspects within the scope of the equipment certificate

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DPC9 DEMAND SIDE SERVICES

DPC9.1 Scope

DPC9.1.1 This DPC9 applies to **Customers** in relation to their **Demand Units** that are contracted to provide [*or just* "providing"?] any of the demand side services defined in DPC9.2. For the avoidance of doubt it does not apply to **Customers'** installations and **Equipment** in general.

DPC9.1.2 DPC9 also applies to **Demand Service Providers.**

DPC9.2 Demand Side Service Definitions

DPC9.2.1 **Active Power** control – a service where a **Customer** makes available the modulation by the **DNO** of **Demand** within the **Customer's Demand Facility**. This service can also be provided by a **Demand Service Provider** from a collecting of **Demand Units** in various **Demand Facilities.**

DPC9.2.2 **Reactive Power** control – a service where a **Customer** makes available the modulation by the **DNO** of the **Customer's** reactive power production or consumption within the **Customer's Demand Facility**.

DPC9.3 Technical Requirements

DPC9.3.1 Voltage Ranges

DPC9.3.1.1 Any **Demand Unit** must be able to remain connected and operating normally when the supply voltage is within the range of 0.90pu to 1.06pu of nominal declared voltage.

DPC9.3.1.2 Any **Demand Unit** must be able to remain connected and operating normally for up to 15 minutes when the supply voltage is within the range of 1.06pu to 1.10pu of nominal declared voltage

DPC9.3.2 Frequency Ranges

DPC9.3.2.1 The **System Frequency** could rise to 52Hz or fall to 47Hz in exceptional circumstances. Any **Demand Unit** must be able to remain connected an operating normally in accordance with the following table:

Frequency Range	Requirement
47Hz - 47.5Hz	Operation for a period of at least 20 seconds is required each time the **Frequency** is below 47.5Hz.
47.5Hz - 49.0Hz	Operation for a period of at least 90 minutes is required each time the **Frequency** is below 49.0Hz.
49.0Hz - 51Hz	Continuous operation is required
51Hz - 51.5Hz	Operation for a period of at least 90 minutes is required each time the **Frequency** is above 51Hz.
51.5Hz - 52Hz	Operation for a period of at least 15 minutes is required each time the **Frequency** is above 51.5Hz.

DPC9.3.2.2 **Demand Units** must remain connected and operating normally for rates of change of frequency up to $1Hzs^{-1}$.

DPC9.3.3 Modulation

DPC9.3.3.1 A **Demand Unit** or **Demand Units** must be capable controlling its **Demand** or **Reactive Power** production or consumption over the range specified in any contract with the **DNO**.

DPC9.3.3.2 **Demand Units** must be equipped to receive modulation instructions either directly, or indirectly via a **Demand Service Provider**, from the **DNO**.

a) **DNOs** currently are developing active network management approaches and there is no common standard for communication protocols.

b) The **DNO** will provide details of the method to be employed on a site by site basis, or as will be used between the **DNO** and the **Demand Service Provider**. Protocols currently in use between **DNOs** and **Customers** include simple current loop; DNP3; IEC 61850.

c) The **DNO** will agree with the **Customer** for each **Demand Facility**, or with the **Demand Service Provider** as appropriate, the protocol to be used.

d) By default if nothing it specified by the **DNO** then the interface will take the form of a simple binary output that can be operated by a simple switch or contactor. When the switch is closed the **Demand Unit** or **Demand Facility** can operate normally. When the switch is opened the **Demand Unit** [or **Demand Facility]** will modulate its **Demand** or **Reactive Power** production or consumption as required by the contract. The signal from the **Demand Unit** that is being switched can be either AC (maximum value 240 V) or DC (maximum value 110 V).

DPC9.3.3.3 Within 5s of receiving the signal or command from the **DNO** the **Demand Unit** will modulate its behaviour to the full extent of the contract amounted, unless agreed otherwise with the **DNO**.

DPC9.3.3.4 The modulated behaviour will be maintained for the duration of the signal to do so from the **DNO** unless otherwise agreed with the **DNO**.

DPC9.3.3.5 If the modulation, or any part of it, ceases to be fully available for operation at any time, either temporarily or permanently, the **Customer**, or **Demand Service Provider** as appropriate, will notify the **DNO** without delay, and no more than 12 hours after the modulation ceases to be fully available.

DPC9.3.3.6 The **DNO** will advise what operational monitoring and/or metering is to be installed in a **Demand Facility**, or agreed with a **Demand Service Provider**. For **Demand Facilities** connected at **HV** the **DNO** in some cases will install the **DNO's** own telemetry which can form part of the necessary operational monitoring,

DPC9.4 Operational Notification

DPC9.4.1 As part of the contractual arrangements for the provision of demand side services to the **DNO**, the **Customer** must provide the following information one month in advance of the commencement of a contract for demand side services:

a) Full contact details of the **Demand Facility** owner.

b) The exact address and location of the **Demand Facility**;

c) The capacity of the modulated behaviour of the **Demand Unit** expressed in kW or kVAr (including production or consumption) as appropriate.

d) Confirmation that the **Demand Unit** complies with the technical and modulation requirements of DPC9.3

e) The name and contact details of the **Demand Service Provider** if the **Customer** has contracted with a **Demand Service Provider** for the provision of the demand side services.

f) For **Customers** providing demand side services via a **Demand Service Provider**, the information above should be submitted to the **Demand Service Provider**, who in turn will submit it to the **DNO** in aggregated form.

g) The above information must be submitted for each and every **Demand Unit.**

DPC9.4.2 Any planned change or modification to the capabilities of the **Demand Unit** must be notified at least one month in advance to the **DNO**.

DPC9.4.3 Any unplanned incident or failure of a **Demand Unit** should be notified to the **DNO** immediately, which means within the same day.

DPC9.4.4 In the case of an aggregated service, the **Demand Service Provider** must notify the **DNO** of any planned changes to the specification and availability of the contracted service at least one month in advance of the planned implementation date.

DPC9.4.5 In the case of an aggregated service, any unplanned incident or failure of the contracted service should be notified to the **DNO** immediately, which means within the same day.

DPC9.4.6 The **DNO** will inform the **Customer** when any **Demand Unit** for which the above information has been submitted has been accepted by the **DNO** as being compliant with this DPC9

DPC9.4.7 For any **Demand Facility** connected at **HV**, the demand side services cannot be called upon until the **DNO** has issued a final operational notice to the **Customer** responsible for the **Demand Facility**. The **DNO** will issue the final operational notice to the customer on receipt of the complete information

required in DPC9.4.1. The **DNO** will recognize practical difficulties in completing all appropriate tests for confirmation of compliance in specific situations and will not unreasonably withhold the issuing of the final operation notification.

DPC9.5 Compliance

DPC9.5.1 Where the **Customer** has a direct contract with the **DNO.**

DPC9.5.1.1 Where a **Customer** has contracted directly with the **DNO** for demand side services, the **Customer** is wholly responsible for the compliance of the **Customer's Demand Units** with the requirements of this DPC9 and for the conduct of any tests necessary to demonstrate compliance.

DPC9.5.1.2 The **Customer** must demonstrate the modulation of behaviour of the **Demand Unit** on receipt of the appropriate signal (or simulated sign) from the **DNO**. Where appropriate such tests can be undertaken off site, for example by the manufacturer.

DPC9.5.1.3 To the extent that the **Customer** requires the **DNO** to assist or participate in compliance testing the **DNO** will co-operate to achieve an agreed timetable.

DPC9.5.1.4 The **Customer** will supply to the **DNO** a statement of compliance detailing how compliance with the relevant parts of DPC9 has been demonstrated. The statement can include **Manufacturer's Information** to support the demonstration of compliance.

DPC9.5.2 Where the **DNO** has contracted with a **Demand Service Provider**.

DPC9.5.2.1 Where the **DNO** has contracted with s **Demand Service Provider** it is the responsibility of that **Demand Service Provider** to ensure that relevant **Demand Units** comply with DPC9 and are also responsible for any necessary tests etc needed to demonstrate compliance.

DPC9.5.2.2 The **Demand Service Provider** must demonstrate the modulation of behaviour of **Demand Unit**s on receipt of the appropriate signal (or simulated sign) from the **DNO**. Where appropriate such tests can be undertaken off site, for example by the manufacturer and aggregated by the **Demand Service Provider** .

DPC9.5.2.3 To the extent that the **Demand Service Provider** requires the **DNO** to assist or participate in compliance testing the **DNO** will co-operate to achieve an agreed timetable.

DPC9.5.2.4 The **Demand Service Provider** will provide a statement of compliance detailing how the **Demand Service Provider** has ascertained that the **Demand Unit**s that it is using to provide demand side services to the **DNO** are compliant with the requirements of this DPC9.