

GC0127 / GC0128

LEGAL TEXT – DATED 02/12/2019

Extracts from GC0096 (Storage) are included in Blue Highlighted Text

Extracts from GC0125 (HVDC Black Start Testing) are included in Green Highlighted Text

Housekeeping amendments directed by GCRP on 28 November 2019

Extracts from G&D's

<u>Electricity Storage</u>	<u>The conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy.</u>
<u>Electricity Storage Module</u>	<u>Is either one or more Synchronous Electricity Storage Unit(s) or Non-Synchronous Electricity Storage Unit(s) which could also be part of a Power Generating Module. For the avoidance of doubt, Non-Controllable Electricity Storage Equipment would not be considered to be classed as an Electricity Storage Module or as an Electricity Storage Unit.</u>
<u>Non-Synchronous Electricity Storage Module</u>	<u>A Power Park Module comprising solely of one or more Non-Synchronous Electricity Storage Units.</u>
<u>Quick Resynchronisation Capability</u>	<u>The capability of a Type C or Type D Power Generating Module as defined in ECC.6.3.5.6. For the avoidance of doubt this requirement only applies to EU Code Generators who own or operate a Type C or Type D Power Generating Module.</u>
<u>Quick Resynchronisation Unit Test</u>	<u>A test undertaken on Generating Unit forming part of a Type C or Type D Power Generating Module as detailed in OC5.7.1 and OC5.7.4 necessary to determine its ability to demonstrate a Quick Resynchronisation Capability.</u>
<u>Synchronous Electricity Storage Module</u>	<u>A Synchronous Power Generating Module which can convert or re-convert electrical energy from another source of energy such that the frequency of the generated voltage, the rotor speed and the frequency of network voltage are in a constant ratio and thus in synchronism. For the avoidance of doubt a Synchronous Electricity Storage Module could comprise of one or more Synchronous Electricity Storage Units.</u>
<u>Synchronous Electricity Storage Unit</u>	<u>A Synchronous Generating Unit which can supply or absorb electrical energy such that the frequency of the generated voltage, the rotor speed and the frequency of the equipment are in constant ratio and thus in synchronism with the network.</u>

Extracts from CC's

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CC.6.5.4.4 Where **Control Telephony** or **System Telephony** is installed, routine testing of such facilities may be required by **The Company** (not normally more than once in any calendar month). The **GB Code User** and **The Company** shall use reasonable endeavours to agree a test programme and where **The Company** requests the assistance of the **User** in performing the agreed test programme the **User** shall provide such assistance. –**The Company** requires the **GB Code User** to test the backup power supplies feeding its **Control Telephony** facilities at least once every 5 years.

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CC.A.5.4 Low Frequency Relay Testing

CC.A.5.4.1 **Low Frequency Relays** installed and commissioned after 1st January 2007 shall be type tested in accordance with and comply with the functional test requirements for **Frequency Protection** contained in Energy Networks Association Technical Specification 48-6-5 Issue 1 dated 2005 “**ENA Protection Assessment Functional Test Requirements – Voltage and Frequency Protection**”.

For the avoidance of doubt, **Low Frequency Relays** installed and commissioned before 1st January 2007 shall comply with the version of CC.A.5.1.1 applicable at the time such **Low Frequency Relays** were commissioned.

CC.A.5.4.2 Each **Non-Embedded Customer** shall aim to execute testing on its low frequency demand disconnection relays installed within its network and in service at least once every three years, although this may be extended to no more than every five years if considered to be required for operational purposes.

CC.A.5.4.3 Each **Network Operator** and **Relevant Transmission Licensee** shall aim to execute testing on its low frequency demand disconnection relays installed within its network and in service at least once every three years, although this may be extended to no more than every five years if considered to be required for operational purposes.

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Extracts from ECC's

ECC.1 INTRODUCTION

ECC.1.1 The **European Connection Conditions** ("ECC") specify both:

- (a) the minimum technical, design and operational criteria which must be complied with by:
 - (i) any **EU Code User** connected to or seeking connection with the **National Electricity Transmission System**, or
 - (ii) **EU Generators** or **HVDC System Owners** connected to or seeking connection to a **User's System** which is located in **Great Britain** or **Offshore**, or
 - (iii) **Network Operators** who are **EU Code Users**
 - (iv) **Network Operators** who are **GB Code Users** but only in respect of:-
 - (a) Their obligations in respect of **Embedded Medium Power Stations** not subject to a **Bilateral Agreement** for whom the requirements of ECC.3.1(b)(iii) apply alone; and/or
 - (b) The requirements of this **ECC** only in relation to each **EU Grid Supply Point**. **Network Operators** in respect of all other **Grid Supply Points** should continue to satisfy the requirements as specified in the **CCs**.
 - (v) **Non-Embedded Customers** who are **EU Code Users**

- (b) the minimum technical, design and operational criteria with which **The Company** will comply in relation to the part of the **National Electricity Transmission System** at the **Connection Site** with **Users**. In the case of any **OTSDUW Plant and Apparatus**, the **ECC** also specify the minimum technical, design and operational criteria which must be complied with by the **User** when undertaking **OTSDUW**.
- (c) The requirements of **European Regulation (EU) 2016/631** shall not apply to
- (i) **Power Generating Modules** that are installed to provide backup power and operate in parallel with the **Total System** for less than 5 minutes per calendar month while the **System** is in normal state. Parallel operation during maintenance or commissioning of tests of that **Power Generating Module** shall not count towards that five minute limit.
 - (ii) **Power Generating Modules** connected to the **Transmission System** or **Network Operators System** which are not operated in synchronism with a **Synchronous Area**.
 - (iii) **Power Generating Modules** that do not have a permanent **Connection Point** or **User System Entry Point** and used by **The Company** to temporarily provide power when normal **System** capacity is partly or completely unavailable.

(iv) **Electricity Storage Modules.**

(d) **Storage Users** are required to comply with the entirety of the **ECC** but are not subject to the requirements of **European Regulation (EU) 2016/631**, **European Regulation (EU) 2016/1388** and **European Regulation EU 2016/1485**. The requirements of the **ECC** shall therefore be enforceable against **Storage Users** under the Grid Code only (and not under any of the aforementioned **European Regulations**) and any derogation sought by a **Storage User** in respect of the **ECC** shall be deemed a derogation from the Grid Code only (and not from the aforementioned **European Regulations**).

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ECC.3.1 The **ECC** applies to **The Company** and to **Users**, which in the **ECC** means:

- (a) **EU Generators** (other than those which only have **Embedded Small Power Stations**), including those undertaking **OTSDUW** including **Power Generating Modules**, and **DC Connected Power Park Modules**. **For the avoidance of doubt, Electricity Storage Modules are included within the definition of Power Generating Modules for which the requirements of the ECC would be equally applicable.**

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ECC.3.6 The requirements of this **ECC** shall apply to **EU Code Users** in respect of **Power Generating Modules** (including **DC Connected Power Park Modules** and **Electricity Storage Modules**) and **HVDC Systems**.

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ECC.6.3 GENERAL POWER GENERATING MODULE, OTSDUW AND HVDC EQUIPMENT REQUIREMENTS

ECC.6.3.1 This section sets out the technical and design criteria and performance requirements for **Power Generating Modules** (which includes **Electricity Storage Modules**) and **HVDC Equipment** (whether directly connected to the **National Electricity Transmission System** or **Embedded**) and (where provided in this section) **OTSDUW Plant and Apparatus** which each **Generator** or **HVDC System Owner** must ensure are complied with in relation to its **Power Generating Modules**, **HVDC Equipment** and **OTSDUW Plant and Apparatus**. References to **Power Generating Modules**), **HVDC Equipment** in this ECC.6.3 should be read accordingly. For the avoidance of doubt, the requirements applicable to Synchronous Power Generating Modules also apply to Synchronous Electricity Storage Modules and the requirements applicable to Power Park Modules apply to Non-Synchronous Electricity Storage Modules. In addition, the requirements applicable to Electricity Storage Modules also apply irrespective of whether the Electricity Storage Module operates in such a mode as to import or export power from the Total System.

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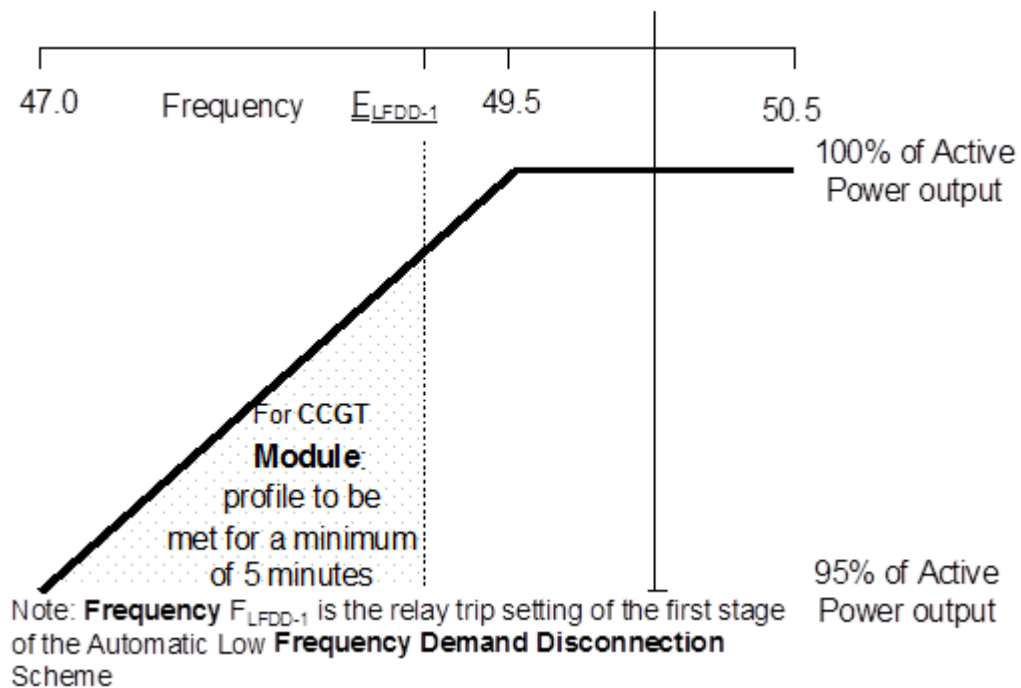
ECC.6.3.3 OUTPUT POWER WITH FALLING FREQUENCY

ECC.6.3.3.1 Output power with falling frequency for **Power Generating Modules** and **HVDC Equipment**

ECC.6.3.3.1.1 Each **Power Generating Module** and **HVDC Equipment** must be capable of:

- (a) continuously maintaining constant **Active Power** output for **System Frequency** changes within the range 50.5 to 49.5 Hz; and
- (b) (subject to the provisions of ECC.6.1.2) maintaining its **Active Power** output at a level not lower than the figure determined by the linear relationship shown in Figure ECC.6.3.3(a) for **System Frequency** changes within the range 49.5 to 47 Hz for all ambient temperatures up to and including 25°C, such that if the **System Frequency** drops to 47 Hz the **Active Power** output does not decrease by more than 5%. In the case of a **CCGT Module**, the above requirement shall be retained down to the **Low Frequency Relay** trip setting of 48.8 Hz, which reflects the first stage of the Automatic Low **Frequency Demand Disconnection** scheme notified to **Network Operators** under OC6.6.2. For **System Frequency** below that setting, the existing requirement shall be retained for a minimum period of 5 minutes while **System Frequency** remains below that setting, and special measure(s) that may be required to meet this requirement shall be kept in service during this period. After that 5 minutes period, if **System Frequency** remains below that setting, the special measure(s) must be discontinued if there is a materially increased risk of the **Gas Turbine** tripping. The need for special measure(s) is linked to the inherent **Gas Turbine Active Power** output reduction caused by reduced shaft speed due to falling **System Frequency**. Where the need for special measures is identified in order to maintain output in line with the level identified in Figure ECC.6.3.3(a) these measures should be still continued at ambient temperatures above 25°C maintaining as much of the **Active Power** achievable within the capability of the plant. For the avoidance of doubt, Generators in respect of Pumped Storage Plant and Electricity Storage Modules shall also be required to satisfy the requirements of OC6.6.6.

Figure ECC.6.3.3(a) Active Power Output with falling frequency for **Power Generating Modules** and **HVDC Systems** and **Electricity Storage Modules** when operating in an exporting mode of operation



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ECC.6.5.4.4 Where **Control Telephony** or **System Telephony** is installed, routine testing of such facilities may be required by **The Company** (not normally more than once in any calendar month). The **User** and **The Company** shall use reasonable endeavours to agree a test programme and where **The Company** requests the assistance of the **User** in performing the agreed test programme the **User** shall provide such assistance. **The Company requires the EU Code User to test the backup power supplies feeding its Control Telephony facilities at least once every 5 years.**

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ECC.A.5.4 Low Frequency Relay Testing

ECC.A.5.4.1 **Low Frequency Relays** installed and commissioned after 1st January 2007 shall be type tested in accordance with and comply with the functional test requirements for **Frequency Protection** contained in Energy Networks Association Technical Specification 48-6-5 Issue 1 dated 2005 “**ENA Protection Assessment Functional Test Requirements – Voltage and Frequency Protection**”.

For the avoidance of doubt, **Low Frequency Relays** installed and commissioned before 1st January 2007 shall comply with the version of CC.A.5.1.1 applicable at the time such **Low Frequency Relays** were commissioned.

ECC.A.5.4.2 Each **Non-Embedded Customer** shall aim to execute testing on its low frequency demand disconnection relays installed within its network and in service at least once every three years, although this may be extended to no more than every five years if considered to be required for operational purposes.

ECC.A.5.4.3 Each **Network Operator** and **Relevant Transmission Licensee** shall aim to execute testing on its low frequency demand disconnection relays installed within its network and in service at least once every three years, although this may be extended to no more than every five years if considered to be required for operational purposes.

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Extracts from Demand Response Services Code (DRSC)

DRSC.1 INTRODUCTION

DRSC.1.1 The **Demand Response Services Code** is concerned with **Demand Response Providers** who contract with **The Company** for the provision of **Ancillary Services**.

DRSC.1.2 **Ancillary Services** are non-mandatory services used by **The Company** in operating the **System**. They are provided by **Demand Response Providers** with payment being dealt with under the terms of the relevant agreement for the **Ancillary Service**.

DRSC.1.3 Where a **Demand Response Provider** is interested in offering an **Ancillary Service** to **The Company**, then further details and additional information of the **Ancillary Services** are available from the Balancing Services section of the **Website**.

DRSC.1.4 Where **The Company** and a **Demand Response Provider** enter into an **Ancillary Services** agreement, it shall be in accordance with **Transmission Licence** condition C16 and the **Standard Contract Terms**.

DRSC 1.5 The **Demand Response Services Code** which would form part of an **Ancillary Services** agreement between a **Demand Response Provider** and **The Company** and to discharge the obligations under **European Regulation (EU) 2016/1388**. The **Ancillary Services** agreement will include an obligation on the **Demand Response Provider** to satisfy the applicable requirements of this **Demand Response Services Code**.

DRSC.1.6 The **Demand Response Code** applies only to **Demand Response Providers** who have entered into an agreement with **The Company** to provide an **Ancillary Service**. This **Demand Response Services Code** does not apply to **Users** who are not **Demand Response Providers**.

DRSC.1.7 For the avoidance of doubt, **Network Operators** and **Non Embedded Customers** in respect of **EU Grid Supply Points** are required to satisfy the compliance requirements in section DRSC.11 of this code in addition to the **European Compliance Processes** only if they are also a **Demand Response Provider** ~~unless they are also a~~ **Demand Response Provider**.

DRSC.2 OBJECTIVE

The objectives of the **DRSC** are to

DRSC.2.1 Ensure the obligations of **European Regulation (EU) 2016/1388** have been discharged; and

DRSC.2.2 Complement the requirements of the **Ancillary Services** agreement between **The Company** and a **Demand Response Provider**; and

DRSC.2.3 Define the minimum technical and compliance requirements **Demand Response Providers** are required to satisfy if they provide a **Demand Response Service** to **The Company** under an **Ancillary Services** agreement.

DRSC.3 SCOPE

DRSC.3.1 The **DRSC** applies to any **Demand Response Provider** who has entered into an agreement to provide **Ancillary Services** with **The Company**.

DRSC.3.2 The **DRSC** does not apply to **Users**, **BM Participants** or **other** parties ~~who are not unless they are also a~~ **Demand Response Providers**.

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DRSC.11.7 Additional Testing requirements for Non-Embedded Customers and CUSC Parties who are also Demand Response Providers

DRSC.11.7.1 Non-Embedded Customers and CUSC Parties who are also Demand Response Providers shall be required to execute a demand modification test after two consecutive

unsuccessful responses in the operational environment or at least every year as agreed with **The Company**.

DRSC.11.7.2 Each **Non-Embedded Customer** and **CUSC Party** who are also **Demand Response Providers** and provide demand response low frequency demand disconnection shall execute a low frequency demand disconnection test at least once every three years.

Extracts from European Compliance Processes (ECPs)

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Extracts from OC5

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OC5.5.3.3 The **User** is responsible for carrying out the test and retains the responsibility for the safety of personnel and plant during the test.

OC5.5.4 Test And Monitoring Assessment

The criteria must be read in conjunction with the full text under the Grid Code reference. The **BM Unit**, **Power Generating Module**, **CCGT Module**, **Power Park Module** or **Generating Unit** (excluding **Power Park Units**), **HVDC Equipment** and **DC Converters** and **OTSUA** will pass the test the criteria below are met:

Parameter to be Tested		Criteria against which the test results will be assessed by The Company.
Voltage Quality	Harmonic Content	CC.6.1.5(a) or ECC.6.1.5(a) Measured harmonic emissions do not exceed the limits specified in the Bilateral Agreement or where no such limits are specified, the relevant planning level specified in G5/4.
	Phase Unbalance	CC.6.1.5(b) or ECC.6.1.5(b), The measured maximum Phase (Voltage) Unbalance on the National Electricity Transmission System should remain, in England and Wales, below 1% and, in Scotland, below 2% and Offshore will be defined in relevant Bilateral Agreement . CC.6.1.6 or ECC.6.1.6 In England and Wales, measured infrequent short duration peaks in Phase (Voltage) Unbalance should not exceed the maximum value stated in the Bilateral Agreement .
	Rapid Voltage Change	CC.6.1.7(a) or ECC.6.1.7(a) The measured Rapid Voltage Change at the Point of Common Coupling shall not exceed the Planning Levels specified in CC.6.1.7(a) or ECC 6.1.7.(i)
	Flicker Severity	CC.6.1.7(j) or ECC.6.1.7(j) The measured Flicker Severity at the Point of Common Coupling shall not exceed the limits specified in the table of CC.6.1.7(j) or ECC 6.1.7(j).
	Voltage Fluctuation	CC.6.1.8 or ECC.6.1.8 Offshore , measured voltage fluctuations at the Point of Common Coupling shall not exceed the limits set out in the Bilateral Agreement .
Fault Clearance	Fault Clearance Times	CC.6.2.2.2.2(a), CC.6.2.3.1.1(a), ECC.6.2.2.2.2(a), ECC.6.2.3.1.1(a), Bilateral Agreement
	Back Up Protection	CC.6.2.2.2.2(b), CC.6.2.3.1.1(b), ECC.6.2.2.2.2(a), ECC.6.2.3.1.1(a), Bilateral Agreement
	Circuit Breaker Fail Protection	CC.6.2.2.2.2(c), CC.6.2.3.1.1(c), ECC.6.2.2.2.2(c), ECC.6.2.3.1.1(c)

Parameter to be Tested		Criteria against which the test results will be assessed by The Company.
	Reactive Capability	<p>CC.6.3.2 or ECC.6.3.2 (and in the case of CC.6.3.2(e)(iii) and ECC.6.3.2.5 and ECC.6.3.2.6, the Bilateral Agreement), CC.6.3.4 or ECC.6.3.4, Ancillary Services Agreement.</p> <p>For a test initiated under OC.5.5.1.1 the Power Generating Module, Generating Unit, HVDC Equipment, DC Converter or Power Park Module or (prior to the OTSUA Transfer Time) OTSUA will pass the test if it is within $\pm 5\%$ of the reactive capability registered with The Company under OC2. the duration of the test will be for a period of upto 60 minutes during which period the system voltage at the Grid Entry Point for the relevant Power Generating Module, Generating Unit, HVDC Equipment, DC Converter or Power Park Module or Interface Point in the case of OTSUA will be maintained by the Generator or or HVDC System Owner, DC Converter Station owner at the voltage specified pursuant to BC2.8 by adjustment of Reactive Power on the remaining Power Generating Module, Generating Unit, HVDC Equipment, DC Converter or Power Park Modules or OTSUA, if necessary. Any test performed in respect of an Embedded Medium Power Station not subject to a Bilateral Agreement or, an Embedded DC Converter Station or Embedded HVDC System not subject to a Bilateral Agreement shall be as confirmed pursuant to OC5.8.3.</p> <p>Measurements of the Reactive Power output under steady state conditions should be consistent with Grid Code requirements i.e. fully available within the voltage range $\pm 5\%$ at 400kV, 275kV and 132kV and lower voltages.</p>
Governor / Frequency Control	Primary Secondary and High Frequency Response	<p>Ancillary Services Agreement, CC.6.3.7 and where applicable CC.A.3 or ECC.6.3.7 and where applicable ECC.A.3.</p> <p>For a test initiated under OC.5.5.1.1 the measured response in MW/Hz is within $\pm 5\%$ of the level of response specified in the Ancillary Services Agreement for that Genset.</p>
	Stability with Voltage	CC.6.3.4 or ECC.6.3.4

Parameter to be Tested		Criteria against which the test results will be assessed by The Company.
	Governor / Load / Frequency Controller System Compliance	CC.6.3.6(a), CC.6.3.7, CC.6.3.9, CC8.1, where applicable CC.A.3, BC3.5, BC3.6, BC3.7 or ECC.6.3.6, ECC.6.3.7, ECC.6.3.9, ECC8.1, where applicable ECC.A.3, BC3.5, BC3.6, BC3.7
	Output at Reduced System Frequency	CC.6.3.3 or ECC.6.3.3 - For variations in System Frequency exceeding 0.1Hz within a period of less than 10 seconds, the Active Power output is within $\pm 0.2\%$ of the requirements of CC.6.3.3 or ECC.6.3.3 when monitored at prevailing external air temperatures of up to 25°C., BC3.5.1
	Fast Start	Ancillary Services Agreement requirements
	Black Start	OC5.7
	Excitation/Voltage Control System	CC.6.3.6(b), CC.6.3.8, CC.A.6 or CC.A.7 as applicable, BC2.11.2, and the Bilateral Agreement or ECC.6.3.6, ECC.6.3.8, ECC.A.6 or ECC.A.7 or ECC.A.8 as applicable
	Fault Ride Through and Fast Fault Current Injection	CC.6.3.15, CC.A.4.A or CC.A.4.B as applicable or ECC.6.3.15, ECC.6.3.16, ECC.A.4. or ECC.A.4EC as applicable
Dynamic Parameters	Export and Import Limits, QPN, Joint BM Unit Data and Dynamic Parameters	BC2 The Export and Import Limits, QPN, Joint BM Unit Data and Dynamic Parameters under test are within $2\frac{1}{2}\%$ of the declared value being tested.
	Synchronisation time	BC2.5.2.3 Synchronisation takes place within ± 5 minutes of the time it should have achieved Synchronisation .

Parameter to be Tested		Criteria against which the test results will be assessed by The Company.
	Run-up rates	<p>BC2</p> <p>Achieves the instructed output and, where applicable, the first and/or second intermediate breakpoints, each within ± 3 minutes of the time it should have reached such output and breakpoints from Synchronisation (or break point, as the case may be), calculated from the run-up rates in its Dynamic Parameters.</p>
	Run-down rates	<p>BC2</p> <p>Achieves the instructed output and, where applicable, the first and/or second intermediate breakpoints, each within ± 5 minutes of the time it should have reached such output and breakpoints from Synchronisation (or break point, as the case may be), calculated from the run-up rates in its Dynamic Parameters.</p>
	<u>Demand Response</u>	<p><u>DRSC.11.7</u></p> <p><u>Non-Embedded Customers, Network Operators and BM Participants who are also Demand Response Providers shall execute a demand modification test when requested as per DRSC.11.7 to ensure the requirements of the Ancillary Services agreement and Demand Response Services Code are satisfied.</u></p>

OC5.7

BLACK START TESTING

OC5.7.1 General

(a) The Company shall require a **Black Start Service Provider** to carry out a **Black Start Test** in order to demonstrate that a **Black Start Station** or **Black Start HVDC System** has a **Black Start Capability**.

(i) In the case of a **Generator**, The Company shall require a **Generator** with a **Black Start Station** to carry out a test (either a "Black Start Unit Test" or a **Black Start Station Test**) in order to demonstrate that a **Black Start Station** has a **Black Start Capability**.

(ii) In the case of an **HVDC System Owner** or **DC Converter Station Owner**, The Company shall require an **HVDC System Owner** or **DC Converter Station Owner** with a **Black Start HVDC System** to carry out a test (a "Black Start HVDC Test") on a **HVDC System** or **DC Converter**, in order to demonstrate that a **Black Start HVDC System** has a **Black Start Capability**.

(iii) In the case of an **EU Generator**, The Company may also require a **Generator** with a **Black Start Station** to carry out a test (a **Quick Resynchronisation Unit Test**) in order to demonstrate that a **Black Start Station** has a **Quick Re-Synchronisation Capability**.

(b) Where **The Company** requires a **Black Start Service Provider** to undertake testing, the following requirements shall apply:

(i) Where **The Company** requires a **Generator** with a **Black Start Station** to carry out a **Black Start Unit Test** on each **Genset**, which has **Black Start Capability**, within such a **Black Start Station**, the **Generator** shall execute such a test at least once every three years. **The Company** shall not require the **Black Start Test Unit** to be carried out on more than one **Genset** at that **Black Start Station** at the same time, and would not, in the absence of exceptional circumstances, expect any of the other **Gensets** at the **Black Start Station** to be directly affected by the **Black Start Unit Test**.

(ii) **The Company** may occasionally require the **Generator** to carry out a **Black Start Station Test** at any time (but will not require a **Black Start Station Test** to be carried out more than once in every three calendar years in respect of any particular **Genset** unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test). If successful, this **Black Start Station Test** shall count as a successful **Black Start Unit Test** for the **Genset** used in the test.

(iii) **The Company** may require the **HVDC System Owner** or **DC Converter Station Owner** to carry out a **Black Start HVDC Test** at any time (but will not require such a test to be carried out more than once in every three calendar years unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test).

(iv) **The Company** may occasionally require the **EU Generator** to carry out a **Quick Re-Synchronisation Test** at any time, but will generally only be required where the **EU Generator** has made a change to its **Plant** and **Apparatus** which has an impact on its **Houseload Operation** or after two unsuccessful tripping **Events** in the operational environment.

The above tests will be deemed a success where starting from **Shutdown** is achieved within a time frame specified by **The Company** and which may be agreed in the **Black Start Contract**.

c) **The Company** may require a **Generator** to carry out a **Black Start Unit Test** at any time (but will not require a **Black Start Unit Test** to be carried out more than once in each calendar year in respect of any particular **Genset** unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test).

(d) When **The Company** wishes a **Black Start Service Provider** to carry out a **Black Start Test**, it shall notify the relevant **Black Start Service Provider** at least 7 days prior to the time of the **Black Start Test** with details of the proposed **Black Start Test**.

OC5.7.1 General

(a) ~~**The Company** may require a **Generator** with a **Black Start Station** to carry out a test (a "**Black Start Test**") on a **Genset** in a **Black Start Station** either while the **Black Start Station** remains connected to an external alternating current electrical supply (a "**BS Unit Test**") or while the **Black Start Station** is disconnected from all external alternating current electrical supplies (a "**BS Station Test**"), in order to demonstrate that a **Black Start Station** has a **Black Start Capability**.~~

OC5.7.4 Quick Re-synchronisation Unit Test

(a) The relevant **Generating Unit** shall be **Synchronised and Loaded**;

(b) All the **Auxiliary Gas Turbines** and/or **Auxiliary Diesel Engines** in the **Black Start Station** in which that **Generating Unit** is situated, shall be **Shutdown**.

(c) The **Generating Unit** shall tripped to house load.

(d) The relevant **Generating Unit** shall be **Synchronised** to the **System** but not **Loaded**, unless the appropriate instruction has been given by **The Company** under **BC2** which would also be in accordance with the requirements of the **Black Start Contract**.

In respect of **EU Generators**, the above tests defined in OC5.7.2.3(a) – (e) shall be in accordance with the requirements of ECC.6.3.5.6.

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Extracts from OC6

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OC6.6.2 (d) Each **Network Operator** will notify **The Company** in writing by calendar week 24 each year of the details of the automatic low **Frequency Disconnection** on its **User System**. The information provided should identify, for each **Grid Supply Point** at the date and time of the annual peak of the **National Electricity Transmission System Demand** at **Annual ACS Conditions** (as notified pursuant to OC1.4.2), the frequency settings at which **Demand Disconnection** will be initiated and the amount of **Demand** disconnected at each such setting.

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OC6.6.6 (a) **Non-Embedded Customers**, and **Generators** in respect of **Electricity Storage Modules** and **Pumped Storage Generators**, must provide automatic low **Frequency** disconnection, which will be split into discrete blocks.

(b) The number and size of blocks and the associated low **Frequency** settings will be as specified by **The Company** by week 24 each calendar year following discussion with the **Non-Embedded Customers**, **Pumped Storage Generators** and **Generators in respect of Electricity Storage Modules** in accordance with the relevant **Bilateral Agreement**.

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Extracts from OC9

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OC.9.2. OBJECTIVE

The overall objectives of OC9 are:.....

OC9.2.5

To identify and address as far as possible the events and processes necessary to enable the restoration of the **Total System**, after a **Total Shutdown** or **Partial Shutdown**. This is likely to require the following key processes to be implemented, typically, but not necessarily, in the order given below:

- (i) Selectively implement **Local Joint Restoration Plans**
- (ii) Expand **Power Islands** to supply **Power Stations**
- (iii) Expand and merge **Power Islands** leading to **Total System** energisation
- (iv) Selectively reconnect **Demand**
- (v) Facilitate and co-ordinate returning the **Total System** back to normal operation
- (vi) Resumption of the **Balancing Mechanism** if suspended in accordance with the provisions of the **BSC**.

~~(a)~~