STC Drafting as a Consequence of the Offshore Grid Code Subgroup Recommendations

Overview of Drafting Methodology

The Offshore Grid Code Subgroup made a number of recommendations that impacted upon the SO-TO Code. These were intended to ensure that the relevant technical requirements applicable to Offshore Transmission Networks that are needed to facilitate the technical requirements in the Grid Code Connection Conditions were backed off in the STC. The major areas highlighted were:

- The obligation on the Offshore TO (OFTO) to provide a Reactive Power capability and Voltage Control.
- The obligation on the OFTO to provide a Fault Ride Through capability should it operate a HVDC network
- The obligation on the OFTO should it operate a HVDC network to install damping facilities for its DC Converters
- The obligation on an OFTO where it operates a HVDC network to pass to any generators connected to its network a signal indicating the system frequency of the Main Interconnected Transmission System onshore.

In addition Appendix 1A noted that a number of other obligations in the Connection Conditions, specifically in CC.6.3 should also be backed off onto Offshore HVDC Transmission Networks. These include:

- CC.6.3.3 – Active Power transfer for falling system frequency
- CC.6.3.11 – Neutral Earthing
- CC.6.3.12 – Frequency Sensitive Relays
- CC.6.3.13 – Plant Protection under extreme frequencies

For drafting purposes these obligations have been set out in a new “Section K” of the STC. The eventual location for the obligations is yet to be finalised however and may ultimately be nested within existing sections of the STC, possibly Section C. Any new STC definitions that have been introduced as a consequence of this drafting are highlighted in bold italics in this drafting. A table of proposed new STC definitions is also attached to this drafting.

Throughout the drafting references are made to the equivalent Grid Code clauses which have been backed off in this drafting. It should be noted that Grid Code Consultation G/06 proposes a number of changes to the Grid Code connection conditions that form the basis of this STC drafting. Therefore should the G/06 changes be approved by the Authority it is anticipated that this STC drafting will be updated to reflect those changes.

The drafting has been taken forward under the same assumptions as the Offshore Grid Code drafting, with a key assumption being that only radial Offshore Transmission to Onshore Transmission Connections are considered. Inevitably there are certain issues within the text relating to Embedded Transmission that are as yet unresolved. Where these occur a note is made in the drafting.

Reactive Power Drafting Methodology

The methodology used in the drafting is that the OFTO must provide a reactive range of 0.95pf leading and 0.95pf Lagging at the Interface Point. In the current Grid Code where the reactive range requirements are placed entirely on generating units this range is expressed on the Rated MW output of the generating unit. In the case of an OFTO the concept of Rated MW is not directly comparable and so therefore a new parameter has had to be utilised in the drafting.

This parameter has been called the Interface Point Capacity. This parameter is meant to represent the total maximum active power export (measured at the Interface Point, a new term developed through the Grid Code drafting to represent the point of connection between the Offshore TO and Onshore TO) of all Power Stations connected to the Offshore Transmission System concerned. It is at this figure that the reactive range of 0.95pf leading / 0.95pf lagging is stated. The reactive range obligations then follow the existing obligations for non-synchronous generators and Power Park Modules in the Grid Code.

In addition the Grid Code clauses relating to voltage control have also been incorporated within the STC to apply to the OFTO at the Interface Point.

Fault Ride Through Methodology

The Fault Ride Through drafting has effectively mirrored the obligations for Generating Units and Power Park Modules to be found in the Grid Code section CC.6.3.15 and Appendix 4 to the Connection Conditions. The new text though lengthy is effectively as in the Grid Code. The changes made are predominantly to replace references to Generating Units or Power Park Modules with references to Offshore Transmission Systems. Also references to Connection Point are replaced with references to the Interface Point. Clauses within the Grid Code that have been removed are specifically those that dealt with transitional issues for older Power Park Modules and are not applicable for transfer to the newly built Offshore Transmission Systems.

The term “Supergrid Voltage” is currently utilised in the drafting for the Fault Ride through provisions. This term is under review as a consequence of the Offshore Grid Code drafting and may be subject to change as a result. If it does change then these STC provisions will be similarly updated.

Additionally there are a number of references to clauses within CC.6.1 of the Grid Code which sets out the capabilities and operating range of the GB transmission system both generally and specifically that Users could expect at their Connection Site. Where clauses in the Grid Code refer to generic capabilities so the reference to the Grid Code within this STC drafting has been retained; in other areas where the specific relationship between a User and the GB Transmission System at a Connection Site was referenced this text has been brought into this STC drafting (largely as extra definitions) and re-formulated as applying to OFTOs at the Interface Point.

Additional Damping for DC Converters

This section has been drafted to reflect the requirements currently within the Grid Code CC.6.3.16 that are applicable to owners of DC Converters onto owners of HVDC Offshore Transmission Systems.

Frequency Capabilities and Signal Methodology

The Offshore Grid Code subgroup recommended that the obligations contained in CC.6.3.3 relating to maintaining Active Power transfer in light of changes to the System Frequency be extended to Offshore HVDC Transmission Systems. As such equivalent provisions have been incorporated within this STC drafting.

Another one of the key recommendations from the Offshore Grid Code Subgroup was that owners of HVDC Offshore Transmission Systems should be obliged to provide each generator connected to its system with a signal of the onshore frequency. This signal would then allow the offshore generating units connected to that offshore HVDC transmission system to provide a frequency response service in line with their obligations under the Grid Code Connection Conditions and BC3.

Neutral Earthing

Finally provisions equivalent to CC.6.3.11 regarding neutral earthing of transformers have also been included within this drafting, again following on from a direct recommendation of the Offshore Grid Code Subgroup.

SECTION K: OBLIGATIONS UNIQUE TO OFFSHORE TRANSMISSION NETWORKS

PART ONE: TRANSMISSION SERVICES

1. INTRODUCTION

1.1 This Section K, Part One deals with the provision of certain services by ***Offshore Transmission Owners*** to NGET, and sets out:

1.1.1 the process for each ***Offshore Transmission Owner*** to provide a reactive capability and a voltage control capability at the ***Interface Point***;

1.1.2 the obligation on each ***Offshore Transmission Owner*** to ensure that its ***Offshore Transmission System*** has a Fault Ride Through Capability,

1.1.3 the obligation on each ***Offshore Transmission Owner*** who owns an ***Offshore Transmission System*** which includes a DC Converter to provide additional damping facilities for DC Converters forming part of that ***Offshore Transmission System***,

1.1.4 the process for each ***Offshore Transmission Owner*** who owns an ***Offshore Transmission System*** which includes a DC Converter to provide a signal indicating the Frequency of the ***Onshore Transmission System*** to each User who owns a ***Offshore Power Station*** connected to that ***Offshore Transmission System*** and to ensure that the ***Offshore Transmission System*** can operate robustly under a range of System Frequencies, and;

1.1.5 the obligation on each ***Offshore Transmission Owner*** to ensure that any transformers forming pat of that Offshore Transmission System are capable of being neutrally earthed.

2. REACTIVE CAPABILITY AND VOLTAGE CONTROL

2.1 All ***Offshore Transmission Systems*** must be capable of transmitting Active Power equivalent to the ***Interface Point Capacity*** at any point between the limits 0.95 Power Factor lagging and 0.95 Power Factor leading at the ***Interface Point*** (or ***Distribution System Entry Point*** where such ***Offshore Transmission System*** is directly connected to an onshore Distribution System). With all plant in service, the Reactive Power limits defined at the ***Interface Point Capacity***

(a) at lagging Power Factor will apply to all Active Power transfer levels above 20% of the ***Interface Point Capacity*** as defined in figure K1 below and / or,

(b) at leading Power Factor will apply at all Active Power transfer levels above 50% of the ***Interface Capacity*** as defined in figure K1 below, and / or,

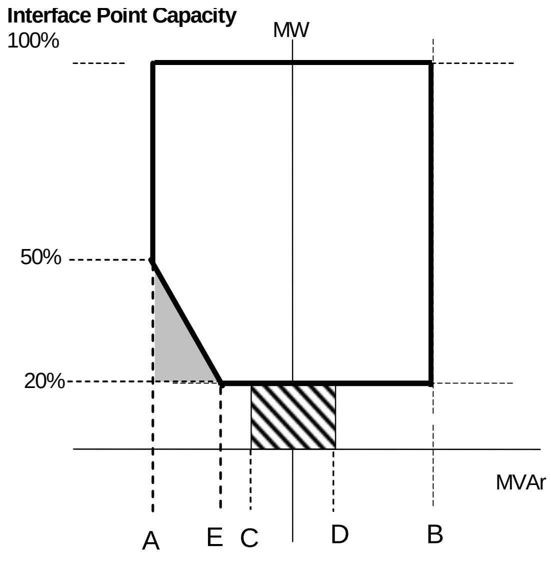
Comment [M1]: Section backs off the requirements of CC.6.3.2 (c) (part). CC.6.3.2 (b) back-off not required as (b) is the default should the capability of CC.6.3.2 (c) not be required.

With all Plant in service the Reactive Power limits shall reduce linearly below 50% Active Power transfer as shown in figure K1 below unless the requirement to maintain the Reactive Power limits defined at ***Interface Point Capacity*** at leading Power Factor down to 20% Active Power transfer is specified in the Service Capability Specification.

2.2 Each ***Offshore Transmission System*** shall be capable of contribution to voltage control by continuous changes to the Reactive Power supplied at the ***Interface Point*** (or ***Distribution System Entry Point*** where such ***Offshore Transmission System*** is directly connected to an onshore Distribution System).

2.3 In the case of an ***Offshore Transmission System*** a continuously acting automatic control system is required to provide control of the voltage at the ***Interface Point*** (or ***Distribution System Entry Point*** where such ***Offshore Transmission System*** is directly connected to an Onshore Distribution System) without instability over the entire operating range of the ***Offshore Transmission System***. When transferring Active Power equivalent to less than 20% of the **Interface Point Capacity** the automatic control system may continue to provide voltage control utilising any available reactive capability. If voltage control is not being provided, the automatic control system shall be designed to ensure a smooth transition between the shaded area bounded by CD and the non-shaded area bound by AB in Figure K1 below. The performance requirements for this automatic control system will be specified in the Services Capability Specification.

Figure K1



Point A is equivalent (in MVAr) to 0.95 leading Power Factor at active power transfer equal to the ***Interface Point Capacity***.

Comment [M2]: Assumption that the SCS will be the appropriate place to place any variations to the standard reactive requirements. May be superseded by any contractual agreement between the OFTO and the GBSO developed through the Offshore Transmission Project (STC Working Group)

Comment [M3]: Back off of CC.6.3.6 (b)

Comment [M4]: Back off of CC.6.3.8 (c) and also remainder of CC.6.3.2 (c)

Comment [M5]: NB. This text is not a direct back off from the equivalent Grid Code text but has been added for clarity of the obligations.

Comment [M6]: Assumption that the SCS will be the appropriate place to place any variations to the standard reactive requirements. May be superseded by any contractual agreement between the OFTO and the GBSO developed through the Offshore Transmission Project

Point B is equivalent (in MVAr) to 0.95 lagging Power Factor active power transfer equal to the ***Interface Point Capacity***.

Point C is equivalent (in MVAr) to -5% of active power transfer equal to the ***Interface Point Capacity***.

Point D is equivalent (in MVAr) to +5% of active power transfer equal to the ***Interface Point Capacity***.

Point E is equivalent (in MVAr) to -12% of active power transfer equal to the ***Interface Point Capacity***.

2.4 The requirement for voltage control facilities, including for example additional damping control facilities, where in NGET's view these are necessary for system reasons will be specified in the Services Capability Specification.

2.5 Other control facilities, including constant Reactive Power output control modes (but excluding VAR limiters) are not required. However, if present in the voltage control system they will be disabled unless recorded in the Services Capability Specification. Operation of such facilities will only be in accordance with instructions to direct the configuration of the GB Transmission System as given by NGET.

2.5 At the ***Interface Point*** the Active Power transfer from an ***Offshore Transmission System*** under steady state conditions should not be affected by voltage changes on the ***Onshore Transmission System*** in the ***Normal Operating Range*** by more than the change in Active Power losses at reduced or increased voltage. The Reactive Power output under steady state conditions should be fully available within the voltage range ±5% at 400kV, 275kV and 132kV.

Comment [M7]: Back off of CC.6.3.8 (b).

Comment [M8]: Could be replaced by any contractual agreement between the GBSO and OFTO

Comment [M9]: CC.6.3.8 (d) back-off.

Comment [M10]: Could be replaced by any contractual agreement between the GBSO and OFTO

Comment [M11]: This drafting is dependent on the switching model adopted in the STC for Offshore Transmission Systems; an issue discussed at the STC Working Group meetings

Comment [M12]: Back off of CC.6.3.4

3 FAULT RIDE THROUGH CAPABILITY

3.1 Fault Ride Through

Comment [M13]: Back off of CC.6.3.15

(a) Short circuit faults at Supergrid Voltage up to 140ms in duration

(i) Each ***Offshore Transmission System*** shall remain transiently stable and connected to the remainder of the Total System at the ***Interface Point*** (or ***Distribution System Entry Point*** where such ***Offshore Transmission System*** is directly connected to an Onshore Distribution System) without tripping of any Plant and/or Apparatus comprising that ***Offshore Transmission System***, for a close-up solid three-phase short circuit fault or any unbalanced short circuit fault on the Onshore Transmission System operating at Supergrid Voltages for a total fault clearance time of up to 140 ms. A solid three-phase or unbalanced earthed fault results in zero voltage on the faulted phase(s) at the point of fault. The duration of zero voltage is dependent on local protection and circuit breaker operating times. This duration and the fault clearance times will be specified in the Services Capability Specification. Following fault clearance, recovery of the Supergrid Voltage to 90% may take longer than 140ms as illustrated in Appendix A Figures A.1.1 (a) and (b).

Comment [M14]: NB. Includes Embedded Transmission by default

Comment [M15]: Interface Point not currently defined to include Embedded Transmission.

Comment [M16]: Query over treatment of Embedded Transmission

Comment [M17]: Could be replaced by any contractual agreement between the GBSO and OFTO

(ii) Each ***Offshore Transmission System*** shall be designed such that upon both clearance of the fault on the GB Transmission System as detailed in 3.1 (a) (i) and within 0.5 seconds of the restoration of the voltage at the ***Interface Point*** to be within the ***Normal Operating Range*** (or within 0.5 seconds of restoration of the voltage at the ***Distribution System Entry Point*** to 90% of nominal or greater if Embedded), Active Power transfer shall be restored to at least 90% of the level available immediately before the fault. During the period of the fault as detailed in 3.1 (a) (i) each ***Offshore Transmission System*** shall generate maximum reactive current without exceeding the transient rating limit at the ***Interface Point***.

Comment [M18]: May need to be reworded in line with any future Embedded transmission recommendations

(iii) Each DC Converter forming part of an ***Offshore Transmission System*** shall be designed to meet the Active Power recovery characteristics as specified in the Services Capability Specification upon clearance of the fault on the GB Transmission System as detailed in 3.1 (a) (i).

Comment [M19]: Query wording appropriate for HVDC Offshore systems?

Comment [M20]: May be superseded by any contractual agreement between the GBSO and OFTO

(b) Supergrid Voltage dips greater than 140ms in duration

In addition to the requirements of 3.1 (a) each ***Offshore Transmission System*** shall:

(i) remain transiently stable and connected to the Total System without tripping of any Plant and/or Apparatus forming part of that ***Offshore Transmission System***, for balanced ***Supergrid Voltage*** dips and associated durations anywhere on or above the heavy black line shown in Figure K2. Appendix A and Figures A.1.3 (a), (b) and (c) provide an explanation and illustrations of Figure K2; and,

Comment [M21]: Again covers Embedded Transmission

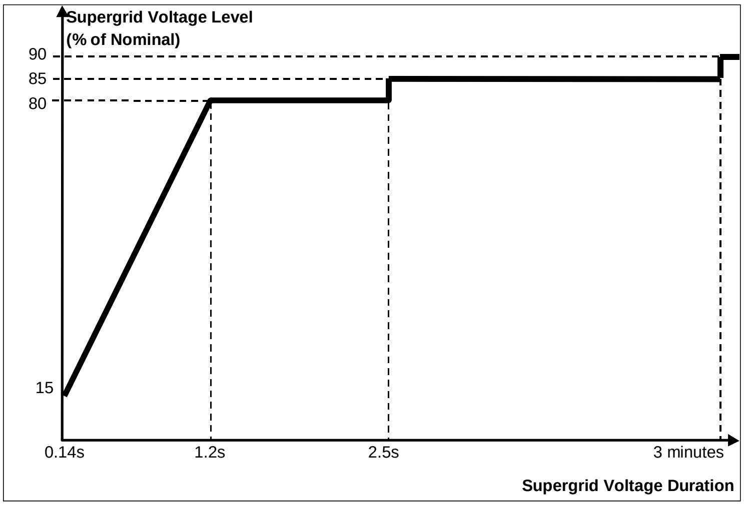


Figure K2

(ii) provide Active Power transfer, during Supergrid Voltage dips as described in Figure K2, at least in proportion to the retained balanced voltage at the ***Interface Point*** (or the retained balanced voltage at the ***Distribution System Entry Point*** if Embedded) except in the case where there has been a reduction in the Active Power transfer of the ***Offshore Transmission System*** in the time range in Figure K2 that restricts the Active Power transfer below this level. In addition during the voltage dip each ***Offshore Transmission System*** shall generate maximum reactive current at the ***Interface Point*** (or the ***Distribution System Entry Point*** if Embedded); and,

Comment [M22]: Query treatment for Embedded transmission

(iii) restore Active Power transfer, following Supergrid Voltage dips as described in Figure K2, within 1 second of restoration of the voltage at the ***Interface Point*** to be within the ***Normal Operating Range*** (or within 1 second of restoration of the voltage at the Distribution System Entry Point to 90% of nominal or greater if Embedded), to at least 90% of the level available immediately before the occurrence of the dip except in the case of ***Offshore Transmission System*** where there has been a reduction in the Intermittent Power Source of any Generating Units connected to such ***Offshore Transmission System*** in the time range in Figure K2 that restricts the Active Power transfer below this level.

Comment [M23]: Query for Embedded Transmission

(c) Other Requirements

(i) In addition to meeting the requirements of Grid Code CC.6.1.5 (b) and CC.6.1.6 at the ***Interface Point***, each ***Offshore Transmission System*** will be required to withstand, without tripping, the negative phase sequence loading incurred by clearance of a close-up phase-to-phase fault, by System Back-Up Protection on the Onshore Transmission System operating at Supergrid Voltage.

(ii) To avoid unwanted island operation, ***Offshore Transmission Systems*** connected to ***Onshore Systems*** in Scotland shall be tripped for the following conditions:-

(1) Frequency above 52Hz for more than 2 seconds

(2) Frequency below 47Hz for more than 2 seconds

(3) Voltage as measured at the ***Interface Point*** or ***Distribution System Entry Point*** below 80% for more than 2 seconds

Comment [M24]: Query over treatment of Embedded Transmission

(4) Voltage as measured at the ***Interface Point*** or ***Distribution System Entry Point*** above 120% (115% for 275kV) for more than 1 second.

Comment [M25]: Query over treatment of Embedded Transmission

The times in sections (1) and (2) are maximum trip times. Shorter times may be used to protect the integrity of an ***Offshore Transmission System*** or Power Stations connected to it.

4 ADDITIONAL DAMPING CONTROL FACILITIES FOR DC CONVERTERS

Comment [M26]: Back off of CC.6.3.16

4.1 ***Offshore Transmission Owners*** who own ***Offshore Transmission Systems*** that contain DC Converters must ensure that any of their DC Converters will not cause a sub-synchronous resonance problem on the Total System. Each DC Converter is required to be provided with sub-synchronous resonance damping control facilities.

4.2 Where specified in the Services Capability Specification, each DC Converter forming part of an ***Offshore Transmission System*** is required to be provided with power oscillation damping or any other identified additional control facilities.

Comment [M27]: May be superseded by the contractual agreement between the GBSO and OFTO

5. FREQUENCY CAPABILITES AND SIGNALS

Comment [M28]: Back off of Frequency Signal recommendations

5.1 Each ***Offshore Transmission Owner*** in respect of each of its ***Offshore Transmission Systems*** which include a DC Converter shall provide to each User in respect of its ***Offshore Power Station(s)*** connected to and/or using such ***Offshore Transmission System*** a continuous signal indicating the real-time Frequency at which the ***Onshore Transmission System*** is operating.

5.2 The Frequency signal referred to in 5.1 above shall be provided to the ***Offshore Power Station*** in a manner and in timescales notified to the ***Offshore Transmission Owner*** by NGET through the Services Capability Specification.

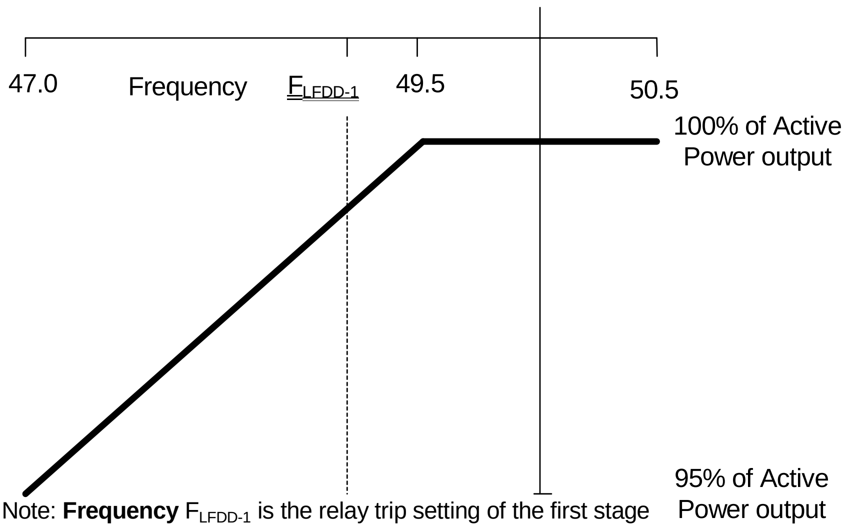
Comment [M29]: May be superseded by any contractual agreement between the GBSO and each OFTO

5.3 Each ***Offshore Transmission Owner*** in respect of each of its ***Offshore Transmission Systems*** which include a DC Converter must be capable of

Comment [M30]: Back off of CC.6.3.3

(a) continuously maintaining constant Active Power transfer for System Frequency changes within the range 50.5 to 49.5 Hz; and

(b) (subject to the provisions of Grid Code CC.6.1.3) maintaining its Active Power transfer at a level not lower than the figure determined by the linear relationship shown in Figure 2 for System Frequency changes within the range 49.5 to 47 Hz, such that if the System Frequency drops to 47 Hz the Active Power transfer does not decrease by more than 5%.



Note: **Frequency** F_{LFDD-1} is the relay trip setting of the first stage of the Automatic Low **Frequency Demand Disconnection** Scheme

Figure 2

(c) For the avoidance of doubt in the case of a ***Offshore Transmission Systems*** that contains DC Converters to which Generating Units using an Intermittent Power Source are connected where the mechanical power input will not be constant over time, the requirement is that the Active Power transfer shall be independent of System Frequency under (a) above and should not drop with System Frequency by greater than the amount specified in (b) above.

5.4 As stated in Grid Code CC.6.1.3, the System Frequency could rise to 52Hz or fall to 47Hz. Each ***Offshore Transmission System*** which includes a DC Converter or any constituent element must continue to operate within this Frequency range for at least the periods of time given in Grid Code CC.6.1.3 unless NGET has agreed to any Frequency-level relays and/or rate-of-change-of-Frequency relays which will trip such ***Offshore Transmission System*** which includes a DC Converter and any constituent element within this Frequency range, under the Services Capability Specification.

Comment [M31]: Back off of CC.6.3.12

Comment [M32]: May be superseded by any contractual agreement between the GBSO and OFTO

5.5 ***Offshore Transmission Owners*** who own ***Offshore Transmission Systems*** which include a DC Converter will be responsible for protecting all their DC Converters against damage should Frequency excursions outside the range 52Hz to 47Hz ever occur. Should such excursions occur, it is up to the ***Offshore Transmission Owner*** to decide whether to disconnect his Apparatus for reasons of safety of Apparatus, Plant and/or personnel.

Comment [M33]: Back off of CC.6.3.13

6. NEUTRAL EARTHING

6.1 At nominal System voltages of 132kV and above the higher voltage windings of a transformer(s) of an ***Offshore Transmission System*** must be star connected with the star point suitable for connection to earth. The earthing and lower voltage winding arrangement shall be such as to ensure that the Earth Fault Factor requirement of paragraph Grid Code CC.6.2.1.1 (b) will be met on the GB Transmission System at nominal System voltages of 132kV and above.

Comment [M34]: Back off of CC.6.3.11

<u>APPENDIX A</u>

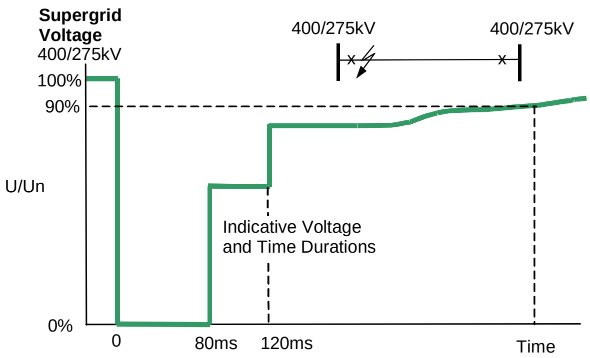
FAULT RIDE THROUGH REQUIREMENT FOR OFFSHORE TRANSMISSION SYSTEMS

A.1.1 SCOPE

The fault ride through requirement is defined in 3.1 (a), (b) and (c). This Appendix provides illustrations by way of examples only of 3.1 (a) (i) and further background and illustrations to 3.1 (b) (i) and is not intended to show all possible permutations.

A.1.2 SHORT CIRCUIT FAULTS AT **SUPERGRID VOLTAGE** UP TO 140MS IN DURATION

For short circuit faults at **Supergrid Voltage** up to 140ms in duration, the fault ride through requirement is defined in 3.1 (a) (i). Figures A.1.1 (a) and (b) illustrate two typical examples of voltage recovery for short-circuit faults cleared within 140ms by two circuit breakers (a) and three circuit breakers (b) respectively.



Typical fault cleared in less than 140ms: 2 ended circuit

Figure A.1.1 (a)

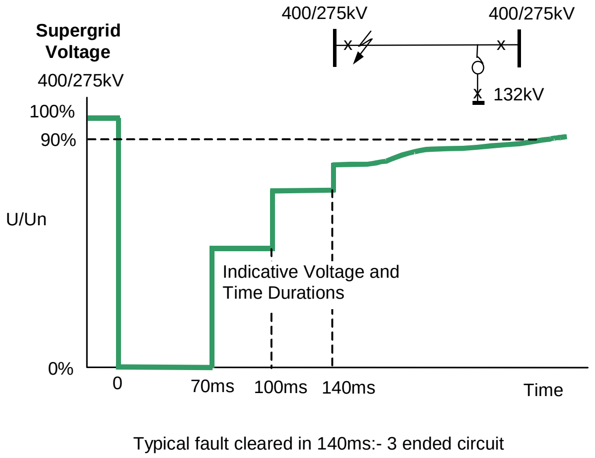


Figure A.1.1 (b)

A.1.3 **SUPERGRID VOLTAGE** DIPS GREATER THAN 140MS IN DURATION

For balanced **Supergrid voltage** dips having durations greater than 140ms and up to 3 minutes the fault ride through requirement is defined in 3.1 (b) (i) and Figure 1 which is reproduced in this Appendix as Figure A.1.2 and termed the voltage–duration profile.

This profile is not a voltage-time response curve that would be obtained by plotting the transient voltage response at a point on the **GB Transmission System** or **Distribution System** to a disturbance. Rather, each point on the profile (i.e. the heavy black line) represents a voltage level and an associated time duration which connected **Offshore Transmission Systems** must withstand or ride through.

Figures A.1.3 (c), (d) and (e) illustrate the meaning of the voltage-duration profile for voltage dips having durations greater than 140ms.

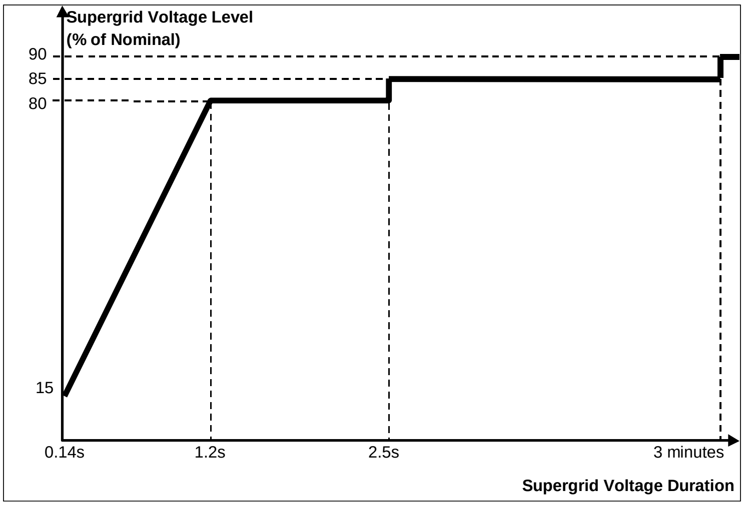
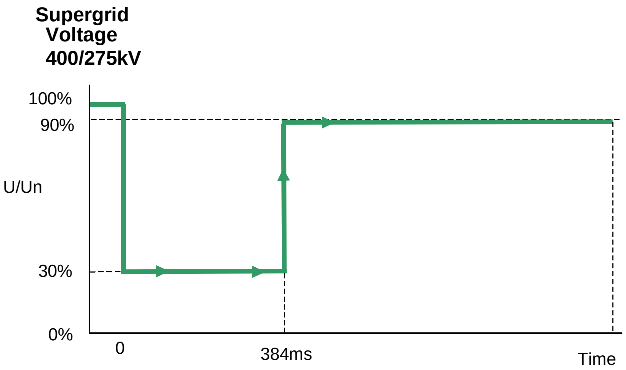
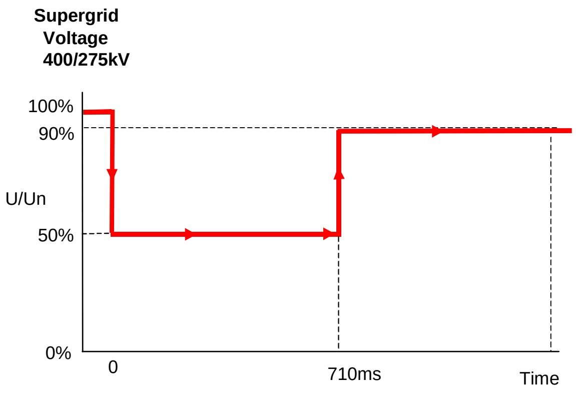


Figure A.1.2



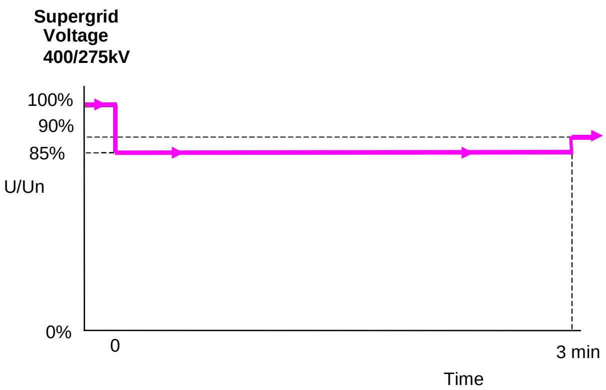
30% retained voltage, 384ms duration

Figure A.1.3(a)



50% retained voltage, 710ms duration

Figure A.1.3(b)



85% retained voltage, 3 minutes duration

Figure A.1.3(c)

New STC Definitions

"**Active Power**"	As defined in the Grid Code
"**DC Converter**"	As defined in the Grid Code
"**Distribution System Entry Point**"	The electrical point of connection between an ***Offshore Transmission System*** and an ***Onshore Distribution System***
"**Interface Point Capacity**"	The maximum amount of Active Power transferable at the ***Interface Point*** as declared by an Offshore Transmission Owner, expressed in whole MW. Each Offshore Transmission Owner shall ensure that the ***Interface Point Capacity*** it declares to NGET is such that it is not less than the sum of the declared Transmission Entry Capacities of each Power Station connected to that Offshore Transmission Owner's ***Offshore Transmission System*** when all such Offshore Transmission Plant and Apparatus is in service.
"**Interface Point**"	The electrical point of connection between an Offshore Transmission System and an Onshore Transmission System
"**Intermittent Power Source**"	As defined in the Grid Code
"**Normal Operating Range**"	Subject as provided below, the voltage on the 400kV part of the **Onshore Transmission System** at each **Interface Point** with an **Offshore Transmission System** will normally remain within ±5% of the nominal value unless abnormal conditions prevail. The minimum voltage is -10% and the maximum voltage is +10% unless abnormal conditions prevail, but voltages between +5% and +10% will not last longer than 15 minutes unless abnormal conditions prevail. Voltages on the 275kV and 132kV parts of the **Onshore Transmission System** at each **Interface Point** with an **Offshore Transmission System** will normally remain within the limits ±10% of the nominal value unless abnormal conditions prevail. At

Comment [M35]: Query Embedded Transmission?

Comment [M36]: This is essentially a back off of Grid Code CC.6.1.4, which is between NGET and Users at the Connection Site, whereas this has been redrafted to be between NGET and OFTOs at the Interface Point

	nominal **System** voltages below 132kV the voltage of the **Onshore Transmission System** at each **Interface Point** with an **Offshore Transmission System** will normally remain within the limits ±6% of the nominal value unless abnormal conditions prevail. Under fault conditions, voltage may collapse transiently to zero at the point of fault until the fault is cleared. **NGET** and an **Offshore Transmission Owner** may agree greater or lesser variations in voltage to those set out above in relation to a particular **Interface Point**, and insofar as a greater or lesser variation is agreed, the relevant figure set out above shall, in relation to that **Offshore Transmission System** at the particular **Interface Point**, be replaced by the figure agreed
"**Offshore Transmission System**"	As defined in the Grid Code
"**Offshore**"	As defined in the Grid Code
"**Onshore**"	As defined in the Grid Code
"**Onshore Transmission System**"	As defined in the Grid Code
"**Power Factor**"	As defined in the Grid Code
"**Reactive Power**"	As defined in the Grid Code
"**Supergrid Voltage**"	As defined in the Grid Code
"**System Back-Up Protection**"	As defined in the Grid Code