

MODIFICATION RECOMMENDATION

FORM CLARIFICATION MOD – INTERCONNECTOR AGC (MPID 249)



RECOMMENDATION TO CER BY EIRGRID OF MODIFICATION TO GRID CODE.

	CLARIFICATION MOD – INTERCONNECTOR AGC (MPID 249)
MODIFICATION NUMBER	MPID 249
RECOMMENDED AT GCRP MEETING NUMBER	39
LIST OF GRID CODE SECTION(S) AFFECTED BY PROPOSED MODIFICATION:	CC7.5
CURRENT GRID CODE VERSION :	5
MODIFICATION DESCRIPTION Overview THE REASON FOR THE RECOMMENDED MODIFICATION	<p>Analysis of the AGC requirements in OC4.3.6 has highlighted the requirement for Interconnectors to provide AGC without a corresponding reference in CC7.5. This modification aims to provide clarity in the requirements for Interconnectors in the provision of AGC Control.</p>
History of Progression through GCRPs, Working Group and/or Consultation	<p>EirGrid presented the modification proposal MPID 249 to the Grid Code Review Panel members at a meeting held at The Spencer Hotel in Dublin on the 11th June 2014. No objections were raised by the panel members and the modification was recommended for approval subject to the approval of the Interconnector Representative. EirGrid sought and received such approval</p>
Summary Note of any Objections to the Recommended change from GCRP Members or Consultation Responses	<p>No objections were raised.</p>

<p>Outcome of any GCRP Meeting Actions Relating to the Recommended Modification</p>	<p>No objections were raised.</p>
<p>Implication of not implementing the Modification</p>	<p>This modification aims to provide a clear requirement for AGC capability from Interconnectors in the Connection Conditions. Currently AGC is required from Interconnectors through OC4.3.6. This modification aims to provide clarity on the provision of AGC and remove the ambiguity due to the lack of corresponding Connection Condition requirement.</p>

CC7.5 INTERCONNECTOR

CC.7.5.1 The conditions specified in this section of the **Grid Code** apply to all **Interconnectors** connected to or connecting to the **Transmission System**. The provision of services affecting the **Transmission System** shall be in accordance with the **Interconnector Operating Protocol** as agreed with the **TSO** and the **External System Operator**.

CC.7.5.1.1 Each **Interconnector**, shall have the following minimum capabilities, for the avoidance of doubt, additional performance capabilities are required from **OC4- System Services**:

(a) operate continuously at **MW Output** at **Transmission System Frequencies** in the range 49.5Hz to 50.5Hz;

(b) operate and remain connected to the **Transmission System** at **Transmission System Frequencies** within the range 47.5Hz to 52.0Hz;

(c) remain connected to the **Transmission System** at **Transmission System Frequencies** within the range 47.0Hz to 47.5Hz for a duration of 30 seconds required each time the Frequency is below 47.5Hz;

(d) remain connected to the **Transmission System** during rate of change of **Transmission System Frequency** of values up to and including 1 Hz per second;

(e) remain connected to the **Transmission System** at **MW Output** at **Transmission System Voltages** within the ranges specified in CC.8.3.2 for step changes in **Transmission System Voltage** of up to

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10%;

(f) sustained operation in accordance with the **Reactive Power** capability referred to in CC.7.5.10 at **Transmission System Voltages** within the ranges specified in CC.8.3.2, unless otherwise specified;

(g) remain connected during and following **Voltage** dips at the **HV** terminals of the **Interconnector Transformer** of 95% of nominal **Voltage** (5% retained) for duration 0.2 seconds and **Voltage** dips of 50% of nominal **Voltage** (i.e. 50% retained) for duration of 0.6 seconds. Following the fault clearance the **Interconnector** should return to pre-fault conditions subject to normal **Frequency Response** and **Voltage Regulation**;

(h) operate within all normal operating characteristics at a minimum short circuit level at the **Connection Point** of 1000 MVA;

(i) remain connected to the **Transmission System** during a negative phase sequence load unbalance in accordance with IEC 60034-1;

(j) have support triggers to allow the **Interconnector** to provide **System Services** as outlined in OC4;

(k) in **Emergency** capable of reversing the power flow on the **Interconnector** at a rate which shall be no less than the **Interconnector Registered Capacity** within five seconds, up to ten times during the life of the plant and no more than two times in any given twelve months;

(l) **Interconnector Minimum Load** not greater than the lesser of 3% of the **Interconnector Registered Capacity** or 50 **MW**;

(m) **Interconnector Ramp-up Capability** not less than the greater of 10% of the **Interconnector Registered Capacity** per minute or 50 **MW** per minute, when the **Interconnector** is in the **Normal Dispatch Condition**;

(n) **Interconnector Ramp-down Capability** not less than the greater of 10% of the **Interconnector Registered Capacity** per minute or 50 **MW** per minute, when the **Interconnector** is in the **Normal Dispatch Condition**;

(o) **Forbidden Zones** within the lesser range of between + and - 3% of the **Interconnector Registered Capacity** or 30 **MW** in either flow direction and not more than 2 specified zones.

(p) **Block Load for an Interconnector** not greater than the lesser of 3% of the **Interconnector Registered Capacity** or 30 **MW** in either flow direction. Not greater than 30 minutes.

(q) **Time from off-line to Interconnector Minimum Load** in either flow direction.

Not greater than 30 minutes.

(r) Time from Interconnector Minimum Load in either flow direction to off-line.

(s) The TSO may request Interconnectors to have the capacity to operate under AGC at all loads between AGC Minimum Load and AGC Maximum Load.

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