

Grid Code Modification Proposals for 20th GCRP (24th April 2008)

Final Version Sent to CER
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MPID 180 – Design Parameters Table

Grid Code clause number: CC.7.2.2

Proposed by: EirGrid

Grid Code CC.7.2.2 currently states the following:

Modification Proposal:

CC.7.2.2 Design

CC.7.2.2.1 **User Plant** and **Apparatus** shall be designed with the following minimum capabilities (at the applicable **Voltage** levels):

Parameter (Minimum)	110kV	220kV	400kV
Insulation Level; Impulse Level (kV) (1.2/50 μ sec.)	550	1050	1550
Insulation Level; Power Frequency (kV) (50Hz for 1 min.)	230	460	620
Clearance outdoor in air of live metal parts (mm) phase to earth	1100	2400	4100
Height of live parts above pedestrian passageways (mm)	3400	4700	6400
Height of bottom of unscreened live bushings above ground (mm)	2300	2300	2300
Height of live conductors above roadways (mm)	8000	9000	10500

Modifications to this clause are now being proposed for the following reasons:

1) The 110 -220 kV networks are in voltage range I (according to Table 2 of the IEC Insulation Co-ordination standard 60071), and the 400 kV network is in voltage level II (according to Table 3 of the IEC Insulation Co-ordination standard 60071). These two levels are treated differently for the purposes of Insulation Coordination. In the case of the first one lightning impulse and short-duration power frequency voltages are standardised, whilst for the second one lightning impulse and switching impulse voltages are standardised. Based on this, changes are proposed in specification of the insulation level.

2) The minimum phase-to-earth air clearance is also specified in the same standard and is based on the two ranges above. For voltage range I it has to be determined from Table A.1 for the rated lightning impulse withstand voltage and for voltage range II it has to be the higher value of the clearances determined from the table A.1 for the standard rated lightning impulse withstand voltages, and from Table A.2 for the standard rated switching impulse withstand voltages respectively. This leads to following figures: for 110 kV – 1100 mm; for 220 kV – 2100 mm; and for 400 kV – 4100 mm.

This modification therefore aligns the Grid Code with the latest European standard dealing with insulation co-ordination (currently IEC 60071-1:2006).

The proposed text is shown below:

CC.7.2.2 Design

CC.7.2.2.1 **User Plant** and **Apparatus** shall be designed with the following minimum capabilities (at the applicable **Voltage** levels):

Parameter (Minimum)	110kV	220kV	400kV
Insulation Level; Impulse Level (kV) (1.2/50 µsec.)	550	1050	1550
Insulation Level; Power Frequency (kV) (50Hz for 1 min.)	230	460	620
<u>Insulation Level (kV):</u>			
- <u>Lightning Impulse (1.2/50 µsec.)</u>	<u>550</u>	<u>1050</u>	<u>1550</u>
- <u>Switching Impulse (0.25/2.5 ms)</u>	-	-	<u>1175</u>
- <u>Power Frequency (50 Hz, for 1 min)</u>	<u>230</u>	<u>460</u>	-

Clearance outdoor in air of live metal parts (mm) phase to earth	1100	2400 <u>2100</u>	4100
Height of live parts above pedestrian passageways (mm)	3400	4700	6400
Height of bottom of unscreened live bushings above ground (mm)	2300	2300	2300
Height of live conductors above roadways (mm)	8000	9000	10500

MPID 169 – Modifications to Grid Code for Secondary Fuels

The CER has published a draft determination on the Secondary Fuels requirements for Generators. It is available on the CER website here

<http://www.cer.ie/en/electricity-security-of-supply-current-consultations.aspx?article=2a1a707c-9375-4b01-bb0c-827e38a01b1d>

Although the final decision has yet to be published, EirGrid proposes to discuss some of the resulting changes that would be required to the Grid Code.

Please note that EirGrid is not proposing to discuss at this GCRP the merits or otherwise of the actual requirements as discussed in the CER draft decision paper, but merely just what type of changes the Grid Code may expect as a result of the final decision.

- § The Planning Code may need modification to ensure EirGrid receives all planning data for the unit running on all required fuels;
- § The Connection Conditions would require change to ensure that their scope covers generators running on all required fuels. EirGrid would also consider the addition of a signal to CC.12.2 requiring the Generator to send a signal to the TSO containing the quantity of MWhrs available on distillate;
- § Secondary Fuel would need to become a defined term and be inserted into the Glossary;
- § OC10 would need to reflect the finalised testing arrangements;
- § Further changes would need to be considered following the finalisation of the draft.

MPID 158 – Minimum Load

Grid Code clause number: CC.7.3.1.1 (k)

Proposed by: EirGrid

Modification Proposal:

This modification proposal was raised at the GCRP in September 2006, however was never finalised. EirGrid would like to discuss this modification further at this meeting.

Currently it is not clear what the minimum load must be for a CCGT that is operating in open-cycle mode (i.e. with the steam turbine off) . As a CCGT plant generates some of its power from a gas turbine and the balance from the steam turbine, the minimum load should be lower with gas turbine operating alone than with both the gas turbine and steam turbine acting together.

It is therefore proposed to amend CC.7.3.1.1 (k) as follows by adding in the text in blue and underlined and by deleting the text in red strikethrough:

Original proposed modification made by EirGrid:

- (k) **Minimum Load** not greater than 50% of **Registered Capacity** for **CCGT~~s~~ Installations** and not greater than 35% of **Registered Capacity** for all other **Generation Units**. For **CCGT Installations** whilst operating in **Open Cycle Mode**, the **Minimum Load** of each **Combustion Turbine Unit** must be not greater than 35% of the **Registered Capacity** divided by the number of **Combustion Turbine Units**.

New and accepted proposal submitted by Garrett Blaney on behalf of CCGT IIP:

- (k) **Minimum Load** not greater than 50% of **Registered Capacity** for **CCGT~~s~~ Installations** and not greater than 35% of **Registered Capacity** for all other **Generation Units**. **For CCGT Installations whilst operating in Open Cycle Mode as a result of combined cycle plant capability being unavailable, the Minimum Load of each Combustion Turbine Unit must be not greater than 35% of the Registered Capacity divided by the number of Combustion Turbine Units.**

MPID 181 – Grid Code derogations register

Grid Code clause number: GC.9.8

Proposed by: EirGrid

Modification Proposal:

In order to make the granting of derogations more transparent it is proposed to amend GC.9.8 as follows by adding in the text in blue and underlined and by deleting the text in red strikethrough:

GC.9.8 The **TSO** shall:

- (a) keep a register of all derogations which have been granted, identifying the company and **Plant** in respect of whom the derogation has been granted, the relevant provision of the **Grid Code** and the **Grid Code** version number, the period of the derogation and the extent of compliance to the provision, ~~and~~
- (b) on request from any **User** or **User** of the **Other Grid Code**, provide a copy of such register of derogations to such **User**; and
- (c) publish this register on the TSO's website.

MPID 182 – References

Grid Code clause number: PCA

Proposed by: EirGrid

Modification Proposal:

Grid Code version 3.0 contained some changes to the General Conditions which resulted in various re-numbering of clauses. Unfortunately this new numbering was not reflected in the references to the General Conditions in the Planning Code Appendix. The proposed modifications are shown in the paragraph below.:

PCA4.10.1.2.6 Time to Comply

Where a **User** requires reasonable time to develop the necessary model or models so as to comply fully with all the provisions in this section **PCA 4.10.1.2**, the **User** may apply to the **TSO** to be deemed compliant with the provisions of **PCA 4.10.1.2** on the

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basis of ~~GC.9.1.3~~ [GC.10.1.3](#) of the **General Conditions** of the **Grid Code**. The **TSO** shall consider any such application in accordance with ~~GC.9.1.3~~ [GC.10.1.3](#), and if the **TSO** is satisfied as to the **User's** programme for developing and testing the necessary dynamic model, the **TSO** may, for so long as the **TSO** is so satisfied, treat the **User** as being in compliance with the provisions of this section. If the **TSO** decides, acting reasonably, that it is not satisfied as to the **User's** programme for developing and testing the necessary dynamic model and that the **User** cannot be deemed to be in compliance with **PCA 4.10.1.2**, the provisions of ~~GC.9.1.4~~ [GC.10.1.4](#) shall apply and the **User** shall apply for a derogation under the terms of ~~GC.8~~ [GC.9](#).

MPID 184 – Wind Power Forecasts

Grid Code clause number: WFPS1.7.5

Proposed by: EirGrid

Modification Proposal:

As the TSO produces its own forecast for all the wind power production in Ireland, it is not always necessary for every Wind Farm to submit forecasts on a daily basis. However there may be instances where this could be required so the modification below changes the requirement from every wind farm having to submit daily forecasts to a requirement where a wind farm would only have to do this upon a specific request from the TSO.

In addition, to tidy up WFPS1.7.5.2 it is proposed to insert the word “Controllable” prior to WFPS as this is now the term since the modifications were made for the harmonisation of the Grid Code for SEM.

WFPS1.7.5.1 WIND POWER FORECASTS

Should the TSO determine that wind power forecasts as produced by the Controllable WFPS are required, the TSO shall inform the Controllable WFPS and the wind power forecasts shall be provided by the Controllable WFPSs. These forecasts, if required, shall be provided in a format and timescale as specified by the TSO, and ~~at 10:00 a.m. on a daily basis for the following 48 hours for each 30 minute time period~~ by means of an **Electronic Interface** in accordance with the reasonable requirements of the TSO’s data system.

WFPS1.7.5.2

Controllable WFPSs shall engage fully with the TSO to ensure that the necessary information is available to the TSO for the production of wind generation forecasts with the appropriate level of accuracy by the TSO. Where this engagement involves the provision of data by the Controllable WFPS to the TSO, this data must be provided as soon as reasonably practicable, or in any event, within 60 business days of the date of the request.