

EU Grid Connection Codes implementation approach

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Proposed Setup for 2016 onwards

Non-Technical Groups (spanning RfG, DCC and HVDC):

1. GCC co-ordination [under GC0048 - “G”?]
 - Compliance Processes now managed within Co-ordination

Technical Groups:

2. Generator Technical Group **including DC-Connected PPMs** [under GC0048 - “T”?]
 - Voltage + Reactive Power + Fault Ride Through; RfG Banding
3. HVDC System Technical Group [under GC0090]
4. DCC Technical Group [under GC0091]
5. System Management [under GC0048]

See following slides for scope of these work steams

Workgroup reporting structure

D-Code/G-Code Review Panels

Co-ordination Group

Generator Technical

DCC

HVDC

System Management

Associated GC mod numbers:

GC0048_G

GC0048_T

GC0091

GC0090

GC0048

1. GCC co-ordination [under GC0048]

- Oversight of all the implementation work for the x3 GCCs
- Co-ordination of the resulting modification activities for the x3 GCCs:
 - Review workgroup reports + proposed legal text
 - Industry consultations
 - Report to NRA
- The workgroup for ‘General’ requirements for the three GCCs
- Co-ordination of any consequential GB code changes
- Oversight of impact from the System Operation Guideline
- Consideration of any Licence changes

1. GCC co-ordination [under GC0048]

Workgroup for implementation of consistent legal/procedural requirements across RfG, HVDC and DCC:

- Definitions
- Code scope:
 - New vs Existing
 - Exclusions
 - Retrospectivity + application to heavily 'modified' existing generators process
 - Public consultations process
- Emerging Technologies carve out [RfG only]
- CBAs (above + derogations)
- Conclusion of 'Relevant TSO(s)' work

Compliance Process [under Co-ordination Group]

First Part:

- Testing
- Validation of models
- Operational Notifications
- Simulation/Testing (SPGMs; PPMs)

Second Part (at a later date):

- Continuation of similar topics above for new technical requirements deriving out of the 'Technical' work steams

2. Generator Technical Group [under GC0048]

- Technical requirements for generation captured under RfG **and DC-Connected PPMs from HVDC:**
 - Fault Ride Through:
 - Active power recovery
 - Fast fault current injection
 - Voltage and Reactive Power:
 - Voltage stability - automatic disconnection
 - Provision of active power over a range of system voltage changes
 - Angular stability
 - Voltage ranges
 - Reactive power (inc settings; max capacity/below max capacity)
 - SPGM excitation control system (inc AVR)
 - PPM - reactive power control modes (voltage/reactive/power factor) (GC0075?)

3. HVDC/ 4. DCC Technical Groups

- HVDC System Technical Group [**under GC0090**]
 - Full requirements for HVDC Systems (i.e. interconnectors)

- DCC Technical Group [**under GC0091**]
 - Full requirements for Demand Units
 - DSR

5. System Management [under GC0048]

- Parameter setting or evolving existing requirements for generation under RfG and HVDC:
 - Automatic reconnection (inc settings)
 - System restoration (inc settings)
 - Control Schemes
 - Protection
 - Operational Metering
 - Black start capability
 - Quick re-synchronisation capability
 - Monitoring (DSM; fault recording; quality of supply)
 - Simulation/models
 - Devices for system operation/security
 - Ramp rates
 - Earthing
 - Synchronising (inc settings)

Implementation work to be managed outside x2 day appointments

- GC0087 Frequency (RfG withstand TBC)
- D-Code-specific code drafting:
 - Mod 8 – Distribution Docs – G98
 - Revision of G83 to incorporate RfG and EN50438
 - G83-1 Type Tested Generating Units up to 16 A per phase
 - G83-2 Multiple Type Tested Micro-generating Plants in a Close Geographic Region and Type Tested Generating Units above 16 A per phase but with a maximum capacity less than 50 kW
 - Mod 9 – Distribution Docs – G99
 - Revision of G59 to incorporate RfG and TS 50549-1 & 2
 - Present consideration RfG Types A and B
 - Then consider Types C and D (in conjunction with Mods 1-7)

Plan for February-March

Day One – Co-ordination Group – Full Day*

- Project Management update
- Commencement of work on ‘General’ requirements
- [*PM – RfG Banding if required]

Day Two – Generator Technical – Full Day

- Fault Ride Through (full details to follow)
- Subject to GC0090/91 agreement, HVDC and DCC will defer their next meetings until April. This will allow prioritisation of ‘Generator Technical’ work given RfG’s earlier ‘Entry Into Force’

2016 Meeting Dates

~~Tuesday 12th-Wednesday 13th January~~

- Wednesday 10th-Thursday 11th February
- Wednesday 9th-Thursday 10th March
- Wednesday 6th-Thursday 7th April
- Wednesday 11th-Thursday 12th May
- Tuesday 14th-Wednesday 15th June
- Tuesday 12th-Wednesday 13th July
- Tuesday 9th-Wednesday 10th August
- Tuesday 13th-Wednesday 14th September
- Tuesday 18th-Wednesday 19th October
- ****NEW** Tuesday 8th-Wednesday 9th November**
- ****NEW** Tuesday 13th-Wednesday 14th December**

2016 Meeting Dates – 3rd day proposed dates

- Wednesday 2nd March
- No meeting in April [April x2 day meetings 6th-7th April]
- Wednesday 4th May
- Wednesday 1st June
- Wednesday 6th July
- Wednesday 1st August
- Wednesday 7th September
- Wednesday 5th October
- Wednesday 2nd November
- Wednesday 7th December