



DS3: Grid Code Work Stream 2015

CONTEXT

The purpose of the Grid Codes in Ireland and Northern Ireland is to set the (minimum) standards relating to the operation and use of the Transmission System and to define material technical aspects relating to the use of plant or apparatus connected to the Transmission or Distribution system. The Grid Codes are active documents that are continuously under review and subject to modification. This reflects the dynamic nature of the power system where technology is continuously evolving and operating practices and procedures are updated in tandem. There is a process in place for modifying both Grid Codes via the Grid Code Review Panels in Ireland and Northern Ireland. Common sections of the codes can be modified via the Joint Grid Code Review Panel. The Grid Codes have already undergone many changes to incorporate and reflect the particular technical characteristics of wind generation.

OBJECTIVES

In recent times, government policy has placed an emphasis on connecting renewable generation to the grid, particularly wind. Technical studies carried out by the TSOs and their consultants showed that very high wind penetrations necessitated Grid Code changes to ensure system stability, and that these changes should be harmonised as much as possible between Ireland and Northern Ireland to achieve an all-island effect. The required changes to both the Ireland and Northern Ireland Grid Codes are discussed and managed through this workstream. This includes all relevant consultations, recommendations and Grid Code Working Group meetings and required implementation steps following regulatory approval.

Ireland and Northern Ireland form a single synchronous system. It is therefore imperative that a consistent approach is applied in both jurisdictions. In addition, it is important that application of Grid Code standards is consistently applied at Distribution System-level where required. Thus any subsequent changes required to the Distribution Codes coming out of Grid Code modifications will be co-ordinated through this workstream.

Additionally, the impact of the European Network Code adoption on the existing and proposed Grid Code standards will also be monitored. The Network Code adoption process will be handled outside of the DS3 Programme, however, this workstream will aim to keep abreast of proposed changes and provide support if any DS3 Grid Code clauses require modification resulting from the implementation of the Network Codes.

WORK COMPLETED TO DATE

In February 2013 the Ireland Grid Code modifications regarding wind farm power stations agreed by the DS3 Joint Grid Code Working Group were approved by the CER. In Northern Ireland, the Wind Farm Power Station Setting Schedule was approved by URegNI in November 2013. In Ireland, the Distribution Code modifications for these wind farm standards have been agreed by the Distribution Code Review Panel. A guidance notes document has been provided to industry in order to provide clarity on these new standards.

In September 2013, a modification on the Grid Code requirements for Demand Side Units was approved by the CER in Ireland. The modification is still awaiting decision in Northern Ireland. Further to this, a DSU Joint Grid Code Working Group has been established to further assess how the Ireland and Northern Ireland Grid Codes need to evolve in the DSU space – a number of Grid Code changes were discussed at this forum and have been circulated to the Regulatory Authorities for approval.

A letter was issued to the CER outlining and providing clarity on EirGrid's views on Grid Code application to new technologies including CHP plant.

The modification on the Rate-of-Change-of Frequency (RoCoF) was consulted on by the regulators in Ireland and Northern Ireland. This followed an extensive period of industry engagement through a Working Group of the Joint Grid Code Review Panel (the "Working Group") as well as a number of discussions at the Joint and Irish Grid Code Review Panels. A final decision paper was published by the CER on 04/04/2014. This document can be found [here](#). A final decision paper was published by UR on 07/05/2014. This document can be found [here](#).

A modification on Dynamic Model requirements was not fully discussed at the November 2014 Ireland GCRP – due to time constraints, this will be discussed at the next GCRP meeting in Q1 2015. The modifications have also been consulted on in Northern Ireland and are currently being reviewed by the regulator.

In addition to these approved modifications, other modifications have been presented to the respective GCRPs in Ireland and Northern Ireland.

FOCUS AREAS IN 2015

Dynamic Models

A Grid Code modification for dynamic model requirements has been drafted and was brought to the November 2014 GCRP. It was not discussed fully due to time constraints and will be tabled at the next GCRP in February 2015. In Northern Ireland, the modification has also been drafted and discussed at the Northern Ireland Grid Code Review Panel. The regulators are currently considering a decision on this modification. It is proposed that the modification will be finalised in Ireland and Northern Ireland in Q2 2015. Significant engagement with industry will be required in order to get

the modifications approved and also implemented throughout 2015. Modifications to the respective distribution codes may be required at a future date.

Over Frequency Reserve (formerly Negative Reserve)

A review will be carried out in Q1 of 2015 to determine whether a clause should be added to the Grid Code with regard to Over Frequency Reserve.

OTHER CHANGES

There are a number of tasks in this work stream plan that are replicated in other DS3 work stream plans and have now been removed from this plan to avoid duplication. Similarly a number of other tasks are deemed to now move into Grid Code 'business as usual' roles.

The tasks that have been removed are detailed below:

Wind Farm Modifications

With the modifications for wind farm requirements approved, the next steps for this task are about providing clarity on the implementation of the new standards. In addition to this, the implementation of the modifications on the Distribution System will also involve engagement with the DSO and industry. It will be important to ensure the consistent and co-ordinated implementation of these modifications. This is considered a 'business as usual' role and thus will be removed from this work stream plan.

Demand Side Units

A DSU Joint Grid Code Working Group has been established to further assess how the Ireland and Northern Ireland Grid Codes need to evolve in the DSU space. The DS3 Demand Side Management work stream will be leading the management of the remainder of this work and thus deliverables G.C. 5.7 - 5.14 will not appear in this work stream plan.

Rate of Change of Frequency (RoCoF)

There is a separate work stream that leads the management of RoCoF related deliverables and thus the outstanding RoCoF deliverables GC 3.2.4, GC 3.2.6 and GC 3.2.8 will not appear in this work stream plan.

European Network Codes

A separate body of work outside of the DS3 Programme has been initiated to consider the adoption of the European Network Codes into the Grid Codes of Ireland and Northern Ireland. A Joint Grid Code Working Group (JGCWG) on Network Codes has been established and this will consider all Grid Code clauses, including DS3 Programme related clauses that may require modification. This workstream will not specifically review the Network Code changes but will provide support to the JGCWG on Network Codes when modifications to DS3 related Grid Code clauses are required, thus deliverable G.C. 6.8 is removed from this workstream plan.

Grid Code Development and New Technologies

The monitoring of new technologies and developing strategies for integrating these onto the grid falls under the remit of the Technology and Innovation team within EirGrid. For this reason, deliverables G.C. 6.2 and 6.3 have been removed from this workstream plan. Any Grid Code clauses or modifications identified as being required for new technologies will be brought through the existing Grid Code Review Panel process.

FUTURE OF WORKSTREAM

Considering that the majority of the modifications related to the DS3 programme have been approved or are under consideration by the regulator; it is envisaged that this workstream will begin to conclude. Over the next twelve months Grid Code modifications relating to DS3 will decline. Ongoing review of modifications to the Grid Code and TSO engagement with the DSOs on potential modifications will continue as per 'business as usual' and are no longer required as standalone deliverable items.

HIGH-LEVEL PLAN

TASK NO.	TASK	RESPONSIBLE	ORIGINAL DUE DATE	DUE DATE
Wind farm Steady-state control modes				
GC.1.2	Discuss WFPS voltage control modes with DSOs	TSOs	Q2 2012	Complete
GC.1.2.1	Develop modification to Ireland Distribution Code and bring to Distribution Code Review Panel	ESBN	New Task	Complete
GC.1.2.2	Send modification to CER for approval	ESBN	New Task	Complete
GC.1.2.3	RA decision on Distribution Code modification	CER	New Task	Complete
Dynamic Active and Reactive Power Response – Wind farms and Conventional Plant				
GC.2.1	Decision on Grid Code proposals	RAs	Q4 2012	Complete
GC.2.2.1	Develop modification to Ireland Distribution Code and bring to Distribution Code Review Panel	ESBN	Q1 2013	Complete
GC.2.2.2	Send modification to CER for approval	ESBN	New Task	Complete
GC.2.2.3	RA decision on Distribution Code modification	CER	New Task	Complete
GC.2.3.1	NIE to carry out review of Distribution Code prior to bringing in new standards (non-DS3 related)	NIE	New Task	Complete
GC.2.3.2	Develop modification to Northern Ireland Distribution Code and bring to Distribution Code Review Panel	NIE	New Task	Complete
GC.2.3.3	Send modification to UReg for approval	NIE	New Task	Complete
GC.2.3.4	RA decision on Distribution Code modification	UReg	New Task	Q1 2015
Dynamic Model Requirements				
GC.4.1	Bring proposal to Ireland GCRP	TSOs	New Task	Q1 2015
GC.4.2	Send modification to CER for approval	TSOs	New Task	Q1 2015
GC.4.3	CER decision on proposal	CER	New Task	Q2 2015
GC.4.4	Get Dynamic Models Modifications tabled and approved at Distribution Code	TSOs/ESBN/NIE	New Task	Q2 2015
GC.4.6	Bring Proposal to Northern Ireland GCRP	TSOs	New Task	Complete
GC.4.7	Consult on modification to Northern Ireland Grid Code	TSOs	New Task	Complete
GC.4.8	Send modification to UReg for approval	TSOs	New Task	Complete
GC.4.9	UReg decision on proposal	UReg	New Task	Q1 2015
Over-Frequency Reserve (formerly Negative Reserve)				
GC.7	Review to determine whether a clause in the Grid Code for over-frequency reserve is required	TSOs	Q4 2012	Q1 2015