

Modification proposal:	Grid Code GC0050: Demand Control and OC6		
Decision:	The Authority ¹ directs that the proposed modification to the Grid Code be made ²		
Target audience:	National Grid Electricity Transmission PLC (NGET), Grid Code users and other interested parties		
Date of publication:	5 June 2014	Implementation Date:	1 July 2014

Background to the modification proposal

The Grid Code places obligations on Network Operators³ to reduce demand on instruction from National Grid Electricity Transmission (NGET) in situations where there is a risk that there will be insufficient generation to meet the total system demand. These obligations are set out in the Operating Code OC6.5.3. In summary, OC6.5.3 requires that:

- up to 20% demand reduction will be achieved in four stages, with each stage achieving between 4% and 6% demand reduction;
- this demand reduction will be achieved by a combination of voltage reduction and demand disconnection; and
- it must be achieved in no longer than five minutes from the time of the instruction given by NGET and, as far as possible, uniformly across Grid Supply Points.

These requirements are based on a number of assumptions. Firstly, it has been assumed that there is a reliable relationship between voltage reduction and demand reduction. Specifically, it has been assumed that a 3% voltage reduction will achieve a 5% demand reduction. Secondly, it has been assumed that the five minute implementation time is achievable.

These assumptions were examined by a Workgroup, established by the Grid Code Review Panel (GCRP), between December 2012 and November 2013. The full report of its work has been published on NGET's website.⁴ It concluded that:

- a 3% voltage reduction can only be expected to deliver a 1.5% demand reduction; and
- it is not practical to achieve demand reduction using voltage reduction in the currently required maximum time of five minutes starting from NGET's instruction.

The Workgroup made a number of recommendations, including in relation to the delivery of demand reduction and the implementation time. These recommendations formed the basis for Grid Code change proposal GC0050.

¹ The terms 'the Authority', 'Ofgem' and 'we' are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority.

² This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

³ Network Operator is as defined in the Grid Code Glossary and Definitions available on the National Grid website: <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Grid-code/The-Grid-code/>

⁴ <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Grid-code/Modifications/GC0050/>

The modification proposal

GC0050 was raised by NGET following the completion of the Workgroup report in November 2013. GC0050 proposes changes to the obligations in OC6.5.3 with a consequential change to OC6.7.2. It aims to more clearly delineate between the use of voltage reduction and demand disconnection to meet the obligations in OC6.5.3. It also aims to clarify implementation times and ensure that they are achievable.

The proposed modification would provide two options to deliver the required demand reduction:

- by a combination of voltage reduction (in two stages) and demand reduction through demand disconnection (in three stages); or
- in four stages of demand reduction through demand disconnection.

Each Network Operator would be required to notify NGET of the option it would adopt, in writing, on a year-ahead basis.

Additionally, the implementation times for demand reduction using voltage reduction and/or demand disconnection would be specified separately:

- Demand reduction using voltage reduction must be initiated within two minutes of the instruction being received from NGET and completed within ten minutes of the instruction being received from NGET
- Demand reduction using demand disconnection must be initiated within two minutes of the instruction being received from NGET and completed within five minutes of the instruction being received from NGET.

NGET considers that this modification enhances both the clarity of the requirement and its deliverability (i.e. the implementation time).

NGET's recommendation

NGET supports the implementation of GC0050 on the basis that it better facilitates Applicable Grid Code Objectives (i) and (iii).⁵ NGET set out in its report to the Authority that the modification proposal does this by:

- Providing accurate information required to enable NGET to better manage the transmission system in an emergency situation; and
- Facilitating information exchange between Network Operators and NGET such that accurate knowledge of available demand control is received in a timely manner.

The Authority's decision

We considered the issues raised by this modification proposal in the Report to the Authority dated 7 March 2014. We concluded that we did not have sufficient information at that time to reach a decision. We therefore sent back the final Report and raised a

⁵ As set out in Standard Condition C14 (1)(b)(i)–(iv) of the Electricity Transmission Licence: <https://epr.ofgem.gov.uk//Content/Documents/Electricity%20transmission%20full%20set%20of%20consolidated%20standard%20licence%20conditions%20-%20Current%20Version.pdf>

number of questions with NGET in our letter of 3 April 2014.⁶ NGET resubmitted its revised final Report to the Authority on 29 April 2014, addressing the questions we raised. We have now considered this final Report⁷ and taken into account the responses to NGET's consultation on the modification proposal which are included in it.

We have concluded that:

1. implementation of the modification proposal will better facilitate the achievement of the objectives of the Grid Code; and
2. approving the modification is consistent with the Authority's principal objective and statutory duties⁸.

Reasons for the Authority's decision

It is vital that NGET can require Network Operators to reduce demand in certain situations to ensure the overall resilience of the total system. The Workgroup has demonstrated that, in practice, demand reduction implementation times are likely to be longer than the time currently specified in the Grid Code. In addition, the system tests that have been carried out have demonstrated that the relationship between voltage reduction and demand reduction has changed significantly compared with previous expectations. We therefore agree that the relevant parts of the Grid Code (i.e. OC6.5.3 and OC6.7.2) should be revised.

We consider the modification proposal to be helpful in addressing the issues identified. The clear delineation between demand reduction by voltage reduction and by demand disconnection will give NGET a better understanding of the way the system will respond when demand reduction is instructed. It is also helpful to establish a clear measure of the effectiveness of voltage reduction based on actual system tests. We agree with the Workgroup recommendation that it would be appropriate to repeat these tests at appropriate intervals so that further changes in the relationship are understood.

We note that there were four responses to the industry consultation on GC0050 issued in January 2014. All responses were supportive of the modification. We have reviewed the responses, including two which included additional comments of a general nature which are not directly related to this modification.

We set out our views against the Applicable Grid Code objectives relevant to our decision below. We consider that this modification proposal has a neutral impact on the Grid Code objectives relating to facilitating competition in generation and supply and the efficient discharge of the licensee's licence and wider legal obligations.

Applicable Grid Code objective (i) 'to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity'

⁶ Our GC0050 send back letter is on our website: <https://www.ofgem.gov.uk/publications-and-updates/authority-decision-direct-report-grid-code-modification-proposal-gc0050-demand-control-and-oc6-be-revised-and-resubmitted>

⁷ Grid Code proposals, final reports and representations can be viewed on NGET's website at: <http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/>

⁸ The Authority's statutory duties are wider than matters which NGET must take into consideration and are detailed mainly in the Electricity Act 1989 as amended.

We agree with NGET that this objective is better facilitated by the modification proposal for the following reasons. Firstly, the proposed revisions clearly distinguish between the use of voltage reduction and/or demand disconnection for demand reduction. This improves NGET's ability to target its control instructions. Secondly, the revisions give NGET greater confidence in the implementation timescales in which demand reduction is to be delivered. This is vital in an emergency situation. Finally, the improvements to the information to be exchanged between NGET and Network Operators will in particular allow NGET to operate the total system in a better coordinated way should an emergency situation arise.

Applicable Grid Code objective (iii) 'to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole'

We agree with NGET that the modification proposal also better facilitates this objective. The reasons provided for objective (i) also apply here particularly in respect of security. Compared to the current position, the modifications proposed improve NGET's ability to instruct demand reduction. NGET will have more confidence in the magnitude and the timescale of the response. Overall, the proposed revisions will assist Network Operators to deliver a more secure total system through better management of demand control procedures.

Decision notice

In accordance with Standard Condition C14 of NGET's Transmission Licence the Authority hereby directs that modification proposal Grid Code GC0050: '*Demand Control and OC6*' be made.

Paul Branston

Associate Partner, Costs and Outputs

Signed on behalf of the Authority and authorised for that purpose