

THE NATIONAL GRID COMPANY plc

GRID CODE REVIEW PANEL

**THE GRID CODE - OC5 WORKING GROUP
TERMS OF REFERENCE – INCORPORATION OF CONNECTION CONDITIONS**

1. Introduction

- 1.1. This paper proposes the Terms of Reference for the next stage of work to be considered by the Grid Code OC5 Review Group

2. Background

- 2.1. The Grid Code OC5 review group was set up following the acceptance of paper GCRP 00/29 at the 23 November 2000 meeting of the Grid Code Review Panel. Paper GCRP 00/29 proposed that the group would initially restrict activities to re-writing OC5 using the current principles incorporating a flowchart format and a rationalisation of common text. Innogy, PowerGen, British Energy and TXU were represented on the group.
- 2.2. As requested the OC5 Working Group reported back to the Grid Code Review Panel at the 17 May 2001 meeting (Paper GCRP 01/10) recommending a revised version of OC5 for full consultation. In parallel with the consultation exercise the paper recommended expanding the working group to include a representative of the Distribution Network Operators to allow consideration of full inclusion of connection conditions within OC5.

3. Scope of Work

- 3.1. Referring back to paper GCRP 01/10 agreed at the Grid Code Review Panel on 17 May 2001, the OC5 Review Group will now proceed with the inclusion of:
- i) full references to Generator connection conditions for compliance and ongoing lifetime testing;
 - ii) addition of provisions for testing for connection conditions on User networks.
- 3.2. The table attached to this paper indicates Generator and Network Connection Conditions already referenced in OC5 together with comments on possible modification necessary.

4. Representation

- 4.1. Following the request for additional nominations from the Distribution Network Operators contained in paper GCRP 01/10 the Working Group

now comprises representatives from Innogy, PowerGen, British Energy, TXU and Seeboard.

5. Timetable

- 5.1. The first meeting for the OC5 review group has been scheduled for September 2001. It is proposed to report back to the January 2002 Grid Code Review Panel on extension of OC5 to include connection conditions.

6. Recommendation

- 6.1. The Grid Code Review Panel is requested to:
- (i) **approve** the terms of reference for the second stage of the work to be under taken by the OC5 Review Group;
 - (ii) **agree** the timetable for the work

Connection Condition	Included in OC5 ?	Comment
CC 6.1.5 (a) / 6.1.6	No	Harmonic contribution (to be added)
CC 6.1.5 (b) / 6.1.6	No	Phase unbalance (to be added)
CC 6.1.7 (b)	No	Flicker (to be added)
CC 6.2.3.1.1	No	Fault clearance times – NOs (to be added)
CC 6.2.2.2.2	No	Fault clearance times – Gens (to be added)
CC 6.3.2	Yes, but change required	Reactive Range check may need modification to reflect CC change to IEC
CC 6.3.3 / BC 3.5.1	Yes	Constant/Reducing Output
CC 6.3.4	No	Active power not altered by voltage change (to be added)
CC 6.3.5	Yes	Black Start
CC 6.3.7 (a) BC3.7.2	Yes	Limited High Frequency Response
CC 6.3.7 (a)	Yes, but change required	Governor specification - wording needs updating as reference to pilot oil valve only applies to “thermal” plant not CCGTs.
CC 6.3.7 (a)(e)	Yes, but change required	Frequency response testing should refer to CC as well ASA for post January 2001 plant
CC 6.3.7 (b)	No	performance over operating range (to be added)
CC 6.3.7 (c) (i)	No	islanding frequency control <52Hz (to be added)
CC 6.3.7 (c) (ii)	No	Governor Deadband < 0.015Hz (to be added)
CC 6.3.7 (c) (iii)	No	Governor Droop 3-5% (to be added)
CC 6.3.8	No	Excitation system performance. PSS testing required in BC 2.11.2 (to be added)