Grid Code Review Panel

Two Shifting Limits – A Proposal

A paper by National Grid

Purpose of Paper

1. At the Grid Code Review Panel held on 19th May 2011, National Grid and GCRP members agreed to hold a meeting to discuss the issues surrounding the Two Shifting Limit within the Grid Code.

2. This paper therefore presents to the GCRP the conclusions and recommendations of that meeting (held on 1st June 2011) and proposes a way forward, subject to the recommendation of the GCRP membership.

Executive Summary and Recommendation

3. The group that has discussed the Two Shifting Limit parameter considered a total of seven options and evaluated those against a set of seven evaluation criteria. As a result of this evaluation, the group have put forward the following set of recommendations:

    - That in the short term generators should seek to manage their ability to perform multiple synchronisations or desynchronisations in the same operational day through the use of either their submitted Bid-Offer Prices or through their Dynamic Parameter submissions (primarily MZT) or a combination of the two.
    - That there are merits in the development of a robustly defined and transparent term to effectively replace the currently defined Grid Code Parameter called the "Two Shifting Limit". This parameter would define the number of times in a day the unit may synchronise and/or desynchronise (through certain means) and would be binding upon National Grid when it formulates and issues its Bid-Offer Acceptances. It should also be visible to all Balancing Mechanism Participants.
    - That the development of such a more robustly defined and transparent "Two Shifting limit" parameter should be taken forward by the existing Grid Code "EBS Working Group".
    - That National Grid should also develop a "Grid Code Associated Document" clarifying the current treatment of the Two Shifting Limit within the Grid Code, which asserts that (pending the outcome of the EBS Working Group's deliberations) the Two Shifting Limit will not be used in the formulation or issuing of Bid-Offer Acceptances by National Grid.

The GCRP is invited to APPROVE the set of proposals as set out above.

Issue

4. The principal issue at the heart of the matter is how a generator may best indicate to National Grid the ability of the unit to perform multiple synchronisations and / or desynchronisations in a given day. It is well understood that such actions can place greatly increased stresses on the generating plant, leading potentially to greater wear and tear on the unit and more frequent major maintenance outages.

5. Against a likely future need for generators to be increasingly flexible, given the fact that the future operating environment will be characterised by increasing volumes of variable generation sources, the issue of managing such flexibility or inflexibility in a robust and fair manner is only going to become greater.

6. The group that met on the 1st June examined a total of seven different options or variants of options that could, now or in the future, be used to manage such issues. These were then scored by group members in order to frame the recommendations of this paper.

Options Evaluated

7. The following seven options were evaluated by the Group.

Option 1A: Current Interpretation of the Two-Shifting Limit

8. This option is the current status of the Two Shifting Limit as it appears in the current issue of the Grid Code. Namely it has the following characteristics:

   (a) That it is defined as an Operational Planning Parameter in the Operating Codes of the Grid Code. It applies in that section to data considered in the planning process that runs from many years ahead to no more than two days ahead of real time.
   (b) That it does not carry with it any direct obligation for National Grid to utilise it under the Balancing Codes of the Grid Code when formulating and issuing Bid-Offer Acceptances.
   (c) That Generators may submit it as a data item that National Grid "may take account of" when formulating Bid-Offer Acceptances.
   (d) That should National Grid choose to do so then the Two Shifting Limit applies only to its actions.
   (e) That the existing parameter while visible to National Grid and the individual generator is not visible to the wider market.

Option 1B: Robustly defined and visible Two Shifting Limit:

9. Under this option the existing Two-Shifting Limit parameter would have two principal changes made to it;

   (a) The parameter would be properly and robustly defined within the Grid Code generally, clarifying the circumstances around which actions it applies to, and then enshrined within the Balancing Codes as a parameter that National Grid will take account of when formulating Bid-Offer Acceptances. In addition consequential changes to the Balancing Principles Statement might be needed to cater for changes in generator Physical Notification submissions "beyond the wall".
   (b) There is an upgrade to IS systems to permit all Balancing Mechanism Participants to see real time values of the newly defined Two Shifting Limit.

Option 1C: Existing Two Shifting Limit Parameter with a "gentleman's agreement"

10. Under this option no changes would be made to either codes or IS systems, however National Grid would give an undertaking to adhere to any prevailing Two Shifting Limit supplied under the Operating Codes when formulating and issuing Bid-Offer Acceptances.

Option 2: Use of Dynamic Parameters

11. This option would see generators manage their ability to synchronise and desynchronise multiple times in an operational day through the use of the Minimum Zero Time parameter. This would see the MZT parameter be declared in such a way that National Grid would not be able to synchronise and desynchronise a unit before it resynchronises on the same day through an existing PN submission.

Option 3: Use of Bid-Offer Prices

12. Under this option generators would manage their ability to synchronise and desynchronise multiple times in an operational day through their Bid-Offer price submissions. This would effectively be performed by factoring the increased risk of costs of the additional wear and tear or decreased time between major maintenance outages for the unit into the generating unit's Bid-Offer prices in periods away from an existing PN submission.

Option 4: Use of Maximum Export Limit (MEL)

13. Under this option a generator would effectively withdraw the unit from the Balancing Mechanism in periods away from any submitted PN by declaring a MEL of zero.

Option 5: Use of fixed 14 hour MZT

14. This option is as it states a fixed variant of option 2, namely that the unit would always declare a 14 hour MZT to disincentivise any Bid-Offer Acceptances other than those that append to a prevailing PN. In essence its design is such that it will not require a generator to actively manage its MZT submissions around its PN submissions and therefore might potentially be more workable to a generator.

Method of Evaluation

15. The Group evaluated each of these options according to seven criteria. These were:
    - Transparency to the Market,
    - Simplicity of Use,
    - Certainty for the generator,
    - Certainty for National Grid,
    - Flexibility and Practicality of Use,
    - Market Distortion and
    - Ease of Implementation.

16. In all cases the options were ranked on a scale of 1 to 5, with 5 highlighting the items that best met an objective – e.g. they offered high degrees of flexibility, were very easy to implement or offered no market distortion – items scored as 1 did not meet an objective.

Outcome of the Groups Evaluation

17. The following table summarises the groups evaluation of each option:

	Option 1A	Option 1B	Option 1C	Option 2	Option 3	Option 4	Option 5
Transparency To Market	1	5	1	5	5	5	5
Simplicity Of Use	4	5	4	3 (1=impossible , 5=done now)	3 (1=impossible , 5=done now)	4	5
Certainty For Generator	1	5 (once clarified)	5	4	4	4 (but removes BM opportunity)	4
Certainty For NG	1	3 (at the time the action is taken)	3	5	4	3	3
Flexibility/ Practicality	3	3* (5 if redeclared frequently, 1 if standing parameter)	3	4 (if gen doesn't redeclare 3)	5	1	1 (CMD believes should be scored as 5 as it can offer practical solution)
Market Distortion (5 = None)	2 (Lack of visibility = distortion)	4/5 (check late PN issue)	2	4 (if parameters not properly declared)	5 (may be distortion over short run costs)	1	1
Ease Of Implementation (Code/System Changes)	5	1	5	4 (range 3-5)	4 (range 3-5)	4	5
Total	**17**	**26/27**	**23**	**29**	**30**	**22**	**24**

18. The group noted that according to its own assessment process the highest scoring options were the options to manage multiple synchronisations and desynchronisations using either Price, Dynamic Parameters and a robustly defined Two Shifting Limit that was visible to market participants. However the latter option to use such a Two Shifting limit would necessitate potentially both code and IS system changes and the inevitable lead times associated with these changes therefore saw it rank behind the existing methods of using prices or dynamic parameters.

19. This then led the group to reach the following conclusions:

- That generators should in the short term use the existing BM parameters of Minimum Zero Time (MZT) and/or Bid-Offer Prices to manage multiple synchronisations and desynchronisations on any given day.
- That the task of whether a more robustly defined Two Shifting Limit parameter should be implemented within the Grid Code and the consideration of the necessary IS system changes to make this visible to the market is added to the Terms of Reference for EBS, if it isn't already.

- That National Grid should create a Grid Code Associated Document on Two Shift Limits – setting out a definitive position on the existing treatment of the Two Shifting limit parameter. For the avoidance of doubt this will be that the parameter will not be used by National Grid, and that pending the outcome of the deliberations of the EBS group, Generators should not submit it under any assumption that it will be applied to Balancing Mechanism actions. A draft of this document is attached at Appendix 1 to this paper for the GCRP's consideration. It is National Grid's intention that should the GCRP agree to the approach outlined in this paper then it will take steps to publish this on the National Grid website.

20. It should be noted that the group's recommendations were not unanimously agreed. Some members of the group also supported either Option 1C, the adoption of the existing TSL parameter under a "gentleman's agreement" or Option 5 the fixed long duration MZT approach. The majority of the group were content to move forward with the recommendations of this paper however.

Appendix 1: Draft Grid Code Associated Document on Two Shifting Limit Status

National Grid Electricity Transmission Limited

Two Shifting Limit – Current Grid Code Status: July 2011

Version 1.0

Overview

This document seeks to clarify the status of the parameter defined within the Grid Code as the "Two Shifting Limit". It is currently the subject of a review by the Grid Code Review Panel, with a view to examining whether amendments to the Grid Code are needed in this area. However until such time as any such amendments are progressed and implemented, parties submitting the Two Shifting Limit Parameter should note the contents of this document.

Current Policy as of July 2011

The policy surrounding the Grid Code Two-Shifting Limit parameter is as follows:

(a) That the Grid Code does not under any circumstance place an obligation on National Grid to adhere to the Two Shifting Limit when formulating or issuing Bid-Offer Acceptances
(b) That National Grid will therefore not make any allowance for the Two Shifting Limit when formulating or issuing Bid-Offer Acceptances.
(c) That generators are therefore recommended to submit it only under the Grid Code conditions that reference it, namely in connection with the generation planning processes set out within the Operating Codes of the Grid Code.

Context

This section aims to explain the Grid Code references to the term Two Shifting Limit and its usage therein.

OC2.3.2 sets out the requirements for Generators to submit their Generation Planning Parameters. One of these is the Two Shifting Limit. It is defined within the Grid Code as:

Two Shifting Limit	The maximum number of times in any **Operational Day** that a **Genset** may **De-Synchronise**.

OC2.4.2.1 (i) then further states that:

OC2.4.2.1 (i) The **Generation Planning Parameters** supplied under OC2.4.2.1 shall be used by **NGET** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism** (subject as otherwise permitted in the **BCs**).

The Balancing Codes do not reference the Two Shifting Limit. National Grid has an obligation to issue Bid-Offer Acceptances that are consistent with Export and Import Limits, QPNs and Dynamic Parameters in accordance with BC2.7.2. The Two Shifting Limit is not an Export or Import Limit, a QPN or a Dynamic Parameter.

BC2.7.2 (a) does state that National Grid may also recognise "Other Relevant Data" provided or modified under BC1 or BC2. "Other Relevant Data" is defined by BC1.4.2 (f). Neither does this clause reference Two Shifting Limits although part (v) does state that BM Participants shall submit:

> "details of any other factors that **NGET** may take account of when issuing **Bid-Offer Acceptances** for a **BM Unit** (e.g. **Synchronising** or **De-Synchronising** Intervals, the minimum notice required to cancel a **Synchronisation**, etc); and"

There are no other references or inferences to the term Two Shifting Limit in the Grid Code.

To summarise, it is National Grid's policy that the Grid Code is clear that the parameter represented by the Two Shifting Limit will be used for operational planning purposes only and not in connection with the Balancing Mechanism. Even where a BM Participant submits Two Shifting Limits to National Grid under BC1.4.2 (f) (v) National Grid's view is that it is under no obligation to utilise them or issue Bid-Offer Acceptances in accordance with them.

Two Shifting Limits and Balancing Mechanism Activities

National Grid's view is that it is under no obligation to be consistent with any Two Shifting Limit parameters submitted by BM Participants when formulating Bid-Offer Acceptances. However the existing Grid Code terms introduce a level of ambiguity that this document seeks to remedy.

National Grid's policy is therefore not to use the Two Shifting Limit when formulating its Bid-Offer Acceptances. National Grid will ensure that any Bid-Offer Acceptance issued is consistent with the prevailing Dynamic Parameters submitted by the Unit including its Minimum Zero Time (MZT), Minimum Non-Zero Time (MNZT), Run-Up Rates and Run-Down Rates and any other prevailing non-zero PNs in existence at the time of issue.

Document Control

Version	Date Issued	Comment
1.0	28/06/11	First Issue of Document