Grid Code Review Panel 17th May 2001
Large Embedded Power Stations and Distribution Constraints

A Paper sponsored by: **AEP (representing Independent Generators)**
Innogy (representing Generators >5GW)
Powergen (representing Generators >5GW)
British Energy (representing Generators >5GW)

Executive Summary

It is proposed that the 'NETA' Grid Code[1] is amended so that in the event that generators are subject to constraints on either the distribution and/or transmission networks, parity of commercial treatment is retained between Large Power Stations that are embedded and those who are directly connected to the Transmission Network.

Advice is to be sought from NGC regarding the full extent of changes and detailed drafting required, but, as a minimum, it is likely that this will require deletion from Balancing Code 1.6.1 (a) (i) in the NETA Grid Code:

" The **Generator** and the **Network Operator** are also responsible for ensuring that no **BM Unit Data** submitted to **NGC** can result in the violation of any such constraint on the **User System**."

1. Introduction

Under the Pool, Large Power Stations that were connected to the distribution network (embedded) and were centrally despatched, were treated commercially as if they were connected directly to the Transmission Network. If there was a transmission or distribution network constraint that required the generator to reduce exports, the generator was compensated through the Pool. Under the NETA, essentially the same commercial conditions apply to Large Power Stations connected directly to the transmission network. However, the Grid Code has been modified so that embedded Large Power Stations have lost this commercial right under the NETA. Not only have embedded generators lost this commercial right, they have also become subject to penalty payments under the NETA Balancing Mechanism. Because they cannot export to their contracted levels they will be exposed to the Balancing Mechanism cash-out prices which are intended to penalise those who are out of balance, regardless of fault. This change to the Grid Code is discriminatory and has been made without meaningful consultation with those directly affected.

The above situation is discriminatory in particular against generators who have taken the long-term investment decisions to build modern efficient plant (in line with UK Government policy) and to connect it embedded. The owners and operators of these plants recognised that the regulatory environment would evolve post-privatisation, but took comfort from the reasonable expectation that there would not be a fundamental and discriminatory change to their commercial rights gained under contract and the market arrangements. They expected to compete in a non-discriminatory way with

[1] The term 'NETA' Grid Code is here used to indicate the Grid Code that has applied since Go Live of the NETA, and hence to differentiate it from the code that applied under the Pool.

plant attached to the transmission network and thereby have the opportunity to secure an income stream that would service their financing arrangements.

For these reasons it is proposed that the 'NETA' Grid Code is amended to leave the position of such generation in effect the same as it was under the Pool. The source of constraint payments under NETA, BSUoS charges, would be the same for these generators as it would be for directly transmission-connected generators.

The remainder of this paper describes the situation that existed under the Pool and the current NETA position, and the proposed amendment to the Grid Code to remove this discriminatory change. It is worth beginning by stressing that, for the avoidance of any doubt, this issue concerns very specifically the changed treatment for distribution system **constraints** of embedded Large Power Stations that under the Pool were subject to central despatch. It is **not** about either the revised treatment of distribution and transmission system **failures** under NETA or the treatment of embedded generation that was not centrally despatched under the Pool. The arguments for the proposed change are summarised with more detail in an attachment.

2. The Position under the Pool

Centrally despatched embedded generation was treated like centrally despatched transmission connected generation. If it was required to generate at a higher or lower level than its output in the day ahead unconstrained schedule due to a distribution or transmission constraint then it was instructed accordingly by NGC and received any appropriate payments. The Grid Code (SDC1.4.4) made provision for the Distribution System Operator to inform NGC of any distribution system constraints so that NGC could take these into account in its despatch decisions.

Some embedded generators had (and continue to have) connection agreements with the operator of the network to which they were connected that had different and specific provisions to deal with any distribution network constraints. This was a bilateral matter between the generator and the owner of the network to which it was connected and did not affect the position of other embedded generators.

3. The Current Position under NETA

The NETA Grid Code currently has a new provision in Balancing Code No. 1 in a section headed "**User System** Data from **Network Operators"** (section BC1.6.1 (a) (i)) that states:

The **Generator** and the **Network Operator** are also responsible for ensuring that no **BM Unit Data** submitted to **NGC** can result in the violation of any such constraint on the **User System**.

This change intends to have the effect of ensuring that all Physical Notifications, Offers and Bids to vary output from this and other data, is such that NGC no longer has to take account of distribution network constraints. The effect on the generator is that (assuming no contrary provisions in its connection agreement):

- Whereas previously it was entitled to compensation if a distribution system constraint prevented it generating what it would otherwise have generated, it is

no longer entitled to this compensation. Indeed it is likely to become "out of balance" through no fault of its own and be cashed out at the imbalance price.

- If it is necessary for the generator to generate more than it would otherwise do in order to secure the distribution network, whereas previously NGC would instruct the additional output, there is now no general mechanism (setting aside what might be in a bilateral contract) for this to happen. Circumstances can be envisaged where this would jeopardise the security of the distribution system.

It is interesting to note that none of the information that NGC requires from Distribution Network operators has been deleted. It is thus the case that NGC will still get all the information it needs in order to be able to despatch to resolve distribution network constraints even though it apparently will have no need at all for this information as it is proposed to be the responsibility of the network operator and generator to have resolved any constraints before submitting Balancing Mechanism Unit Data to NGC.

4. Arguments for revising the 'NETA' Grid Code

a) Lack of Due Process in Making Change

When the matter was discussed at the June 2000 Grid Code Review Panel the basis upon which it was justified was that it had all been agreed as part of the NETA Programme. Indeed, the Ofgem representative is quoted in the minutes to that effect. The paper DISG 28 has been quoted as the source of the change. It is now clear that DISG 28:

- Did not cover the particular issue in any detail
- Implied in the main text that no such change was envisaged
- Was not agreed by those present at the meeting…indeed serious reservations about it were expressed (see Attachment 1)
- Was not followed up by another paper that dealt with those reservations or in any way closed off the issues.

A section of the attachment gives more details of the saga of DISG 28. Whereas any lack of process in that matter is clearly a matter for the Neta programme, it is clear that what did take place does not provide a comfortable basis upon which to generate a change to the Grid Code.

b) Lack of Consultations on the Subject

There were a number of Ofgem Consultation Documents in 2000 that either touched on the issue of Distribution System Constraints, including one on "Distribution System Constraints and NETA". In none of these was the proposed change discussed and indeed in many of them it was implied that no such change was taking place and that indeed the whole matter would be considered "in the round" following the publication of the DTI/Ofgem working group on embedded generation.

In contrast there was extensive discussion of the related issue of transmission and distribution system failures (as opposed to constraints). More details of some of the particular consultations are given in the attachment. The only possible explanations for the content of these consultation papers with respect to the issue are that either the people writing the papers were not aware of the change to the Grid Code or that they were trying to mislead the parties to whom the consultations were addressed as to what was going on. We do not suppose for a moment that the second explanation was the case.

c) The proposed Code is inconsistent with Government Policy

Much effort is currently being expanded on encouraging embedded generation, particularly that from renewable resources and combined heat and power plants. There has even been a joint DTI Ofgem Working Group working since last March to look at ways of altering arrangements, both physical and commercial of accommodating more generation on distribution networks. At the launch of its initial report in January 2001 Helen Liddell said

"It is vital that we help developers and operators of environmentally friendly embedded plants such as CHP and renewables gain fair access to the distribution network at fair prices. This report makes a significant step on the road to achieving that. I am impressed by the degree of consensus reached given the wide range of interests involved in the Group."

"Consumers are increasingly demanding green sourced electricity. At the same time, cost effectiveness of smaller generation plants is improving all the time."

"Measures to improve electricity production from embedded generators will make a valuable contribution to the Government's target of producing 10 per cent of electricity from renewable sources by 2010."

Given these sentiments, it was not consistent to introduce changes that have a detrimental effect on the position of a certain category (i.e. currently centrally despatched) of embedded generation, particularly without any stated justification for the change. It has been shown that no justification whatsoever for it has been given.

It is also most peculiar that a change to the treatment of a certain type of embedded generation is proposed at a time when it is acknowledged that there needs to be a proper review of various aspects of distribution network charging and access arrangements. As well as the DTI/Ofgem working group, which recommends such a review, Ofgem issued a consultation on 21st December 2000 on "The structure of electricity distribution charges." To make a piecemeal change to one aspect of Distribution Network access, in advance of whatever changes both these comprehensive processes will result in, would be extraordinary.

d) Conclusion

Any one of the above arguments is sufficient on its own for implementing a change to the 'NETA' version of the Grid Code.

Attachment 1 to Grid Code Review Panel Paper 01/13

1. DISG 28/04

DISG 28/04 was tabled at DISG on 4th April 2000. Although final minutes are not available on the Ofgem web site the draft minutes that are available suggest that those present were not happy with the content for example:

2.29 Simon Skillings suggested to DISG that some of the detailed issues raised by the paper could be addressed at a TUG meeting and sought confirmation of the process.

And

2.31 Nigel Knee emphasised that it was wholly inappropriate for industry participants to carry the risk associated with transmission faults. He stated that it would be unacceptable to Go-live without some measures in place to ameliorate this unacceptable risk, which had been caused by the failure to deal with Transmission Access rights in NETA timescales.

The recollection of some of those present at the meeting was that the arrangements in the paper (DISG 28/04) were unacceptable and the PDO was asked to consider them further. It thus cannot be said that the content of DISG 28/04 was approved by due process.

Looking at the contents of DISG 28/04 itself, the relevant part is the line entry from the table in section 5.1 below:

Matrix of Proposed Remuneration at Bid/Offer Price and Energy Imbalance Price

Action Initial NETA	Treatment	Comments
Distribution Constraints	Imbalance	

The paper starts off:

1.1 Under NETA, it is expected that certain parties will elect to submit Bids and Offers into the Balancing Mechanism, indicating their willingness to be called to operate at a level other than FPN. Such action will, under normal circumstances, be settled at the Bid or Offer Price submitted by the Party. However, in exceptional circumstances, it is proposed that even parties bidding into the Balancing Mechanism may be cashed out at Energy Imbalance Prices (for example following certain system faults).

2. CIRCUMSTANCES WHERE BID/OFFER PRICES AND IMBALANCE PRICES ARE USED

2.1 The attached table summarises the circumstances in which it is proposed that parties will be remunerated at Bid/Offer Prices, and those in which it is proposed that parties will be cashed out at Energy Imbalance Prices.

There is no discussion in the paper itself of why distribution system constraints are to be cashed out at imbalance price. Indeed the text quoted above implies that normally the appropriate offer or bid price will be used and that Energy Imbalance Price is appropriate for fault situations (as opposed to planned constraints).

2. Consultations

The first thing to say about the change is that we are unaware that other than a line in a table as quoted in the previous section there has been any discussion whatever in any of the many consultations over the past year that either tried to justify this change to the treatment of embedded generation or indeed even mentioned it (apart from as a line in a table). It can not be due process that a major adverse change to the position of a class of generator is not even mentioned in the main text of consultation documents, let alone justified. One can look at just three specific recent consultations…there are several others that are equally pertinent. These are:

- The June 2000 Ofgem consultation (responses due in August) on "Distribution Networks and NETA " and
- The August 2000 consultation on system operator incentives under NETA.
- The April 2000 consultation dealing with the NGC's role in energy and system balancing.

Note that two of these consultations took place after the critical change to the Grid Code had been made.

One would expect a consultation document entitled "**Distribution Networks and NETA** " would mention this change. It does not. Section 2 entitled **"Trading Arrangements and NETA"** describes accurately the current treatment of embedded generation. It then describes NETA in general and imbalance charges in particular. Paragraph 2.16 then says:

"As explained in the December 1999 NETA consultation paper Ofgem is presently reviewing the existing arrangements for dealing with transmission constraints with the intention of introducing new arrangements from April 2001. The results of the review will be taken into account before finalising any proposals relating to distribution."

This is quite a clear statement that there is to be no fundamental change to the way embedded generation is to be treated as regards distribution constraints prior to the review of transmission access arrangements. As such it is not only misleading but also actually incorrect given that the proposed changes for centrally despatch embedded generation had apparently been "decided on" months earlier in DISG 28/04.

Section 1.3 of the executive summary refers to a number of wider issues relating to the relationship between embedded generators and distribution businesses. It says

that "These issues will be considered by Ofgem following the report of the DTI and Ofgem working group on embedded generation issues, scheduled for Autumn 2000."

One is again therefore misleadingly reassured that no significant changes have yet been decided on. We are not for a moment suggesting that the authors of this consultation document were intentionally misleading anybody. The likely explanation is that they were simply unaware of the proposed change.

The "August" consultation on system operator incentives under NETA debates at length the treatment of transmission and distribution failure, which will be cashed out at imbalance price, but nowhere mentions/debates the new treatment under NETA of distribution constraints (although it is stated in table 3.1). In section 3.68 it states:

"Finally Ofgem accepts that in the absence of new transmission access and pricing arrangements at the start of NETA, participants that are forced into energy imbalance as a result of transmission or distribution failures will be exposed to imbalance charges."

There is no mention of distribution constraints, in spite of the changed treatment proposed for those that are currently centrally despatched.

In the April consultation again although in table 3.1 it is shown that Distribution Constraints are cashed out at imbalance price nowhere is this debated in the text (unlike the treatment of much rarer transmission and distribution failures which is extensively debated). It is stated in 3.90 of that document "The main change this definition implies for NETA specified in the October 1999 NETA document is that it is now proposed that transmission and distribution faults and failures are treated consistently..." This is simply not true: nowhere is it mentioned that although pre NETA distribution and transmission constraints were treated consistently, it is proposed that this be changed to the disadvantage of those connected to the distribution system.

Again we do not suggest that the authors of these documents were intentionally misleading anybody by writing extensively about the new treatment of transmission and distribution failures whilst not mentioning the changed treatment for distribution system constraints. We suspect that the authors were simply not aware of the latter.

In summary not only does the change to the treatment of distribution constraints (as opposed to failures) appear not to have been debated, but it is clear that those producing consultation documents have unwittingly misled people into believing that there was to be no such change.