

## OC1 / OC2 Phase 2 Proposals

### 1 Introduction

The OC1 / OC2 Working Group has been considering possible changes to OC1 and OC2 in order to improve exchange of information between Users and NGC. These changes should align with the overall objective of OC1 and OC2 which, under the Terms of Reference (ToRs) of the Working Group, is *'to exchange specified information in order to facilitate and coordinate the planning for the safe, secure and efficient operation of NGC Transmission System, Network Operators' Systems and Generators' Systems'*. The ultimate aim of this initiative is to improve market signals by publishing the improved and additional information, although this is outside the scope of the Working Group.

The first two meetings of the Working Group have focussed on the OC1 and OC2 'framework documents' produced by NGC, which give an overview of the possible contents of revised OC1 and OC2. The Working Group members have provided constructive feedback on the contents of the documents.

NGC is now considering the details of the specific proposals outlined in the 'framework documents'. These specific changes would be incorporated into an overall review of OC1 / OC2 such that the legal drafting provides better clarity on the existing OC1 and OC2 processes.

At this stage, the detailed cost / benefit analysis of the proposals has not been performed. As stated in the ToRs, any proposals will only be recommended by the Working Group if they are likely to deliver benefits in excess of the development and implementation costs. NGC has grouped the proposals into two categories which are either simple and hence relatively inexpensive to implement, or are complex and hence are likely to involve significant costs and longer implementation timescales.

This paper provides further details of the specific proposals. The proposals are summarised in section 2, and described in sections 3 ('short term' proposals) and 4 ('long term' proposals). Sections 3 and 4 also indicate, from NGC's perspective, the benefits of the proposals to both NGC and the market, and the potential impact on Users. With respect to the benefits to Users and the market, NGC envisages that Users are best placed to identify additional benefits.

### 2 Summary of Proposals

The proposals related to OC2 consist of the following:

1. Definition of Output Usable (OU);
2. Provision of Generator outage data at Generating Unit level;
3. Rationalisation of geographic zonal boundaries;
4. Publication of disaggregated OU data;
5. Rationalisation of OC2 timescales.

The proposals related to OC1 consist of the following:

6. Provision of additional demand information for shorter timescales;
7. Definition of Customer Demand Management;
8. Rationalisation of OC1 timescales;
9. Provision of additional demand information for longer timescales.

Some of the above proposals would provide maximum benefit if considered in conjunction with other proposals (e.g. proposals 5 and 8) whilst others could be considered separately (e.g. proposal 3). Furthermore, some proposals are relatively simple and could be implemented in short timescales whilst others are more complex and require longer implementation timescales.

For clarity, the proposals have been grouped into two categories, namely, the short term proposals (1, 2, 3, 6 and 7) which could be implemented for the 05/06 winter and the long term proposals (4, 5, 8 and 9) which could be implemented after the 05/06 winter.

### 3 ‘Short term’ Proposals

#### 3.1 Definition of Output Usable (OU)

The current definition of OU states that it is “that portion of **Registered Capacity** which is expected to be available and which is not unavailable due to a **Planned Outage**”. This definition was proposed in the consultation paper G/04<sup>1</sup> which was subsequently approved by Ofgem. The industry responses to the consultation suggested a number of alternatives to this definition, particularly linking OU to MEL (rather than Registered Capacity) and taking into account seasonal temperature variations. OU would therefore correspond to a BMU rather than a Genset because MEL is a BMU parameter. Furthermore, the discussions within the OC1 / OC2 Working Group have led to the conclusion that OU should be consistent with Transmission Entry Capacity (TEC). NGC has considered these factors in developing a revised definition of OU.

The proposed definition of OU is that it is “*the forecast (daily or weekly) peak value of MEL. It should reflect station level factors such as TEC and other technical issues which may limit the output of BMUs when summated across a station*”.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 1.

**Table 1**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Consistent availability figures across all timescales;</li> <li>▪ Margins and surpluses consistent with TEC and other station factors;</li> <li>▪ OU data free of NGC’s judgement regarding various factors that influence OU.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consistent availability figures across all timescales;</li> <li>▪ Margins and surpluses consistent with TEC and other station factors;</li> <li>▪ National and Zonal surpluses reflect MEL which takes into account station wide factors and provides more accurate figures to the market to assess.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Incorporates additional factors (e.g. MEL and TEC) in OU submissions.</li> </ul>

The implementation of this proposal would require the following:

<sup>1</sup> Grid Code Consultation Document “Proposed changes to Operating Codes OC1 and OC2” (11 June 2004).

- Changes to Glossary and Definitions of the Grid Code;
- Generators' systems.

### **3.2 Provision of Generator outage data at Generating Unit level**

Currently, some generators provide the outage data on a BMU level whilst others provide the same data on a Generating Unit level. It is proposed that all outage data should be provided on a Generating Unit level. This data requirement is independent of the data requirement for OU which corresponds to a BMU rather than a Generating Unit.

Current systems are designed to receive the data as 'MW reduction'. If the industry were to provide the outage data in another form (e.g. 'MW available' or on an 'available / unavailable' basis), significant changes would be required to the NGC information systems. In any case, a single format would need to be agreed for accurate interpretation of data.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 2.

**Table 2**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Improves System's security of supply;</li> <li>▪ Efficient optimisation of System operation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improves System's security of supply;</li> <li>▪ Efficient optimisation of System operation, as at present the 'worst case' is assumed for fault levels within a CCGT Module, which potentially increases costs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Outage data required on a Generating Unit level.</li> </ul>

The implementation of this proposal would require the following:

- Changes to OC2 for submission of outage data at Generating Unit level;
- Changes to Generators' systems;
- Changes to NGC's systems.

### **3.3 Rationalisation of geographic zonal boundaries**

At present, the OC2 System Zonal boundaries are used for data corresponding to longer timescales (> 2 days ahead) and BMRS Zones for data corresponding to shorter timescales (< 2 days ahead). It is proposed that the BMRS Zones should be used across all timescales. Consequently, the OC2 System Zonal boundaries would be redundant and would be removed from the Grid Code.

A key implication of this proposal is that the OC2 zonal OU-based data currently received by Users via OC2 will no longer be made available by NGC. NGC therefore believes that all zonal data should only be available via the BMRS to ensure that the whole market has access to the same data at the same time. This will avoid the current position where some Generators have privileged access (time wise) to market data ahead of other participants.

The BMRS Zones are defined in the BSC as *"the zones set from time to time by the Panel in consultation with the Transmission Company...."*. Any future modifications to the BMRS Zones can therefore be made via the BSC process.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 3.

**Table 3**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Removes obligations from the Grid Code;</li> <li>▪ Removes requirements to provide privileged data;</li> <li>▪ Removes export/import calculations;</li> <li>▪ Makes Zonal data easier to understand;</li> <li>▪ Allows publication of all data via the BSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ More control over future changes to the boundaries;</li> <li>▪ Makes National and Zonal surpluses easier to understand and easier to use.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No OC2 zonal data for generators (all zonal data available from the BMRS).</li> </ul>

The implementation of this proposal would require the following:

- Changes to OC2 for removal of the OC2 System Zonal boundaries;
- Changes to NGC's systems for data corresponding to longer timescales (> 2 day ahead);
- Changes to BMRS for data corresponding to longer timescales (> 2 day ahead).

### **3.4 Provision of additional demand information for shorter timescales**

For the 0 - 48 hours timescale, NGC currently publishes the national demand forecast which includes pump storage and interconnector exports. However, the published outturn demand ('INDO') does not include pump storage and interconnector exports, and it is currently not possible to reconcile the forecast and outturned demand figures.

In order to reconcile the forecast and outturned demand data, NGC proposes to publish the national demand forecast which does not include pump storage and interconnector exports, and the outturned demand which does include pump storage and interconnector exports. The proposals are summarised in Table 4.

**Table 4**

	<b>Publication frequency</b>	<b>Resolution</b>	<b>Information to be published</b>
0 - 48 hours forecast demand	half-hourly	half-hour	<ul style="list-style-type: none"> <li>✓ Demand <u>with</u> pump storage and interconnector exports (already published)</li> <li>✓ Demand <u>without</u> pump storage and interconnector exports</li> </ul>
Outturned demand	half-hourly	half-hour	<ul style="list-style-type: none"> <li>✓ INDO <u>with</u> pump storage and interconnector exports</li> <li>✓ INDO <u>without</u> pump storage and interconnector exports (already published)</li> </ul>

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 5.

**Table 5**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ May reduce NGC's balancing actions if additional information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provides market participants with additional demand data which can be taken into account</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>

**Table 5**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
leads to better self-balancing by Users; <ul style="list-style-type: none"> <li>▪ Improved security of supply.</li> </ul>	when matching generation, thereby improving self-balancing; <ul style="list-style-type: none"> <li>▪ Allows reconciliation of forecast and outturned demands.</li> </ul>	

The implementation of this proposal would require changes to the BMRS screens which display the forecast and outturned demand for the 0 – 48 hour timescales.

### **3.5 Definition of Customer Demand Management**

The Grid Code specifies User obligations to notify NGC the Customer Demand Management (CDM) but does not have an explicit definition of CDM. This proposal defines CDM.

CDM is "*the total estimated demand reduction instructed by a supplier seen at a GSP Group as a result of demand management or running of embedded half hourly metered generation and Notified to NGC*".

It should be noted that CDM does NOT include demand changes or the running of embedded generation via contractual arrangements visible to NGC e.g. NGC's instructing a reduction in demand under Standing Reserve or Demand Turndown contracts.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 6.

**Table 6**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Better quality data from larger suppliers;</li> <li>▪ More accurate demand forecasts;</li> <li>▪ Fewer and more appropriate reserve actions could reduce BSUoS costs;</li> <li>▪ Improved margin accuracy;</li> <li>▪ Reduced frequency of NISMs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Providing the market with the level of notified CDM as a useful lead indicator and, adjusting down the demand forecasts, will increase the credibility of the NGC forecasts, and improve market signals.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provision of existing data in line with current Grid Code obligations;</li> <li>▪ Provision of existing data to NGC from a limited number of suppliers.</li> </ul>

The implementation of this proposal would require changes to OC1 for the definition of CDM. NGC does not anticipate any changes to its or Users' systems.

## **4 'Long term' Proposals**

### **4.1 Publication of disaggregated OU data**

This proposal affects the way the OU data will be displayed on BMRS, rather than the content of OU. It does not affect the OU data submitted by the generators or the OC2 provisions but is summarised here because of its linkage to OU-related OC2 proposals.

The OU data could be published as a stack of 3 constituent elements, rather than a single block:

- OU for BMUs;
- OU for intermittents;

- OU for Interconnectors.

The above categories are not mutually exclusive as the OU associated with intermittents could also feature in the OU for BMUs. NGC invites industry views on the usefulness of the above categories and how the OU could be best disaggregated for maximum benefit to the market.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 7.

**Table 7**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Allows publication of plant availability uncertainty which could reduce NGC's balancing actions if additional information leads to better self-balancing by Users.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Separating out the thermal (controlled) plant from wind and interconnector (NGC assumed) allows market participants to form own views on levels of wind generation and interconnector flows, and plan accordingly.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>

This change would be dependent upon a modification to the BSC and subsequent changes to the BMRS and NGC's systems.

## **4.2 Rationalisation of OC2 timescales**

This proposal affects the timescales for OU submissions and margin/surplus calculations. Since the margin/surplus calculations also require demand data, the implementation of this proposal is dependent on the implementation of the proposal 'Rationalisation of OC1 timescales' for demand forecasts (section 4.3). It therefore assumes that the timescales corresponding to OU submissions and demand forecasts are consistent and that both sets of data are available at the same time.

The proposal consists of the following 4 elements:

- Combine the current 2-14 day daily submission (daily resolution) and the current 2-49 day weekly submission (daily resolution) into a single 2-49 day daily submission (daily resolution).
- Remove the current 2-7 week requirement (weekly resolution) so that the weekly submission corresponds to 8-52 weeks (weekly resolution).
- Retain current requirements for years 1, 2 and 3;
- Remove current requirements for years 4 and 5.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 8.

**Table 8**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Reduces workload for years 4 and 5;</li> <li>▪ Eliminates duplication for 2-14 day and 2-49 day submissions;</li> </ul>	<ul style="list-style-type: none"> <li>▪ Eliminates duplication and simplifies published data;</li> <li>▪ Allows a longer view of the market (higher resolution data to 49 days);</li> <li>▪ Allows earlier identification of potential problem days in the 15 to 49</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduces generator workload for years 4 and 5 submissions;</li> <li>▪ Increases workload for 15-49 day daily, rather than weekly,</li> </ul>

**Table 8**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Allows a longer view of higher resolution data.</li> </ul>	day time frame, thus allowing greater scope to change outage periods and better self-balancing; <ul style="list-style-type: none"> <li>▪ Greater transparency.</li> </ul>	submissions.

The implementation of this proposal would require the following:

- Changes to OC2 provisions;
- Changes to BMRS display screens for OU-based data i.e. margins and surpluses;
- [Changes to BSC for all OU-based data to be displayed on BMRS].

### **4.3 Rationalisation of OC1 timescales**

This proposal affects the timescales for demand forecasts. Since the demand forecasts are used in the margin/surplus calculations (section 4.2) which require all associated data across the same timescales, the implementation of this proposal is dependent on the implementation of the proposal 'Rationalisation of OC2 timescales' for OU data (section 4.2). It therefore assumes that the timescales corresponding to demand forecasts and OU data are consistent and that both sets of data are available at the same time.

The proposal consists of the following 4 elements:

- Extend the current 2-14 day daily 'normal' peak demand forecast to 2-49 days ahead of real time;
- Remove the current 2-7 week weekly 'normal' peak demand forecast so that the future forecasts correspond to 8-52 weeks ahead of real time;
- Retain current requirements for years 1, 2 and 3;
- Remove current requirements for years 4 and 5.

The benefits of this proposal to NGC and the market, and the potential impact on Users are summarised in Table 9.

**Table 9**

<b>NGC Benefits</b>	<b>Market Benefits</b>	<b>Potential User impact</b>
<ul style="list-style-type: none"> <li>▪ Consistent with proposed OC2 timescales;</li> <li>▪ Allows a longer view of higher resolution data.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Eliminates duplication and simplifies published data;</li> <li>▪ Allows a longer view of the market (higher resolution data to 49 days), and improves visibility on daily peak demands, including weekends, rather than just the weekly peak for 15 to 49 days;</li> <li>▪ Greater transparency.</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>

The implementation of this proposal would require the following:

- Changes to OC1 provisions;
- Changes to NGC's systems for submission of data to BMRA;
- Changes to BMRS display screens for demand forecasts.

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#### **4.4 Provision of additional demand information for longer timescales**

NGC currently publishes the daily 'normal' peak demand forecast for 2 – 14 days ahead of real time and the weekly 'normal' peak demand forecast for 2 – 52 weeks ahead of real time. The published forecasts do not show any confidence bands around the 'normal' demand figure.

NGC is considering proposals to publish the confidence levels for the demand forecasts and associated temperatures for longer timescales (beyond 2 days ahead of real time). If the proposal to rationalise the OC1 timescales (section 4.3) are implemented, the confidence levels could be published for the revised timescales (2 – 49 days, 8 – 52 weeks and 1 – 3 years ahead of real time).

This proposal is likely to involve significant IS costs and NGC would like industry views on its usefulness before carrying out any development work.

## **5 Conclusion and Recommendation**

This paper has put forward a range of specific proposals to improve the exchange and publication of information within OC2 and OC1. Some of these proposals can be implemented relatively quickly whilst others require longer implementation timescales. The benefits of the proposals to both NGC and the market, and the potential impact on Users, have also been highlighted.

It is recommended that these proposals are reviewed and finalised by the OC1 / OC2 Working Group. The final proposals can then be presented to the Grid Code Review Panel in February 2005.