

## **NATIONAL GRID TRANSCO Operating Code No. 1 Demand Forecasting**

### **1 Purpose**

Operating Code No. 1 (“OC1”) is concerned with the production of short term, medium term and long term demand forecasts to facilitate the safe, secure and efficient operation of the NGC Transmission System.

The three elements of OC1 are:

1. The provision of forecast or indicative information by Users to be taken in to account by NGC in producing demand forecasts;
2. The production of demand forecasts by NGC;
3. The provision of information by Users to be taken in to account by NGC in reconciling actual demand to forecast demand.

### **2 Scope**

OC1 applies to NGC and to Users which in OC1 means:

- (a) Generators with respect to Embedded and Non-Embedded Medium Power Stations;
- (b) Network Operators;
- (c) Suppliers;
- (d) Non-Embedded Customers and;
- (e) Interconnector Operators.

The method of providing OC1 demand forecasts to Users shall be in accordance with the BSC Section Q6.

In instances where the OC1 provisions state that information will be provided ‘where reasonably requested by NGC’, the default position will be that the information is not required unless specifically requested.

The timescales for information exchange under OC1 are specified in Appendix 1.

### **3 Required Data from Users for Demand Forecasting**

#### **3.1 Purpose**

The purpose of this clause is to specify the information required by NGC from Users to ensure the operational forecasts are suitable and sufficient to manage the safe and secure operation of the NGC Transmission System.

#### **3.2 Network Operators to NGC**

Each Network Operator shall notify NGC in writing with MW Profiles of the amount and duration of their proposed use of Demand Control which may result in a Demand change of 12MW [specify a smaller figure?] or more on any Grid Supply Point.

Each Network Operator shall notify NGC in writing with the MW Profiles of the planned operation of Embedded Medium Power Stations where reasonably required by NGC.

### **3.3 Suppliers to NGC**

Each supplier shall notify NGC in writing with MW Profiles of the amount and duration of their proposed use of Customer Demand Management which may result in a Demand change of 12MW [specify a smaller figure?] or more on any Grid Supply Point.

### **3.4 Non Embedded Customers to NGC**

Each Non Embedded Customer shall notify NGC in writing with the MW Profiles of their planned demand where reasonably required by NGC.

### **3.5 Interconnector Operators to NGC**

Each Interconnector Operator shall notify NGC in writing with the MW Profiles of their planned operation.

### **3.6 Generators to NGC**

Each Generator shall notify NGC in writing with the MW Profiles of planned operation of Medium Power Stations [and Pumped Storage Plant] where reasonably required by NGC.

## **4 Operational Demand Forecasting**

### **4.1 Purpose**

The purpose of this clause is to describe NGC's operational Demand forecasts and factors that will be taken in to account by NGC in producing them.

### **4.2 Short Term Demand Forecasts**

Short Term Demand Forecasts are produced for the Operational Day Ahead though to real-time and include:

- (a) Half-hour demand profile of the weather adjusted National Demand forecast and forecast national average effective temperature;
- (b) Half-hour demand profile of the weather adjusted NGC Demand forecast.

### **4.3 Initial Demand Outturn**

Initial Demand Outturns are produced immediately after the half hour ending from operational metering (and therefore will contain operational metering errors) and include:

- (a) Half-hourly actual outturn of National Demand and actual national average effective temperature;
- (b) Half-hourly actual outturn of NGC Demand.

### **4.4 Medium Term Demand Forecasts**

Medium Term Demand Forecasts are produced for the two-day ahead through to forty-nine days ahead period and include:

- (a) Peak Half-hour of the day forecast of National Demand using normal weather and the normal national average effective temperature;
- (b) Peak Half-hour of the day forecast of National Demand using the higher of Average Hot Spell Demand or Average Cold Spell Demand and the associated national average effective temperature.

#### 4.5 Long Term Demand Forecasts

Long Term Demand Forecasts are produced for the eight-week ahead though to three years ahead period and include:

- (a) Peak Half-hour of the week forecast of National Demand using normal weather and the normal national average effective temperature;
- (b) Peak Half-hour of the week forecast of National Demand using the higher of Average Hot Spell Demand or Average Cold Spell Demand and the associated national average effective temperature.

#### 4.6 NGC Forecasting Factors & Methodology

The following factors will be taken in to account by NGC when producing Demand forecasts under OC1:

- (a) Historic Demand Data, metered and corrected [, including Transmission and Distribution losses];
- (b) Weather forecasts, the current and historic weather data and climate trends;
- (c) The incidence of major events and activities which are known to NGC in advance;
- (d) Notified Interconnector flows across External Interconnections;
- (e) Notified Demand Control;
- (f) Notified Customer Demand Management;
- (g) Other User supplied information;
- (h) The sensitivity of Demand to the anticipated market prices for electricity;
- (i) BM Unit Data submitted by BM Participants to NGC in accordance with the provisions of BC1 and BC2;
- (j) Anticipated Demand taken by Station Transformers;
- (k) Other factors that NGC may take in to account acting as a reasonable and prudent operator in all the circumstances.

In reconciling demand forecasts and demand under OC1 NGC will take in to account the following:

- (l) Actual outturned weather data;
- (m) The impact of major events and activities;
- (n) Actual Interconnector flows across External Interconnections;
- (o) Actual Demand Control;
- (p) Actual Customer Demand Management;
- (q) Other User supplied information;
- (r) Market prices for electricity;
- (s) Outturned BM Unit Data;
- (t) NGC actions outside the Balancing Mechanism that affected Demand;
- (u) Operational Metering errors;
- (v) Settlement Metering Data;
- (w) Demand corrections for significant Demand losses or Frequency deviation;
- (x) Other factors that NGC may have reasonably taken in to account.

The NGC forecast methodology will be based upon the above factors to produce by statistical means unbiased forecasts. National Demand forecasting will be based on factors (a), (b), and (c) [(a), (b), (c) and (k)?]. NGC Demand forecasting will additionally be based on factors (d) to (k). The overall demand forecasting methodology will be based on factors (a) to (x).

## **5 Required Data from Users for Demand Reconciliation**

### **5.1 Purpose**

The purpose of this clause is to specify the information required by NGC from Users to reconcile the operational forecasts against actual demand outturns to ensure the forecasts remain suitable and sufficient to manage the safe and secure operation of the NGC Transmission System.

### **5.2 Network Operators to NGC**

Each Network Operator shall provide NGC in writing with the actual outturned MW Profiles of Demand Control where previously notified or which resulted in a Demand change of 12MW [specify a smaller figure?] or more on any Grid Supply Point.

Each Network Operator shall provide NGC in writing with the actual outturned MW Profiles of the operation of Embedded Medium Power Stations where reasonably required by NGC.

### **5.3 Suppliers to NGC**

Each supplier shall provide NGC in writing with actual outturned MW Profiles of Customer Demand Management where previously notified or which resulted in a Demand change of 12MW [specify a smaller figure?] or more on any Grid Supply Point.

### **5.4 Generators to NGC**

Each Generator shall provide NGC in writing with actual outturned MW Profiles of the operation of Medium Power Stations [and Pumped Storage Plant] where reasonably required by NGC.

## 6 Appendix 1

| Time of Day (by)   | Each Operational Day   |
|--------------------|--|
| 8:45               | <b>NGC</b><br>Forecast National Demand for the next Operational Day  |
| 10:00              | <b>Network Operators to NGC</b><br>MW Profiles of any proposed Demand Control and MW profiles of the proposed operation of Embedded Medium Power Stations for the current and next Operational Day |
| 10:00              | <b>Suppliers to NGC</b><br>MW Profiles of any proposed Customer Demand Management for the current and next Operational Day   |
| 10:00              | <b>Non Embedded Customers to NGC</b><br>MW Profiles of proposed Demand for the current and next Operational Day  |
| 10:00              | <b>Interconnector Operators to NGC</b><br>MW Profiles of proposed operation of Interconnectors for the current and next Operational Day  |
| 10:00              | <b>Generators to NGC</b><br>MW Profiles of the proposed operation of Medium Power Stations for the current and next Operational Day  |
| 11:45              | <b>NGC</b><br>Forecast of NGC Demand for the next Operational Day, the levels of proposed Demand Control and Customer Demand Management and the levels of proposed Interconnectors' Demand         |
| Half Hourly        | <b>NGC</b><br>Updates of Forecasts of National Demand and NGC Demand, Initial Demand Outturn of National Demand and NGC Demand   |
| 16:00              | <b>Network Operators to NGC</b><br>MW Profiles of any actual Demand Control for the previous Operational Day   |
| 16:00              | <b>Suppliers to NGC</b><br>MW Profiles of any actual Customer Demand Management and Embedded Medium Power Station operation for previous Operational Day   |
| 16:00              | <b>Generators to NGC</b><br>MW Profiles of the actual operation of Medium Power Stations for the previous Operational Day  |
| 16:00              | <b>NGC</b><br>National Demand Forecasts for two days to forty nine days ahead  |
| Thursdays<br>16:00 | <b>NGC</b><br>National Demand Forecasts for eight weeks to three years ahead   |

## 7 Issues

Removed reference to planning data – check PC.A.5.1.4 / PC.A.4.2.4(b) / PC.A.4.3.2(a) / PC.A.3.1.4 et al are sufficiently robust as to stand alone (on first inspection they are).

Check OC6 – Demand Control for any interaction.

Interconnector Operator – should this be EISO?

## 8 New or Revised Terminology

**SHORT TERM DEMAND FORECASTS** weather adjusted integrated half-hour demand profiles of forecast National Demand and NGC Demand produced the day before the Operational Day and revised though to real time.

**MEDIUM TERM DEMAND FORECASTS** the normal weather integrated half-hour peak of the day of forecast National Demand for the period two-day ahead out to forty-nine days.

**LONG TERM DEMAND FORECASTS** the normal weather integrated half-hour peak of the week of forecast National Demand for the period eight-weeks ahead out to three years.

**MW PROFILES** The integrated half-hour MW profile of Power Station or Interconnector operation or of Demand on a Grid Supply Point basis.

**EFFECTIVE TEMPERATURE** – the 50% + 50% etc...

**AVERAGE HOT SPELL / AHS DEMAND**

**AVERAGE COLD SPELL / ACS DEMAND**

**NGC Demand**

**National Demand**

**Operational Metering**