



Operating Code OC3 – Operating Margin

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Operating Code OC3 – Operating Margin

OC3.1 Introduction

Operating Code OC3, Operating margin sets out the types of reserves making up the Operating Margin that OETC may use in the Control Phase.

The Operating Margin is the amount of reserve (provided by Production Facilities or by Demand Control) available over and above that required to meet the expected Demand. It is required to limit and then correct Frequency deviations that may occur due to an imbalance between total Generation Capacity output and Demand.

OC3.2 Objective

The objectives are to state clearly the types of reserve provided over various timescales that make up the Operating Margin, and to describe the factors which will govern the issue of Dispatch Instructions for reserve.

OC3.3 Scope

In addition to OETC, OC3 applies to;

- Power Producers; and
- Users offering Demand Control as an Ancillary Service.

OC3.4 Operating Margin constituents

The Operating Margin comprises Contingency Reserve plus Operating Reserve.

Contingency Reserve is the margin of Generation Capacity required in the period from 24 hours ahead down to real time over and above the forecast Demand. It is provided by CDGensets that are not required to be Synchronised but which must be held Available to Synchronise within a defined timescale.

Operating Reserve is to provide spare Generation Capacity for Frequency control in real time and is provided by CDGensets that are either Synchronised or can be Synchronised within minutes. Contingency Reserve and Operating Reserve provide against uncertainties in Availability of CDGensets and in Demand forecasts.



OC3.4.1 Operating Reserve

Operating Reserve is the additional Generation Capacity from Synchronised CDGensets or from a reduction in Demand. Operating Reserve must be able to respond in real time Operation to contribute to containing and correcting any fall in the Frequency of the Total System to an acceptable level in the event of a loss of Generation Capacity or mismatch between Generation Capacity and Demand. Operating Reserve also includes CDGensets that may be instructed to Synchronise and Load in the event of low Frequency. The Operating Reserve must be capable of providing response in three phases;

i.) Primary Response.

The automatic increase in Active Power output of a CDGenset or a decrease in the Demand for Active Power in response to a fall in the Frequency of the Total System.

The increase or decrease in Active Power must be in accordance with the provisions of the relevant PPA or Connection Agreement. These will provide that the response will be fully Available within 5 seconds from the time of the Frequency fall.

ii.) Secondary Response

The automatic increase in Active Power output of a CDGenset or a decrease in the Demand for Active Power in response to a fall in the Frequency of the Total System.

The increase or decrease in Active Power must be in accordance with the provisions of the relevant PPA or Connection Agreement. These will provide that the response will be fully Available by 30 seconds from the time of the Frequency fall. After 30 seconds, any additional Active Power should be made Available by Operation in Frequency Sensitive Mode.

iii.) Tertiary Reserve

The component of the Operating Reserve that would be Available as a result of Emergency Instructions to Synchronise and/or Dispatch other CDGensets. The provision of Active Power must be in accordance with the provisions of the relevant PPA or Connection Agreement.

OC3.5 Operating Margin determination

OC3.5.1 Contingency Reserve

OETC shall determine the amount of Contingency Reserve required for each hour up to 24 hours ahead, taking due consideration of relevant factors, including but not limited to the following;

- historical Availability and reliability performance of individual CDGensets
- notified Risk of Trips to the reliability of individual CDGensets
- Demand forecasting uncertainties.

OC3.5.2 Operating Reserve

OETC shall determine the amount of Primary Response, Secondary Response and Tertiary Reserve that must be Available to it from CDGensets at any time to ensure System security. The OETC Operating Reserve policy will take due consideration of relevant factors, including but not limited to the following;



- the magnitude and number of the largest Active Power infeeds from CDGensets, International Interconnections, Internal Interconnections and over single transmission feeders within the Transmission System;
- the predicted Frequency drop following loss of the largest infeed as may be determined through simulation using a dynamic model of the Total System;
- the extent to which Demand Control can be implemented;
- significant events that may justify provision of additional Operating Reserve;
- the cost of providing Operating Reserve at any point in time;
- ambient weather conditions, insofar as they may affect (directly or indirectly) CDGenset and/or Transmission System reliability; and
- agreements in place with International Interconnected Parties.

OETC shall keep records of the Operating Reserve policy and of significant alterations to it as determined by the above and any other factors.

OC3.6 Instruction of Operating Margin

As part of Scheduling, OETC will instruct Power Producers and Users of the extent to which they are obliged to make their Gensets Available to contribute towards Contingency Reserve and Operating Reserve with the required levels of response. Power Producers and Users shall make their Gensets so Available.

OETC may issue Dispatch Instructions, or instruct Users, to require use of Operating Reserve in the case of each CDGenset or Users' Plant, up to the levels reported under OC3.7.

OC3.7 Data requirements

The requirements for Operating Parameters for Operating Margin are given in the Connection Conditions Code (CC, clause 5). This data shall be provided initially during application for a Connection and thereafter must be provided by Power Producers to OETC by 1st January each year. Any short-term changes to this data are required to be notified to OETC as part of the daily reporting under the Scheduling and Dispatch Codes.