

OPERATING CODE NO. 6B

(OC6B)

EMBEDDED GENERATION CONTROL

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(This contents page does not form part of the Grid Code)

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OC6B.1	<u>INTRODUCTION</u>
OC6B.1.1	<p>Operating Code No.6B ("OC6B") is concerned with the provisions to be made by Network Operators to reduce the Active Power output from Embedded Power Stations;</p> <p>a) at times when there is a large amount of Active Power on the System from generation plant that has low (or no) inertia, to secure against the largest loss of Load, as determined under BC1.5.5; and</p> <p>b) in emergency circumstances including in the event of breakdown or operating problems (such as in respect of System Frequency, System voltage levels or System thermal overloads) on any part of the National Electricity Transmission System.</p>
OC6B.1.2	<p>OC6B deals with Embedded Generation Control instructed by The Company.</p> <p>The term "Embedded Generation Control" is used to describe a reduction in the Active Power output of Embedded Power Stations. Embedded Power Stations that may be subject to Embedded Generation Control include Embedded Power Stations connected to a Network Operator's System and whose owners or operators are not BM Participants.</p>
OC6B.1.3	The procedure set out in OC6B includes a system of warnings to give advance notice, where possible, of Embedded Generation Control that may be required by The Company under this OC6B .
OC6B.1.4	Data relating to Embedded Generation Control should include details relating to Active Power measured in Megawatts (MW).
OC6B.1.5	The Electricity Supply Emergency Code, as reviewed and published from time to time by the appropriate government department for energy emergencies, provides that in certain circumstances consumers are given a certain degree of "protection" when rota disconnections are implemented pursuant to a direction under the Energy Act 1976. Where relevant in terms of the incidental disconnection of demand as part of Embedded Generation Control , no such protection can be given in relation to Embedded Generation Control under the Grid Code .
OC6B.2	<u>OBJECTIVE</u>
OC6B.2.1	The overall objective of OC6B is concerned with the provisions to be made by Network Operators to reduce the Active Power output from Embedded Power Stations that will either avoid or relieve operational issues, in whole or in part, and thereby to enable The Company to instruct Embedded Generation Control in a manner that does not unduly discriminate against, or unduly prefer, any one or any group of Generators or Suppliers or Network Operators .
OC6B.3	<u>SCOPE</u>
OC6B.3.1	<p>OC6B applies to The Company and to Users which in OC6B means:</p> <p>(a) Generators; and</p> <p>(b) Network Operators.</p>
OC6B.3.2	<u>Explanation</u>

OC6B.3.2.1

- (a) In all situations envisaged in **OC6B**, **Embedded Generation Control** will be implemented by one or more **Network Operators**; and
- (b) **Embedded Generation Control** in all situations relates to the physical organisation of the **Total System**, and not to any contractual arrangements that may exist.

OC6B.3.2.2 Where **Embedded Generation Control** instructions are issued by **The Company** these may:

- a) require the **Network Operator** to achieve a reduction in **Active Power** output at specified **Embedded Power Station(s)**;
- b) be for the **Network Operator** to achieve a reduction in **Active Power** output of **Embedded Power Stations**, supplied via one or more specified **Grid Supply Point(s)**, of a specified value; or
- c) be for the **Network Operator** to achieve a reduction in **Active Power** output of **Embedded Power Stations**, supplied via one or more specified **Grid Supply Point(s)**, of a specified proportion of the aggregate **Active Power** output compared to the **Active Power** output before such an instruction was issued.

In any case, reasonable endeavours shall be employed by the **Network Operator** to ensure that the reduction in **Active Power** output specified in the instruction is achieved, considering also the principles relating to prioritisation set out in OC6B.5.1 where appropriate. Even when instructed to do so by **The Company**, the **Network Operator** will not be required to reduce the **Active Power** output from one or more **Embedded Power Stations** by more than the **Active Power** output from those **Embedded Power Stations** supplied via the specified **Grid Supply Point(s)**.

OC6B.3.2.3 **Network Operators** may where necessary (for example where timescales do not allow otherwise) implement **Embedded Generation Control** instructions by **Embedded Generation De-energisation** based on **Registered Capacity** so long as reasonable endeavours are employed by the **Network Operator** to ensure that the reduction in **Active Power** output specified in the instruction from **The Company** is achieved.

OC6B.3.2.4 An instruction from **The Company** to the **Network Operator** will be given to allow the **Network Operator** to arrange with **Embedded Power Stations** subject to **Embedded Generation Control** to resume normal operation. Such arrangements shall not commence until such an instruction has been received.

OC6B.3.2.5 The existence of any other arrangements for the management of **Embedded Power Stations** by a **Network Operator** will not relieve a **Network Operator** from the **Embedded Generation Control** provisions of this **OC6B**.

- OC6B.4 PROCEDURE FOR THE IMPLEMENTATION OF EMBEDDED GENERATION CONTROL ON THE INSTRUCTIONS OF THE COMPANY
- OC6B.4.1 A **National Electricity Transmission System Warning - High Risk of Embedded Generation Reduction** will, where possible, be issued by **The Company**, as more particularly set out in OC6B.4.4, OC7.4.8 and BC1.5.5 when **The Company** anticipates that it will or may issue **Embedded Generation Control** instruction(s).
- OC6B.4.2 When **The Company** anticipates that it will or may issue **Embedded Generation Control** instruction(s) within the following 30 minutes, **The Company** will, where possible, issue a **National Electricity Transmission System Warning - Embedded Generation Control Imminent** in accordance with OC7.4.8.2 and OC7.4.8.11.
- OC6B.4.3 (a) Whether a **National Electricity Transmission System Warning - High Risk of Embedded Generation Reduction** or **National Electricity Transmission System Warning – Embedded Generation Control Imminent** has been issued or not, each **Network Operator** will abide by the instructions of **The Company** and will implement the instructions received in the timescales specified and without delay.
- (b) Unless specified otherwise, **Embedded Generation Control** instructions shall be fulfilled within 30 minutes of an instruction being received from **The Company**.
- OC6B.4.6 Once an **Embedded Generation Control** instruction has been implemented by a **Network Operator**, the **Network Operator** may interchange the **Embedded Generators** who have been subject to **Embedded Generation Control** provided that the percentage or volume of **Active Power** reduction achieved at all times within the **Network Operator's System** does not change.
- OC6B.4.7 An instruction from **The Company** to the **Network Operator** will be given to allow the **Network Operator** to arrange with a **Generator** owning or operating an **Embedded Power Stations** subject to **Embedded Generation Control** to resume normal operation. Such arrangements shall not commence until such an instruction has been received.
- OC6B.4.8 Where **Embedded Generation Control** to manage events within the scope of OC6B is envisaged by **The Company** to be a prolonged requirement, **The Company** will notify the **Network Operator** of the expected duration.
- OC6B.4.9 Each **Network Operator** will notify **The Company** in writing that it has complied with **The Company's** instructions under OC6B.5, within five minutes of so doing, together with an estimation of the **Active Power** output reduction achieved, in MWs, by the **Embedded Generation Control**.
- OC6B.4.10 Each **Network Operator** will supply to **The Company** a revised estimate of the **Active Power** output reduction achieved, in MW, by the use of **Embedded Generation Control** within 30 minutes of complying with the instruction.
- OC6B.5 PRIORITIES FOR IMPLEMENTATION OF EMBEDDED GENERATION CONTROL INSTRUCTIONS
- OC6B.5.1 The implementation of an **Embedded Generation Control** instruction is at the reasonable discretion of each **Network Operator** to whom an instruction is given by **The Company**. In implementing an instruction and determining the order in which **Embedded Power Stations** are affected by it, it is expected that a **Network Operator** would respect the priority order set out in the table below unless it could be reasonably expected to be aware of other issues that would influence the implementation order including:
- a) whether the **Embedded Generation Control** has been issued following a **National Electricity Transmission System Warning – System NRAPM** or a **National Electricity Transmission System Warning – Localised NRAPM**, and therefore any specific local circumstances that it is a requirement to address;

b) the effectiveness of **Embedded Generation Control** actions to address the issues to be resolved;

c) Interactions with other network considerations such as the participation of **Embedded Power Stations** in Active Network Management (ANM) or other automatic switching schemes, or in the provision of other **Ancillary Services**; and

d) any other wider system issues and the potential consequences for **Users**, including environmental and safety concerns, and where applicable taking account of the incidence of such instructions.

All implementation decisions should be reasonable and based on the information available to the **Network Operator** at the time taking into account the leadtime available in the instruction issued by **The Company**

ORDER	CATEGORY OF GENERATION	COMMENT
1	Non-synchronous generation	Non-synchronous plant typically does not contribute towards system inertia hence is higher up the list due to the need to maintain system inertia, particularly in the scenario applicable to Embedded Generation Control where a very low demand situation coincides with high availability of non-synchronous generation. In the event that any alternatives to system inertia are available this should also be taken into account.
2	Synchronous generators without any associated demand	Lower down the list due to the need to maintain system inertia, particularly in a very low demand situation.
3	Generation with associated demand	For example, CHP installations, waste management facilities, and other industrial facilities with substantial on-site demand.
4	Generation associated with critical national infrastructure sites	Never envisaged to be selected.

OC6B.6 OPERATION OF THE BALANCING MECHANISM DURING EMBEDDED
GENERATION CONTROL

Instructions issued by **The Company** to carry out **Embedded Generation Control** will constitute **Emergency Instructions** in accordance with BC2.9 and it may be necessary to depart from normal **Balancing Mechanism** operation in accordance with BC2 in issuing **Bid-Offer Acceptances**. **The Company** will inform affected **BM Participants** in accordance with the provisions of **OC7**.