

NGC UNCLASSIFIED

NATIONAL GRID COMPANY

Operations & Trading

Business Systems

NETA DESPATCH INSTRUCTION GUIDE

ISSUE RECORD

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3	03/04/03	Modified following re-issue of OS210 for One Hour Gate.	P Robinson

Copies to: BSC Parties active in the Balancing Mechanism (using EDL)
 Providers of EDL Systems

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PURPOSE

To define the format and procedures for logging Bid Offer Acceptances and Ancillary Service type instructions following the implementation of NETA.

SCOPE

This document is applicable to all staff involved in Bid Offer Acceptances and Ancillary Services Instructions via the Electronic Despatch Logging (EDL) System.

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This document is intended as a plain language guide to the application of the current Grid Code and Balancing & Settlement Code and nothing should be read as modifying, adding to, or easing in any way the requirement to comply with the Grid Code and Balancing & Settlement Code.

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1 INTRODUCTION

1.1 Summary of document

This document covers the electronic logging of despatch instructions. Examples are given of how the instructions are interpreted in the Balancing Mechanism Window.

The important points that are covered in this document include:

- Bid Offer Acceptances (BOAs) can only apply within the Balancing Mechanism Window.
- BOAs will be issued as closed instructions. The length of the instruction shall be user editable, after which time the unit shall ramp back to the capped committed profile or be closed at the end of the BM Window.
- BOAs do not need to form a consecutive profile for a unit's output. i.e. a BOA does not need to start from the time and MW level that the previous BOA ended.
- Frequency response instructions are open ended non-BM trades without target MW levels.
- The electronic Instruction Logger will only record BOA and Ancillary Service Information.

1.2 Definitions

BMIS – Balancing Mechanism and Imbalance Settlement

BMRA – Balancing Mechanism Reporting Agent

BOA – Bid Offer Acceptance

DBMU – Demand Balancing Mechanism Unit

FPN – Final Physical Notification

GBMU – Generation Balancing Mechanism Unit

IPN – Initial Physical Notification

MEL – Maximum Export Limit

NTB – Notice to Deliver Bids

NTO – Notice to Deliver Offers

NDZ – Notice to Deviate from Zero

PN – Physical Notification

QPN – Quiescent PN

RUR – Run Up Rate

SEL – Stable Export Level

CL - Committed Level – This is the commercially contracted output of a Balancing Mechanism unit. It is the Physical Notification modified by Bid/Offer Acceptances. Where no Bid Offer Acceptances have been made this is the Physical Notification of the unit.

CCL - Capped Committed Level - This is the expected output of a Balancing Mechanism unit. It is the Physical Notification modified by Bid/Offer Acceptances and

capped by the MEL, if applicable. Where no Bid Offer Acceptances have been made this is the Physical Notification of the unit capped by MEL.

1.3 Related Documents

1. RETA Glossary of Terms and Definitions
2. NETA Timing Conventions – 25th May 2001 – Chris Sturgeon
3. NETA Data Validation Consistency and Default Rules IS-SO/24.12.0003 Current Issue
4. EDL Interface Specification – Valid Reason Codes IS-SO/24.13.0051 Current Issue

2 INSTRUCTIONS IN THE NETA ENVIRONMENT

2.1 Background

The New Electricity Trading Arrangements (NETA) require Balancing Mechanism Units to submit a Physical Notification (PN) of expected generation. The BMU will be expected to follow the PN without an instruction from National Grid. This means the majority of BMUs will be generating without having been issued an instruction; they will be expected to follow their Physical Notification position. National Grid will issue Offer or Bid Acceptances to BMUs to deviate from their PN position (other than plant breakdown). This will allow National Grid to balance generation and demand in real-time.

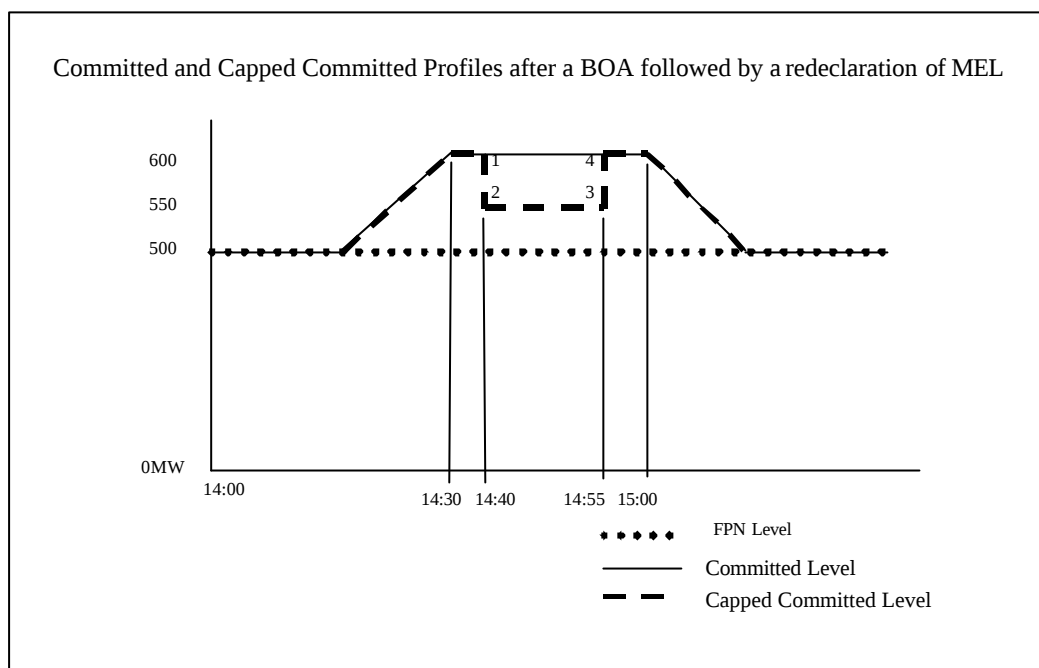
Instructions of Bid / Offer Acceptances (BOAs) must have an end time and can only be made between real-time and the end of the BM Window. However, some instructions such as Ancillary Service contracts require open ended instructions to be logged that can apply to times outside the Balancing Mechanism window. For this reason there are two separate instruction types: BOAs and ASB instructions.

GT instructions for both inside and outside of standing reserve windows shall be instructed as BOAs via the Electronic Instruction Logger.

BOA's and ASB instructions shall be communicated to BMU's normally via EDL from the electronic instruction Logger.

2.2 Committed Level and Capped Committed Level

The Capped Committed Profile of a GBMU/DBMU is defined as the expected output of the unit that is determined by its Physical Notification and any Bid/Offer acceptances capped by MELs. The figure below illustrates the Committed Level and the Capped Committed Level.



Committed and Capped Committed Level

The GBMU has submitted an FPN of 500MW. Subsequently an Offer has been issued up to 600MW with a target time of 14:30. After this the GBMU has redeclared its MEL to 550MW from 14:40 to 14:55.

2.3 From – To Time Formats and Despatch Advice

The NETA agreement for Physical Notification submissions is to use a **From** and **To** time format (see 3, section 3). This enables BMUs to submit ramping Physical Notifications and MEL profiles. These changing profiles may, or may not be consistent with the submitted dynamic data of the BMU, however the instructed trajectory of the unit should always be with reference to the dynamic data. This will be consistent with the despatch algorithm. If a BMU has submitted an FPN that is ramping up (or down) at its declared RUR, then the despatch algorithm will not give advice to use Offers (or Bids) on the unit, as it will see that it is already ramping at its declared rate.

2.4 Allowable Instruction Envelopes

The allowable instruction envelope of a BOA is defined by the BM Window, the dynamic parameters submitted by the BMU and the Bid/Offer pair information. Note under NETA MEL, SEL etc. are included as dynamic data. If there is a conflict between parameters (e.g. MNZT) and a BOA then NGC shall only adhere to dynamic parameters that lie wholly within the BM window.

2.4.1 BM Window

Bid Offer Acceptances can only be issued within the Balancing Mechanism Window, the length of which depends on the Gate Closure Period (set at 1 hour). For BOAs the end time of the BM Window is derived from the Log Time of the instruction. This means that the maximum length of instruction from Log Time to the end of the BM Window is between 1 to 1½ hours. For example at 14:00 a BMU can be issued the maximum BOA with a log time of 14:00 and the instruction must end by 15:30. If the BOA is made with a log time of 14:15 the instruction must still end by 15:30. The electronic instruction logger will not allow BOA instructions to be sent that go beyond the end of the BM Window.

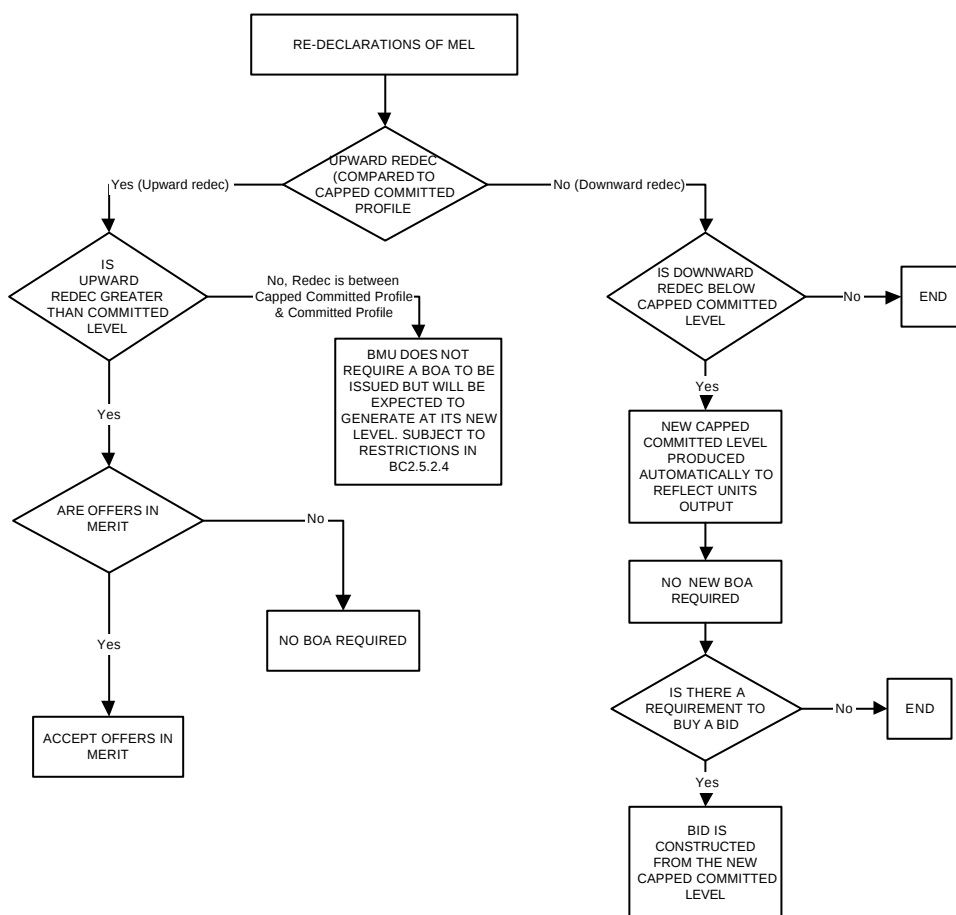
2.5 Re-declarations of Data

2.5.1 Data Flow

BMUs will be able to re-declare dynamic data within the BM Window by EDL. The capped committed level and availability envelope of a unit will be updated following a re-declaration of data. For more details see Data Validation, Consistency and Defaulting Rules (see 3, section 1.3).

The rules specify that a BM Unit cannot re-declare its PN within the BM window. If a GBMU cannot meet its FPN, it should re-declare its MEL level (*Grid Code BC2.5.3.2*). This value will then cap the unit's expected output. A new instruction will not be needed to capture the unit's revised expected output, as any previous instruction would have been closed and firm on the unit.

2.5.2 Re-declarations Flow Diagram



Re-declarations Flow Diagram

There are a few different cases where downward re-declarations could arise as illustrated in the figure above.

2.5.3 Genset Failures

If a BM unit trips (other than intertrips) then it will not require a new instruction. However it would be expected to re-declare its MEL to zero. This will be reflected in the level of the zonal instructed output. The logging requirement for intertrips is detailed in section 3.5.

Summary – Downward redeclarations do not require new instructions to be sent to the BM Unit. They will cap a unit's future BOAs that are available to be instructed.

Summary – Upward redeclarations do not require new instructions to be sent to the BM Unit. If operating below the committed level a BMU may wish to ramp up to its committed level to avoid imbalance costs (an instruction is not required) but the ramp rate up is restricted as detailed in Grid Code ref. BC2.5.3.

3 BID-OFFER ACCEPTANCES

The specification for the Balancing Mechanism and Imbalance Settlement specifies that Bid-Offer Acceptance Data shall comprise of the following information.

- Two or more Point Acceptance Volumes, expressed in MW for spot times, t (in a whole number of minutes), within the Balancing Mechanism Window Period.
- The associated Bid-Offer Acceptance Number, k.
- The associated Bid-Offer Acceptance Time .
- A Deemed Bid-Offer Acceptance Flag, if the Bid or Offer being Accepted is a Deemed Bid or Deemed Offer.

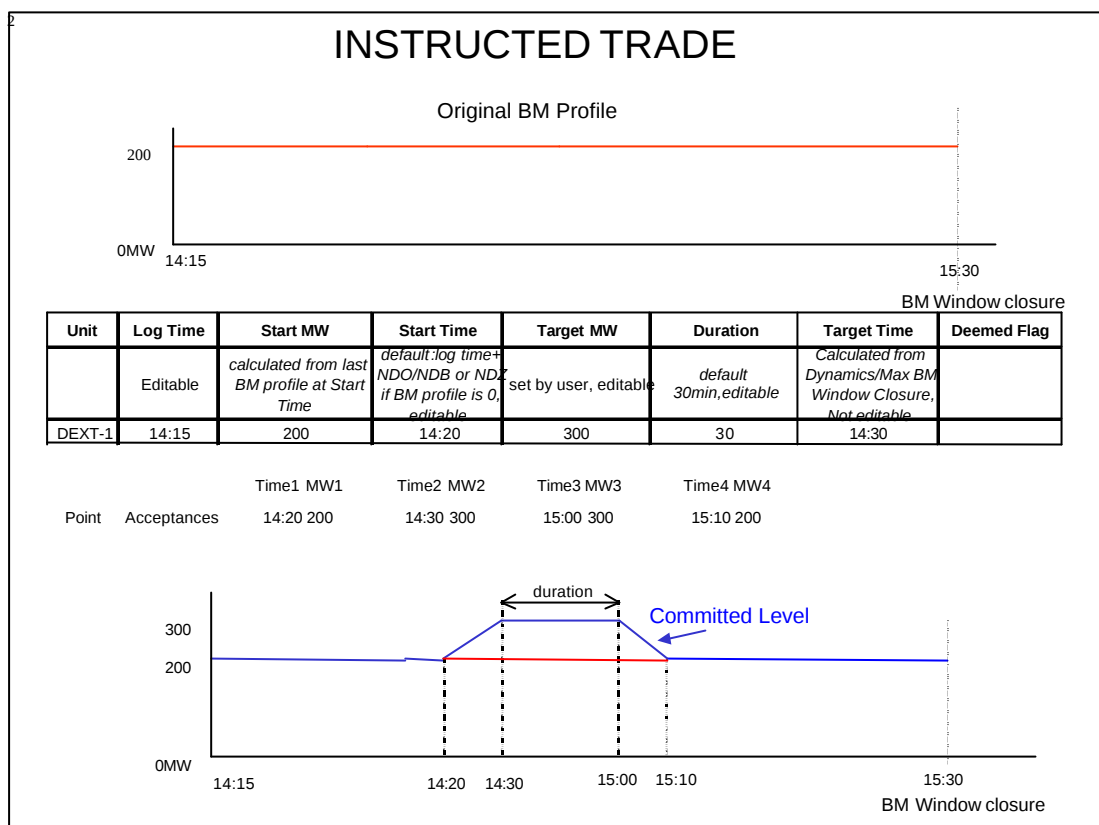
The electronic instruction logger provides a means of communicating the information specified above to the BM unit within the Balancing Mechanism Window. The profile of a Bid-Offer acceptance issued must be physically deliverable based on the information available at the time. The number of point acceptances required to define a closed volume will vary (between 2 and 5) depending on the Capped Committed Level and the type of acceptance required.

Note: The control point can either accept or reject an issued BOA, however a rejection is only acceptable if the reasons for rejection are valid as detailed in sections BC2.7.3 (BOAs) and BC2.8.3 (AS instructions) of the Grid code. In summary, this states that a BOA can only be rejected on safety grounds or if the Point Acceptances violate the BMUs declared parameters.

When selecting the Bid-Offer Acceptances NGC shall consider the future CGO targets the current total of BMUs for the zone (instructed output), the Bid and Offer prices of the unit and the duration of the instruction. The following examples define the principles for logging instructions.

3.1 Bid or Offer Acceptances on a Flat Profile

Consider the BM Unit DEXT-1 that has submitted a profile as shown below. DEXT-1 has submitted a flat PN of 200MW, which has rolled into the BM window to become the committed level. At 14:15 it is then instructed to 300MW starting at 14:20.



Instructed Trade

An example of this type of instruction is shown above. To define the closed volume, four point acceptances must be specified. This is achieved by the user setting up the instruction in the logger. The length of the instruction before the BMU returns to its last profile is set by the user in the **duration** field. In the example this is 30 minutes.

From the above example the data required by the BMRA is:

BM Unit Dext-1 Bid-Offer Acceptance k	
Bid-Offer Acceptance Time – 14:15 (Log Time)	
Point Acceptance Level MW	Associated Time
200	14:20
300	14:30
300	15:00
200	15:10

If a Bid acceptance is issued a similar format shall be used. This example illustrates the requirement for the closed part of the instruction to be automatically formatted to the BM profile. The response code is not relevant for this instruction and so is not sent with the instruction.

3.2 Bid Offer Acceptances on a Varying Profile

Bid Offer Acceptances issued on a varying profile shall be formatted in the same way as described in section **3.1**. The electronic instruction logger will automatically

calculate the last point of the Bid Offer Acceptance, which will be displayed as the last point acceptance after formatting the instruction.

3.3 Altering Synchronising and Desynchronising Times of a GBMU

The Grid Code (ref BC2.5.2) details the circumstances under which a BMU may synchronise or de-synchronise. It states that a BMU shall synchronise or de-synchronise within 5 minutes of its indicative synchronising/de-synchronising time as notified via the FPN. In the case of synchronisation following an unplanned de-synchronisation within the preceding 15 minutes, a minimum of 5 minutes notice should normally be given. In the case of an unplanned de-synchronisation longer than 15 minutes, a minimum of 15 minutes notice of synchronisation should be given to NGC. NGC may agree to an earlier synchronisation if system conditions allow.

NGC may wish to alter the sync or desync of a GBMU that has submitted an FPN of 0MW. In order for the GBMU to synchronise to the system, an Offer from 0MW will need to be accepted. After acceptance of the offer the GBMU would be expected to synchronise within 5 minutes of the Offer acceptance start time.

If a GBMU with a positive FPN is required to be desynchronised a Bid will be required to be accepted. Again the unit will be expected to desynchronise within 5 minutes of the 0MW-target time of the Bid.

The format for logging the Offer or Bid will be similar to the general instruction as described in section 3.1.

3.4 Deemed Bids and Offers

The BMIS specifies the ability of the system operator to instruct units even if Bid-Offer data has not been submitted. This provision was to be through the use of Deemed Bids and Offers. However the requirement to issue Deemed Bids and Offers has now been withdrawn. If a BMU has accepted a Bid or an Offer and it does not have a valid available Bid or Offer the point acceptances will still stand as they were issued.

3.5 Generators on Intertrip

Generation BMUs that have tripped due to the initiation of a prearranged intertrip shall be logged Bid Acceptances, exceptions being if a genset is selected to protect its own plant. If there is any doubt whether the GBMU has tripped correctly due to the operation of an inter-trip then no BOA shall be issued.

3.5.1 Example Instruction for a GBMU BOA on Inter-trip

In the example below the generator tripped from 400MW to 0MW at 1034. The OFF instruction prompts the user to select the format for a generator intertrip. This will set the Target Time equal to the Start Time and the Target MW to 0 as shown below.

	Unit	Log Time(day)	Start MW	Start Time	Target MW	Duration	Target Time	Deemed Flag
BOA	DEXT-2	1034(30)	400	1034(30)	0	Default end of window (editable)	1034(30)	N/A

The Bid-Offer Point Acceptances created from this are shown below. The Bid-Offer Acceptance to 0MW extends to the end of the BM window.

BM Unit Dext-2, Bid-Offer Acceptance k, Bid-Offer Acceptance Time – 10:34	
Point Acceptance Level MW	Associated Time
400	10:34
0	10:34
0	12.00

This type of instruction will always have to be logged retrospectively. The duration of the instruction will have to be considered, as it will depend on how long it is expected for the unit to be OFF. In any event the maximum Bid that can be logged will be from the time of the trip to the end of the BM window, although the Bid may have to be extended if the faulted circuit does not return.

3.6 Instructions to DBMUs

Instructions sent to Demand BMUs should follow the same format of instruction as for a Generation BMU. As DBMUs are generally not operationally metered the actual demand variation of the DBMU is unknown. Instructions to DBMUs shall be required to comply with the submitted dynamic data for the units including QPN and Maximum Delivery Period and Maximum Delivery Volume. The BOA shall be issued via the EDL instruction logger and shall be logged as Offer acceptances.

4 ANCILLARY SERVICE INSTRUCTIONS

4.1 Instruction of Frequency Response

A GBMU may require a frequency response instruction irrespective of whether it has been issued a BOA. Frequency Response instructions shall be issued following advice from the Frequency Response Despatch Facility. As instructions to GBMUs to provide frequency response are not a part of Bid/Offer acceptances they do not need to comply with the same rules i.e. the instructions are not closed and can span time periods outside of the Balancing Mechanism window. Frequency response instructions **do not** require a target MW level. The following information is required for a frequency response instruction:

Log Time: Time of the Instruction

Start Time: User Editable, Default is Log Time + 2 minutes. It is assumed that the Target Time of the instruction is identical to the Start Time.

Reason Code: The Reason Code indicates the type of response that the unit is instructed to. Details of the reason codes can be found in the EDL Interface Specification (see 4, section 2).

The Grid Code BC3.5.4(d) states that “such instruction will continue until countermanded by NGC or until the Genset is De-Synchronised, whichever is the first to occur.”

Ancillary Service payments for frequency response will cease if a BMU's committed profile is detected to be below Stable Export Limit (SEL) or if MEL < SEL. This should be taken account of when issuing frequency response instructions especially in circumstances where a GBMU re-declares its MEL below SEL for short periods.

4.2 Warming Contracts

Warming Contracts will be used to guarantee that an identified GBMU will be available within certain time-scales. These are required because a GBMU may have submitted a NDZ greater than the BM window and BOAs cannot be issued for times outside the window.

If the GBMU NDZ after warming is still greater than the BM window and is required to generate following the warming contract it will be bought with a Pre-Gate BMU Transaction.

If the GBMU NDZ after warming is less than the BM window and is required to generate following the warming contract it can be bought by either a Pre-Gate BMU Transaction and/or continual BOAs. If it is no longer required, the warming contract will be cancelled. The instructions for warming contracts are illustrated below and use of the Hot Standby instruction codes (HTS,CHS).

4.2.1 Example Warming Contract Instruction

The following example illustrates the logging of an instruction to invoke a warming contract for DEXT-2.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-2	2000(29)	HTS	0700(30)	HTS	45	MN	0700(30)

This example invokes a warming contract that ensures DEXT-2 will be at 45 minutes notice at 0700. DEXT-2 will declare as part of a later submission a Notice to Deviate from Zero of 45 minutes at 07:00.

If this instruction is cancelled before 07:00 then the following instruction can be issued and compensation payments can be paid to the generator for the cost incurred.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-2	0400(30)	HTS	0700(30)	CHS	0	MN	0700(30)

The cost incurred can be an agreed £/hr rate set out in an AS agreement. The reason code shall be used to indicate whether the CHS instruction was due to the BMU (BN) or NGC (MN).

4.2.2 Unit is cancelled after start of warming period

The warming fee is paid until the time at which the unit is to be at the shorter notice to deviate from zero is reached. After this a Hot Standby £/hour fee is paid for remaining at this shorter notice.

In this example, if the BMU is held at the 45 minutes notice after the end of the warming period and then cancelled the following instruction would be issued. The Reason Code shall be used to indicate whether the CHS instruction was due to the BMU (BN) or NGC (MN).

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-2	1000(30)	HTS	1000(30)	CHS	0	MN	1000(30)

4.2.3 Unit is synchronised from Hot Standby (NDZ > Gate Closure)

If after instructing the unit to warm, the unit is required to synchronise by NGC then a Pre-Gate BMU Transaction is issued. The Pre-Gate BMU Transaction implies cancellation of the HTS instruction and is taken as such by the BMU.

4.2.4 Unit is synchronised, via a BOA, from Hot Standby (NDZ < Gate Closure)

If after the warming period the unit is required to synchronise by NGC then a BOA shall be issued. This means that the instruction needs to be consistent with all other BOAs. The BOA will imply a CHS instruction and taken as such by the BMU. In the example shown below DEXT-2 is instructed at 07:30 to synchronise from Hot Standby at 08:15. In this case the earliest time the BMU can synchronise will be taken from its NDZ which should have previously been set equal to the time to synchronise from Hot Standby by the BMU. In this case the BMU should redeclare its NDZ to 45 minutes, which would give an earliest synch time of 07:45, given that it will reach HTS at 07:00.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
BOA	DEXT-2	0730(30)	0	0815(30)	400	5	N/A	0855(30)

Point Acceptance	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	0815	0	0855	400	900	400	0900	0

ASB	DEXT-2	2000(29)	HTS	0730(30)	HTS	45	MN	0700(30)
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4.3 Instructions to Open Cycle Gas Turbines

Open Cycle Gas Turbines may be instructed with BOAs similar to other BMUs as described in section 3. A normal BOA for an OCGT will not require a special reason code to be logged separately, however Gas Turbines may also be instructed in special circumstances as detailed in this section. GTs instructed during Standing Reserve periods shall be instructed with BOAs according to their prices submitted through the normal Balancing Mechanism process.

4.3.1 Fast Start (Coded MNF)

If a GT is manually instructed to fast start, the instruction START time takes into account the NTO but not the NDZ time. The instruction will be sent as a BOA and a

separate reason code shall be sent to indicate that a fast start is required. The instructions shall be logged with the same start times. The following example indicates the instructions for a manual fast start at 09:45. The ASB instruction should be entered before the BOA.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	0945(30)	SYN	0948(30)	0	0	MNF	0948(30)
BOA	DEXTGT-2	0945(30)	0	0948(30)	25	10	N/A	0950(30)
Point Acceptance	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	0948	0	0950	25	1000	25	1003	0

4.3.2 Failure of GT Manual Fast Start

If a GT does not synchronise after a manual fast start then the instruction shall be logged as follows:

ASB	DEXTGT-2	0945(30)	0	0945(30)	OFF	N/A	BNF	0948(30)
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The start time is either the time that the GT should have come on or the time that the GT tripped off without instruction. The target reason code is BNF.

If the GT trips after synchronising the start time shall be entered as the time the GT tripped.

4.3.3 LF Relay Start (Coded MNL)

If a GT start is initiated on LF relay operation the LF start is logged as an ASB instruction with an MNL code. When a GT starts on LF relay operation, the instruction LOG and START times should be set to the LF relay trip time. The third character of the reason code is set to L. The Start MW is set to SYN, Target MW and Duration are left as 0 as they are not included in the ASB instruction.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	0945(30)	SYN	0945(30)	0	0	MNL	0945(30)

If a GT is started automatically following a valid LF relay operation then it is contracted to run for 15 minutes after reaching full load as an Ancillary Service. Following the 15 minutes the GT will continue to generate until it receives either a BOA or an AS OFF instruction from NGC.

If the GT is required to be kept on for longer than 15 minutes after the GT has reached full load from the LF relay initiation then a BOA is required to be sent. The duration of the BOA can be edited as required. In the example below it is left at the 30-minute default and the GT takes 3 minutes to reach full load. The sequence of instructions is logged as follows:

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	0945(30)	SYN	0945(30)	0	0	MNL	0945(30)
BOA	DEXTGT-2	0953(30)	0	1003(30)	25	30	N/A	1006(30)

Point Acceptance	Time1	MW1	Time 2	MW2	Time3	MW3	Time4	MW4
	1003	0	1006	25	1036	25	1039	0

The GT is expected to follow the BOA and shut down at 10:39.

If the GT is required to shut down during or following the contracted 15 minutes then an AS instruction is required to instruct the GT to OFF giving the sequence of instructions as follows:

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	0945(30)	SYN	0945(30)	0	0	MNL	0945(30)
ASB	DEXTGT-2	0955(30)		1003(30)	OFF	N/A	MNS	1003(30)

If a BOA is not issued following the contracted 15 minutes after the LF start the GT will be expected to continue generating. A retrospective BOA should not be issued from the end of the 15 minutes but should be issued from current time if the GT is required to continue running.

4.3.4 Failure of LF start

When GT starts are (or should be) initiated by the operation of low frequency relays, then AS entries are to be made in the logger for all the appropriate GTs. The entry will be of the form shown in 4.3.3.

Should a GT fail to synchronise or initiate a LF start for a sufficiently low frequency then its failure should be recorded as a ASB instruction with a BNL reason code.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	0945(30)	SYN	0945(30)	0	0	MNL	0945(30)
ASB	DEXTGT-2	0945(30)	0	0945(30)	OFF	0	BNL	0945(30)

4.3.5 Failure of GT Manual Normal/Slow Start

If a GT does not synchronise after a manual normal/slow start instruction to generate has been given via a BOA then the instruction is still valid and no further instructions are required to be logged.

4.3.6 Sync Comp Instructions (coded MNV)

When GTs are instructed to operate in the Sync Comp mode, then the instruction logged is based on whether the genset was initially synchronised or not.

If the GT is currently shutdown then the START time is that calculated for a normal start (NDZ). The TARGET MW is entered as zero. The Reason code will be MNV

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	1215(30)	SYN	1220(30)	0	0	MNV	1220(30)

At the end of the requirement for sync comp the reason code shall be logged as MNS. The start time takes a two-minute station response time into account.

ASB	DEXTGT-2	1247(30)	0	1249(30)	OFF	0	MNS	1249(30)
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If the GT is currently generating then the instruction to Synch Comp should start at the end of the BOA. The example below indicates the previous BOA that has been given to DEXTGT-4. The start time of the ASB instruction will take into account a 2-minute station response time.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
BOA	DEXTGT-4	1509(30)	0	1511(30)	25	30	N/A	1514(30)
Point Acceptances	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	1511	0	1514	25	1544	25	1547	0
ASB	DEXTGT-4	1545(30)	SYN	1547(30)	0	0	MNV	1547(30)

When a GT goes from Sync Comp mode to generate, then the logged entry will show the genset instructed with a BOA to its required output from zero. The start time of the BOA takes the NTO into account. A cancel Sync Comp instruction is implied by the issue of the BOA and shall be interpreted as such by the BMU.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-4	1645(30)	SYN	1647(30)	0	0	MNV	1647(30)
BOA	DEXTGT-4	1710(30)	0	1712(30)	25	30	N/A	1715(30)
Point Acceptances	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	1712	0	1715	25	1745	25	1748	0

If a GT fails to go into sync comp mode after an instruction, an ASB instruction shall be logged with a BNV code to reflect this.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	1215(30)	SYN	1220(30)	0	0	MNV	1220(30)
ASB	DEXTGT-2	1220(30)	0	1220(30)	OFF	0	BNV	1220(30)

If a GT trips whilst in sync comp mode then an ASB instruction shall be logged to reflect the trip. In the example below the GT tripped at 13:05.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXTGT-2	1215(30)	SYN	1220(30)	0	0	MNV	1220(30)
ASB	DEXTGT-2	1305(30)	0	1305(30)	OFF	0	BNV	1305(30)

4.4 Fast Reserve Instructions

Fast Reserve may be available uncontracted in the BM or through the use of a Fast Reserve contract. Dependant upon whether or not the BMU has an optional or firm contract for Fast Reserve, there may be a requirement to issue an ASB instruction and a BOA for increased output.

4.4.1 Optional service – Request for enhanced dynamics

If NG identify a requirement for Fast Reserve then this optional Ancillary Service can be used. This is an agreement that puts no obligation on either party, NGC/BMU, but allows optional despatch of Fast Reserve when available. Ancillary Service payments are made only when used.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-4	1945(30)	0	1947(30)	0	0	MR	1947(30)
BOA	DEXT-4	2000(30)	280	2002(30)	380	10	N/A	2006(30)
Point Acceptances	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	2002	280	2006	380	2016	380	2004	280

The ASB instruction must be sent first, the Reason Code MR (Provide Fast Reserve) indicates that this is a request for Fast Reserve enhanced dynamics to be submitted and may be rejected by the BMU. In the above example the Fast Reserve option has been accepted, enhanced dynamics submitted and the BMU can then be issued with a BOA to increase output by 100MW to start within 2 minutes at enhanced rates.

If NGC no longer requires the enhanced dynamics then the BMU must be issued with an ASB instruction that has a Reason Code, MO (Cease Fast Reserve), to indicate the cessation of Fast reserve, see below. This instruction is required to ensure correct AS payments are made, as an “enhanced dynamic fee” is paid for the time difference between MR and MO.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-4	2030(30)	0	2032(30)	0	0	MO	2032(30)

The BMU when instructed to cease Fast Reserve may re-submit data to return to the non-enhanced dynamic parameters or may continue to operate at the enhanced levels.

4.4.2 Firm service

Firm service is one in which the provider is contracted to provide Fast Reserve within nominated windows, set by NG at 2 days ahead. It is the responsibility of the provider to ensure that the contracted unit is able to provide Fast Reserve within the nominated windows. The provider will submit appropriate dynamic parameters and PN, and capped Bid Offer pairs in line with the contract.

Any instruction to provide Fast Reserve will be via a BOA and does not require a separate ASB instruction.

4.5 Valid Reason Codes

Reason Codes are logged with all AS instructions. The valid reason code combinations are defined in the EDL Interface Specification (see 4, section 1.3).

5 EMERGENCY INSTRUCTIONS (Ref Grid Code BC2.9)

Where system conditions are such that a BMU is involved in a period of abnormal or emergency operation, e.g. supporting local demand in a post fault islanded group, or has been instructed outside of the available bids for high frequency control, then an AS instruction shall be logged with an E as the first character of the Reason Code. The period of abnormal operation will be considered as continuing until a non-emergency coded instruction is issued.

The log for an emergency instruction should be completed as follows:

- 1) The instruction START TIME will record the time when the emergency period of operation commenced. This may be entered retrospectively.
- 2) The TARGET TIME will be set to the START TIME.

	Unit	Log Time (day)	Start MW	Start Time	Target MW	Duration	Reason Code	Target Time
ASB	DEXT-1	1732(30)	0	1734(30)	0	0	EN	1734(30)
BOA	DEXT-1	1732(30)	350	1734(30)	200	30	N/A	1749(30)
Point Acceptances	Time1	MW1	Time2	MW2	Time3	MW3	Time4	MW4
	1734	350	1749	200	1819	200	1834	350
ASB	DEXT-1	1825(30)	0	1827(30)	0	0	MN	1827(30)

The DEXT-1 BMU has a capped committed profile of 350MW but due to a system fault the output is instructed to below its SEL. An ASB instruction is also logged at this time with an emergency code to highlight that an emergency instruction has been issued. It is expected that these instructions will be entered retrospectively following discussions with the station. NOTE that at the end of the BOA the BMU would be expected to follow its capped committed profile, which is to pick back up to 350MW. If this is not required then a further instruction shall be logged. In the example above the emergency conditions are no longer required at 18:27 and a reason code of MN is sent to reflect this.