

**EBS Project  
Transition from BM System to EBS  
for Market Participants**

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Contents:

- 1 Introduction ..... 4
  - 1.1 General..... 4
  - 1.2 MP Interfaces ..... 4
  - 1.3 Transition Overview ..... 4
    - 1.3.1 Operational Soak ..... 4
    - 1.3.2 Trial Run ..... 4
    - 1.3.3 Go-Live ..... 5
  - 1.4 MP Roles..... 5
- 2 Preparatory Activities ..... 5
  - 2.1 Confirm Contact Details ..... 5
  - 2.2 EDT Validation Approach..... 6
  - 2.3 EBS EDT ftp Details ..... 6
- 3 EDT Validation ..... 6
  - 3.1 Introduction..... 6
  - 3.2 Prerequisites..... 6
    - 3.2.1 Prerequisite Activities ..... 6
  - 3.3 Communications..... 6
  - 3.4 EDT Validation Task..... 6
    - 3.4.1 Production EDT Application..... 7
    - 3.4.2 Validation Script ..... 7
- 4 EDL Validation ..... 7
  - 4.1 Introduction..... 7
  - 4.2 Prerequisites..... 7
  - 4.3 Communications..... 8
  - 4.4 EDL Validation Task ..... 8
- 5 RD/EDL Trials ..... 8
  - 5.1 Introduction..... 8
  - 5.2 Prerequisites..... 8
  - 5.3 Communications..... 8
  - 5.4 RD/EDL Trial ..... 9
  - 5.5 Rollback plan during the Trials..... 9
- 6 Go-Live ..... 9
  - 6.1 Introduction..... 9
  - 6.2 Prerequisites..... 9
  - 6.3 EDL Cutover ..... 9
    - 6.3.1 Communications ..... 9
    - 6.3.2 EDL Cutover Process..... 10
    - 6.3.3 Rollback of EDL Cutover ..... 10
  - 6.4 EDT Cutover..... 10
    - 6.4.1 Communications ..... 10
    - 6.4.2 EDT Cutover Process..... 10
    - 6.4.3 Rollback of MP EDT Cutover..... 10
- 7 Communications ..... 11
  - 7.1 Notifications ..... 11
  - 7.2 NG support to MPs ..... 11
- Appendix A: Quick Reference Guides..... 12
- Appendix B: Sample Announcements..... 12
- Appendix C: Provisional Timetable ..... 12

# 1 Introduction

## 1.1 General

National Grid (NG) is introducing the Electricity Balancing System (EBS) to replace the existing Balancing Mechanism (BM System). The BM System supports Control Engineers in the NG Control Room in their role of managing the Power System. This document presents the plan for the transition from the BM System to EBS from the perspective of the Market Participants (MPs). The intended audience of this document is all relevant MPs.

The remainder of this section provides an overview of the role of the BM System and EBS in relation to MPs and how the transition to EBS will be accomplished. Subsequent sections provide details of the activities that MPs will need to carry out in order to complete the transition. The final section describes the communication strategy for transition.

Appendices provide quick reference guides for the MP activities, sample messages NG intends to send for each activity and the provisional timetable for transition.

## 1.2 MP Interfaces

There are two primary automated interfaces between MP systems and the existing BM System.

The EDT (Electronic Data Transfer) interface between Trading Points and the BM System allows Trading Agents to submit BM data (e.g. Physical Notifications, Bid-Offer Data, etc.). This interface is implemented using ftp over a private network. The network infrastructure required to support an EDT interface is provided and managed by each Trading Agent.

The EDL (Electronic Dispatch and Logging) interface between Control Points and the BM System allows Control Points to make redeclarations (e.g. MEL, dynamics) and NG Control Engineers to send out Instructions (i.e. BOAs and AS instructions). This interface is implemented using proprietary Ethernet port-to-port messages. The network infrastructure required to support the EDL interfaces is provided and managed by NG.

The scope of this document does not include the transition to the replacement EDT\* and EDL\* interfaces.

## 1.3 Transition Overview

Transition from the existing BM system to the new EBS will take place over a period of about four months. Transition will take place after all EBS testing has been completed and culminates in the cutover when EBS becomes the master system. The transition will take place in three stages with clear objectives and a set of entry and exit criteria allowing progress into the following phases as described below.

### 1.3.1 Operational Soak

The aim of the Operational Soak is to ensure that EBS is ready for operation in production. During this stage, the planned activities that are directly relevant to MPs are validation of the EDT and EDL interfaces.

### 1.3.2 Trial Run

The aim of the Trial Run is to confirm that EBS is ready for use in the NG Control Room. During this stage, a number of Resource Dispatch/EDL (RD/EDL) Trials will be held. For each such trial, all EDL connections to Control Points will be switched from the BM System to EBS. For the duration of the Trial, all instructions will be sent out using EBS and all redeclarations will be received and processed by EBS. Instructions will be generated

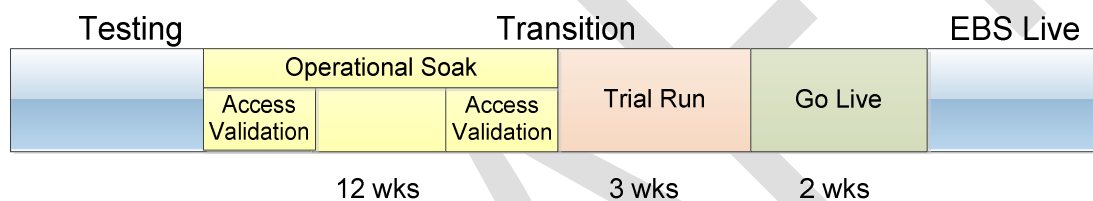
according to the schedules developed by EBS and using the Resource Despatch element of EBS. As each Trial progresses, relevant EDL data will be passed from EBS back to the BM System to ensure that it remains up-to-date. At the completion of the Trial, all EDL connections will be switched back to the BM System and normal operations resumed.

For the avoidance of doubt, during the Trial Runs the BM System will remain the master system.

### 1.3.3 Go-Live

Go-Live for EBS will be a gradual process rather than a “big-bang”, with interfaces being transferred from the BM System over the course of days. Most internal input interfaces will be migrated early. From the MPs’ point of view, the first external interface to cutover will be EDL. The EDL cutover will take place in exactly the same way as the start of the RD/EDL Trials described above. Following this, output interfaces (eg BMRS/SAS) will gradually be transferred over to EBS.

Once it is decided to continue the transition through to completion, the EBS will become the master system and the EDT interfaces will be cutover. This process will take place gradually over the course of some days. Once all EDT interfaces have been cutover, the Go-Live process for EBS will be deemed to be complete.



### 1.4 MP Roles

MPs involvement in the transition process will be classified according to the following roles:

- Lead Party. Every BMU has an organisation that is designated the Lead Party under the BSC.
- Trading Agent (Party). Every BMU has an organisation that is its designated Trading Agent. This designated Trading Agent has an EDT interface with NG.
- Control Point. Every BMU has a designated Control Point. This Control Point has an EDL interface with NG.

For each activity, the role expected to carry it out is defined.

## 2 Preparatory Activities

The activities detailed below will need to be completed prior to the commencement of the transition to EBS.

### 2.1 Confirm Contact Details

All relevant MPs will be requested to confirm contact details for the roles involved in the transition process.

- Lead Parties
  - Primary and secondary contacts – name, email address and phone number
- Trading Agents
  - Primary and secondary contacts – name, email address and phone number
  - Primary contact – postal address
- Control Points
  - Primary and secondary contacts – name, email address and phone number

## 2.2 EDT Validation Approach

Each Trading Agent will be asked the following:

- Specify the planned approach to EDT Validation (see section 3). This will be one of the following:
  - Production EDT application
  - NG supplied validation script
  - Some other method. In this case, details will be requested.
- Confirm that the current password used in the production EDT application is known. This is to ensure that it will be possible, where necessary, to reset the production password for submissions against the BM System. If the password is not known, then the Trading Agent will be invited to change their password using the standard NG procedure.

## 2.3 EBS EDT ftp Details

Prior to the commencement of the EDT Validation exercises, NG will circulate to Trading Agents the details that will be required to make the ftp connections to the new EBS EDT servers. This will be notified by post. This will consist of confirmation of the IP address (or DNS name if preferred) and the new password to be used by the Trading Agent to access EBS EDT. The username will not change.

# 3 EDT Validation

## 3.1 Introduction

EDT Validation provides an opportunity for Trading Agents to check that their production EDT server applications can correctly access the target EBS production servers. EDT Validation will take place during Operational Soak. There will be three separate validation periods to allow Trading Agents time to address any issues encountered during each exercise.

## 3.2 Prerequisites

### 3.2.1 Prerequisite Activities

Trading Agents must have successfully completed the following activities before the EDT Validation:

- a) EDT Type testing.
- b) EDT Connectivity testing.
- c) Network infrastructure and/or configuration changes required to allow access from the Trading Agent production server to the target EBS production servers.

## 3.3 Communications

Trading Agents will be notified of the commencement and completion of each EDT Validation period.

During the course of each EDT Validation exercise a technical support helpline will be available. See 7 for details.

## 3.4 EDT Validation Task

EDT Validation will be carried out by Trading Agents. It is recommended that Trading Agents carry out the validation using their production EDT service. However, it is understood that there may be problems with connecting and making submissions from some production EDT systems to the non-production EBS. In such cases, a validation script will be available that can be used to conduct the validation exercise.

### 3.4.1 Production EDT Application

The exact method of conducting the EDT Validation exercises will depend upon the systems used. The steps to be carried out will generally be as follows:

- a) Disconnect the production EDT system from the BM System.
- b) Configure the system to connect to the EBS ED Server IP address (or DNS name) and set the correct ftp password (as earlier notified).
- c) Connect to the EBS target production ED server.
- d) Make a dummy EDT submission and process the acknowledgement and acceptance files.
- e) Reconfigure the system to connect to the BM System EDT IP address (or DNS name) and reset the BM System production ftp password.
- f) Correct any relevant sequence numbers where necessary.
- g) Reconnect to the production BM System.

Please note the following:

- Any submissions made to the EBS target production EDT servers will NOT be deemed to be live submissions. Any such submissions will never reach the production BM System.
- When the EDT submission system is reconnected to the BM System, sequence numbers must be maintained according to the situation prior to the validation exercise.
- If the existing EDT system password used for production is not known and cannot be determined, then steps must be taken as soon as possible to change the password well before the commencement of Transition.

### 3.4.2 Validation Script

The validation script will need to be loaded onto the production server in a suitable location.

The steps to be carried out will be as follows:

- a) Invoke the validation script using the EBS ED Server IP address and password (as already notified).
- b) Establish an ftp connection.
- c) Create a file on the EBS ED Server in the submission directory/folder.
- d) Read a file from the EBS ED Server notification directory/folder.
- e) Drop the ftp connection

Please note the following:

- The validation script will have been tested by NG. However, it will not be possible for NG to test the script in all possible configurations that it may be used.
- Operating this script should have no effect on the production service already running on the server. Trading Agents may wish to test that this is the case before carrying out the validation exercise.

## 4 EDL Validation

### 4.1 Introduction

EDL Validation provides an opportunity to check that all connections from the target production EBS can be made to the Control Point production servers. EDL Validation will take place during Operational Soak. There will be three separate validation exercises to allow time for any issues encountered during each to be addressed.

### 4.2 Prerequisites

Control Points must have successfully completed the following activities before the EDL Validation:

- a) EDL Type testing.

- b) EDL Connectivity testing.
- c) Ensure that Network infrastructure and/or configuration changes required to allow access from the target EBS production servers to the Control Point production server have been implemented.

### 4.3 Communications

There will be announcements covering progress through the EDL Validation exercises. As a minimum, announcements will be made at the following stages:

- a) In advance of each exercise, confirming the time that it will take place. If for any reason it is decided to postpone or cancel the exercise, this will be announced.
- b) Shortly before the commencement of the exercise.
- c) On completion of the Trial.

### 4.4 EDL Validation Task

EDL Validation will not require any action by Control Points. However, during the course of these activities, NG will keep Control Points informed as events progress.

Each EDL Validation exercise will be conducted by NG as follows:

- a) At the declared time, drop all EDL connections to Control Points on the BM System.
- b) Connect EBS EDL to all Control Points.
- c) There will be a pause to allow sufficient time for connections from EBS to Control Points to be made. Should any EDL connections fail to be made, there will be no investigation into the reason for the failure at this time.
- d) Drop the EDL connections from EBS to Control Points.
- e) Reconnect BM System EDL to all Control Points.

Following completion of the EDL Validation exercise, NG will analyse the results. Each Control Point will be notified of whether or not a successful connection was made to the relevant Control Points. For any connections that fail to be made, investigations into the reasons will be carried out. This may entail discussions with the relevant Control Points. Any necessary fixes will be implemented prior to the next EDL Validation exercise.

## 5 RD/EDL Trials

### 5.1 Introduction

RD/EDL Trials will allow NG to confirm the stability of the Power System when it is being controlled using EBS.

### 5.2 Prerequisites

In order to participate in the ER/EDL Trials, Control Points must have successfully completed the following activities before the RD/EDL Trials:

- a) EDL Validation.

### 5.3 Communications

There will be announcements covering progress through each RD/EDL Trial. As a minimum, announcements will be made at the following stages:

- a) Prior to the commencement of each Trial, confirming the time that it will take place. If for any reason it is decided to postpone or cancel the Trial, this will be announced.
- b) Prior to completion of the Trial confirming the time of completion.
- c) On completion of the Trial.



## 5.4 RD/EDL Trial

RD/EDL Trials will not require any action by Control Points. However, during the course of trials, NG will keep Control Points informed as events progress.

Each RD/EDL Trials will commence as follows:

- a) At the declared time, drop all EDL connections to Control Points on the BM System.
- b) Connect EBS EDL to all Control Points.
- c) Enable issuing of Instructions on EBS.

Once it is time to complete the Trial, this will be carried out as follows:

- a) Disable issuing of Instructions on EBS.
- b) Drop the EDL connections from EBS to Control Points.
- c) Reconnect BM System EDL to all Control Points.

## 5.5 Rollback plan during the Trials

Each Trial will continue until the allotted completion time unless it is decided that the Trial must be terminated early for any reason. Possible scenarios that could be encountered during a Trial are as follows:

- Issues on the wider Power System such as failure of one or more generators. In such instances it is not expected that the RD/EDL Trial will be terminated early. EBS is designed to handle incidents on the Power System.
- IS failures on EBS or BM System. The severity of the incident will be analysed and a decision taken as to whether to terminate the Trial.
- Issues on the Power System caused by EBS RD operation, eg unacceptable frequency fluctuations. If it considered that the problem is being caused by EBS with no prospect of it curing itself then the Trial will be terminated. There are various parameters and settings that may be configured to adapt the performance of the RD process and associated algorithms; the necessary changes would be made prior to the next RD/ED Trial taking place.

# 6 Go-Live

## 6.1 Introduction

The Go-Live process for EBS will be a phased process. With respect to MPs, the relevant events are the cutover of the EDL and EDT interfaces.

## 6.2 Prerequisites

Control Points must have successfully completed the following activity before the Go-Live:

- a) EDL Validation.

Trading Agents must have successfully completed the following activity before the Go-Live:

- a) EDT Validation.

## 6.3 EDL Cutover

### 6.3.1 Communications

There will be announcements covering progress through EDL Cutover. As a minimum, announcements will be made at the following stages:

- a) In advance of EDL Cutover, confirming the time that it will take place. If for any reason it is decided to postpone Go-Live, this will be announced.
- b) Shortly before commencement of the EDL Cutover.
- c) On completion of EDL Cutover.

### 6.3.2 EDL Cutover Process

The EDL Cutover will resemble the entry into one of the earlier RD/EDL Trials. NG will carry out the EDL Cutover as follows:

- a) At the declared time, drop all EDL connections to Control Points on the BM System.
- b) Connect EBS EDL to all Control Points.
- c) Enable issuing of Instructions on EBS.

The system will then run in this mode until the decision is taken to carry on with Go-Live. Once this decision is made, the EBS becomes the master system. The EDT Cutover will then commence.

### 6.3.3 Rollback of EDL Cutover

Once the EDL cutover has taken place, the expectation is that this will be followed by the decision to continue to Go-Live and the EDT Cutover process. However, in exceptional circumstances, it is possible that a decision may be made to reverse the EDL Cutover. Possible scenarios and mitigation actions that may lead to this decision are as discussed in section 5.5.

## 6.4 EDT Cutover

### 6.4.1 Communications

There will be announcements covering progress through EDT Cutover. As a minimum, announcements will be made at the following stages:

- a) On commencement of the EDT Cutover.
- b) On completion of the EDT Cutover.

During the course of the EDT Cutover, a technical support helpline will be available. See 7 for details.

### 6.4.2 EDT Cutover Process

The EDT Cutover process will be carried out according to an agreed timetable.

The EDT Cutover will resemble the first part of the EDT interface validation exercise (see section 3.4.1). Each MP's EDT production application will start submitting data to EBS production and these submissions will be deemed to be live. The steps to be carried out will generally be as follows:

- a) Disconnect the production EDT system from the BM System.
- b) Configure the system to connect to the EBS ED Server IP address (or DNS name) and set the correct ftp password (as earlier notified).
- c) Connect to the EBS target production ED server.

Trading Agents will be encouraged to contact the support helpline through the cutover process.

Once all Trading Agents have completed EDT Cutover, the EBS Go-Live process will be complete.

### 6.4.3 Rollback of MP EDT Cutover

Should there be any problems with cutover for particular MP, it will be possible for the cutover to be postponed. In this instance the MP will revert to submitting EDT data to the BM System; this would be achieved using the same procedure used for the second part of the EDT interface validation exercise (see section 3.4.1). Once the problem is fixed, the cutover will be reattempted.

## 7 Communications

Through the transition process, NG will communicate progress and provide support by various means. The following communication channels are envisaged:

- BMRS. This is the standard means by which announcements are made regarding the Balancing Mechanism.
- Support lines. At certain stages of the transition, dedicated support lines will be in operation.

Further communication channels will be determined following further consultation and investigations into the communications strategy for EBS Transition.

### 7.1 Notifications

National Grid will provide the MPs with information about the EBS project in three ways:

1. Newsletters
  - Frequency: every two months from December 2015
  - Purpose: EBS project progress and MP testing progress
  - Audience: MP business users and IT departments
2. Weekly bulletins
  - Frequency: weekly from one month before the start of Transition
  - Purpose: review of previous week, results of validations and trials during that week and plan for following week
  - Audience: MP business users and IT departments
3. Announcements for each MP activity (comms validations, trial runs, cutovers, go-live)
  - Frequency: ten days before start, start of activity and end of activity
  - Purpose: confirm exact date, time and duration for each activity
  - Audience: depending on the activity, either the Control Points, Trading Agent, BSC parties

### 7.2 NG support to MPs

National Grid will provide support for specific activities to those MPs who request it. This support can either be by telephone or by other means like Lync.

## Appendix A: Quick Reference Guides

This appendix includes a set of quick reference guides for MPs that will assist in the completion of each activity.

## Appendix B: Sample Announcements

This appendix defines the messages that NG expects to announce at the various stages of transition.

## Appendix C: Provisional Timetable

A timetable of activities is presented in the table below. The duration of each activity is shown, together with a cross-reference to the section providing further details about the activity. The planned date for each activity will also be presented in the issued version of this document.

Dates	Activity	Role	Reference
tbd	Confirm Contact Details	Lead Party, Control Point & Trading Agent	2.1
tbd	EDT Validation Approach	Trading Agent	2.2
tbd	EBS EDT ftp Details	Trading Agent	2.3
tbd	Initial EDT Validation	Trading Agent	3
tbd	Initial EDL Validation	Control Point	4
tbd	Follow-up EDT Validation	Trading Agent	3
tbd	Follow-up EDL Validation	Control Point	4
tbd	Final EDT Validation	Trading Agent	3
tbd	Final EDL Validation	Control Point	4
tbd	RD/EDL Trials	Control Point	5
tbd	Go-Live	Control Point & Trading Agent	6

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