

Stage 05: Business Requirements Solution

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

04 Report Phase

05 Implementation Phase

P243 and P244 combined: Business Requirements Solution

P243 aims to produce a more detailed forecast of Generator availability, by publishing Output Usable data broken down by 'fuel types' on the Balancing Mechanism Reporting System (BMRS).

P244 aims to modify the BMRS to include data relating to the Netherlands-England Interconnector (BritNed).



The Authority approved Alternative Modifications P243 and P244 for implementation in the November 2010 BSC Systems Release.



Impacts:
Generators, Transmission Company, the BMRA and BMRS Users

P243 and P244
Business Requirements
Solution

4 June 2010

Version 2.0

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About This Document:

This document is the Business Requirements Solution (BRS) for P243 'Publication of Generator Forward Availability by Fuel Type and P244 'Provision of BritNed flow data to the BMRS'. It summarises the changes required to the BSC Central Systems, Code Subsidiary Documents and Configurable Items to implement the Approved Alternative P243 and Alternative P244 solutions.

The requirements in this document set out the combined solution for P243 Alternative and P244 Alternative. We will issue a new version of the BRS if the proposed requirements differ significantly during the implementation of the Modification.

For further detail on the background, solution, benefits and discussions surrounding P243 or P244 please see the Assessment Reports and Modification Reports. These documents are on the [P243](#) and [P244](#) pages of the ELEXON website.



Any questions?

Contact:
Steve Francis



**steve.francis@elexon.c
o.uk**



020 7380 4038

P243 and P244
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P243: Why Change?

Output Usable data is currently available on both the BSC and National Grid website. However this data is not broken down by fuel type. P243 aims to make this data available by fuel type and in one central location on the BMRS.

The Approved Solution

The Approved P243 Solution consists of:

- publishing National Output Usable data broken down by Fuel Type and BM Unit on the BMRS for the 2-14 days and 2-52 weeks ahead time periods;
- publishing Output Usable data for Interconnectors. Currently forward availability for Interconnectors is not provided to National Grid but it is expected that this data will become available to National Grid and the wider industry in the near future. In the interim, the BMRS will report the forward availability for each Interconnector fuel type as zero;
- transferring all Output Usable data/Generating Plant Demand Margin data from the BSC website to the BMRS.

P244: Why Change?

The BMRS publishes a range of market data sourced from the Transmission Company, including details of generation by fuel type. This generation information is broken down into 11 different fuel categories, two of which represent the flows from England-France and Northern Ireland-Scotland Interconnectors. A third interconnector joining England and the Netherlands ('BritNed') is scheduled to begin operations in late 2010.

In anticipation of this, P244 will establish BritNed as an additional fuel type category on the BMRS so that its contribution to generation can be included in the relevant reports.

The Approved Solution

The Approved solution for P244 consists of:

- Altering the BMRS to include an additional Fuel Type category for the BritNed Interconnector in the following reports:
 - Instantaneous generation by Fuel Type (FUELINST, graphical and tabular);
 - HH Generation by Fuel Type (FUELHH, graphical and tabular);
 - BM Unit Fuel Type (spreadsheet); and
 - Average Half Hourly Interconnector Flows (graphical and tabular).

The Approved Solution puts allowance in the Code for future Interconnector data to be added to the BMRS without the need for a Modification Proposal. Thus providing savings on future administrative costs of progressing the Modification Proposals for each new Interconnector

Impacts

The System Operator (SO) and the BMRA will be impacted significantly by this change. Any BSC Party which wishes to continue to receive all TIBCO messages will need to change their systems to receive the amended format.

Users of the BMRS will need to note that additional information has been added and existing information has been updated as defined in this BRS.

Whilst no new BSC Obligations will be placed on BSC Parties, we believe that P243 and P244 will impact the following:

	Impacted by P243	Impacted by P244
Generators	X	
Transmission Company	X	X
BMRA who manages the BMRS	X	X
ELEXON in respect to certain requirements such as D	X	
Non Physical Traders	X	X
Interconnector Users	X	X
Interconnector owners, operators and developers	X	X
Interconnector Administrators	X	X
Interconnector Error Administrators	X	X

Implementation

The P243 and P244 Approved Alternative Modifications will be implemented as part of the **November 2010 BSC Systems Release**.

2 P243/P244 Solution Requirements

Described below are the solution requirements for P243/P244:

Requirement A – Provision of data by National Grid

National Grid will be required to amend its systems in order to submit Output Usable and Generating Plant Demand Margin data to the Balancing Mechanism Reporting Agent, the BSC Agent responsible for the running of the BMRS.

The set of data to be submitted by National Grid is as follows:

- For 2-14 days ahead:
 - i. National/Zonal Output Usable
 - ii. National Output Usable by Fuel Type
 - iii. National Output Usable by Fuel Type and BM Unit
 - iv. Generating Plant Demand Margin
- For 2-52 weeks ahead:
 - i. National/Zonal Output Usable
 - ii. National Output Usable by Fuel Type
 - iii. National Output Usable by Fuel Type and BM Unit
 - iv. Generating Plant Demand Margin
- National/Zonal Output Usable for 2-49 days ahead
- National/Zonal Output Usable for 1-5 years ahead
- System Zone maps
- BM Unit mapping information

Further details on the delivery of this data to the BMRA are described in the requirements below.

• Requirement A.1 – Fuel Types

Of the new data being submitted by National Grid, the following four files contain information relating to fuel types:

- i. National Output Usable by Fuel Type (2-14 day ahead)
- ii. National Output Usable by Fuel Type and BM Unit (2-14 day ahead)
- iii. National Output Usable by Fuel Type (2-52 week ahead)
- iv. National Output Usable by Fuel Type and BM Unit (2-52 week ahead)

The fuel types are the same as those currently used in the Out-turn data (Generation by Fuel-type) published on the BMRS. Currently these consist of:

- Oil;
- Coal;
- Wind;
- Nuclear;
- Others;
- French Interconnector;
- Irish Interconnector;
- Pumped Storage;
- Hydro;
- OCGT; and
- CCGT.

To deliver the **P244 solution**, the BritNed Interconnector, which will be referred to as the Dutch Interconnector or **Dutch I/C** (for consistency with the French and Irish Interconnectors) will be added to the above list of Fuel Types.

• Requirement A.2 – Data Delivery Timescales

The timescales by which each variant of Output Data is delivered are described in the following table.

Table 1: Data type, frequency and target time for the provision of the data

DATA	FREQUENCY	Target Time
2-14 day ahead daily Total Output Usable – daily peak half hour values	Whenever provided to any User pursuant to the Grid Code	16.00 Daily on Business Days only
2-14 day ahead daily Output Usable broken down by fuel type – daily peak half hour values	Whenever provided to any User pursuant to the Grid Code	16.00 Daily on Business Days only
2-14 day ahead daily Output Usable broken down by fuel type and BM Unit – daily peak half hour values	Whenever provided to any User pursuant to the Grid Code	16.00 Daily on Business Days only
2-52 week ahead weekly Total Output Usable – weekly peak half hour values	Whenever provided to any User pursuant to the Grid Code	Weekly at 17.00 on the last Business Day of the week



Output Usable Data

Output Usable data is the forecast of how much generation will be produced (Generator availability) and is based on information submitted by Generators in compliance with Grid Code obligation OC2.

DATA	FREQUENCY	Target Time
2-52 week ahead weekly Output Usable broken down by fuel type – weekly peak half hour values	Whenever provided to any User pursuant to the Grid Code	Weekly at 17.00 on the last Business Day of the week
2-52 week ahead weekly Output Usable broken down by fuel type and BM Unit– weekly peak half hour values	Whenever provided to any User pursuant to the Grid Code	Weekly at 17.00 on the last Business Day of the week
2-49 day ahead daily Total Output Usable and Zonal Output Usable – daily peak half hour values	Whenever provided to any User pursuant to the Grid Code	Target time for this data to be provided is once per month.
1-5 year ahead Total Output Usable and Zonal Output Usable – weekly peak half hour values	Whenever provided to any User pursuant to the Grid Code	By 6 months each year
2-14 day ahead Generating Plant Demand Margin	Whenever provided to any User pursuant to the Grid Code	16.00 Daily on Business Days only
2-52 week ahead Generating Plant Demand Margin	Whenever provided to any User pursuant to the Grid Code	Weekly at 17.00 on the last Business Day of the week

Requirement B – Publication of data on BMRS

• Summary

The BMRS requires existing pages to be amended in order to receive validate and display the data received from National Grid as graphs, tables, CSV and XML files. The published information will be based on the most recent data provided by National Grid; historic data will be provided on request only.

The Electricity Data Summary page needs to be amended so that the data can be published on this page; Requirement B.1 provides further details on the required changes.

Additionally, the 2-14 days ahead and 2-52 weeks ahead forecast pages in the National Data tab should be similarly modified so that the data can be published on these pages. Requirement B.2 provides further details.

• Requirement B.1 – Changes to the Electricity Data Summary page:

Currently, the [Electricity Data Summary](#) page offers key information on the electricity market on a single scrollable web page. The requirements for P243 and P244 overlap in this area; screenshots are provided, based on existing screens, to show how the page will look once the changes are applied.

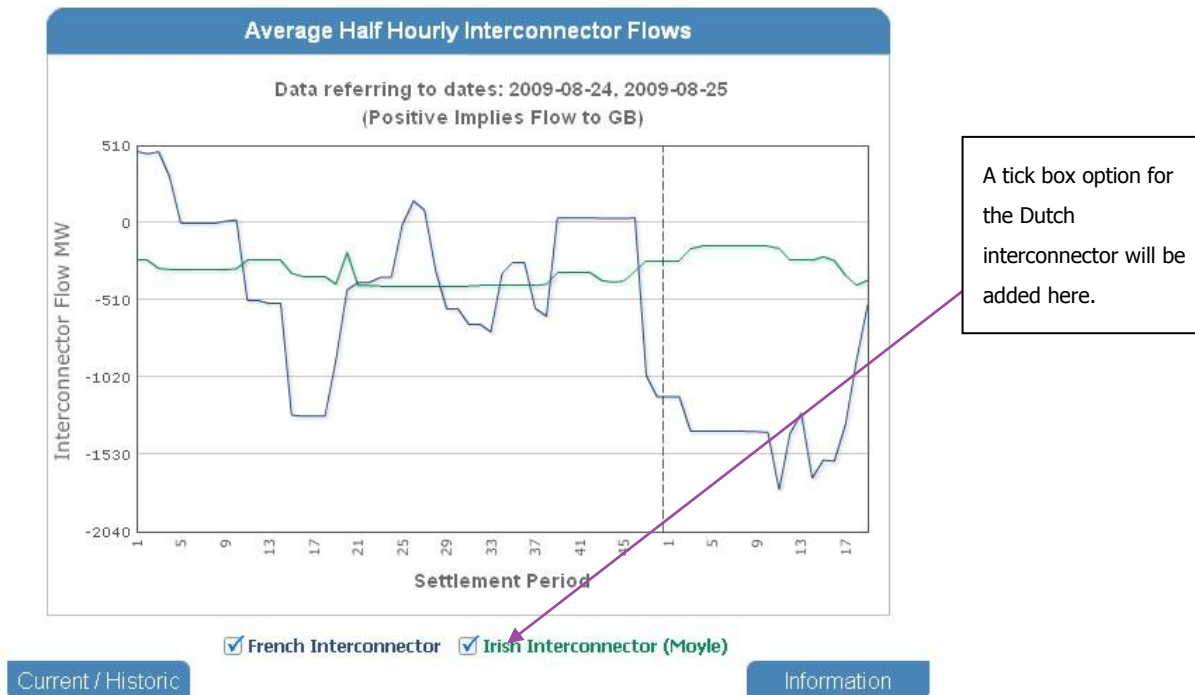
B.1.a Interconnector Data

For P244, the existing 'Generation By Fuel Type' graph, 'Generation By Fuel Type' table and 'Average Half Hourly Interconnector Flows' will be amended to show the Dutch Interconnector as a distinct Fuel Type. Tick boxes will be added to graphs to allow users to filter the data. An indication of this amendment is shown in Figure 1 below). A minor

change will also be made to the BMRS help text (in the glossary entries for FUELINST and FUELHH) to reference the new Interconnector.

The table views linked from the graphs will be amended to include an additional column, as will the related the CSV/XML files, for the new Fuel Type. A BritNed entry will also be added to BMU Fuel Type Spreadsheet.

Figure 1: Average HH Interconnector Flows – Graph



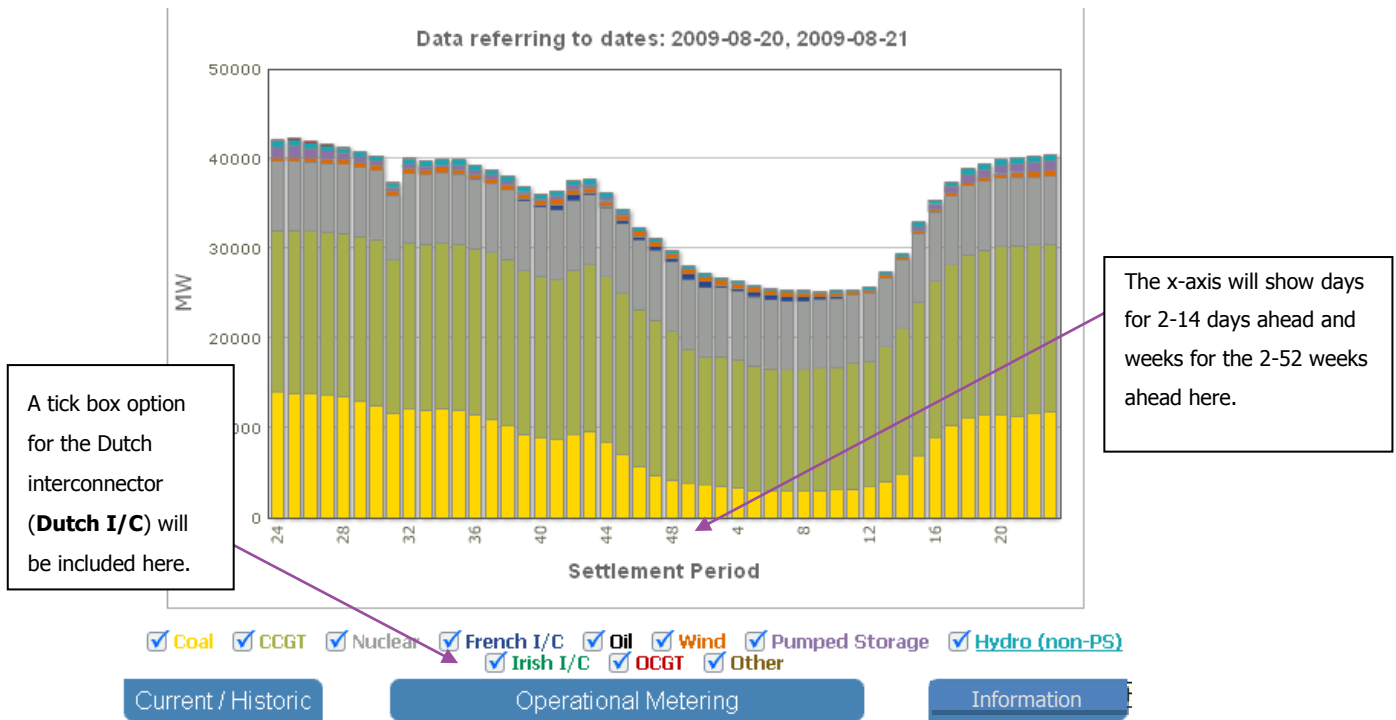
B.1.b Output Usable Data

Two new graphs should be added to the Summary Page for the Output Usable by Fuel Type data: one for 2-14 days ahead and another for 2-52 weeks ahead. The graphs should follow the general format and structure of the existing Generation by Fuel Type graph (shown in figure 2 below).

The BMRS also needs to be amended so that:

- There is a clear, easy to spot warning on the summary page highlighting that the data is to be used at the user's own risk; and
- The BMRS help page is updated to include information that explains what the data items on the new graphs are (examples of this can be seen on the Electricity Data Summary page, where a user can point at the 'information' tab and 'help' text is displayed.)

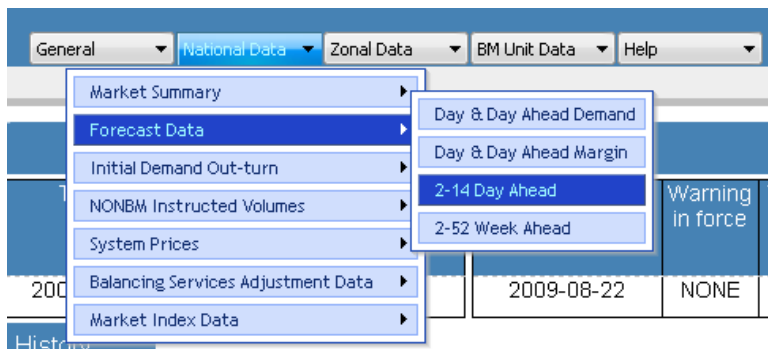
Figure 2: Output Usable Data by Fuel Type - Graph



• **Requirement B.2 - Changes to the Forecast Data pages:**

The BMRS needs to be amended so that the new Fuel Type-level Output Usable data is accessible via the 'National Data' tab from the tabs that exist on the BMRS (Figure 3 shows the existing menu which will be amended). This allows the 2-14 days ahead and 2-52 weeks ahead forecast pages to be accessed.

Figure 3: Forecast data tab on the BMRS



For each of the pages, data for the respective Output Usable data will be available in graphical, CSV and XML formats.

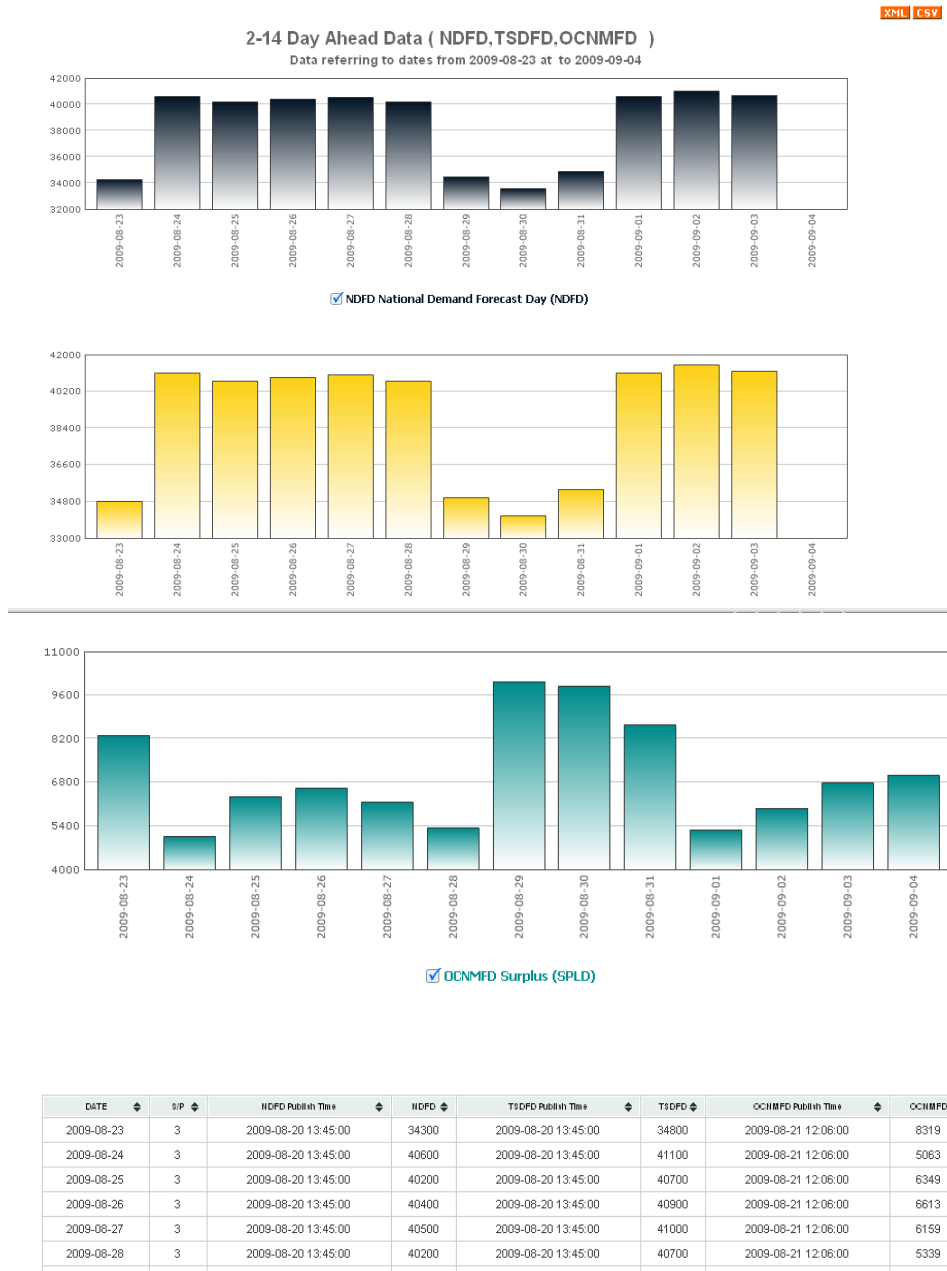
B.2.a 2-14 Day ahead forecast page

Currently the '2-14 Day Ahead Data' page of the BMRS contains three separate graphs (as shown in Figure 4 below) which are:

- National Demand Forecast Day (NDFD);
- Transmission System Demand Forecast Day (TSDFD); and
- Surplus Data (SPLD).

The '2-14 Day Ahead Data' also has a table containing the underlying NDFD, TSDFD and SPLD figures and a facility to download this data in CSV or XML format (as shown in Figure 4 below).

Figure 4: Current layout of the '2-14 Day ahead' data page on the BMRS website. The layout consists of three graphs, with columns for National Demand Forecast Week and Surplus.



The P243 Solution will add the following to the "2-14 Day ahead" page:

- one graph for Generating Plant Demand Margin (GPDM) in the format shown in Figure 1:
- one graph for 2-14 Day Ahead Output Usable Data by Fuel Type;
- an additional column to the table in Figure 4 above showing the GPDM data;
- the option to download the 2-14 Day Ahead National Output Usable Data via CSV and XML; and
- the option to download the 2-14 Day Ahead Output Usable Data by Fuel Type and BM Unit via the existing CSV and XML files (with a clear, easy to spot warning highlighting that the data is to be used at the user's own risk).

B.2.b 2-52 week ahead forecast page

Like the 2-14 day ahead forecast page, the '2-52 Week Ahead Data' page of the BMRS contains three separate graphs which are:

- National Demand Forecast Week (NDFW);
- Transmission System Demand Forecast Week (TSDFW); and
- Surplus Data (SPLW)

There is also a table containing the underlying NDFW, TSDFW and SPLW and a facility to download this data in CSV or XML format.

The P243 Solution will add the following to the "2-52 Week ahead" page:

- one graph for Generating Plant Demand Margin (GPDM) in the format shown in Figure 1;
- one graph for 2-52 Week Ahead Output Usable Data by Fuel Type;
- an additional column to the table in Figure 4 above showing the GPDM data;
- the option to download the 2-52 Week Ahead National Output Usable Data via CSV and XML; and
- the option to download the 2-52 Week Ahead Output Usable Data by Fuel Type and BM Unit via the existing CSV and XML files, (with a clear, easy to spot warning highlighting that the data is to be used at the user's own risk).

B.2.c New National Output Usable forecast pages

A new page is required under the National Data tab to accommodate the 2-49 Day Ahead and 1-5 Year Ahead Output Usable CSV/XML file downloads.

B.2.d New Zonal Output Usable forecast page

All Zonal Output Usable data will be placed on a new zonal forecast page under the 'Zonal Data' tab. This page will include:

- Zonal Output Usable data for the following periods, made available as CSV and XML file downloads:
 - 2-14 days ahead
 - 2-49 days ahead
 - 2-52 weeks ahead
 - 1-5 years ahead
- System Zone maps and BM Unit mapping information made available as PDF and Excel file downloads respectively.

Explanatory text will be added to the BMRS help page, making appropriate reference to the zonal forecast page.

Requirement C – Management of Interconnector Forecast Data

Currently, the BMRS publishes Out-turn data for the French and Irish Interconnectors, but as National Grid does not receive and publish Interconnector future availability, the publication of such data forms a new requirement.

As part of P243 and P244 solutions, National Grid will be required to submit the Interconnector availability as fuel types ('2-14 days ahead' and '2-52 weeks ahead') to the BMRS for the French, Irish, Dutch (added by P244) and any future Interconnectors. This results in specific requirements on National Grid and the BMRS:

- **National Grid** will send files to the BMRA including fields for each Interconnector Fuel Type Category, with their Output Usable values being shown as 'N/A' or 'NULL' until such time as National Grid may be able to provide this data (e.g. for the Dutch Interconnector (BritNed), prior to it becoming active following implementation of P244).
- **The BMRS** Summary Page displays will only publish the total forecast Exports for each Interconnector Fuel Type Category. Under this approach, graphical and XML/CSV data will be capped at zero whereas TIBCO data would include the raw data, including any negative values.

Requirement D – BSC Website amendments

As National Grid will no longer be submitting any Output Usable/GPDM data to ELEXON, the web pages which contain this information will be replaced by a single page containing a hyperlink to the BMRS. A note will be added explaining that this data has been transferred to the BMRS.

Requirement E – TIBCO messaging service

TIBCO is messaging software used by the BMRS across the high grade network.

For P243, the data required to be published via TIBCO consists of the following:

- For 2-14 days ahead:
 - Output Usable by Fuel Type
 - Output Usable by Fuel Type and BM Unit
 - Generating Plant Demand Margin
- For 2-52 weeks ahead:
 - Output Usable by Fuel Type
 - Output Usable by Fuel Type and BM Unit
 - Generating Plant Demand Margin

Therefore under the P243 solution, 6 new messages will be added to the TIBCO messaging service to enable market participants to receive this data. Separate TIBCO headers will be used so that different sets of data can be distinguished from each other.

3 BMRS Solution Summary

The following table summarises the reporting requirements of the BMRS for P243/P244.

Data	Where on BMRS	How	TIBCO?	Req. ref
Output Usable – Zonal				
2-14 day ahead Zonal Output Usable	New Zonal Output Usable page	CSV and XML for download	No	
2-49 day ahead Zonal Output Usable	Ditto	CSV and XML for download	No	
2-52 week ahead Zonal Output Usable	Ditto	CSV and XML for download	No	
1-5 year ahead Zonal Output Usable	Ditto	CSV and XML for download	No	
System zone map	New Zonal Output Usable page	Downloadable pdf (not displayed)	n/a	
BM Unit-Zone mapping	Ditto	Downloadable xls	n/a	
Output Usable – National				
2-14 day ahead Output Usable (total)	2-14 National Forecast page	CSV and XML	No	
2-14 day ahead Output Usable (broken down by fuel type)	Existing EDS page and 2-14 National Forecast page	New graph, CSV and XML	Yes	
2-14 day ahead Output Usable (broken down by BM Unit)	2-14 National Forecast page	CSV and XML	Yes	
2-49 day ahead Output Usable	New National Forecast page	CSV and XML	No	
2-52 week ahead Output Usable (total)	2-52 National Forecast page	CSV and XML	No	
2-52 week ahead Output Usable (broken down by fuel type)	Existing EDS page and 2-52 National Forecast page	New graph, CSV and XML	Yes	
2-52 week ahead Output Usable (broken down by BM Unit)	2-52 National Forecast page	CSV and XML	Yes	
1-5 year ahead Output Usable	New National Forecast page	CSV and XML	No	
Generating Plant Demand Margin				
2-14 day ahead GPDMFD	Existing 2-14 day ahead Forecast page	New graph, additional table column, CSV and XML	Yes	
2-52 week ahead GPDMFW	Existing 2-52 week ahead Forecast page	New graph, additional table column, CSV and XML	Yes	

4 Impacts for P243 and P244

Impacts

Impact on BSC Systems and process

Changes will be required to the BMRS in order to make the new data items available to Parties via the website and (for High Grade users) the TIBCO messaging service.

Impact on BSC Agent/service provider contractual arrangements

There is no impact on any of the contractual arrangements.

Impact on BSC Agent

The BMRA will need to revise some of their operational procedures, such as the BMRA Operational Service Manual and BMRA Manual System Specification, to reflect the changes to the BMRS.

Impact on BSC Parties and Party Agents

BSC Parties and non-Parties who currently use the BMRS High Grade Service will be able to receive the new and amended data items via the website and/or TIBCO messaging.

Parties and non-Parties using the Low Grade Service will be able to access the new and amended data items via the public website.

Both types of user may need to alter systems or processes to accommodate the changes.

Impact on Transmission Company

Changes will be required to the National Grid systems (TOGA, BM and Registration systems), to submit the amended (new (including BritNed) and existing) data files to the BMRS. Changes to the 'BMRS & SAA Interface Specification' which sets out the format of data submitted to the BMRA and SAA. Changes will also be needed to the NGC_ELEXON Interface Specification.

Impact on ELEXON

Area of ELEXON's business	Potential impacts
Service Delivery	<ul style="list-style-type: none"> Observing Operational Acceptance Testing (OAT), keeping track of development progress and the management in the provision of the BMRS.
Change Delivery	<ul style="list-style-type: none"> Liaise with the AMD Service Provider to coordinate the implementation, including the production redlined documentation. Manage the testing effort required, including Participant Testing.
Stakeholder Assurance	<ul style="list-style-type: none"> The web team will need to stop publishing the information sent through by National Grid. (Requirement 4a)

Impact on Code		
Code section	Potential impact	
	P243	P244
Q (Balancing Mechanism Activities)	These sections require amendment to reflect the Approved P243 solution developed by the Modification Group.	This section will need amendment to reference BritNed as one of the fuel type categories used for BMRS reporting.
V (Reporting)		No impact
Annex X-1 (General Glossary)		No impact

Impact on Code Subsidiary Documents	
Document	Impact
BMRA Service Description	Changes need to be captured in this document to reflect the P243 and P244 solution.
Reporting Catalogue	Changes needed to reference the changes in data published on the BSC Website and on the BMRS.

Impact on Core Industry Documents and other documents	
Grid Code	<p>Changes will be required to reflect:</p> <ul style="list-style-type: none"> any aggregation and publication of Output Usable data; and publishing Output Usable data for Interconnectors.

Impact on other Configurable Items		
Modification	P243	P244
NETA Interface Definition and Design (IDD) Part 1 and Spreadsheet	Changes to these documents required to reflect the data items proposed under P243.	Changes to this document will be required to reference the additional fuel type.
BMRA Design Specification		N/A
BMRA Manual System Specification		
BMRA Operating Services Manual		
BMRA System Specification		
BMRA User Requirements Specification (URS)		

Other Impacts
No other impacts have been identified.

5 Implementation

ELEXON Implementation Activities

ELEXON will complete the following to implement P243 and P244:

1. The ELEXON Change Implementation Team will manage the design, development and implementation of the changes to the BMRS software.
 - CIT will liaise with National Grid and the AM/Dev Service Provider to ensure the successful implementation of the software changes.
 - CIT will monitor the overall testing process, reviewing test documentation produced by the AM/Dev Service Provider, and manage E2E/participant testing as appropriate.
2. CIT will manage and complete the required updates to Code Subsidiary Documents: the BMRA Service Description, BMRA URS, the NETA IDD Part 1 document and the Reporting Catalogue.
 - These will need to be reviewed by BSC Agents, the industry and approved by the ISG.
3. CIT will ensure the successful implementation of changes to other Configurable Items, maintained by the AM/Dev Service Provider.
 - The NETA IDD Part 1 spreadsheet will need to be reviewed by BSC Agents and approved by the ISG. The LWI and BPM updates completed by the BSC Agents will need to be reviewed by ELEXON.
4. CIT will liaise with the ELEXON web team to make sure the updates to the BSC Website are completed to affect the transfer of data currently held to the BMRS.

6 Further Information

Complete versions of all P243 and P244 documentation are available on the [P243](#) and [P244](#) pages of the ELEXON website.