Stage 01: Initial Written Assessment

What stage is this document in the process?

- 01 Initial Written Assessment
- 02 Definition Procedure
- 03 Assessment Procedure
- 04 Report Phase

P237: Standard BM Unit configuration for Offshore Power Park Modules

The BSC requires each Power Park Module to be registered as a separate BM Unit. This creates inefficiencies for some Offshore intermittent generators. The extent of these inefficiencies will depend on the type of operational configuration used by the generator.

P237 will resolve these inefficiencies by allowing two or more Offshore Power Park Modules to form a single Balancing Mechanism Unit (where the Lead Party requests this aggregation and the Transmission Company agrees).

P237 progresses one of the recommendations of the Issue 37 Group.

ELEXON recommends:
A 2 month Assessment Procedure

High Impact:
Offshore intermittent generators

Medium Impact:
ELEXON and the Transmission Company

Low Impact:
Possible impact on the Central Registration Agent and Central Data Collection Agent (to be confirmed)

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Attachment A: P237 Modification Proposal form

About This Document:

This document is an Initial Written Assessment (IWA), which ELEXON will present to the Panel on 9 July 2009. The Panel will consider the recommendations and will agree how to progress P237.

Further information is available in the P237 Modification Proposal, which is Attachment A to this document.

Any questions?

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What is a Power Park Module?

The term **Power Park Module** relates to generators who use an Intermittent Power Source. The Grid Code defines an Intermittent Power Source as being 'the primary source of power for a Generating Unit that cannot be considered as controllable (e.g. wind, wave or solar)'. A wind turbine is therefore one example of an intermittent Generating Unit.

The new regime for Offshore Transmission came into effect ('Go Active') on 24 June 2009, and is expected to 'Go Live' in June 2010. As part of Go Active, changes to the industry codes (including the Grid Code and the Balancing and Settlement Code) were designated by the Secretary of State to support the intended Offshore arrangements.

As a result, the Grid Code now makes a distinction between Onshore Power Park Modules and Offshore Power Park Modules. The new Grid Code definitions are:

- **Onshore Power Park Module** – A collection of Onshore Generating Units (registered as a Power Park Module under the PC[1]) that are powered by an Intermittent Power Source, joined together by a System with a single electrical point of connection to the Onshore Transmission System (or User System if Embedded). The connection to the Onshore Transmission System (or User System if Embedded) may include a DC Converter.
- **Offshore Power Park Module** – A collection of one or more Offshore Power Park Strings (registered as a Power Park Module under the PC). There is no limit to the number of Power Park Strings within the Power Park Module, so long as they either:
  - Connect to the same busbar[2] which cannot be electrically split; or
  - Connect to a collection of directly electrically connected busbars of the same nominal voltage and are configured in accordance with the operating arrangements set out in the relevant Bilateral Agreement.

The BSC continues to refer generically to **Power Park Modules**. It cross-refers to the Grid Code's definition of this term, which makes the distinction between Onshore and Offshore.

The Grid Code's definition of Offshore Power Park Module also introduces the following new term:

- **Offshore Power Park String** - a collection of Offshore Generating Units that are powered by an Intermittent Power Source, joined together by cables forming part of a User System with a single point of connection to an Offshore Transmission System. The connection to an Offshore Transmission System may include a DC Converter.

The new definition of an Offshore Power Park Module differs from that for Onshore, in that it requires these Offshore Power Park Strings to be connected to the same busbar or to a set of connected busbars.

Where can I find full technical definitions of these terms?

You can find the full BSC definitions of Power Park Module, Generating Unit and BM Unit in Annex X-1 and Section K3.

All Grid Code definitions are contained in the Grid Code Glossary and Definitions.

[1] Planning Code (part of the Grid Code).

[2] A busbar is a system of conductors in which the power from the Generating Units is collected for transmission.

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The Grid Code's definition of an Offshore Power Park Module is therefore more complex. It interacts with the BSC's provisions for Balancing Mechanism (BM) Units in a way which was not envisaged when the concept of a Power Park Module was first introduced in the BSC. This gives rise to potential inefficiencies for Offshore intermittent generators in complying with the BSC's BM Unit requirements.

The issue

A **BM Unit** is a collection of Plant and/or Apparatus (e.g. Generating Units such as wind turbines).

Section K3.1.4(a) of the BSC currently requires each Power Park Module to be registered as a separate BM Unit. However, the Proposer of P237 argues that this is inefficient for some configurations of Offshore intermittent generation such as wind farms.

The issue will affect individual Offshore intermittent generators to a different extent, depending on each generator's particular configuration of Plant/Apparatus. The following worked example illustrates the problem for one specific type of wind farm configuration. The full range of affected configurations will need to be established during the progression of P237. Some configurations may not be impacted at all.

Worked example

This example shows an Offshore wind platform with a single connection to shore. It contains two circuits: each with a separate busbar and an associated collection of Offshore Power Park Strings. The commercial boundary between the wind farm and the Transmission System is on the Low Voltage side of the platform.

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Because of the busbar requirements for Offshore generators, each of the two collections of Offshore Power Park Strings in this example (WTG strings 1-4 and WTG strings 5-8) represents a separate Offshore Power Park Module for the purposes of the Grid Code. Under the current BSC provisions, each of these Offshore Power Park Modules has to be registered as a separate BM Unit unless the generator applies for (and is granted) a 'non-standard' BM Unit configuration.

Registering separate BM Units increases the amount of physical notifications[3] which the generator has to submit to the Transmission Company[4] under the Grid Code, because these are at the BM Unit level. This in turn requires the Transmission Company to issue individual Bid Offer Acceptances for each BM Unit in order to utilise this output.

The Proposer of P237 believes that the BSC's existing BM Unit requirements represent an unnecessary administrative burden on Offshore intermittent generators, the Transmission Company and BSC Agents[5]. The Proposer considers that these requirements will result in the registration of excessive numbers of BM Units which are not needed for the efficient, economic and co-ordinated operation of the Transmission System.

For some types of Offshore wind farms with different configurations to the one considered above, the BSC provisions may also result in the generator needing to:

- Re-register its BM Units to reflect short-term operational reconfigurations of Plant and/or Apparatus from one Offshore Power Park Module to another (e.g. in more complex configurations which use double busbars and switchgear);[6]
- Make frequent changes to Aggregation Rules[7] under the BSC; and/or
- Install extra metering in order to derive separate Metered Volumes for each BM Unit (for use in Settlement).

The Proposer therefore believes that the BSC's BM Unit provisions will give rise to inefficiencies for Offshore intermittent generators after the Offshore arrangements go live in June 2010. In the interim period before Go-Live, the Proposer considers that the BSC provisions may cause planning, design and/or construction difficulties for Offshore generation projects. The Proposer argues that this could be a potential barrier to the development of existing and future Offshore projects. They note that it was not the intention of the new Offshore Transmission arrangements to add any administrative burden on Offshore generation when compared with other types of generation, or to create inefficiencies for the Transmission Company or BSC Agents.

[3] Notifications of expected output.

[4] References to 'the Transmission Company' in this IWA use the BSC meaning of 'GB System Operator', and should not be confused with the Offshore Transmission Owners (OFTOs) which are being procured as part of the new Offshore regime.

[5] BM Units are registered and used in the central BSC Systems.

[6] The BSC's BM Unit re-registration process takes at least 30 days, and may therefore not be a practical way to manage a short-notice operational reconfiguration (for example, in response to a fault). The BSC only allows Plant/Apparatus to be contained in one BM Unit at a time.

[7] The rules under which Metering System data is aggregated to determine BM Unit Metered Volumes for Settlement.

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Background and related changes

On 14 May 2009, the BSC Panel raised **Standing Issue 37** 'Boundary Point Metering and BM Unit Issues in Section K' to investigate issues relating to Offshore metering and BM Unit configuration. This followed the Imbalance Settlement Group's (ISG's) discussion of these issues at its meeting in April 2009. The Issue Group's full report and recommendations will be presented to the Panel on 9 July 2009.

The problem identified by P237 was considered by the Issue 37 Group, and P237 progresses the Group's recommended solution in this area. The Issue Group also recommended several other changes to resolve separate, but related, Offshore issues. The Proposer of P237 has additionally raised **Modification Proposal P238**[8] to progress one of these related changes. It is likely that Parties will raise further Modification Proposals to address the remaining issues.

Where can I find more detail about the other related Offshore issues?

You can find further information on the Issue 37 page of ELEXON's website, in ISG paper 99/08, and on the P238 web page

2 Solution

How will P237 resolve the issue?

P237 will allow two or more Offshore Power Park Modules to form a single BM Unit, where the Lead Party[9] requests this aggregation and providing that the Transmission Company agrees.

All of the Plant/Apparatus at the Offshore wind farm (i.e. all of the Offshore Power Park Strings) would therefore be contained in a single BM Unit regardless of which Power Park Module they relate to. This aggregation will be formalised as a new **standard BM Unit configuration** in Section K of the BSC, in line with the Issue 37 Group's recommended solution.[10]

In the specific example configuration considered above, allowing this aggregation of Offshore Power Park Modules into a single BM Unit could deliver administrative efficiencies to the generator, the Transmission Company and BSC Agents by:

- Reducing the number of BM Units which are registered;
- Reducing the number of Physical Notifications; and
- Reducing the number of Bid-Offer Acceptances.

For other types of Offshore wind farm configuration, P237 may also facilitate short-notice operational reconfigurations of Plant/Apparatus by removing the need to re-register BM Units and change Aggregation Rules. It may also reduce the amount of metering which the generator is required to install.

Note that P237 does not alter the definition of what constitutes an Offshore Power Park Module, but simply seeks to allow the Plant/Apparatus associated with two or more Offshore Power Park Modules to be registered in a single BM Unit.

[8] 'Removal of the requirement to meter each Boundary Point for Offshore Power Park Modules'.

[9] The Party to whom the BM Unit is registered.

[10] The Issue Group noted that the BSC already permits a Party to apply for a 'non-standard' BM Unit configuration if it believes that several Power Park Modules should be aggregated to form a BM Unit. However, the Group considered that this does not provide developers with certainty about permitted configurations, as a Party cannot be sure that its configuration request will be granted. It may also result in large volumes of applications for 'non-standard' configurations, with the risk that this process becomes unfit for purpose. The Group therefore believed that a new standard configuration is required.

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Aggregation will not be mandatory, and an Offshore intermittent generator will retain the ability to register its Offshore Power Park Modules as separate BM Units if it believes that this is more appropriate for its particular operational configuration.

The Proposer believes that P237 will better facilitate the achievement of **Applicable BSC Objectives (b), (c) and (d)**.

The table on the following page shows the benefits identified by the Proposer against each of these Objectives.

Applicable BSC Objective	Benefit identified by Proposer for P237
Objective (a)	None identified.
Objective (b)	Ensures that BM Units are not required to a level in excess of that needed by the Transmission Company to operate the Transmission System efficiently and economically.
Objective (c)	Ensures that Offshore generators do not face excessive BM Unit requirements compared with other generators. This is particularly the case for Offshore generators in the transitional regime that have either planned, built, or are in the process of constructing to designs that did not require or envisage the need for extra BM Units.
Objective (d)	Ensures that BSC Agents will not have to accommodate excessive numbers of BM Units in the BSC Systems.

What are the Applicable BSC Objectives?

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System

(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation of the balancing and settlement arrangements

3 Proposed Progression

What is the recommended way forward?

ELEXON recommends that a Modification Group carries out further assessment of P237.

The proposed solution has already been discussed at a high level by the Issue 37 Group, and the Modification Proposal is well defined. However, the Issue Group left some of the lower-level solution details open for further consideration during the Modification Process. As P237 is silent on these, ELEXON recommends that a Modification Group considers them further as part of an Assessment Procedure.

Modification Proposal P238 has also arisen from the Issue 37 discussions, and is related to P237. The issues identified by the two modifications are distinct and will benefit from separate assessment. However, there are likely to be resource savings for the industry if both modifications follow the same progression timetable, with shared Modification Group meetings and parallel consultations and reports.

The following sections contain ELEXON's suggested Terms of Reference for the Modification Group, and its recommended progression timetable.

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Terms of Reference

In addition to the standard Assessment Procedure activities,[11] ELEXON recommends that the Modification Group considers the following areas:

Area	Reason for inclusion in Terms of Reference
Does the identified issue only affect Offshore, and not Onshore, Power Park Modules?	This is believed to be the case, due to the specific busbar requirements for Offshore Power Park Modules under the Grid Code. However, the Modification Group will need to confirm this to ensure that Onshore intermittent generators are not disadvantaged by being unable to combine their Power Park Modules in a single BM Unit without applying for a 'non-standard' BM Unit configuration.
What types of configuration for an Offshore intermittent generator are affected by the issue, and what are the specific benefits of P237 for each affected configuration type?	This IWA gives one example of a particular type of Offshore wind farm configuration which is affected by the issue, and which will potentially benefit from P237. However, different configurations will be affected in different ways, and may experience different benefits under the P237 solution. ELEXON recommends that the Modification Group identifies the full range of impacted configurations, and the specific benefits of P237 to each configuration type. ELEXON suggests that worked examples for each configuration type should be included in the Group's consultation document and in its Assessment Report.
Should there be any further criteria for the aggregation of multiple Offshore Power Park Modules in a single BM Unit?	The Issue Group believed that developing detailed criteria would be inflexible, and therefore supported a high-level requirement for Transmission Company agreement. However, it considered that it could be useful to include an additional criteria that only Offshore Power Park Modules which share the same connection to shore may be aggregated in a single BM Unit. The Modification Group will need to consider whether this is appropriate, as the Modification Proposal is silent in this area.
If the Transmission Company does not agree to the registration of an aggregated BM Unit, should the Lead Party be able to appeal this to the Panel?	Section K3.1 of the BSC already gives Parties the ability to apply to the Panel for a 'non-standard' BM Unit configuration if they believe that their assigned standard configuration is inappropriate (in practice, the Panel delegates these appeals to the ISG). The Modification Group will need to agree whether this ability should also apply to the new P237 BM Unit configuration, as the Modification Proposal is silent in this area.
Does P237 impact any BSC Agents?	BM Units are registered and used in the central BSC Systems. ELEXON recommends that the Modification Group undertakes a BSC Agent impact assessment to establish whether any changes to BSC Agent systems, processes and/or documents are needed to support P237.

[11] Industry consultation, assessment against the Applicable BSC Objectives, consideration of any Alternative Modification, development of an Implementation Date and legal text, and production of an Assessment Report to the Panel.

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Area	Reason for inclusion in Terms of Reference
What are the specific benefits of P237?	The Issue 37 Group considered the benefits of all its recommended changes as a package. These changes are now being progressed as separate Modification Proposals. The changes deal with different issues, and therefore give rise to benefits in their own right without being contingent on each other. However, they are complementary, and their combined benefits may therefore be greater than at the individual proposal level. The Modification Group will need to agree which of the benefits identified by the Issue 37 Group are important for P237, and will assess P237 on its own merits against the existing Code baseline. However, ELEXON recommends that the Modification Group also notes any benefits from combining P237 with P238 or any of the other changes recommended by the Issue Group, so that these can be taken into account by Ofgem when making its decision on the various changes.

Modification Group Terms of Reference

You can download the SSMG's standard Terms of Reference here.

ELEXON recommends that the P237 Terms of Reference should also include the specific areas identified in this IWA.

ELEXON recommends that the P237 Modification Group is formed from members of the **Settlement Standing Modification Group** (SSMG), whose areas of expertise include BM Unit registration and configuration.

ELEXON also recommends that the SSMG's core membership is supplemented by:

- Members of the Issue 37 Group (to ensure continuity of discussion); and
- Transmission Company expertise in the relevant Grid Code definitions and requirements for Power Park Modules.

Timetable and Costs

ELEXON recommends that P237 undergoes a 2-month Assessment Procedure.

This will enable P237 and P238 to be progressed to an identical timetable, with shared meetings and parallel consultations/reports.

The following page shows the full recommended timetable of activities, which includes:

- A 2-week industry consultation;
- A BSC Agent impact assessment (in parallel with the consultation);
- A Transmission Company impact assessment (in parallel with the consultation); and
- 2 Modification Group meetings, before and after the consultation (leeway has been left in the timetable to include a second pre-consultation meeting, in case this is required to complete the Group's discussions).

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The table below contains ELEXON's estimate of the costs involved in progressing P237 through the Modification Procedures.

Estimated progression costs based on proposed timetable	
Meeting costs (including Modification Group member expenses)	£750 (2-3 meetings)
Non-ELEXON legal and expert costs	£0
Service Provider impact assessment costs	£7,000
ELEXON resource	57 man days, equating to c.£15.5k

Joint progression timetable for P237 and P238

ID	Task Name	Duration	Start	Finish
1	IWA presented to Panel	0 days	Thu 09/07/09	Thu 09/07/09
2	Mod Group Meeting 1	0 days	Fri 17/07/09	Fri 17/07/09
3	ELEXON drafts consultation document	5 days	Mon 20/07/09	Fri 24/07/09
4	Group review by email	5 days	Mon 27/07/09	Fri 31/07/09
5	Industry consultation	11 days	Mon 03/08/09	Mon 17/08/09
6	BSC Agent impact assessment	11 days	Mon 03/08/09	Mon 17/08/09
7	Transmission Company impact assessment	11 days	Mon 03/08/09	Mon 17/08/09
8	ELEXON drafts legal text	11 days	Mon 03/08/09	Mon 17/08/09
9	ELEXON internal legal text walkthrough	0 days	Tue 11/08/09	Tue 11/08/09
10	Mod Group Meeting 2	0 days	Wed 19/08/09	Wed 19/08/09
11	ELEXON drafts Assessment Report	2 days	Thu 20/08/09	Fri 21/08/09
12	Group reviews report/legal text by email	4 days	Mon 24/08/09	Thu 27/08/09
13	ELEXON updates report/legal text	1 day	Fri 28/08/09	Fri 28/08/09
14	Internal paper day	0 days	Tue 01/09/09	Tue 01/09/09
15	External paper day	0 days	Fri 04/09/09	Fri 04/09/09
16	Assessment Report presented to Panel	0 days	Thu 10/09/09	Thu 10/09/09

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4 Likely Impacts

At this stage, ELEXON believes that P237 will or may impact:

- **Section K3** of the BSC, which contains the requirements for registering BM Units;
- **Balancing and Settlement Code Procedure (BSCP) 15**, which contains the detailed process for registering and re-registering BM Units;
- **BSCP75**, which contains the process for registering Aggregation Rules (and which contains worked example for particular generation types);
- **Offshore intermittent generators**, who will be able to request aggregation of their Offshore Park Modules in a single BM Unit;
- The **Transmission Company**, who will need to:
  - Assess each application from a Lead Party to aggregate its Offshore Power Park Modules in a single BM Unit; and
  - Decide whether to agree to the requested configuration;
- The **Central Registration Agent** and **Central Data Collection Agent**, who will need to register and validate each application respectively; and
- **ELEXON**, who supports the BM Unit registration and validation processes (including supporting the **ISG** in processing any appeals).

ELEXON does not anticipate that any changes will be required to the Grid Code. However, Transmission Company expertise will be needed as part of the Modification Group's discussions, to ensure that the P237 solution and legal text is consistent with the Grid Code requirements.

Recommendation

ELEXON recommends a 2-month Assessment Procedure for P237.

5 Recommendations

On the basis of this IWA, ELEXON invites the Panel to:

- DETERMINE that Modification Proposal P237 progresses to the Assessment Procedure;
- AGREE the Assessment Procedure timetable of 2 months, such that an Assessment Report will be completed and submitted to the Panel at its meeting on 10 September 2009;
- DETERMINE that the P237 Modification Group will be formed from members of the Settlement Standing Modification Group, supplemented with members of the Issue 37 Group and with expertise from the Transmission Company on the Grid Code requirements; and
- AGREE the Modification Group's Terms of Reference.

6 Further Information

You can find more information in:

Attachment A: P237 Modification Proposal form

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