Stage 03: Assessment Report

P238: Removal of the requirement to Meter each Boundary Point for Offshore Power Park Modules

The BSC requires Party's Exports and/or Imports to be determined at each Boundary Point to the Transmission System or a Distribution System, via metering.

P238 proposes to treat all Exports from (or Imports to) a Balancing Mechanism Unit comprising Offshore Power Park Modules as a single Export (or Import).

P238 will allow metering to be installed to determine the Export (or Import), provided that appropriate compensation is applied to meter readings to account for losses between the location of the metering and the commercial boundary.

P238 progresses one of the recommendations of the Issue 37 Group.

Modification Group recommends
Approval of P238

High Impact:
Offshore intermittent Generators

Low Impact:
The Transmission Company and ELEXON

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

04 Report Phase

Contents

About this document:

This document is an Assessment Report, which ELEXON will present to the Panel on 10 September 2009, on behalf of the P238 Modification Group.

The Panel will consider the recommendations on the final page and will agree an initial view on whether or not this change should be made.

The Panel will then seek industry comments on its initial view through a further consultation.

There are 4 documents for this Assessment Report:

- This is the **main document**. It outlines the solution, impacts, costs, benefits and implementation approach for the change. It includes the Group's recommendation as to whether the change should be approved.
- **Attachment A** provides further supporting details of how the Group's discussions have led it to its initial views. It also includes a summary of the industry responses to the Group's consultation.
- **Attachment B** contains the Group's agreed legal text for the necessary changes to the BSC.
- **Attachment C** contains the Group's agreed redlined changes to the Codes of Practice, which support the P238 legal text.

You can download copies of the full industry consultation responses and the Transmission Company's impact assessment here.

Any questions?

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1 Summary

Why Change?

The Balancing and Settlement Code (BSC) currently requires metering to be installed to determine the flows of electricity (Exports and Imports) at each Boundary Point to the Total System (the Transmission System and each Distribution System).

The new Offshore Transmission regime has introduced different technical requirements for Offshore **Power Park Modules** (PPM) compared with those onshore. The Grid Code now requires that the 'strings' of Generating Units which make up Offshore PPMs must be connected to the same busbar, or to a collection of directly electrically connected busbars of the same nominal voltage. Onshore PPMs are not subject to this requirement. As a result, offshore intermittent Generators will be required to have more Metering Equipment than their onshore counterparts since it is likely that these points of connection to the busbar(s) will become the new Boundary Points for the Offshore PPM (s).

Since a PPM is considered under the BSC to meet the criteria to form a standard Balancing Mechanism (BM) Unit[1] configuration, metered data (energy volumes) from Offshore PPMs with multiple Boundary Points will need to be aggregated up to a BM Unit level.

The increase in the amount of Metering Equipment that will be needed will introduce disadvantages to offshore intermittent Generators compared to onshore intermittent Generators and the increased administrative and data collection requirements will create inefficiencies in the implementation of the Balancing and Settlement arrangements.

Solution

P238 will help to remove these inefficiencies by allowing all the Exports from (or Imports to) a BM Unit comprising Offshore PPMs to be treated as a single Export (or Import) and thereby avoid the need for separate metering of every Boundary Point of Offshore PPMs.

The overriding consideration would be that the installed metering was able to measure and record the energy Exported (or Imported) by each BM Unit. P238 proposes that there should be nothing within the solution to prevent Generators from metering each Boundary Point and aggregating the metered data to a BM Unit level if they prefer (particularly as some Generators may have already designed their offshore platform on that basis).

This change will be formalised in Section K of the BSC, in line with the Issue 37 Group's recommended solution.

Attachment B contains the Group's recommended changes to the BSC (the 'legal text').

The solution proposed also envisages that this would require amendments to the Codes of Practice to introduce additional flexibility for the location of the Actual Metering Points for offshore platforms and remove the need for Metering Dispensations in such cases.

This change will be formalised in the Codes of Practice, in line with the Issue 37 Group's recommended solution.

Attachment C contains the Group's recommended changes to the Codes of Practice.

[1] BM Units are the 'units of trade' in the Balancing Mechanism. Each BM Unit is a collection of Plant and/or Apparatus (e.g. Generating Units such as wind turbines). You can download an information sheet from ELEXON's website which explains BM Units in more detail.

What is a Power Park Module?

This is the Grid Code term for a collection of Generating Units which are powered by an intermittent power source (e.g. by wind, wave or solar power).

Section 1 of Attachment A explains the Grid Code's requirements and definitions in more detail.

The issue identified by P238 is caused by the different technical requirements for offshore Generators, and does not arise onshore. The Group therefore believes that it is appropriate for the solution to only apply offshore. This view is supported by the Transmission Company and by all respondents to the Group's consultation. You can find further information in Sections 1 and 2 of Attachment A.

Related Changes

P238 progresses one of the recommendations of the **Issue 37**[2] Group, which considered 4 issues with the BSC's metering and BM Unit requirements, all of which have since been raised as Modification Proposals.

Modification Proposal P237[3] addresses another of these separate (but related) issues. The Group is consulting on P238 and P237 in parallel. You can download the P237 consultation documents here.

Modification Proposals P240[4] **and P241**[5] address the remaining two issues. The Group is still assessing these proposals, and will submit its Assessment Reports for P240 and P241 to the Panel in November 2009.

P238, P237 and P240 all relate to offshore generation. Sections 1 and 2 in Attachment A explain their interaction in more detail.

Impacts & Costs

P238 will require changes to Section K of the BSC and the Codes of Practice 1, 2, 3, 5 and 10.

The costs of implementing these changes will be **3 man days** (£660) of ELEXON effort. There are no implementation costs for the Transmission Company or any BSC Agents.

Implementation

If the Authority approves P238, the Group recommends that the changes to the BSC and Codes of Practice are implemented **5 Working Days** after the Authority's decision.

The Case for Change

The Group believes that P238 will ensure that the BSC's metering requirements are not an unnecessary barrier to offshore renewable generation.

The Transmission Company and all respondents to the Group's consultation support this view.

Recommendation

The Group therefore recommends that P238 should be approved.

Where can I find more information on the Issue 37 Group's discussions?

Section 1 in Attachment A gives an explanation of the other 3 changes recommended by the Issue Group, and how these may interact with P238.

These 3 changes have now been raised as P237, P240 and P241.

You can also find further information on the Issue 37 page of ELEXON's website, in ISG paper 99/08, and on the P237, P240 and P241 web pages.

[2] 'Boundary Point Metering and BM Unit Issues in Section K'.
[3] 'Standard BM Unit configuration for Offshore Power Park Modules'.
[4] 'Switching Plant and Apparatus between BM Units'.
[5] 'Relaxation of Requirement to Separately Meter Licensable Generating Units'.

2 Why Change?

Why has P238 been raised?

A new competitive Offshore Transmission Regime has been introduced by the Government and Ofgem which is due to 'Go-Live' in June 2010. As part of the process the Government introduced changes into the electricity codes to facilitate the new regime. The changes impact all offshore generation that is connected at 132 kilovolts (kV) and above and came into effect on 24 June 2009 ('Go-Active').

The changes introduced into the Grid Code included an amended definition of a Power Park Module, which allows an Offshore PPM to include **Power Park Strings** (strings of intermittently powered Generating Units) connected to an offshore Transmission System at more than one Boundary Point. Onshore PPMs will still be limited to a single Boundary Point.

Since the BSC requires flows of electricity at each Boundary Point to the Transmission and Distribution Systems to be determined by metering, the change will mean that more metering (i.e. Metering Equipment[6]) will be required for Offshore PPMs with multiple points of connection to an offshore Transmission System.

The BSC also considers a PPM as a standard configuration of Plant and Apparatus which meets the criteria to form a single BM Unit and therefore the Grid Code definition change will affect the amount of aggregation of metered data required in order to calculate BM Unit level energy volumes.

The changes create inefficiencies for:

- **Offshore intermittent Generators** (who will have to install and maintain more Metering Equipment);
- **Registrants** of offshore Metering Systems (who will have to register more Metering Systems (potentially), submit more Meter Technical Detail information and more complex aggregation rules for their offshore Metering System(s)); and
- **ELEXON** and **BSC Agents** (who will have to record the Metering Systems' details and Meter Technical Details, validate Aggregation Rules and collect and aggregate more metered data from Metering Systems' Outstations[7]).

The Proposer considers that the BSC requirement to separately determine the flows at each Boundary Point is inappropriate for offshore Generators given the potential locations of these Boundary Points are determined by the Offshore Transmission Regime and can lead to excessive metering.

The Group believes that the specific issue which P238 identifies is limited to offshore intermittent generators, because it arises specifically from the new definition of Offshore Power Park Module. You can find the Group's reasons for this view in Sections 1 and 2 of Attachment A.

When was the term Power Park Module added to the BSC?

Modification Proposal P191 introduced this term to the BSC in 2005, following its inclusion in the Grid Code and to support intermittent generation.

[6] Metering Equipment means Meters, measurement transformers (voltage, current or combination units), metering protection equipment including alarms, circuitry, associated Communications Equipment and Outstations and wiring.

[7] An Outstation receives and stores data from a Meter(s) for the purpose of transferring that metered data to the Central Data Collection Agent.

The Transmission Company and all respondents to the Group's consultation support this view.

3 Solution

How will P238 resolve the issue?

P238 proposes to make changes to Section K of the BSC such that all Exports from (or Imports to) a BM Unit comprising Offshore PPMs can be treated as a single Export (or Import).

The effect of this change would be to remove the requirement for separate metering of every Boundary Point of Offshore PPMs.

P238 proposes to allow metering to be installed anywhere on the offshore platform provided that it was able to measure and record the energy Exported (or Imported) by each BM Unit and that the meter readings were (where necessary) adjusted to compensate for any electrical losses between the metering point (s) and the commercial boundary (Boundary Point (s)).

This flexible approach would still allow Generators to meter each Boundary Point and aggregate the metered data to a BM Unit level if they prefer (particularly as some Generators may have already designed their offshore platform on that basis).

The solution proposed envisages that this would require amendment to the Codes of Practice to introduce additional flexibility for the location of the Actual Metering Points for offshore platforms and remove the need for Metering Dispensations[8] against the relevant Code of Practice.

This will deliver cost and administrative efficiencies to offshore intermittent Generators, Registrants of offshore Metering Systems, ELEXON and BSC Agents as it will:

- Reduce the amount (and cost) of Metering Equipment (and ancillary equipment, detailed below) that needs to be installed by Generators on offshore platforms. It will also reduce the number of spare parts that need to be kept in store over the lifespan of the Metering Equipment in case of faults;
- Reduce the space required (and associated costs) on offshore platforms to accommodate Metering Equipment, switchboards and back-up metering power supplies (to enable remote reading of the Outstation(s) in the event of a power supply failure);
- Reduce the number (and cost) of Meter calibration checks required on offshore platforms (in accordance with Code of Practice 4 - required every 5, 10 or 15 years depending on the relevant Code of Practice and regime chosen (CoP1 and 2 Meters only));
- Reduce the administrative burden on Registrants for submitting Meter Technical Details and more complex Aggregation Rules to the Central Data Collection Agent (CDCA) and registering more Metering Systems (potentially) with the Central Registration Agent (CRA);

Has the Group developed the solution from the original Modification Proposal?

No, the Group's solution is identical to that proposed by the Issue 37 Group and by the Proposer in the original Modification Proposal.

[8] The Codes of Practice require Registrants to apply for a Metering Dispensation if Metering Equipment cannot be installed at the Defined Metering Points described in the relevant Code of Practice. These Defined Metering Points relate to Boundary Points as described in the BSC itself.

- Reduce the time taken to validate Aggregation Rules against Meter Technical Details submitted to the CDCA (ELEXON supports this process);
- Reduce the time taken by (and cost associated with) Meter Operator Agents carrying out Meter fault investigations on offshore platforms;
- Reduce the time taken for Technical Assurance Agent audits of offshore Metering Systems;
- Reduce the number of Metering System Outstations (potentially) that the CDCA is required to dial each day; and
- Reduce the volume of metered data collected, stored and aggregated by the CDCA.

Section 2 in Attachment A provides worked examples of these benefits for different types of metering configurations that could satisfy BM Unit requirements.

Section 4 of this document and Section 2 in Attachment A provide more details of the potential cost-savings associated with P238.

Which Codes of Practice will be impacted by P238?

The Group believes that the following Codes of Practice (CoPs) will need to be changed in order to deliver the P238 solution:

- **CoP1** 'Code of Practice for the Metering of Circuits with a Rated Capacity **Exceeding 100MVA** For Settlement Purposes';
- **CoP2** 'Code of Practice for the Metering of Circuits with a Rated Capacity **Not Exceeding 100MVA** For Settlement Purposes'; and
- **CoP3** 'Code of Practice for the Metering of Circuits with a Rated Capacity **Not Exceeding 10MVA** For Settlement Purposes'.

For consistency between the 'Half Hourly' Codes of Practice, the Group also believed there was merit in making similar changes to the following CoPs:

- **CoP5** 'Code of Practice for the Metering of Energy Transfers with a Maximum Demand of up to (and Including) 1MW For Settlement Purposes'; and
- **CoP10** 'Code of Practice for Metering of Energy via Low Voltage Circuits for Settlement Purposes'.

None of the respondents to the Group's consultation disagreed with this approach so the Group agreed to recommend changes to CoP1, 2, 3, 5 and 10.

Has the Group identified any other solutions?

Neither the Modification Group, nor the Transmission Company, nor the consultation respondents have identified any alternative solution which might better address the issue.

4 Impacts, Costs & Implementation Approach

What are the impacts of P238?

P238 impacts:

- **Section K** of the BSC, which contains the requirements for determining Exports and/or Imports at Boundary Points;
- **Annex X-1** of the BSC, which will need to include a new reference to the Grid Code's definition of an Offshore Power Park Module;
- **Offshore intermittent Generators**, who procure the design of offshore platforms and the installation of Settlement Metering Equipment;
- **Registrants of offshore Metering Systems**, who submit Metering System registration details to the CRA and Meter Technical Details to the CDCA;
- The **CRA**, who will need to validate and process applications to register Metering System information;
- The **CDCA**, who receives and validates Meter Technical Details and Aggregation Rules; and
- **ELEXON**, who supports these validation processes.

The Group believes that no changes are required to the Grid Code, as the definition of an Offshore Power Park Module will remain unchanged. The Transmission Company supports this view.

The Group did note that some offshore intermittent generators may have already installed metering onshore and would not fall within the scope of P238 as it allows for flexibility in where metering is installed on the offshore platform only. The Group agreed that in these cases, if P238 was approved, the Registrants of those Metering Systems would need to seek Metering Dispensations against the CoP requirement to meter offshore, before Go-Live in June 2010.

What are the associated implementation costs?

The costs of implementing P238 are minimal, and are limited to 3 man days (£660) of ELEXON effort to update the BSC and CoPs with the changes which have already been drafted.

There will be very minor efficiency/cost savings to ELEXON if P238 is implemented in parallel with P237, as this will enable both sets of changes to Section K of the BSC to be made and published at the same time.

The Transmission Company has confirmed that it will not incur any implementation costs from P238. You can download the Transmission Company's full impact assessment here.

There is no direct impact on any BSC Agents. The CDCA and CRA have confirmed that there will be no system impacts and no changes required to documentation or processes.

Where can I find the draft changes to the BSC and to the Codes of Practice?

Attachments B and C contain the Group's recommended BSC legal text and redlined changes to Codes of Practice. The industry will be invited to review and comment on these changes as part of the P238 Report Phase consultation.

Will P238 deliver any cost savings?

All the respondents to the Group's consultation agree that P238 would deliver efficiency/administrative benefits. One respondent believes that whilst P238 may not affect some of their existing projects they do have projects which have yet to be finalised which could benefit from P238 (noting that these benefits would only be really significant if implemented in conjunction with P237).

Two respondents have provided cost saving information (one confidentially). In the non-confidential response the respondent identified a potential cost saving of £1.57m in Metering Equipment and maintenance costs (based on cost estimates provided in the P238 Assessment Consultation Attachment (Attachment A) and not discounting for Net Present Value). This respondent also noted that with 33GW (Giga Watts) of potential offshore wind generation expected to be built within the next 20 years that, despite designs varying, they would still expect the industry benefit to be a significant multiple of the £1.57m figure. The respondent also noted that the figure they quoted would actually depend on how much Metering Equipment actually needed to be used for each offshore installation.

The Transmission Company did not identify any cost savings.

You can download copies of the full industry consultation responses and the Transmission Company's impact assessment here.

It is difficult to quantify the savings under P238 related to the BSC Agents (CDCA and CRA) processing fewer registrations of Meter Technical Details and Metering System details (if any) and ELEXON's savings in carrying out less validation of them - the reduction of the amount of Metering Equipment required will vary depending on the design of the circuits on the offshore platform. Equally, it is difficult to quantify the cost savings associated with the CDCA visiting sites for Meter Advance Reconciliations and for manual downloads of metering data when there are metering faults or communication link failures. The costs associated with the TAA visiting a site to carry out an audit of Metering Equipment will be increased as a result of the Offshore Transmission Regime (the costs of physically getting offshore to the platform and for safety and emergency training) and although it is likely that there will be a reduction in the time it takes to carry out an audit it is not clear how much this will be reflected in cost savings (or avoided costs).

When will P238 be implemented?

The Group believes that the current BSC requirement for metering each Boundary Point is presenting an unnecessary barrier to the development of offshore renewable generation.

The Group notes that this may affect offshore projects which are already in development, as well as those which are initiated after the new Offshore Transmission arrangements 'go live' in June 2010.

The Group therefore recommends that, if the Authority approves P238, the changes to the BSC and Codes of Practice are implemented 5 Working Days after the Authority's decision. This will resolve the issue as soon as possible.

The changes to the Codes of Practice are minor and include adding flexibility to where the Actual Metering Points can be on the offshore platform and removing the requirement to apply for a Metering Dispensation. The Group considers that it will be beneficial to deliver these changes in parallel with those to the BSC itself, so that they can be used straight away.

The Transmission Company and all respondents to the Group's consultation support this approach and the Group's proposed Implementation Date.

What is a Meter Advance Reconciliation?

A Meter Advance Reconciliation (MAR) is a method of confirming that the advance (the difference between two readings, e.g. kWh readings) of a register, on the physical Meter, is equal to the sum of the equivalent half hourly data downloaded remotely, for the same period. A MAR is particularly important to do for Meters with separate Outstations where the Outstation doesn't hold the Meter's main register reading but only the half hourly data produced by the Meter.

The Group has therefore developed the Codes of Practice changes during the Modification Process, and invites the Panel to agree these changes (Attachment C) alongside the BSC legal text (Attachment B).

ELEXON will consult on both the legal text and redlined Code of Practice changes during the Report Phase for P238.

5 Case for Change

Why will P238 be better than the existing BSC requirements?

The Group believes that P238 will better facilitate the achievement of **Applicable BSC Objectives (c) and (d)**.

This view is supported by the Transmission Company and all consultation respondents.

The table below sets out the Group's views against each Applicable BSC Objective.

Applicable BSC Objective	Benefit(s)
Objective (a)	None identified.
Objective (b)	None identified.
Objective (c)	P238 ensures that offshore Generators do not face excessive metering requirements (the consequences of which are highlighted in section 3) compared with other Generators. Excessive metering would lead to higher maintenance costs[9] as the probability of an item failing is likely to increase with more equipment. Offshore Generators in the transitional regime who have either planned, built, or are in the process of constructing to designs that did not require or envisage the need extra metering, would be particularly disadvantaged.
Objective (d)	P238 ensures that BSC Agents will not have to accommodate excessive metering data collection requirements. The CDCA will perform less Meter Advance Reconciliations and the Technical Assurance Agent will need to audit less Metering Equipment.

Are there additional benefits if P238 is combined with P237 and P240?

Yes, the Group has identified wider benefits from P238 if it is delivered in combination with other Issue 37 changes.

The Group believes that all four Modification Proposals raised as a result of Issue 37 address separate (although related) issues, and are not dependant on each other. Each therefore delivers potential benefits in isolation of the others, and benefits from a separate assessment against the current BSC rules.

However, the Group notes that 3 of the changes support each other (P238, P237 and P240) as part of a package of measures to remove barriers to offshore generation. In combination, the benefits of these changes will be greater than at the individual proposal level. The Group believes that it is helpful to highlight these wider benefits, so that the Authority can take them into account when making its decisions.

For each worked example in Attachment A of this document, the Group has therefore identified:

- The benefits of P238 on its own; and
- The benefits of P238 when combined with the other changes.

[9] See Section 4 of this document and Section 2 in Attachment A for further details of the potential cost-savings associated with P238.

What is the Group's view?

The Group believes that P238 will facilitate the current and future development of Offshore generation projects, by removing an unnecessary barrier caused by the BSC's existing metering requirements.

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 GB 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

All the consultation respondents and the Transmission Company agree with the wider benefits which the Group has identified.

One respondent argues that the benefits of P238 and P237[10] in combination exceed the sum of the benefits of each modification on its own. Another respondent notes that, to be effective, P240 needs P238 and P237.

The Group invites the Panel to note these wider benefits, as described in Section 2 of Attachment A.

P238 and P237 will be issued to the Authority for decision in parallel, and there will be minor efficiency benefits to ELEXON if they are implemented at the same time. There will also be more certainty for offshore developers regarding the intended rules if all of the offshore changes are implemented simultaneously or as close together as possible (noting that the P240 assessment timetable is 2 months behind P238 and P237).

[10] The P237 Group did identify that there would be costs savings associated with registering fewer BM Units. You can download copies of the P237 Assessment Report here.

6 Group's Recommendations

The P238 Modification Group invites the Panel to:

- AGREE an initial recommendation that P238 **should** be made;
- AGREE an initial Implementation Date for P238 of 5 Working Days after an Authority decision (such that both the BSC legal text and the changes to the CoPs will become effective on this date);
- AGREE the draft BSC legal text and the draft redlined changes to the CoPs for P238;
- AGREE that P238 be submitted to the Report Phase; and
- AGREE that ELEXON should issue a P238 draft Modification Report for consultation (including the draft legal text and CoP changes) and will present the results to the Panel to consider at its meeting on 8 October 2009.

Recommendation

The Group unanimously recommends that P238 is approved.

7 Further Information

You can find more information in:

Attachment A: Detailed Assessment

See this attachment for further supporting details of the Group's discussions.

These include:

- An explanation of the relevant Grid Code definitions;
- Background information on the new Offshore Transmission regime;
- Detailed worked examples of:
  - The effect of the issue on the metering requirements for an offshore intermittent Generator under the new Offshore Transmission Regime;
  - The resulting benefits of P238 for metering requirements for offshore intermittent Generators under the new Offshore Transmission Regime; and
  - The wider benefits from combining P238 with P237 and P240;
- The reasons why the Group believes that the issue is limited to Offshore intermittent generation;
- Details of the Group's membership;
- A copy of the Group's Terms of Reference; and
- A timetable showing the Group's assessment so far, as well as planned dates for its remaining activities.

You can download copies of the full industry consultation responses and the Transmission Company's impact assessment here.

Attachment B: Draft BSC Legal Text

Attachment C: Draft CoP Changes

See these attachments for copies of the Group's recommended redlined changes to the BSC and to the CoPs.