

If you have any questions relating to this Cap Gemini Impact Assessment Response please email ysanne.hills@elexon.co.uk.

Change Form		ELEXON Reference
		P213
Title		Version No.
<i>Proposed Modification P213 'Facilitating Microgeneration (Optional Single MPAN)'</i>		1.0
		Contractor Reference
		ECMS0P213
Type of Assessment	Date Change Request Received	Date Impact Assessment Issued
Detailed Level Assessment	04/06/2007	15/06/2007
Brief Summary of Change		
<p>This DLIA is based on the Requirements Specification for Modification Proposal P213 'Facilitating Microgeneration (Optional Single MPAN)' document, version 1.0, issued on 1st June 2007, document reference P213AS. The document is subsequently referred to as P213AS in this document.</p> <p>P213AS includes a potential Alternative Modification Solution, subsequently referred to as Potential Alternative Modification P213 in this document.</p> <p>Proposed Modification P213 seeks to amend the current provisions for microgeneration to allow a single MPAN to be used for both Import and Export in Non Half Hourly Settlement. The aim of this modification is to reduce the associated industry costs and the complexity of Settlement processes for Suppliers and Supplier Agents, and thereby facilitate increased settlement of microgeneration Export. Under the Proposed Modification, the same Line Loss Factor Classes (LLFCs) would have to be assigned to Import and Export for Import/Export MPANs.</p> <p>Potential Alternative Modification P213 seeks to amend the current provisions for microgeneration to allow a single MPAN to be used for both Import and Export in Non Half Hourly settlement as per the Proposed Modification, however it allows different LLFCs to be assigned to the Import and Export on the single MPAN.</p>		
Contractor's Proposed Solution – Overview of Proposed Solution		
<p>P213 requires that MPANs registered as Import/Export are treated differently by the SVAA software, to ensure that the same level of profile and settlement accuracy is maintained for Import/Export MPANs when compared to current Export and Import MPANs. P213 therefore looks to apply the current profile shapes to microgenerators with a single MPAN, as well as those with two MPANs.</p> <p>In effect this waives two constraints that are built into the design of the SVA market:</p> <ul style="list-style-type: none"> • that each SVA Metering System is assigned to a single Profile Class; and • that only one of the Time Pattern Regimes (TPRs) associated with a given Standard Settlement Configuration (SSC) can be recording energy at a given 		

instant in time.

Rather than directly change these requirements P213 proposes that:

- the normal provisions for calculation of profile coefficients shall not apply to SSCs that include both Import and Export registers; and
- instead, for these Import Export SSCs, the profile coefficients for each TPR will be set equal to the profile coefficients that would have been used, had the Import and Export been assigned to two MPANs rather than one. This will be achieved by providing the SVAA system with a 'substitution table' detailing which profile coefficients to use for each TPR.

The changes to systems and processes required to achieve this can be summarised as follows:

- a new data item of Import/Export Register Type will be added at the TPR level (i.e. on the Measurement Requirement entity); and
- a new SSC Type of 'X' will be created for Import/Export MPANs; and
- amendments are required to the profiling component of the SVAA system, so that profile coefficients for Import/Export SSCs are selected by reference to the substitution table. This requires a new value of the SSC Type flag to identify Import/Export SSCs; and
- a process is required for providing the substitution table to the SVAA system.

Section A2.2 of P213AS describes additional system changes necessary to publish to industry additional data required to implement P213. Under options (a) and (c) the data is not published in MDD, whereas under option (b) the data is published in MDD.

The next section describes in more detail the changes required to the SVA Operator Systems to meet these requirements.

Functional/Technical Response

MDD

The following changes to MDD are required for all sub-options of P213 and the Potential Alternative Modification P213:

- a new data item (the Import/Export Register Type of the Measurement Requirement Entity) will be added to MDD; and
- the Import/Export Register Type will be added to the TPR record of the D0278 file, so that it can be loaded automatically into the SVAA system.
- MDD must allow the new SSC Type of 'X' to be stored and published. Further details on the changes required are given in Section 1 below.

Under option (b) of P213 and Potential Alternative Modification P213 the following additional changes to MDD are required:

- Substitution Table to be held in the MDD database; and
- the Import/Export Register Type for the TPR, and the Substitution Table, will be published and reported to Suppliers by MDD.

The additional changes required to MDD under option (b) are detailed in Section 2 below.

Under Potential Alternative Modification P213 the Substitution Table is extended to include LLFC data. The additional changes required to MDD under this option are detailed in Section 3 below.

1. Core Changes to MDD software (P213AS section A2.1)

The constraint on the allowable values of the SSC Type in the MDD Database, and the error message displayed when this constraint is breached, will need to be amended for the new SSC Type of 'X'.

MD031406 (Maintain Valid MTC LLFC SSC Combination) enforces a rule that "A linked occurrence for Line Loss Factor Class Id must exist in Line Loss Factor Classes (E22) with a MS Specific LLFC Indicator of 'A' where the Standard Settlement Configuration Type (E55) is 'I' and with a MS Specific LLFC Indicator of 'C', where the Standard Settlement Configuration Type (E55) is 'E'. The link is on MDD Version Number, Distributor Id, Effective From Settlement Date MPR, Line Loss Factor Class Id and Effective From Settlement Date LLFC". This rule will not be applicable for the new SSC Type of 'X' and will need to be modified.

The new data item of Import/Export Register Type will be added to the Measurement Requirement Entity (E29), and to MDD Function MD030901 (Maintain Measurement Requirement). A constraint will also be added to enforce the rules for the new data item specified in Section A2.1.2 of P213AS.

A new version of the D0278 flow (D0278003) will be created. The Import/Export Register Type data item will be added to the TPR record of the flow. Note that there are two variants of D0278; produced by MDD Functions MD0325 and MD050327 (the latter produces a flow without English and Welsh data).

2. Additional Changes to MDD for Publication of Substitution Table data and Import/Export Register Type flag (P213AS section A2.2 option (b))

Under this option the Substitution Table data (Profile Coefficient Substitution Instruction entity) will be included in the MDD schema and added to the D0278 flow for transmission to the SVAA system. Constraints will be included to ensure that:

- The Import/Export SSC (SSC Type 'X') in the Substitution Table is also in the SSC table and has a type of 'X'; and
- The substitute SSC is in the SSC table and has a type of either 'E' or 'I'.

A new MDD screen will be created to Maintain the data held in the Substitution Table.

The Substitution Table and the Import/Export Register Types will also be reported to Suppliers. There are three possibilities as to how this might be done:

- i. Create new versions of the D0269 and D0270 data flows that hold this data;
- ii. Create a new version of the D0280 flow that holds this data;
- iii. Create an entirely new data flow from MDD to hold the new data and send to Suppliers.

Where the existing flows are to be updated, the new Import/Export Type will be added to the existing TPR record in the data flows, and a new record type will be created to hold the data in the Substitution Table.

Note that there are currently two versions of the D0269 and D0270 flows in use. Some Suppliers use Version 003 of the flows which includes the SSC Type in the SSC record for the flow, whereas other Suppliers use Version 002 of the flow which does not include the SSC Type. Given that the format of the flow will need to change to incorporate the new data, and that the SSC Type ('I', 'E' or 'X') will need to be included in the new flow, it would not make sense to create a new version based on the current 002 versions of the flows. If the flows are updated a new version 004 will be created, based on the current 003 version.

3. Additional Changes to MDD for Potential Alternative Modification P213 (P213AS section A2.3)

The Substitution Table (Profile Coefficient Substitution Instruction entity) will remain unchanged, but would have a child entity specifying substitutions of LLFC. This will be added as a new entity (LLFC Substitution Instruction entity) to the MDD system and the applicable data flow option/s as per section 2 above.

There will be an additional constraint on the substitute SSC, to ensure the MS Specific LLFC indicator and the SSC Type are consistent.

Pool Application (PA)

The idf_sup_purchase_matrices file (L0025), which is created by the ISRA application when D0041 files are loaded, will include data with an SSC Type of 'X'. Some of the PA reports read this file and these will need to be updated to process data for SSC Type 'X' correctly.

The Pool Reports impacted by the change are: Mixture of Actuals and Estimates Report (MAE); PARMs Serial SP08 (Energy and MSIDs on Actuals) - P0145; PARMs Serial SP09 (NHH Defaults) - P0146; and PARMs Serial SP07 (SMRA and SVAA MSID Count) - P0164. PARMS will not be impacted by change as the format and content of the reports produced by PA will not be changed.

The reports use the SSC Type in the L0025 file to determine which Consumption Component Class a particular MSID belongs to. The current code will not recognise an SSC Type of 'X' and, as a result, will produce a warning message for this SSC Type and may not process the data for these SSC Types correctly.

Functionality will be added so that, for Import/Export Types only (i.e. those with a Standard Settlement Configuration of Type 'X'), the new Import/Export Register Type flag (held on the Measurement Requirement entity) will be used to allocate the MSID counts to the appropriate CCC.

Common library routines are used to process the L0025 files and calculate the MSID counts. Consequently all reports reading the files are impacted by the change even if the MSID Counts in the final report is not split by the Consumption Component Class it belongs to.

The L0025 files may contain multiple TPR entries for the same combination of Distributor, Line Loss Factor, Profile Class and SSC for each supplier. Where this is the case only one TPR is processed as the Metering System Counts are duplicated for each TPR. For Import/Export SSCs one Import TPR and one Export TPR only will be processed. It is assumed that the MSID count data will not be duplicated for the Import or Export SSC (Type I or E) for the Import/Export SSC (Type X) found in the substitution

table.

Only the Pro*C code on the Unix server is impacted directly by the change. However all PA software will be re-issued with an updated version number. This will ensure the major version of the software (e.g. version 8 for v_08_xx of the server code) is consistent across the application. If subsequent variations require the re-release of the Pro*C code only the server code will be re-issued.

Risks

The changes to the ISRA application will be done separately from the PA changes. The changes will need to be consistent across the two applications.

Deviation from ELEXON's Solution / Requirements

None.

Operational Solution and Impact

PA

The addition of the new SSC Type and the changes to the software do not impact the operation of PA.

MDD

Under option (b), where the Substitution Table data is held in MDD, additional work will be required to populate and maintain the data in the table.

If the option to create an entirely new data flow to hold the data in the Substitution Table and send it to Suppliers is chosen this will be an additional file to be sent out. Data Marshalling (DM) will also need to be configured to send out the new flow (no DM software changes are required however).

Contractor's Testing Strategy					
[Tick boxes (✓) to show impacted systems and associated documentation]					
	MDD	DM	LA	PA	
Unit	✓			✓	
Module	✓			✓	
System	✓			✓	
Regression	✓			✓	
Change Specific	✓			✓	
Performance					
Full Width					
Other					
* See notes below					
<p>Testing strategy:</p> <p>(Please see Assumptions below)</p> <p><u>Unit and Module testing</u></p> <p>Testing of individual modules and scripts.</p> <p><u>System Testing</u></p> <p>Testing in an environment cleanly upgraded with all changes.</p> <p><u>Change Specific Witness Testing</u></p> <p>Witnessing of testing of the updated functionality in an environment cleanly upgraded with all changes by ELEXON.</p> <p><u>Performance Testing (PA and MDD)</u></p> <p>The additional functionality will not significantly impact performance of PA or MDD. System Testing will be carried out in an environment with a sufficient volume of data providing confidence with the performance of the upgraded applications. Separate Performance Testing is not needed.</p> <p><u>Full-Width Testing (PA and MDD)</u></p> <p>Separate Full-Width Testing is not required for this change (see comments under Performance Testing).</p> <p><u>Regression Testing</u></p> <p>Testing that existing functionality, not directly impacted by the software changes, is not altered by the changes to the application.</p>					
Validated Assumptions					
<p>The ISRA application will replace the SSC Type 'X' with the Import or Export (I or E) SSC Type, after the production of the L0025 files. Consequently the PA software will need to be updated.</p> <p>A single Import/Export MPAN will be counted as a single MSID.</p>					

Outstanding Issues						
The name and structure of the new substitution table and any updated or new data flows will need to be agreed by ELEXON before carrying out the changes to the software.						
Products Impacted [provide detailed breakdown in an Appendix]						
The following software and documentation shall need to be changed:						
<i>[Tick boxes (✓) to show impacted systems and associated documentation]</i>						
	System					
	MDD	DM	LA	PA		
Products (to be changed and delivered as Developed Products):						
Software	✓			✓		
Logical design						
Physical Design	✓			✓		
Development Products						
Operational Documentation Products						
Internal Configuration Management						
Other						
Testing Products (to be changed and delivered as Developed Products):						
Test Spec	✓			✓		
Test Data						
Test Results	✓			✓		
Test Report	✓			✓		
Other						
New Release Specific Documents (to be delivered as Development Deliverables):						
Release Test Plan	✓			✓		
New Testing Products						
Other						
High Level Software Descriptions (to be changed by the Client):						
URS						
SVA Data Catalogue	✓					
Settlement Calendar						

Nature of Documentation Changes	
See Appendix 1) Detail of Modules To Be Changed, below for details.	
Nature / Size of System Changes	
<p><u>PA</u></p> <p>The code which calculates the NHH MSID Counts in PA will need to be updated to ensure the reports which include these counts are correct. The format and content of the updated reports, and of the PA Database Schema, will not change. There is no operational impact.</p> <p><u>MDD</u></p> <p>There will be changes to the MDD schema, the MDD screens, and the MDD data flows. The exact nature and size of the changes will depend on which options are chosen.</p>	
Type of Release Costed:	Full Release
Impact on System Performance:	The changes will not have significant impact on system performance of either PA or MDD.

Responsibilities of ELEXON
<p>To ensure consistency between ISRA and PA a representative L0025 file produced by the updated ISRA application, including the new SSC Type will need to be supplied to test the updated PA software against.</p> <p>The format of any new or updated MDD data flows will need to be defined by ELEXON and included in the SVA Data Catalogue.</p> <p>The format of any new or updated ISRA or MDD Database Tables will need to be defined by ELEXON.</p>
Acceptance Criteria
<p><u>PA</u></p> <p>The impacted reports calculate all MSID Counts, including those for the new SSC Type, correctly.</p> <p><u>MDD</u></p> <p>MDD permits an SSC Type of 'X' value to be stored and published.</p> <p>MDD includes the new Import/Export Register Type to be included in the Measurement Requirement entity.</p> <p>If option (b) is chosen MDD can store and publish the new Substitution Table data, and</p>

can publish the new Import/Export Register Type, to Suppliers.

Any Other Information

None

Attachments

See Appendix 1 – Details of Modules to be Changed.

PRICING		
Price Breakdown		
Item description	Remarks	Price (ex VAT)
Change Specific Cost	PA and MDD Core Changes	£22,882
	P213AS section A2.2 option (b)	
	Add Substitution table data and Import/Export Register Type flag to D0269 and D0270 (option1)	£5,117
	Add Substitution table data and Import/Export Register Type flag to D0280 (option2)	£4,669
	Add Substitution table data and Import/Export Register Type flag to a new MDD flow (option3)	£6,012
	P213AS section A2.3	
	Add LLFC Substitution Instruction table data to MDD (option4)	£895
Project Overhead	PM & QA for Core Changes	£7200
	Extra PM & QA for optional MDD changes	£1440
Total Price		Core Changes £30,082 Option1 £6,557 Option2 £6,109 Option3 £7,452 Option4 £895
Project Duration		15 to 19 weeks depending on options chosen

Project Duration has been calculated assuming that this will be done as a standalone change.

Project Effort

TOTAL APPLICATION-LEVEL EFFORT

- Pool Application 25.0 days
- MDD Core Changes 26.0 days
 - P213AS section A2.2 option (b)
 - additional effort to add Substitution table data and Import/Export Register Type flag to D0269 and D0270 11.5 days
 - additional effort to add Substitution table data and Import/Export Register Type flag to D0280 10.5 days
 - additional effort to add Substitution table data and Import/Export Register Type flag to a new MDD flow 13.5 days
 - P213AS section A2.3
 - additional effort to add LLFC Substitution Instruction table data to MDD 2.0 days

PROJECT OVERHEADS

- Project Management & QA 10.0 days
- Extra PM & QA for optional MDD changes 2.0 days

Total Project effort

- Pool Application & MDD Core Changes 61.0 days
 - P213AS section A2.2 option (b)
 - additional effort to add Substitution table data and Import/Export Register Type flag to D0269 and D0270 13.5 days
 - additional effort to add Substitution table data and Import/Export Register Type flag to D0280 12.5 days
 - additional effort to add Substitution table data and Import/Export Register Type flag to a new MDD flow 15.5 days
 - P213AS section A2.3
 - additional effort to add LLFC Substitution Instruction table data to MDD 2.0 days

Validity Constraints	
None identified	
Authorised Signature	Date Signed
<i>J G Sellen</i>	<i>15/06/2007</i>

Appendix 1) Detail of Modules To Be Changed			
Products Impacted - detailed breakdown.			
The following software and documentation will need to be changed where relevant:			
System	Pool Application (PA) Market Domain Data (MDD)		
Products (to be changed and delivered as Developed Products):			
	Name	Version	Date
Software	PA: Server Code (Pro*C changes) Oracle Forms and Reports (recompiled with new version no.) P219 and P220 Excel Files (new version no. applied) MDD: MDD schema, PL/SQL, Server Code (Pro*C changes) Oracle Forms		
Logical design			
Physical Design	PA: DFS MDD: DFS		
Development Products			
Training Products			
Operational Documentation Products			
Internal Configuration Management			
Other	Test Strategy, Plans and Results. Release Notes.		