Modification Proposal – BSCP40/03	MP No: 213 *(mandatory by BSCCo)*

Title of Modification Proposal *(mandatory by originator)*: **Facilitating microgeneration (Optional Single MPAN)**

Submission Date *(mandatory by originator)*: **27th April 07**

Description of Proposed Modification *(mandatory by originator)*

This Modification Proposal seeks to amend the current provisions for Non Half Hourly settlement of micro-generation by removing the requirement for the Supplier to request a separate Meter Point Administration Number (MPAN) for the Export register of the meter. This is the approach that was proposed in a recently published report ('Scheme to Reward Microgenerators Exporting Excess Electricity'[1]) from the micro-generation Work Programme (WP04) of the Distribution Working Group of the Electricity Networks Strategy Group (http://www.ensg.gov.uk/), which made the following recommendation:

> "Suppliers should initiate the change management procedures required to progress Option 1 (allowing suppliers to register a customer's export and import under a single registration (a single MPAN)) through the industry's normal change management procedures."

The purpose of this change is to reduce the complexity of the settlement process for Suppliers and Supplier Agents, and hence facilitate increased settlement of Microgeneration export. Annex 1 describes the impact on Supplier and Supplier Agent processes, but the key points can be summarised as follows:

- A Supplier who wished to settle Microgeneration at a customer's premises would no longer be required to request an additional MPAN from the Distributor (as they are under the current settlement arrangements, as introduced by Approved Modification P81). They would instead allocate the existing single MPAN to a new Import/Export Standard Settlement Configuration (SSC), signalling that the MPAN was now to be used for settlement of both Import and Export.
- As there is no longer a separate Export MPAN, the Supplier would not need to go through an agent appointment process (as required under the current P81 process). Instead it would be the reconfiguration from an Import SSC to an Import/Export SSC that triggered the Meter Operator Agent (MOA) to install Import/Export metering, and the Non Half Hourly Data Collector (NHHDC) to collect Export meter readings.
- The physical Import/Export metering installed by the MOA would be unchanged from the current P81 baseline. However, Import and Export registers would both be allocated to a single MPAN (rather than separate MPANs, as required under the current baseline).
- As Import and Export registers would both be assigned to a single MPAN, there would no longer be any possibility of erroneously transferring the Import to a new Supplier

[1] http://www.ensg.gov.uk/assets/dgdti0007701.pdf

while leaving the Export with the old Supplier (or vice versa), and the industry would therefore avoid the expense of correcting this type of error.

- It should be noted that this single MPAN solution is intended as an optional alternative to the P81 'two MPAN' solution. The existing two MPAN solution would still be available where (for example) the customer wanted different Suppliers for Import and Export.

Based on discussions at the WP04 project meetings, it is believed that making this change without also amending the profiling arrangements in Annex S2 of the BSC would compromise the accuracy of the profiling arrangements for microgeneration (as introduced by Modification Proposal P81). In particular, profiling a single MPAN containing both Import and Export under the current profiling arrangements would have the following undesirable effects:

- The same Profile Class (i.e. basic profile shape) would have to be used for both the Import and Export registers; and
- In a given Settlement Period, the settlement systems could attribute Import or Export to the customers assigned to a given Standard Settlement Configuration (SSC), but not both.

This Modification Proposal therefore proposes to take forward the recommendations of the above-mentioned ENSG project, by making any changes necessary to the BSC (and associated Code Subsidiary Documents and BSC Systems) to allow settlement of import and microgeneration export on a single MPAN, including changes to the profiling arrangements in Annex S2 of the BSC to ensure that the accuracy of the profiling arrangements will not be compromised.

The specific changes that have been identified as being necessary are:

- amending the profiling rules in Annex S-2 of the BSC, and the Supplier Volume Allocation Agent (SVAA) software that implements them, to lift the restriction that the same Profile Class (i.e. basic profile shape) must be used for both Import and Export where both are registered under a single MPAN;
- amending the profiling rules in Annex S-2 of the BSC, and the SVAA software that implements them, to remove the restriction that prevents the settlement system from allocating both Import and Export energy, recorded using meters registered under a single MPAN, to the customer in the same half hour; and
- changing the mechanism used by the SVAA software to distinguish Export EAC/AA values from Import EAC/AA values so as to allow Import and Export to be included within the same SSC.

Annex 2 to this Modification Proposal (which is again based on ideas discussed at WP04 project meetings) outlines one possible approach to meeting these requirements. Note

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that the Annex is provided only as a possible starting point for Modification Group discussions, and is not intended to constrain the Modification Group in finding the most efficient technical means of implementing this Proposal.

It is understood that no other changes to the BSC are required to enable suppliers to register both the export and the import meter (or meter register) from generators entitled to use the P81 arrangements under a single MPAN. However, it is the Proposer's intention that, if other changes are identified as being necessary, they should form part of this modification proposal.

Further background to the modification can be found in Panel Paper: Panel 121/08

Description of Issue or Defect that Modification Proposal Seeks to Address *(mandatory by originator)*

Modification Proposal P81 was implemented in September 2003, and was intended to facilitate the settlement of electricity exported by microgenerators. However, few Suppliers have made use of this functionality. Indeed, it was not until June 2005 that the first export meter was registered under the P81 arrangements and by January 2007 the number was still only 23. This compares with more than 3,000 electricity producing microgeneration installations within Great Britain.

Discussions amongst suppliers, under a project established under the auspices of the Ofgem/DTI chaired ENSG, have indicated that a key issue is that the cost of settling microgeneration is artificially increased by the requirement to have separate MPANs for Import and Export.

This increases the cost to suppliers by:

- necessitating more complex industry processes; and
- Increasing the charges levied by Supplier Agents (who typically charge Suppliers on a per MPAN basis).

Where microgeneration export is not registered to a supplier within the settlement system it is spilt to the system and the supplier "purchasing" the export receives no direct commercial value for it. However, a number of suppliers have indicated that the costs associated with collecting and processing the meter data from meters registered in settlement mean that it is simply not cost effective to register these small volume export.

This gives rise to two main problems.

Firstly, the commercial value of export from microgeneration to suppliers is very low (and can be negative for the very smallest exporters) limiting the tariff suppliers can offer and undermining the economics of microgeneration. Secondly, as the volume of

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microgeneration increases, the volume of spill will increase reducing the accuracy of the settlement arrangements as it feeds through into the GSP Group Correction Factor.

To address this problem, changes are being proposed to other industry documents to give suppliers the **option** to register both the export and the import under a single MPAN.

It is understood that this change may not in itself require a change to the BSC. However, the change would give rise to a problem with the profiling arrangements as the current profiling rules may not produce acceptable profiles for a single MPAN with both Import and Export registers. The main reasons for this are that:

- using a single MPAN would mean that the same Profile Class (i.e. basic profile shape) had to be used for both Import and Export. This would be inconsistent with the current P81 profiling solution for microgeneration, and would potentially reduce the accuracy of settlement; and
- using a single MPAN would also prevent the settlement system from allocating both Import and Export energy to the customer in the same half hour. This would again be inconsistent with the current P81 profiling solution, and would arguably not be very realistic (in that microgenerators frequently do import and export electricity in the same half hour).

Further detail can be found in Appendix one to the BSC Panel paper: Panel 121/08 (considered at the BSC Panel meeting on 14 December 2006).

This modification proposal seeks to amend the BSC to address the defects that give rise to high transaction costs for suppliers seeking to register and process data from meters (or meter registers) that record export from microgeneration and to address any consequential reduction in profile accuracy that could arise from solutions that could be implemented under other industry documents.

Impact on Code *(optional by originator)*

Changes to the profiling rules in Annex S-2 of the BSC. Annex 2 to this Modification Proposal outlines one possible approach to amending Annex S-2 (although this is not intended to constrain the deliberations of the Modification Group in any way).

Impact on Core Industry Documents or System Operator-Transmission Owner Code *(optional by originator)*

Amendment to Schedule 8 of the MRA (which defines the rules distributors follow in allocating MPANs).

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Impact on BSC Systems and Other Relevant Systems and Processes Used by Parties (*optional by originator)*

Changes would be required to the agreed industry processes used for microgeneration settlement by Suppliers and Supplier Agents. As outlined in Annex 1 to this Modification Proposal, the 'single MPAN' solution avoids the need for logical connection and disconnection of Export MPANs, simplifying the industry processes.

Amendments to the Supplier Volume Allocation Agent (SVAA) and Market Domain Data Management (MDDM) system, to allow a single Standard Settlement Configuration to have both an Import register and an Export register. Annex 2 to this Modification Proposal discusses these possible changes in more detail.

It is suggested that meter read validation arrangements, for export meters, are also reviewed as part of the process of progressing this modification.

Impact on other Configurable Items (*optional by originator)*

Changes would be required to BSC Procedures and related MRA documentation in order to capture the new agreed industry processes for microgeneration. It should be noted that the current microgeneration processes (introduced by Approved Modification P81) are not that clearly documented in the BSCPs (with key points sometime relegated to footnotes). The Modification Group may wish to consider whether this approach to documenting the processes has contributed to a lack of industry understanding, and whether more comprehensive documentation of the processes would be appropriate.

Changes to BSCP516 to document the rules for allocation of Import/Export SSCs.

Justification for Proposed Modification with Reference to Applicable BSC Objectives *(mandatory by originator)*

Applicable BSC Objective (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.

Addressing the defects that have been identified will:

i) reduce transaction costs associated with registering and collecting/processing data from meters recording the export from microgeneration; and

ii) ensure that the accuracy of profiling arrangements is not compromised if changes are implemented under other industry documents to facilitate this outcome.

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Both of these outcomes would contribute to the promotion of effective competition in the generation and supply of electricity and the sale and purchase of electricity. Reducing transaction costs would, in particular, have a major impact on competition in the purchase of electricity from microgeneration which in turn will lead to increased competition in the installation and production of electricity from microgeneration allowing such generation to compete more effectively.

Applicable BSC Objective (d) – Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

The streamlining of processes associated with the collection and processing of data from microgeneration will reduce the potential for errors to occur leading to improved efficiency in the implementation and administration of the balancing and settlement arrangements.

Urgency Recommended: No *(delete as appropriate) (optional by originator)*

Justification for Urgency Recommendation *(mandatory by originator if recommending progression as an Urgent Modification Proposal)*

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Attachments: Yes / ~~No~~ *(delete as appropriate) (mandatory by originator)*

If Yes, Title and No. of Pages of Each Attachment:

Annex 1 – Comparison of Single MPAN Solution with Current Industry Baseline (3 pages)

Annex 2 – A Possible Approach to Amending the Profiling Process (4 pages)

Annex 1 – Comparison of Single MPAN Solution with Current Industry Baseline

This Annex is intended to compare the proposed 'single MPAN' solution with the current 'two MPAN' baseline introduced by Approved Modification P81. It describes a number of typical microgeneration-related scenarios, focusing on Supplier and Supplier Agent processes rather than the internals of the central settlement systems (which are considered separately in Annex 2).

Scenario 1 - Supplier Decides to Settle Microgeneration for Existing Import Customer

Under the current P81 baseline, a Supplier who wants to settle NHH microgeneration Export for an existing Import customer has to go through a 'logical new connection' process for the Export MPAN. Under the new 'single MPAN' option, the process is treated as a metering reconfiguration for an existing MPAN, and is therefore simpler. The following table compares the key steps for the two processes:

	Current P81 Process	**Proposed New Process**
1.	Supplier requests a second MPAN for the premises from the LDSO	n/a
2.	Supplier registers to supply the new MPAN in SMRS, specifying an Export SSC (and MTC). This should trigger the LDSO to assign an Export LLFC to the new MPAN (if they have not already done so).	Supplier updates the existing MPAN registration to have an Import/Export SSC (and MTC), rather than Import-only. (This should trigger the LDSO to make corresponding changes to the LLFC).
3.	Supplier appoints agents (i.e. Meter Operator Agent, Non Half Hourly Data Collector, Non Half Hourly Data Aggregator) for Export MPAN.	n/a Agents are already appointed for existing MPAN
4.	Supplier sends D0142 to Meter Operator Agent, instructing them to install Export metering for the new Export MPAN. As this flow relates to the Export MPAN, and doesn't explain the connection to the existing Import MPAN, the Supplier may need to use the 'Additional Information' field to explain the scenario.	Supplier sends D0142 to Meter Operator Agent, instructing them to install Import/Export metering for the existing MPAN.

5.	Meter Operator sends Meter Technical Details (D0149/D0150) for new MPAN to Supplier, NHHDC and LDSO. MTD show the new Export MPAN having a single settlement register (for Export).	Meter Operator sends Meter Technical Details (D0149/D0150) for existing MPAN to Supplier, NHHDC and LDSO. MTD show the MPAN having at least two settlement registers (one Export and one Import).

Scenario 2 - Supplier Decides to Discontinue Settlement of Microgeneration for Existing Import/Export Customer

Under the current P81 baseline, a Supplier who decides to discontinue settlement of NHH microgeneration Export (perhaps because the generation plant has been decommissioned by the customer) has to go through a 'logical disconnection' process for the Export MPAN. Under the new 'single MPAN' option, the process is treated as a metering reconfiguration for the single MPAN, and is therefore simpler. The following table compares the key steps for the two processes:

	Current P81 Process	**Proposed New Process**
1.	Supplier requests logical disconnection of the Export MPAN (making it clear in the request that physical disconnection of the property is not required)	Supplier updates SSC (and MTC) in SMRS to Import rather than Import/Export. (This should trigger the LDSO to make corresponding changes to the LLFC).
2.	Supplier de-appoints agents (i.e. Meter Operator Agent, Non Half Hourly Data Collector, Non Half Hourly Data Aggregator)	n/a
3.	Supplier sends D0142 to Meter Operator Agent, instructing them to logically disconnect the metering associated with the Export MPAN. As this flow relates to the Export MPAN, and doesn't explain the connection to the existing Import MPAN, the Supplier may need to use the 'Additional Information' field to explain the scenario.	Supplier sends D0142 to Meter Operator Agent, instructing them to use Import metering rather than Import/Export metering for the single MPAN.

4.	Meter Operator sends Meter Technical Details (D0150) for Export MPAN, to confirm that it is logically disconnected.	Meter Operator sends Meter Technical Details (D0149/D0150) for existing MPAN to Supplier, NHHDC and LDSO. MTD show the MPAN now has only Import settlement register.

Scenario 3 – Change of Supplier (Import/Export)

Under the current P81 baseline, Change of Supplier (for Import and Export together) requires separate Change of Supply events for the Import and Export MPANs. The risk is that error in the process may lead to just one of the MPANs being transferred, leaving one of the Suppliers with Export only, even if that is not the intention of the customer, and isn't supported by the contract between Supplier and customer. The cost of correcting exceptions of this kind is potentially high.

Under the new 'single MPAN' option only a single Change of Supplier event is required, and the risk of this type of error is therefore removed. It is still possible to transfer Export only if required by the customer (as described in scenario 4 below), but this is unlikely to be done unintentionally.

Scenario 4 – Change of Supplier (Export only)

Under the current baseline, transferring the Export to a new Supplier (leaving the Import with the old Supplier) can be done through a normal Change of Supplier event. As discussed above, the process is so easy that there is a risk of it happening erroneously.

Under this Modification Proposal, transferring the Export to a new Supplier (while leaving the Import with the old Supplier) would still be possible (if the customer required it), but would require the Export supplier to request an Export MPAN from the LDSO, and the old Supplier to reconfigure their MPAN to Import (rather than Import/Export).

Annex 2 – A Possible Approach to Amending the Profiling Process

This Annex (which is based on ideas discussed briefly at the WP04 project meeting) proposes one possible approach to amending Annex S-2 of the BSC (and the SVAA software that implements those rules) in order to:

- Lift the restriction that the same Profile Class (i.e. basic profile shape) must be used for both Import and Export where both are registered under a single MPAN; and
- Remove the restriction that prevents the settlement system from allocating both Import and Export energy, recorded using meters registered under a single MPAN, to the customer in the same half hour.

Note that the approach proposed in this Annex is intended only as a possible starting point for Modification Group discussions, and is not intended to constrain the Modification Group in finding the most appropriate technical means of implementing the Proposal.

Overview of A Possible Solution

In effect, this Modification Proposal is seeking to waive (for microgeneration customers) two constraints that are quite deeply built into the design of the SVA market:

- The constraint (built into SMRS and Supplier Agent systems) that each SVA Metering System is assigned to a single Profile Class; and
- The constraint (built into the profiling component of SVAA) that only one of the Time Pattern Regimes (TPRs) associated with a given SSC can be recording energy at a given instant in time.

It is believed that directly amending SVA systems to overcome these constraints would be very costly[2]. An alternative (and more efficient) approach would be to 'work around' the constraints by amending Annex S-2 of the BSC to state that:

- The normal provisions for calculation of profile coefficients (i.e. sections 6.2 to 6.8 of Annex S-2) shall not apply to SSCs that include both Import and Export registers;
- Instead, for these SSCs, the profile coefficients for each TPR will be set equal to the profile coefficients that would have been used (in the opinion of the BSC Panel), had the Import and Export been assigned to two MPANs rather than one.

How Would This Approach Work in Practice?

As an example of how this would work in practice, consider a domestic (Profile Class 1) customer with a photovoltaic microgeneration system. Under the current 'two MPAN' solution, this customer has an Import MPAN

[2] It should be noted that the concept of 'related' MPANs was introduced into the MRA in order, at least in part to, to avoid the need for such system changes.

(assigned to SSC 0393), and an Export MPAN (assigned to SSC 0482). Each of these two SSCs has a single TPR, as follows:

IMPORT MPAN					
Profile Class	**SSC Id**	**SSC Description**	**SSC Type**	**TPR Id**	**TPR 'On' Times**
1	0393	Unrestricted	I	00001	00:00 – 24:00

EXPORT MPAN					
Profile Class	**SSC Id**	**SSC Description**	**SSC Type**	**TPR Id**	**TPR 'On' Times**
8	0482	Micro-PV Export Import Profile Class 1	E	00378	Deemed 'On' times agreed by Panel, and varying by month (e.g. 07:30 – 16:00 in April, 04:30 – 17:00 in May).

Note that each SSC has an SSC Type (held as part of the SSC definition in Market Domain Data) that distinguishes Import (type 'I') from Export (type 'E'). In order to support this Modification Proposal, a third value (e.g. 'X') would be introduced for Import/Export SSCs. For example, the 'single MPAN' SSC for our Profile Class 1 PV customer might be:

IMPORT/EXPORT MPAN					
Profile Class	**SSC Id**	**SSC Description**	**SSC Type**	**TPR Id**	**TPR 'On' Times**
1	0666	Micro-PV Import/Export Profile Class 1	X	00001	00:00 – 24:00
				00378	Deemed 'On' times agreed by Panel, and varying by month (e.g. 07:30 – 16:00 in April, 04:30 – 17:00 in May).

It is proposed that SVAA would <u>not</u> attempt to calculate profile coefficients for 'X' type SSCs such as this (as the overlapping TPRs would cause the current profiling algorithms to fail). Instead, the software would be provided with a substitution table that tells it which profile coefficients to use:

EXAMPLE SUBSTITUTION TABLE FOR USE BY SVAA IN PROFILING IMPORT/EXPORT SSCs					
IMPORT/EXPORT SSC			**SUBSTITUTE SSC**		
Profile Class	**SSC**	**TPR**	**Profile Class**	**SSC**	**TPR**
1	0666	00001	1	0393	00001
1	0666	00378	8	0482	00378

For example, whenever SVAA required profile coefficients for the Export Register of a single MPAN microgeneration customer (i.e. PC1, SSC 0666, TPR 00378) it would consult the above substitution table, and substitute the profile coefficients for the Export Register of a two MPAN microgeneration customer (i.e. PC8, SSC 0482, TPR 00378). In particular, SVAA would do this substitution when:

- Profiling EAC/AA values provided to NHH settlement by Data Aggregators;
- Producing Daily Profile Coefficient files for use by Non Half Hourly Data Collectors; and
- Producing NHH DUoS reports for Distributors.

The effect of using substitute profile coefficients in this way is that it would make no difference to settlement (or DUoS charging) whether a microgeneration customer was settled on a single MPAN, or two MPANs.

Overview of System Changes Required for this Approach

The primary impact of this approach would be on central settlement systems i.e. the SVAA and MDDM software:

- The MDDM and SVAA software would require amendment to recognise a third value of SSC Type (e.g. 'X'), for use with Import/Export SSCs. This change would also potentially affect the format of MDD flows, and the systems that receive them;
- For SSCs with an SSC Type of 'X', the MDDM and SVAA software would require amendment to include a flag at the TPR level, distinguishing Import registers from Export registers. This change would also potentially affect the format of MDD flows, and the systems that receive them;
- The SVAA software would require a new database table to store the Substitution Table, telling the software which profile coefficients to use for each Import/Export SSC. See above for an example of the format for this data. A business process would also be required for this substitution data to be approved by SVG, and entered into ISRA;

- The Daily Profile Production module of SVAA would require amendment to exclude SSCs of type 'X' from the calculation of profile coefficients, and instead substitute other profile coefficients (in accordance with the data in the substitution table); and
- Currently the Volume Allocation module of SVAA handles 'I' type SSCs (treating all TPRs as Import), and 'E' type SSCs (treating all TPRs as Export). It would require amendment to handle 'X' type SSCs (treating each TPR as either Import or Export, in accordance with the flag held against the TPR in MDD).