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MP184

**‘Increase Smart capability of
SMETS2 Twin Element ESME to
support solar and storage use
cases’**

Modification Report

Version 1.0

12 May 2026

Corporate member of
Plain English Campaign
Committed to clearer
communication

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About this document

This document is a Modification Report. It sets out the background, issue, solution, impacts, costs, implementation approach and progression timetable for this modification, along with any relevant discussions, views and conclusions.

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This document also has four annexes:

- **Annex A** contains the business requirements for the Proposed Solution.
- **Annex B** contains the Data Communications Company (DCC) Preliminary Impact Assessment response (against Data Service Provider 2 (DSP2)).
- **Annex C** contains the responses to the Request for Information (RFI).
- **Annex D** contains the full responses received to the Refinement Consultation.

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1. Summary

This proposal has been raised by Tom Woolley of SMS PLC.

Twin Element meters record Import and Export on the Primary Element and Import only on the Secondary Element. These meters are used in consumers premises with standard usage on the Primary Element (such as cooking, heating, lighting) with extra or unusual load on the Secondary Element (for example, Storage heating or Electric Vehicle charging, often on a different tariff). Any Export, such as that from solar panels, would be measured on the Primary Element Export Register.

The Proposer would like to enable Twin Element meters to record exported energy on the Secondary Element (as well as the Primary) to allow innovative new use cases. (Export can already take place physically on the Secondary Element but it cannot currently be recorded).

The original business case was presented such that the Proposers' organisation could install a solar system and battery at a Consumers' premises at low/no cost to the Consumer. The Proposers' organisation would then enter into a Power Purchasing Agreement (PPA) with the Consumer to sell the Consumer the electricity generated from the solar system at a discounted rate. However, in the scenario where the Consumer defaults on the PPA, they are still able to consume electricity generated by the solar system or from the battery, behind the meter. Using one single element Electricity Smart Metering Equipment (ESME) allows accurate measurement of the exported energy but will not account for the energy generated and consumed behind the meter.

If MP184 was approved, the Proposer would install the solar system on the Secondary Element, Generation would take place behind the meter, with Export being recorded on the Export register of the Secondary Element. This would mean all generation would be used as Export and reduce the risk to the Proposer's organisation, even if the consumer terminates the PPA. The Proposer cannot currently achieve this on a single meter given the existing arrangements for Twin Element meters. However, the Proposer currently has a work around involving the use of two single element meters, but this requires an increased cost to the Consumer.

The Proposed Solution is to introduce functionality on the Secondary Element to allow Export to be recorded. In order to implement this there will be changes required to the DCC's System as well as changes to Smart Energy Code (SEC) Appendices AD 'DCC User Interface Specification (DUIS)' and AF 'Message Mapping Catalogue (MMC)', as well as Schedules 8 'Great Britain Companion Specification (GBCS)' and 9 'Smart Metering Equipment Technical Specifications (SMETS)' to meet the requirements.

The Change Board unanimously rejected the request to undertake a DCC Full Impact Assessment based on the lack of business case. The Change Board believed that other than the Proposer's original use case there are no use cases where this Solution would be used. In addition, the Change Board believed that this Modification should have been withdrawn by the Proposer before this point in the process and did not believe that industry time should be spent progressing this modification. Some Meter Manufacturers supported the modification in the Refinement Consultation but identified that in addition to industry and DCC System changes, a firmware update would also be required as well as potentially adapter changes. One Other SEC Party estimated this would cost their organisation £250k - £499k.

If implemented, this modification will impact Suppliers, Network Parties, Other SEC Parties (OSP), Meter Installers, Device Manufacturers, and the DCC. The DCC Preliminary Impact Assessment on DSP2 showed Design and Build costs of between £350,000 - £550,000 up to the end of Pre-Integration Testing (PIT) and we anticipate extensive testing costs of around £1m, giving an estimated total of approximately £1.5m. Added to this are the OSP costs for which we only have an estimate from one organisation of £250k - £500k, meaning this modification is estimated (based on data

available) to cost **£1.75m** to implement. If approved, this modification will be implemented in the June 2029 SEC Release. This is a Self-Governance modification.

2. Issue

What are the current arrangements?

Currently Twin Element meters are used in Consumers premises with standard usage on the Primary Element (such as cooking, heating, lighting) with extra or unusual load on the Secondary Element (for example, Storage heating or Electric Vehicle charging on a different tariff).

SEC Schedule 9 'Smart Metering Equipment Technical Specifications' (SMETS) currently defines how a Twin Element ESME captures and records electricity consumption on a per element basis.

The Twin Element ESME measures and records the energy imported and exported energy on the Primary measurement element, whereas the secondary measuring element records imported energy but is **not mandated** to record export active energy consumption.

Currently, SMETS2 Devices are fit for purpose when considering traditional requirements for Twin Element metering.

There is currently no DCC functionality to request and receive Export data from the Secondary Element.

What is the issue?

The Proposer believes that the issue is that the current specification is preventing innovation and alternative markets from using SMETS2 as a solution. To enable this innovation and use of SMETS2 Devices for such products and services, this modification is proposing:

- Support for Active Export kilowatt-hour (kWh) registers on the secondary element.
- Support for four Time of Use (TOU) tariffs to support Active Export kWh on the secondary element.
- Support for an additional load profile channel specifically for the Active Export kWh on the secondary element.
- Support for an Export Meter Point Administration Number (MPAN) on the secondary element.

What is the impact this is having?

The Proposer is currently unable to reduce the risk to the Proposer's organisation when offering solar solutions to Consumers.

Impact on consumers

The Proposed Solution will allow Export Data to be recorded on the Secondary Element of a Twin Element Meter. The Proposer believes that this would provide the Consumer with the flexibility to use both elements for Export rather than being restricted to the Primary.

3. Solution

Proposed Solution

To support greater energy efficiency and cost saving the Proposer would like to offer products and services that require Export registers on the Secondary Element. The Proposer believes that this would enable the Smart Energy industry to support innovative products and services for management of battery storage and solar solutions, independently from the Supply via the Primary Element.

These changes will mean that SMETS2 and the DCC Ecosystem can be used more widely, while not requiring hardware changes to existing SMETS2 Twin Element meters in the market.

To allow Export Data to be collected from the Secondary Element of a Twin Element ESME, the DCC will need to implement new or updated DUIS Service Requests (SR) and GBCS Use Cases to support:

- An active Export Register on the Secondary Element
- TOU tariffs for Active Export on the secondary element
- Profile Data Log for the Active Export Register on the secondary element
- Setting and reading of an Export MPAN on the ESME Device for the secondary element
- Setting and reading of an Export MPAN within the Smart Metering Inventory for the secondary element.

Further detail about the Proposed Solution can be found in the DCC Preliminary Assessment in Annex B.

No Full Impact Assessment is available as the Change Board unanimously rejected the request for the Full Impact Assessment. It did not believe that there was a business case for the changes being proposed. Therefore, it did not believe that the request to spend ~£58,000 for the assessment should be approved.

4. Impacts

This section summarises the impacts that would arise from the implementation of this modification.

SEC Parties

SEC Party Categories impacted			
✓	Large Suppliers	✓	Small Suppliers
✓	Electricity Network Operators	✓	Gas Network Operators
✓	Other SEC Parties	✓	DCC

Breakdown of Other SEC Party types impacted			
✓	Shared Resource Providers	✓	Meter Installers
✓	Device Manufacturers	✓	Flexibility Providers
✓	DCC Other Users	✓	MAPs/ MAMs

This change will affect Suppliers as a new version of technical specifications will need to be developed which Suppliers may upgrade to. Network Parties will be affected as there will be more embedded generation on their networks. The DCC will be required to make System changes and OSPs will be able to develop products and require firmware updates.

DCC Systems

DCC System changes

The estimated impacts on DCC Systems can be found in the DCC Preliminary Assessment response in Annex B. It should be noted that this is a Preliminary Assessment as the Change Board voted to reject the request for a Full Impact Assessment due to lack of business case.

DCC System traffic

It is unclear if there will be additional DCC System traffic as this will depend on development of any new Service Reference Variants and User behaviour.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Appendix AD – DCC User Interface Specification (DUIS)
- Appendix AF – Message Mapping Catalogue (MMC)
- Schedule 8 – GB Companion Specification (GBCS)
- Schedule 9 – Smart Metering Equipment Technical Specifications (SMETS)

The changes to the legal text of the SEC required to deliver the Proposed Solution have not been developed. This is because changes to the Technical Specifications are developed alongside the DCC Full Impact Assessment, however the Change Board voted to reject the request for a Full Impact Assessment, therefore it is unclear what the final technical solution will be and the changes to the documents cannot be drafted.

Technical specification versions

Appendix AD 'DCC User Interface Specification (DUIS)', Appendix AF 'Message Mapping Catalogue (MMC)', and Schedule 8 'Great Britain Companion Specification (GBCS)' and Schedule 9 'Smart Metering Equipment Technical Specifications (SMETS)' would need to be amended to meet the requirements. This will have a significant industry impact.

Devices

Devices impacted			
✓	Electricity Smart Metering Equipment	✓	Gas Smart Metering Equipment
✓	Communications Hubs	✓	Gas Proxy Functions
✓	In-Home Displays	✓	Prepayment Meter Interface Devices
✓	Standalone Auxiliary Proportional Controllers	✓	Home Area Network Connected Auxiliary Load Control Switches
✓	Consumer Access Devices	✓	Alternative Home Area Network Devices

All Devices would be affected by this change.

Consumers

The Proposed Solution will allow Export Data to be recorded on the Secondary Element of a Twin Element Meter. This would provide the Consumer with the flexibility to use both elements rather than being restricted to the Primary Element.

Other industry Codes

Elxon review of MP184

During discussions it was identified that this would impact the Balancing Settlement Code (BSC). The SEC Change Team asked Elxon to review the Proposal and give a view on any changes that might be needed to the BSC. Elxon responded stating that the BSC can support the requirement of MP184 for up to four independent MPANs (two Import MPANs and two Export MPANs) on the Twin Element ESME.

One restriction applies in that the Primary Supplier appoints the shared Supplier Volume Allocation (SVA) Meter Operator Agent and the Data Collector; all other Suppliers **must** then use the same SVA Meter Operator Agent and the same Data Collector. Further details can be found in [part J of the BSC](#).

Retail Energy Code (REC) view of MP184

Concerns were also raised that this Proposal may impact the Retail Energy Code (REC). REC change [I0221 'Increase Smart capability of SMETS2 Twin Element ESME to support solar and storage use cases'](#) was raised. The REC was consulted and it was confirmed that the Export MPAN on the Twin Element ESME can be supported by existing Data flows used for the Registration Data. No changes to existing Data flows or new Data flows would be required. It is possible to support up to four MPANs, each being associated with a different Supplier. As a result REC change I0221 will shortly be withdrawn.

Similar to the BSC, the Meter Operator Agent must be the same for all four Suppliers associated with the MPANs of the Twin Element ESME.

Greenhouse gas emissions

This modification has a neutral impact on greenhouse gas emissions.

5. Costs

DCC costs

The first Preliminary Assessment was performed against DSP1 only. This has been replaced by a second Preliminary Assessment against DSP2 (Annex B).

these costs are as follows:

Breakdown of DCC implementation costs	
Activity	Cost
Design, Build and Pre-Integration Testing (PIT)	£350,000-550,000
Systems Integration Testing (SIT)	TBC
User Integration Testing (UIT)	TBC
Implement to Live	TBC
Application Support	TBC
Release Testing	Approx. £1m

More information can be found in the DCC Preliminary Assessment response in Annex B.

The range of charges includes provision for a DUIS uplift however this will reduce if the targeted SEC release date includes another change or modification with a DUIS uplift as the costs would be shared equally between the two (or more) changes.

Although not included in the detail of the Preliminary Assessment, DCC expects that there will be **high integration testing costs associated with this Modification**. As with the DUIS uplift these costs will reduce if the targeted SEC release date includes another change or modification with regression testing as the costs would be shared equally between the two (or more) changes.

In addition, the DCC has confirmed that estimated testing costs for a stand-alone Release would be approximately £1m. This is based on previous most recent Releases.

Based on the existing requirements, the total fixed price cost for a Full Impact Assessment is £58,532 and would be expected to be completed in 40 working days. This was presented to the Change Board at the March 2026 meeting; however, the Change Board unanimously rejected the request due to the lack of business case.

SEC Change costs

The estimated SEC Change implementation cost to implement this as a stand-alone modification is one day of effort, amounting to approximately £600. This cost will be reassessed when combining this modification in a scheduled SEC Release. The activities needed to be undertaken for this are:

- Updating the SEC and releasing the new version to the industry.

SEC Party costs

This Modification seeks to introduce new SRs and associated GBCS Use Cases through changes in the DSP. It will also be necessary to implement changes within the GBCS at a Device level. This would result in costs for Manufacturers. The SEC Change Team issued a Request for Information (RFI) in September 2024 to gather more information on how much these costs might be. One respondent to the RFI indicated that costs to its organisation would be incurred from development, testing, and certification, with an estimation in the region of £250,000 provided. The respondents

caveated this figure stating that these costs may considerably increase as the full technical requirements of the change are clarified, however the lack of engagement from the Proposer has not allowed the SEC Change Team to clarify the changes needed so this figure has been used in the calculations for the business case.

6. Implementation approach

Possible implementation approach

If approved, this could be implemented on:

- **28 June 2029** (June 2029 SEC Release) if a decision to approve is received on or before 15 June 2029; or
- **1 November 2029** (November 2029 SEC Release) if a decision to approve is received after 15 June 2029 but on or before 18 October 2029.

No DCC System changes can be implemented before DSP2 goes live which is currently estimated to be June 2029.

7. Assessment of the proposal

Areas for assessment

Views of the Change Sub-Committee

The SEC Change team presented the original version of the Draft Proposal to the Change Sub-Committee (CSC) at the September 2021 meeting. A CSC member suggested the issue as originally described was not reflective for what a Twin Element ESME does. The Proposer provided a background to the issue and clarified the use case and ask of the proposal and highlighted it is proposing for innovative products and services to be made available on the Secondary measurement Element.

A CSC member noted SEC Change's view that this modification could work in parallel with [MP152 'Consumption on Smart Polyphase Electricity Meters'](#). MP152 sought to address limitations and restrictions around polyphase meters and capture consumption of energy data via across the three phases instead of a combined data consumption. MP152 was withdrawn by the Proposer in November 2022 as they were unable to commit to the modification process.

Views of the DCC Interaction IT Group (DIG)

Following feedback from the Technical Architecture and Business Architecture Sub-Committee (TABASC) that this modification could have impacts on Network Parties, SEC Change presented MP184 to the DIG in August 2023.

The DIG noted that they currently process Import and Export readings from the Primary Element of a Twin Element ESME, noting that they believed this would be possible on the Secondary Element and on the Smart Metering Inventory (SMI).

Members questioned what impact this modification would have on Service Reference Variant (SRV) 8.2 'Read Inventory'. They noted that one business requirement as part of this modification would allow an Export MPAN on the Secondary Element and an additional load profile channel specifically for Active Export on the Secondary Element. They noted that more information would be returned in the SRV and the potential that this could interrupt their DCC Adapter.

Members also questioned whether a new SR or DUIS uplift would be required if the additional information from the Export on the Secondary Elements was included. This was confirmed by the DCC.

Members noted the Proposer's reasoning for raising the modification, noting that they believed the modification should be built around the needs of Consumers rather than the Proposer. The Proposer noted that the consumer will have more flexibility.

Request for Information

To understand if there were other SEC Parties that would benefit from the introduction of this functionality, SEC Change issued an RFI in September 2024. Seven SEC Parties responded, two Large Suppliers and five Other SEC Parties. All respondents believed there was an industry benefit for this modification to be developed. One respondent commented pointing out billing and microgeneration benefits *'Maximising the benefits of the twin element meter by considering export applications on the secondary element can only be beneficial to support smart type applications such as microgeneration, battery charging, Electric Vehicle (EV) etc. This not only provides more accurate billing but also enables the consumer to be reimbursed for microgeneration applications more concisely.'* Another respondent highlighted potential net zero benefits.

On the question of incurring costs, four out of the six respondents stated that costs would be incurred. One OSP respondent estimated £250,000 for development, testing and certifications. Another respondent stated, *'To support MP184, we would need to enhance the firmware to support the additional data items that are related to export data capture on the secondary element.'*

Refinement Consultation

Following the Preliminary Assessment (against DSP2) by the DCC, a Refinement Consultation was issued in October 2025 to understand the potential impacts of the proposed change. Two responses were received to the Refinement Consultation, one in favour of the modification and one against. It was noted that it was difficult to anticipate costs at present and more information and discussions to understand how the change would work in practice and what responsibilities would be expected from parties to facilitate this change would be required.

Solution development

Impact on the In-Home Display (IHD)

During the Working Group meeting a member questioned if the IHD could display Data per-element or cumulatively. The Proposer noted that the IHD can currently show Import and Export Data and therefore Export Data from the Secondary Element would be visible to the consumer. Other members noted that further investigation should take place into the existing technology and what would need to be developed for this information to be displayed. They also questioned the extent to which further functionality could be added to the IHD without impacting its performance.

How many MPAN's would be required?

This modification would require four MPAN's registered to one meter. A Working Group member noted that this would require substantial changes to existing processes, have cross-code impacts and would be an expensive alteration to the current arrangements. The Proposer acknowledged this but highlighted that there are large costs associated with having two meters on site to allow Consumers to export energy on two circuits. Subsequent investigations with the BSC and REC have identified that there are no impacts on these Codes as they can accommodate four MPANs, however the DCC cannot.

How many Suppliers could be linked to the Twin Element ESME?

There is a GBCS constraint which means that the Primary Import MPAN and Secondary Import MPAN must both be associated with the same Import Supplier. This is because the ESME only has one Trust Anchor Cell for a Supplier certificate. This constraint is currently enforced by DUIS on the SR8.11 'Update HAN Device Log' validation when those MPANs are declared during Install and Commissioning.

This would be reflected on the Export for the Device if MP184 was approved, meaning the Primary Export MPAN and Secondary Export MPAN would need to be associated with the same Export Supplier. This means that a maximum of two Parties can be assigned to a Twin Element ESME at once.

Implications of additional MPANs

At the Working Group and TABASC meetings members questioned what the implications of more than one import MPAN providing data to the DCC at once. They also queried if the additional MPAN would complicate the existing process within the DCC System. Additionally, members asked what would occur if the Import and Export Suppliers were different on each MPAN and what ramifications this could have for calculating Export readings.

Use Cases

The TABASC provided feedback about how the changes proposed in this modification could benefit SEC Parties, in particular they were concerned about the fact that an additional Export MPAN needs to be applied to the Secondary Element. They also questioned why the Proposer considers existing metering arrangements to be insufficient, since the use of two meters would resolve the problem.

MHHS Use Cases

An RFI respondent questioned why the proposal only allows for four time of use tariffs for active Export on the Secondary Element noting that this could impact Market Wide Half Hourly Settlement (MHHS) use cases. SEC Change replied that there is currently nothing defined in SMETS for the Secondary Element relating to Export, MP184 mirrored the granularity of the existing Import TOU for Export. This is what the Proposer is seeking.

8. Case for change

Business case

Approval of the modification

Responses to the RFI in September 2024 were generally supportive of the principal of measuring Export on the Secondary Element. The REC and BSC have both confirmed that they can manage four MPANs on one meter and do not see any other changes need to be made to accommodate this change to the SEC.

Against approval of the modification

The Proposer has failed to engage during the majority of the development of this modification. The original use case put forward by the Proposer appeared to only benefit the Proposers business aspirations rather than identifying any significant benefits to Consumers. Other industry Parties have not identified any other specific use cases where this functionality could/would be employed.

The costs and significant changes required to the SEC, the DCC Systems and the SEC Technical Specifications are costly and onerous. The levels of likely Consumer uptake have not been identified by the Proposer.

The Proposer has confirmed that they have a workaround which involves using two meters rather than one Twin Element meter. Whilst this is more costly for Consumers it is likely to be less costly to the industry as a whole than the Proposed Solution.

The Change Board unanimously rejected the request for a Full DCC Impact Assessment which would cost approximately £58,000 as they believed that the business case for the change is not sufficient to continue the development of the modification, especially where there is an alternative solution already available.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that this modification better facilitates SEC Objectives (a)¹, (c)² and (e)³.

Industry views

The Refinement Consultation respondents believed that this modification better facilitates SEC Objectives (a), (c) and (e).

Views against the consumer areas

Improved safety and reliability

This modification is neutral on this area

Lower bills than would otherwise be the case

This change would provide lower metering charges for a small number of Consumers but the overall costs to SEC Parties will potentially increase consumers bills.

¹ To facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain

² To facilitate Energy Consumers' management of their use of electricity and gas through the provision to them of appropriate information by means of Smart Metering Systems

³ To facilitate such innovation in the design and operation of Energy Networks (as defined in the DCC Licence) as will best contribute to the delivery of a secure and sustainable Supply of Energy

Reduced environmental damage

This modification is neutral on this area

Improved quality of service

This change would provide a better service for a small number of Consumers.

Benefits for society as a whole

Whilst this change would provide lower metering charges and better services for a small number of Consumers, currently the overall costs to SEC Parties will potentially increase consumers bills.

Final conclusions

This change, whilst a ‘nice to have’ will not deliver significant benefits at the current point in time. There are significant costs involved in changing the DCC Systems and SEC Technical Specifications. The Proposer has failed to engage on numerous occasions making development of the Solution difficult and robust business case difficult. There are no obvious uses for other SEC Parties, and an alternative solution is already available, which, whilst more expensive for an individual consumer is cheaper for the industry as a whole. Therefore, it does not seem sensible to continue the progression of this modification in this form at the current time.

Appendix 1: Progression timetable

Timetable	
Event/Action	Date
Modification discussed with TABASC	1 Jun 2023
DCC Preliminary Assessment requested	20 Sep 2023
DCC Preliminary Assessment returned (expected)	18 Oct 2023
Request For Information	25 Sep 2024 - 16 Oct 2024
Modification discussed with Working Group	6 Nov 2024
Refinement Consultation	8 Oct 2025 – 29 Oct 2025
DCC Preliminary Assessment requested	10 Feb 2026
Impact Assessment request at Change Board	25 March 2026
<i>CSC approves Modification Report</i>	<i>19 May 2026</i>
<i>Modification Report Consultation</i>	<i>19 May 2026 – 10 Jun 2026</i>
<i>Change Board Vote</i>	<i>22 Jun 2026</i>

Italics denote planned events that could be subject to change

Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
BSC	Balancing and Settlement Code
CSC	Change Sub-Committee
DCC	Data Communications Company
DIG	DCC Interaction IT Group
DSP	Data Service Provider
DUIS	DCC User Interface Specification
ESME	Electricity Smart Metering Equipment
EV	Electric Vehicles
GBCS	Great Britain Companion Specification
IHD	In-Home Display
KWh	Kilowatt-Hour
MAMs	Meter Asset Managers
MAPs	Meter Asset Providers
MHHS	Market Wide Half Hourly Settlement
MMC	Message Mapping Catalogue
MPAN	Meter Point Administration Number
OSP	Other SEC Party
PIT	Pre-Integration Testing
PPA	Power Purchase Agreement
REC	Retail Energy Code
RFI	Request for Information
SEC	Smart Energy Code
SMETS2	Smart Metering Equipment Technical Specifications 2
SMI	Smart Metering Inventory
SR	Service Request
SRV	Service Reference Variant
SVA	Supplier Volume Allocation
SIT	System Integration Testing
TABASC	Technical Architecture and Business Architecture Sub-Committee
TOU	Time of Use
UIT	User Integration Testing