

Issue 88 'Clarification of BSC Arrangements relating to Complex Sites'



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About This Document

This document is the Issue 88 Group's Report to the BSC Panel. Elexon will table this report at the Panel's meeting on 10 June 2021.

There are three parts to this document:

- This is the main document. It provides details of the Issue Group's discussions and proposed solutions to the highlighted issue and contains details of the Workgroup's membership.
- Attachment A contains the Request for Information (RFI) letter issued as part of Issue 88; and
- Attachment B contains the collated responses to the RFI.

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Background

In recent years Elexon has received questions (from Suppliers and other interested parties) about the scope of the arrangements surrounding 'complex sites'. Our attempts to answer these questions along with corresponding external legal advice identified a number of issues and ambiguities relating to the complex site arrangements:

1. Combining multiple boundary points into a single SVA Metering System (i.e. totalisation) may not be consistent with the BSC;
2. It is unclear in which complex site arrangements netting can occur;
3. The concept of 'site' is not clearly defined; and
4. General process inefficiencies.

Issue 88 was raised by Elexon to determine what changes could be made to the BSC and its subsidiary documents to improve clarity and consistency for parties in relation to the complex site arrangements.

Conclusions

There was consensus within the Issue Group that:

- A Party may wish to raise a Modification to introduce the concept of 'Complex Site Classes' to the BSC and its subsidiary documents. These would categorise all existing complex site arrangements and provide clear guidance on whether a particular arrangement met the relevant criteria, as well as creating a new class to facilitate the netting of Imports from Exports across a Licensed Distribution System in prescribed circumstances;
- A Change Proposal should be raised to implement agreed complex site process improvements (e.g. standardised Complex Site Supplementary Information Form (CSSIF) and make its submission mandatory etc.) to relevant Code Subsidiary Documents (CSDs);
- 'Site' should not be explicitly defined as the repercussions across the BSC, CSDs and other Codes would outweigh any perceived benefits. The Issue Group felt the introduction of Complex Site Classes would provide sufficient clarity of what constitutes a site in the context of a complex site; and
- Amendments should be made to the BSC to make explicit that totalisation is allowed. This could be progressed under the Complex Site Classes Modification or separately.

What is the Issue?

BSC Procedures (BSCPs) [BSCP502 \('Half Hourly Data Collection for SVA Metering Systems Registered in SMRS'\)](#) and [BSCP514 \('SVA Meter Operations for Metering Systems Registered in SMRS'\)](#) include provisions for metering of so-called 'complex sites'. These are defined as sites at which the Metering Technical Details (which provide the Half Hourly Data Collector (HHDC) with the information needed to collect data from the Meters and allocate it to Metering Systems for purposes of Settlement) are too complex to be captured in the standard D0268 'Half Hourly Metering Technical Details' data flow. The BSCPs provide guidance and clarification on the appropriate Settlement arrangements for various types of complex site.

In recent years Elexon have received questions (from Suppliers and other interested parties) on the scope of these arrangements. Our attempts to answer these questions, including external legal advice obtained, have identified a number of issues and ambiguities relating to the complex site arrangements, as described below. Elexon raised Issue 88 on behalf of industry to create clarity on these issues.

Issue 1 – Combining multiple Boundary Points into a single SVA Metering System may not be consistent with the BSC

The majority of the complex site arrangements¹ in the BSCPs include various forms of 'totalisation', in which Imports (or Exports) measured at multiple Boundary Points are aggregated and allocated to a single SVA Metering System. Some examples of totalisation within complex sites are as below:

- Off-site Totalisation (BSCP514 section 8.4.1);
- On-site Totalisation (BSCP514 section 8.4.2);
- Feed-through sites (BSCP514 sections 8.4.4 – 8.4.6);
- Separate Meter Points for Export and Import (BSCP514 section 8.4.7); and
- Network Flows Impacting Settlement Metering (BSCP514 section 8.4.8).

However, in 2018 Elexon received independent legal advice indicating that it is unclear whether the BSC permits multiple connections to the Distribution System (i.e. Boundary Points) to be combined into a single SVA Metering System (i.e. Metering Point). Specifically:

- BSC section K1.6.1(d) requires (subject to the provisions for Shared SVA Metering Arrangements) that there should be a one-to-one correspondence between SVA Metering Systems and Metering Points:
 - *'...where the Metering System is or is to be registered in SMRS, the commissioned Metering Equipment installed for the purposes of measuring the quantities of Exports and Imports for which a Party is responsible at a*

¹ Some of these totalisation arrangements are not complex sites, strictly speaking, as they do not require a 'Complex Site Supplementary Information Form'. However they are included in the Guide to Complex Sites in BSCP502 and BSCP514

Metering Point shall be a single Metering System (but subject to paragraph 2.5).'

- The definition of Metering Point requires them to be “determined according to the principles and guidance given at schedule 8 of the Master Registration Agreement (MRA)”;
- The guidance in Schedule 8 of the Master Registration Agreement (MRA) consists of a number of examples, none of which show multiple Boundary Points being combined into a single Metering Point (other than in the context of Unmetered Supply). There is a reference to ‘totalisation’ in example 6, but the implications of this for how Metering Points are defined is not explained; and
- Some of the language in Schedule 8 also suggests that a Metering Point should (except in a private wires² case) serve only one premises and one customer.

It was intended (in 2003, when provisions for complex sites were first included in the BSC Procedures) that totalisation should be permitted. However, the relevant BSCPs are potentially inconsistent with BSC, and as the higher level documentation, under BSC principles, the BSC takes precedence. Assuming that BSC Parties wish to continue using totalisation within complex site arrangements, some clarification of the BSC may be required in order to bring Section K in line with arrangements in the BSCPs.

It is also worth noting that Schedule 8 of the MRA will be contained moved to the [Retail Energy Code \(REC\)](#) from 1 September 2021, and these provisions may also need to be amended to create this clarity. Similarly [BSCP514 'SVA Meter Operations for Metering Systems Registered in SMRS'](#) will be removed from the BSC and included in the REC.

Issue 2 – It is unclear whether Export and Import can be netted as part of a complex site arrangement

The complex site arrangements currently described in BSCP514 sections 8.4.1 and 8.4.2 state that Export and Import on different boundary connections should not be netted off each other i.e. gross Import should be allocated to an Import Metering System, and gross Export allocated to an Export Metering System. Whilst 8.4.1 and 8.4.2 are explicitly not examples of complex sites, they do state that in cases where totalisation is employed that Export and Import should not be netted off each other. However, some of the other complex site arrangements do include aggregation rules in which Import is subtracted from Export, or vice versa. Primarily these are:

- Feed through sites (8.4.4 – 8.4.6); and
- Network flows impacting Settlement Meters (8.4.8)

In both of these scenarios a form of netting is necessary to calculate the gross Import or Export value per MSID, as the metered values will include energy flows that in practice have only traversed the local system, being ‘exported’ on one feeder and ‘imported’ on another, within the same ‘site’. In this scenario, a calculation is undertaken to determine the gross value per MSID. With the absence of a clear definition of ‘SVA site’ in the context of complex sites under the BSC or BSCPs, Parties have faced confusion on where netting is allowed to calculate the gross Imports and Exports for the same location under the same MSID. This impacts the obligation to submit gross Import and Export values into Settlement and could be seen as submitting a net output of an MSID into Settlement.

² A ‘private wire’ arrangement means Metering Systems connected to a License Exempt Distribution Network

We believe this may have caused uncertainty about whether (and under what circumstances) netting of Import and Export is permitted as part of a complex site arrangement.

This issue was raised during the industry impact assessment of Change Proposal [CP1338 'Guidance for Complex Sites - Network Flows affecting Settlement Meter Readings'](#), which introduced section 8.4.8 into BSCP514 in 2010. As explained in SVG paper SVG 115/05 a respondent to the Change Proposal Circular (CPC0686) stated that:

- *'The respondent believes that CP1338 will net the imports and exports thus not recording the true import and export total sites values for each half hourly period. It will only record a single import or export value but not both, therefore actual import and export from both feeders will be netted together within each half hour period, thus reducing import volumes and consequently reducing the renewable obligation payable on import supplies and also reducing the VAT to be charged on both imports and exports.'*

The Elexon response (as reported in SVG 115/05) suggested that there was no intention to allow netting of Import and Export:

- *'We clarified that there is no "netting". The CP1338 changes would remove any embedded generation that is used within the site thus giving a fully reflective Import or Export Value. As the true values will be calculated under the CP1338 solution, there will be no incorrect reduction of import values and/or reduction on the VAT to be charged for Imports to and/or Exports from the site.'*

The issue emerged again in 2018 when an interested party asked Elexon in 2017 whether there was anything in the BSC that would prevent them netting Import and Export as part of a complex site arrangement. They provided Elexon with full details of their proposed approach to Settlement, and answered questions from us. After considering all the issues raised in detail, and taking additional (external) legal advice on some of them, we confirmed to the party that we did not identify anything in the BSC that would explicitly prevent them (and their partners) from submitting metered data from the site into Settlement as set out in their proposal.

Issue 3 – The concept of 'site' is not clearly defined

The term 'site' (in the context of complex sites) is not defined, either in the BSCPs or the BSC itself, and there is therefore uncertainty about what can be treated as a single site.

BSC Section K1.6.2 does include a definition of the term 'Site', but this definition only applies to specified Code provisions. It is primarily relevant to specific paragraphs which define the identity of metering systems by reference to a 'Site', and its application to the Supplier Volume Allocation (SVA) complex site arrangements is unclear. It also gives the Central Data Collection Agent (CDCA) discretion to decide (in their "reasonable opinion, having regard, among other things, to their physical proximity") which demand and generation can be treated as forming a Site, which is appropriate for CVA but not for SVA.

Given this lack of clarity about what constitutes a site (in the context of SVA complex sites) we believe it is likely that different Suppliers and Supplier Agents may have different views on the extent to which nearby demand and generation can be treated as forming a single complex site.

Issue 4 – Complex Site Process Improvements

Through various industry groups and committees (such as Technical Assurance of Metering Expert Group (TAMEG), Trading Disputes Committee (TDC) and Performance Assurance Board (PAB)) BSC Parties and Party Agents have raised multiple queries and issues with the Complex Sites processes and requirements. Confusion over the current complex site procedures was also identified as a key factor in the lessons learned session related to a high materiality Trading Dispute. Issues identified with the complex sites processes are outlined below:

- There is no current obligation for a Single Line Diagram (detailing all relevant Metering Systems) to be mandated as part of the required documentation in relation to a Complex Site. This makes it difficult for a party to validate the Meter Technical Details and Complex Site Supplementary form (BSCP514/8.4.8) as any circuits which should be associated under the Complex Site rule, but are not, can go unnoticed;
- There is no requirement to provide an 'Effective From Date' on a Complex Site Supplementary form. This can make it difficult for a party to validate which information held on the Complex Site Supplementary form is still valid; particularly where the site has gone through multiple additions/removals of associated Metering Systems and/or circuits (e.g. for embedded generation);
- Where a Complex Site involves embedded generation, the current requirements state that the same complex site rule should be used against the Import MSID and the Export MSID. Should the result of the calculation related to the Boundary Point MSID(s) be positive (+) then the resultant values of the rule should be submitted into Settlement against the Export MSID. Should the result of the calculation related to the Boundary Point MSID(s) be negative (-) then the resultant values of the rule should be submitted into Settlement against the Import MSID. However, most HHDC systems are unable to process and validate negative values. Elexon are aware that as a workaround some HHDCs apply a "* -1" function at the end of the Complex Site rule associated with the Import MSID to ensure that the HHDC system only processes positive values;
- There are no clear communication processes outlined between the Suppliers associated with the different MSIDs relating to a Complex Site. This makes it difficult for the Suppliers to ensure that all additions/removals of Metering Systems and/or circuits are captured and the relevant Complex Site Supplementary form(s) are updated. The lack of clarity around communication processes also makes it very difficult for Suppliers to ensure that the same MOA and DC are appointed to all MSIDs related to the Complex Site as per the requirements of BSCP514.

Local Energy Schemes

Issues 1-3 emerged due to queries around local energy scheme arrangements, as in the following example, which is taken from a blog post discussing a local energy scheme:

"First, the local renewable generation site has to have a Power Purchase Agreement³ and be sending half-hourly meter readings so the generation can be measured.

³ A commercial agreement to buy energy generated from a Power Station between the Generator and the buyer

Second, all the Club members must have smart meters that are set up to send half-hour readings, too.

This only works at a very local level (like a mile or two radius of a village) because everyone in the Club has to be on the same substation (a substation usually covers a small town, or in a larger city, a few streets).

Readings are then combined in a way that means the aggregate total import and export from/to the grid in each half-hour can be calculated - and that delta is what the collective buys from or sells to the grid.

Let's say 10 homes consume 2kWh each from 7.00am to 8.00am and the hydro produces 8kWh during that time. Each home gets 1/10 of the renewable energy so 0.8kWh and therefore their other 1.2kWh is grid-supplied. In aggregate we see a grid demand of 12kWh (1.2×10) not a grid demand of 20kWh and a grid supply of 8kWh.

If we adjust the figures and say the generator produces 80kWh then each home gets its full 2kWh and the excess generation of 60kWh is what the collective export is to the grid.

With the half-hourly data from the generator and set of homes, each homeowner can be billed for their renewable supply and grid supply. There's more algorithms involved too – if a member consumes only 0.1kWh in their home in that hour then clearly they can't have their full allotment of 0.8kWh so the remaining 0.7kWh gets shared back out to the other 9 homes, and so on."

Adapted from <https://octopus.energy/blog/energy-local/>

The above represents a possible model for a local energy scheme, and on this description such a scheme requires:

- A number of separate properties and local renewable generation to be treated as a 'single site'; and
- The netting of Exports from Imports across a Boundary Point(s) to a different property.

The BSC and its subsidiary documents are not sufficiently clear on whether these arrangements are currently permissible.

3 Issue Group's Discussions

The Issue 88 Group held six meetings between April 2020 and March 2021. Following the first two meetings members agreed that a Request for Information (RFI) should be issued to industry to determine wider views on the questions raised. The meetings held subsequently to the return of the RFI centred on two main topics: introduction of Complex Site Classes and general improvements to the complex site processes.

Request for Information

There was significant discussion in the Issue Group as to whether the arrangements being used to facilitate local energy schemes (netting of Export volumes from different properties across the distribution network) are allowed under existing BSC provisions. One member highlighted their belief that Section K 1.6 made clear that this was not possible, however, members noted that such schemes were already live due to the ambiguities in the relevant BSCPs. It also noted that it should not focus on whether or not existing sites **are** allowed – the existence of Issue 88 highlighting the lack of clarity on this point – but rather should determine whether or not it **should or should not** be allowed, and the best way to provide that clarity.

To assist in that determination, the Issue Group agreed that an RFI should be circulated to industry to gauge wider interest and opinion. Elexon submitted the Issue 88 RFI (Attachment A) for industry consideration for 15WD between 28 September and 16 October 2020. The RFI was split into two distinct sections. The first (questions 1-5) focused on the ambiguity surrounding the arrangements in place to facilitate local energy schemes (i.e. issues 1-3), whilst the second (questions 6-8) related to the estimation of Export volumes in the case of complex sites (an issue identified when members were discussing general process improvements – issue 4).

18 responses were received from respondents representing:

- Generators;
- Suppliers;
- Supplier Agents;
- Community Organisations;
- Virtual Lead Party;
- License Exempt Operator;
- Supplier Agent Software Provider; and
- Community Energy England (representative body with ~256 members)

RFI Responses

Issue 88 RFI Responses - Summary				
Question	Yes	No	Neutral/No Comment	Other
Should the BSC allow multiple premises at geographically contiguous locations (and connected to the same substation at the same voltage) to be totalised under one MSID?	15	1	1	1
Should the BSC allow multiple premises at geographically contiguous locations and connected to the same substation (but at different voltages) to be totalised under one MSID?	13	2	1	2
Should the BSC allow netting of Exports from Imports (in certain clearly defined circumstances) to facilitate local energy schemes, such as the one described in the example provided? What would be the benefits of doing this?	16	2	0	0
Do you think it is necessary to define 'site' in the context of SVA to add clarity to the existing Complex Site arrangements as described in BSC Procedures?	16	1	1	0
Are you aware of any other scenarios (outside of those described in this RFI, or in the Issue 88 proposal form) that may be relevant to Complex Site arrangements (in relation to the content of this RFI) and should be considered by the Issue 88 Workgroup?	0	4	8	6
Do you believe the current estimation techniques are clear and robust enough to allow appropriate estimation to be applied in the case of Complex Sites? How do you currently apply estimation techniques in the case of Complex Sites?	5	3	10	0
Do you believe it is appropriate to estimate Export Metering Systems to zero, as is currently required under BSCP502?	3	4	10	1
Do you experience any other issues, not described in the paper, with the management of complex sites and if so, please describe	5	4	8	1

The majority of responses were focused on the first part of the RFI (i.e. issues 1-3 and the related questions), and the vast majority of respondents were in favour of the BSC allowing multiple premises at geographically contiguous locations to be totalised. In other words, there was broad consensus that local energy schemes as previously described should be explicitly permitted. It should be noted that similarly worded responses were received from several respondents. The collated responses to the Issue 88 RFI can be found in Attachment B.

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Part 1 – Questions 1-5

Should the BSC allow multiple premises at geographically contiguous locations (and connected to the same substation at the same voltage) to be totalised under one MSID?

The majority of respondents were in favour of allowing totalisation at geographically contiguous locations (and connected to the same substation at the same voltage) to be totalised under one MSID. The main points raised in responses to this question were that it provides a practical reward to consumers for active engagement. When combined with netting, they note that totalisation enables local balancing and encourages domestic and business demand side management. Several responses suggested a need to properly define what constitutes a geographically contiguous site and to impose an upper limit on the number of MSIDs to be included in each arrangement. The sole opposing respondent noted that this would add unnecessary complications to the issue.

Should the BSC allow multiple premises at geographically contiguous locations and connected to the same substation (but at different voltages) to be totalised under one MSID?

As for question 1, a majority of respondents were in favour of allowing multiple premises at geographically contiguous locations and connected to the same substation (but at different voltages) to be totalised under one MSID. Some responses highlighted that consumers rarely have a choice as to what voltage they are connected at, and not being able to connect at different voltages could risk creating unfair disparity in communities that must connect at 11kV due to the network being weak. Moreover, one response suggested that totalised usage across voltages would be less common, but that there is no advantage in limiting the size and extent of the potential applications of a potential change.

Those respondents not in favour of this note that differing network charges and different line loss factors would be impractical and that it adds unnecessary complications to the current issue.

Should the BSC allow netting of Exports from Imports (in certain clearly defined circumstances) to facilitate local energy schemes, such as the one described in the example provided? What would be the benefits of doing this?

The vast majority of respondents (16 of 18) were in favour of allowing the netting of Exports from Imports in certain clearly defined circumstances. A wide range of benefits were provided, with the general theme being greater choice for consumers, facilitation of renewable generation connection and improvements to electricity system balancing efficiency. A list of some of the potential benefits identified by respondents is as follows:

- Potential to remove barriers to innovation;
- Encourages local balancing that helps strengthen the network;
- Helps connect more renewables at lower cost;
- Would give consumers a greater and more varied choice;
- Potential to improve electricity system balancing efficiency and reduce network reinforcement costs; and

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- Reduces the risk of imbalance by matching periods of demand to periods of generation.

As noted, two respondents did not agree that netting Exports and Imports to facilitate local energy schemes should be permissible under the BSC. One noted that the local energy schemes introduce some different parameters and, as the circumstances require being clearly defined, it would be better served by having specific rules and criteria for these arrangements, many of which are in development and evolving. The other highlighted the complications that these allowances could introduce, particularly in the difficulty in determining the specifics of the 'clearly defined circumstances'.

Some of those in favour of netting also noted concerns in regards to the scalability of the solution and suggested a cap on the number of MSIDs allowed.

Do you think it is necessary to define 'site' in the context of SVA to add clarity to the existing Complex Site arrangements as described in BSC Procedures?

The vast majority of respondents believed that it was necessary to define 'site' in the context of SVA to add clarity to the complex site arrangements. Respondents felt that the ambiguity over what constitutes a site could be leading to confusion and therefore to different interpretations between Suppliers. One explained that they did not believe creating a new definition would be helpful as having a clear and consistent definition of all terms across all Codes, regulations and legislation is most beneficial. Based on this, their belief was that the definition of 'site' in the BSC should align with the definition in the Electricity (Class Exemptions from the Requirement for a Licence) Order 2001 as this is commonly used by local energy schemes and industry participants generally. However, they noted this definition is widely regarded as ambiguous.

Are you aware of any other scenarios (outside of those described in this RFI, or in the Issue 88 proposal form) that may be relevant to Complex Site arrangements (in relation to the content of this RFI) and should be considered by the Issue 88 Workgroup?

Some respondents described sites that would benefit from the clarity sought by Issue 88. One respondent highlighted their belief that it would be prudent to consider if any of the licence exempt supply scenarios can be appropriately facilitated in the BSC through complex site arrangements. This is discussed later in this paper.

Part 2 – Questions 6-8

Issue 88 members identified that the estimation methods detailed in BSCP502 could cause confusion and ambiguity as to how a complex site should be treated in regards to estimation where metered data is missing for a particular Settlement Period.

BSCP502 details the requirements a HHDC must undertake when estimating energy for a HH Import Metering System (4.2.1) and an Export Metering System (4.2.2). They range from method "a" to method "g" as detailed below.

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Simplified⁴ the estimation methods for an Import Metering System should be applied in the following hierarchy in accordance with BSCP502:

- Where data is missing from the Main Meter but data is available from the Check Meter (where there has been no failure in the main/check validation) the HHDC will substitute the data from the Check Meter into Settlement;
- Where actual data is unavailable from either the Main or Check Meters, the HHDC will estimate the data for the missing Settlement Periods to trend of previous actual data;
- Where no historical data is available to estimate to trend, the HHDC will use the Estimated Annualised Consumption (EAC) and Profile Class ID provided by the Supplier together with the Default Period Profile Class Coefficients (DPPCCs) provided in Market Domain Data (MDD); and
- Where the Supplier has not provided an EAC then the HHDC will use the DPPCCs for Profile Class 6 'Non Domestic Maximum Demand Load Factor Band 20 – 30 %', and with the Measurement Class specific HH Default EAC provided in MDD.

Whilst the estimation methods for an Export Metering System broadly mirror those of an Import Metering System they include the following requirement:

'The methods described in b. to g. below may only be used where the MS has a specific channel for gross Export and no netting of Import and Export occurs at the site.'

Those methods described in 'b. to g.' describe the estimation methods outlined in the bullet points above. In most complex site scenarios netting of Import and Export occurs at a site. Furthermore, Complex Site rules often include the totalisation, netting, or totalisation and netting of multiple MSIDs (often a mix of Import and Export). BSCP502 is silent on the methods that should be employed for an Import Metering System in the instance that it is part of a Complex Site (and involves netting of Imports and Exports across a 'site'). Method 'a.' under estimation methods for Export Metering Systems (Export Measurement Quantity with missing values where netting occurs at site) states:

'The HH metered values for the period of missing data shall initially be set to zero, until such time that evidence of Export energy transfer is provided.'

Logically this seems to suggest that Export Metering Systems that are part of a Complex Site should be estimated to zero where metered values are unavailable, whilst Import Metering Systems involved in a Complex Site should estimate based on the criteria outlined above.

It can also be argued that the current rules could potentially result in large inaccuracies in Settlement. The table below attempts to illustrate this using a simplified Complex Site scenario. In the figure below, a generator feeds a demand site across a private network with the surplus generation being sold to the grid. Where the generation does not meet the demand the 'customer' is supplied through a connection to the distribution network.

⁴ Please note this is a simplification of the estimation rules in BSCP502 and should not be used for applying estimation for Settlement periods. The full requirements can be found in the relevant BSCP sections mentioned above.

Generator Site Position	Demand Site Position	Export MSID (no estimation)	Import MSID (no estimation)	Export MSID (estimation)	Import MSID (estimation)
80MW	5MW	75MW	0MW	0MW	***

In the example above, one of the Meters involved in the Complex Site develops a fault and so the calculation cannot be carried out, without necessitating estimation techniques to be applied. The Export MSID is estimated to zero as set out in BSCP502. The Import MSID is estimated either to trend using historical data (where possible) or using an EAC. As can be seen above this is not indicative of the actual site position.

This lack of clarity led the Issue Group to include questions 7 and 8 in the RFI, and the responses are summarised below. Significantly fewer respondents addressed the questions below (8 of a possible 18), but this was expected due to the more specific questions raised. The discussions on these responses are summarised in the Process Improvements section of this paper.

Do you believe the current estimation techniques are clear and robust enough to allow appropriate estimation to be applied in the case of Complex Sites? How do you currently apply estimation techniques in the case of Complex Sites?

A majority believed that the current estimation techniques are appropriate, but a significant minority disagreed (five agreed, three disagreed). Of those that disagreed, one respondent noted that aggregated Export at a complex site would be estimated to zero even if actual consumption values at some meters that contribute to the aggregated Export being sent to Settlement are available. Another believed that Suppliers and HHDCs often need to seek assistance and clarity on the best way to address data estimations within complex site calculations, though noted that the problems encountered largely stem from the data estimation techniques outlined in question 7 (i.e. estimating Export Metering Systems to zero).

Do you believe it is appropriate to estimate Export Metering Systems to zero, as is currently required under BSCP502?

Opinions on this point were divided. Whilst three respondents believed that estimating Export to zero is appropriate, four disagreed. Another respondent agreed, though only where the MSID active Export consumption accurately measures the Export from a discrete asset or set of assets. They went on to explain their belief that it may be appropriate to estimate to non-zero in certain circumstances, namely at a complex site where active Export volumes entering Settlement is adjusted metering data and those adjustments have been derived from a number of other Meter/Registers/Measurement Quantity combinations at the complex site.

Of those that agreed, the prevailing view was that where the export data is estimated to zero (in line with current techniques) there is impetus on the owner of the site to correct the error as soon as possible. The lack of export is a clear and powerful incentive to correct errors with metering systems.

Of those that disagreed, it was noted that many complex sites use some form of totalisation or netting and therefore estimation to zero would be required for the entire

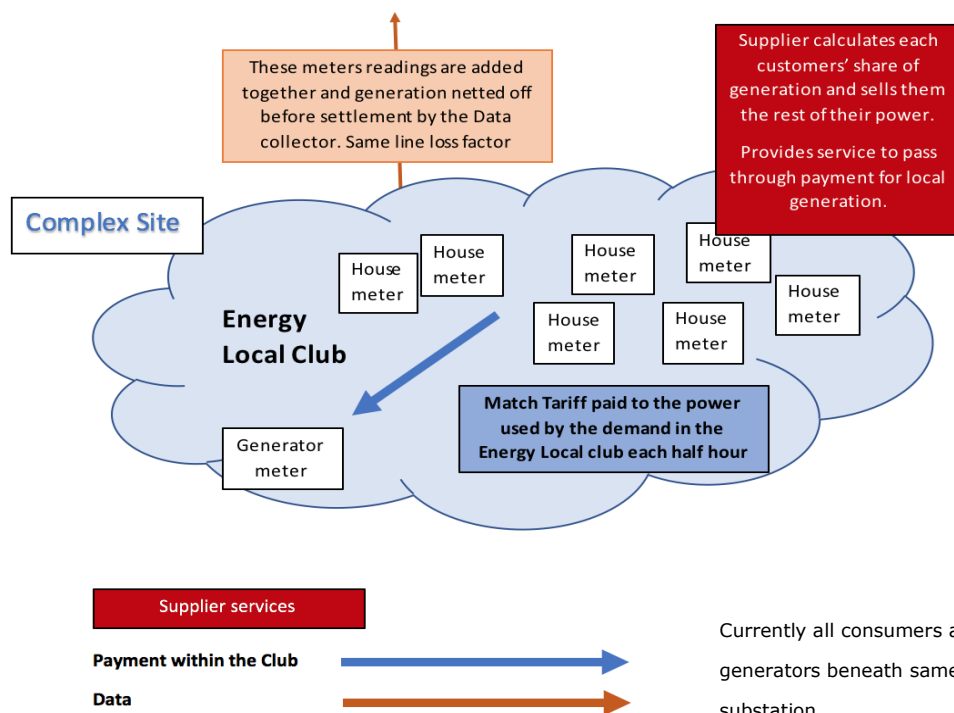
site if only a single item of metering equipment has a fault. This would not accurately reflect the actions on site. Other respondents highlighted that it is possible to generate reasonable estimation data for sites with non-intermittent generation (e.g. combined combustion gas turbine plants) and that the current one-size-fits-all approach should be revised.

Do you experience any other issues, not described in the paper, with the management of complex sites and if so, please describe

The majority of the points raised in the responses to this question are related to, and addressed by, the Complex Site Process Improvements section of this paper - they typically refer to the Complex Site Supplementary Information Form (CSSIF). Those comments that are addressed in the Process Improvements section highlight the perceived highly bureaucratic nature of the process, and that industry may benefit from more specific guidance and examples when considering complex site arrangements.

Energy Local

Following the circulation of the RFI, [Energy Local](#) – a pioneer in the utilisation of local energy clubs - reached out to Elexon and volunteered to present its model to the Issue Group so it could better understand the metering arrangements associated with their clubs and the benefits that they provide. Energy Local described their clubs as simple, community-scale, customer-led balancing. The above diagram was included in the slides presented to the Issue Group at its third meeting, available on the [Issue 88 webpage](#).



How it works

A local energy club is composed of a limited number of properties that sign up to balance their demand with local renewable generation. Consumers do this via an app that lets them know when generation is high – and therefore energy is cheap – allowing them to time their energy usage in line with local fluctuations. To achieve this arrangement Energy

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Local consider all the signed-up properties and generating assets as a single complex site, and net the Import values of the properties from the Export value of the generating assets before being sent to Settlement by the HHDC. All customers in an energy club have an energised MPAN, and the scheme as a whole is settled against two MSIDs, one for Export and one for Import.

As in the diagram above, a single Supplier is assigned to each energy club to perform the necessary functions and obligations. Energy Local explained that they work with the relevant LDSOs to ensure appropriate arrangements are in place to facilitate these energy clubs.

Benefits

Some of the benefits to the local energy clubs were listed as follows:

- Encourages shift from peak load and reduces risk of imbalance;
- Uses network more efficiently, reducing costs;
- Increases income for new renewable generation, incentivising greater generating capacity to be built;
- Reduce costs of energy;
- New model allows collective bargaining (i.e. only one Supplier per energy club means administration of the club guarantees several hundred customers for the Supplier) and increases competition; and
- Innovative means of Demand Side Response (DSR) without the need for Balancing Mechanism (BM) contracts.

Discussion

Following their presentation, Energy Local clarified that all members of an energy club are connected on the distribution network. A member questioned how Suppliers have visibility of the arrangements and Energy Local explained that each energy club is operated through a single Supplier. This allows the Supplier a full view of volumes being used by customers, both the net data entering Settlement and the data used for billing purposes. From this data they are able to allocate the local generation to whichever MPAN has used energy in each Settlement Period and calculate the additional power imported from elsewhere. A member was concerned about the potential impact on competition if all members of an energy club are with a single Supplier. The Issue Group heard that members are free to switch to different Suppliers and that Energy Local's model lent itself to working with different Suppliers in different areas. One member noted that it could be argued that the collective bargaining power gained by consumers is beneficial to competition, and that the Energy Local model introduced an additional layer of competition as the club as a whole could move their scheme to a different Supplier.

Energy Local noted that there is high demand for these arrangements from communities throughout GB, with around 130 communities expressing interest at time of writing. The largest existing club has around 160 members and is serviced by two 100kW hydroelectric generating units. A member asked whether the popularity of the arrangements would impact the network in future. Energy local explained that there is a limit on the number of customers for each scheme to be economically viable and that there is a firm limit on

membership numbers based on available generation. They explained this can fuel a positive feedback loop: if more people want to join then existing members have to be more efficient with their energy use. If people are more efficient, more people can get in the club. If there is high demand for membership then there is a commercial incentive to build more renewable, local generation.

Members were interested in how Energy Local achieved the cost savings it aims for (at least 10% savings for consumers, 10% increased income for generators). Energy Local explained that they do not pay overheads to the Supplier, though noting that the Supplier still receives income and accepts the responsibility willingly. The supply also falls under the small supplier class licence exemption (in part) due to the small volumes involved, meaning it is (in the example case) exempt from certain government consumption levies. In their internal assessments (which were yet to be finalised at time of writing) the majority of savings appear to come from a reduction in imbalance charges due to the model resulting in a lower risk of imbalance thanks to the active participation and load shifting as previously described.

Some members highlighted their concern that the arrangement as described would result in the partial avoidance of network and relevant Settlement charges. These discussions are covered under the Complex Site Class 5 section later in this report.

Totalisation

When considering whether totalisation should be allowed under the BSC, the Issue Group was in unanimous agreement that the necessary amendments should be made to ensure this was explicitly clear. All members noted that this is universally accepted as a legitimate process. There was a minority view that the BSCPs and BSC are currently consistent, specifically that BSCP514 is consistent with Section K 1.6.1 (a) and (d). Elexon highlighted that the perceived inconsistencies were highlighted via external legal advice, and the Issue Group generally agreed that clarity should be provided as a result.

Definition of 'Site'

A minority of members highlighted their belief that 'site' is already defined sufficiently clearly in the BSC in relation to SVA sites in Section K1.6.2, as paragraphs within the referenced Section K1.6.1 apply to SVA arrangements. Elexon noted that the application of that definition to SVA sites should be clarified as the primary paragraph providing for the identity of SVA metering systems at Section K1.6.1(d) does not use the defined term 'Site' and references to the CDCA in the definition introduce some ambiguity in relation to its application to SVA Metering Systems and complex sites.. The majority of the Issue Group and RFI respondents were in agreement that it would be beneficial to define 'site' in relation to complex sites.

As respondents to the RFI expressed strong interest in having 'site' defined in the context of complex sites, the Issue Group considered how this definition might look. A member agreed that it is important to have a clarified definition of complex site, as the current lack of clarity is leading to differing interpretations. The Group noted that any formal definition of 'SVA Site' would have far-reaching implications across the BSC and other Codes due to the frequency to which a 'site' is referenced (both in processes and in the Codes proper). Some members highlighted that the TCR definition of a site could suit the purposes of the Issue Group (i.e. a site is whatever is in a connection agreement); this would be cross-code and widely understood. However, members agreed that this did not necessarily

address the difficulty in defining a complex site, particularly in the context of the Energy Local arrangements where several properties with individual connection agreements form a single complex site.

Rather than defining 'site', members agreed that it would be more beneficial to categorise the types of complex sites that are already known to exist. This would provide a clear set of criteria for parties to check their sites against and determine whether or not a site is eligible to be considered 'complex'.

A minority of the Issue Group noted their belief that the Energy Local model described above is materially different from the original intention of the BSCP514 complex site which is defined in relation to information on a D0268.

Complex Site Classes

Following the Issue Group's agreement that it would be beneficial to categorise existing complex sites with defined criteria, Elexon drafted 'Complex Site Classes' for members' consideration. Six classes were drafted, with Classes 1-4 capturing complex sites that are currently widely recognised as such. Class 5 sites would cover arrangements such as Energy Local's energy clubs, and Class 6 would be a 'non-standard' arrangement that has aspects of a complex site but does not clearly fit in any of the other five classes. This would be akin to the current process of assigning CVA MSIDs to a "standard" or "non-standard" BM Unit.

When considering the Complex Site Classes, members also discussed the Distribution Connection and Use of System Agreement (DCUSA) Modification [DCP328 'Use of system charging for private networks with competition in supply'](#), which is looking at the charging methodologies for complex sites. However, the complex site in the DCUSA context is quite different to a complex site as referred to throughout this paper and in the BSC. As such, it was suggested that any definition of complex sites should consider changing the term to define against the concept that is emerging in regards to network charging. Some suggestions given were 'SVA Aggregation Classes' or 'Complex Metering Arrangement'.

It was also agreed that totalisation would not be considered 'complex' where no other mathematical differencing is required outside of the aggregation of multiple feeders into the same site.

Classes 1 and 2 – License Exempt Distribution Network

A Class 1 Complex Site would be where one or more customers within a Licence Exempt Distribution Network (LEN) are supplied with electricity by a third party licensed Supplier and therefore these customers have their own MSID and that LEN does not have generation installed behind the Boundary Point. The exception to this is where all entry and exit points within the LEN have their own MSID, this is already regarded as an Associated Distribution System under the BSC and therefore not considered a Complex Site. This is essentially the example provided in BSCP514 (8.4.3). A Class 2 Complex Site would be almost identical to a Class 1 Complex Site, with the only difference being that generation is embedded within the Private Network.

The below lays out the process Elexon proposed Class 1 and Class 2 sites should follow:

- Where Class 1 is selected then the Supplier/MOA must also populate whether the MSID that the CSSIF relates to is located at the Boundary Point or related to an MSID embedded within the network.
- Boundary Point MSIDs should be identified as such on the CSSIF and be registered against the MTC 998. The CSSIF for Boundary Point MSIDs should include all related MSIDs that are embedded within the LEN
- Embedded MSIDs should identify the related Boundary Point MSID on the CSSIF and be registered against MTC 997.
- All MSIDs related to the LEN should have the same MOA and DC appointed.
- Where the Boundary MSID is registered against CoP 3 or 5 then the embedded MSIDs should use generic Metering Dispensation D0380 for location (Actual Metering Point not being located at the Defined Metering Point).
- Where the Boundary MSIDs are registered against CoP 1, 2 or 10 then a site specific Metering Dispensation will be required for each embedded MSID.
- A Class 1 Complex Site will be self-assessed against the relevant criteria and identified as such by the Registrant of the MSID and will not be subject to committee approval.

The Issue Group agreed with the above definitions and believed it would be beneficial to categorise complex sites in this way. The criteria described were unanimously accepted as fitting into expectations of what members' considered a complex site. It was agreed that this would bring clarity to the complex sites process, particularly in conjunction with the creation of standalone guidance in relation to complex sites (more detail on this is in the Complex Site Process Improvements section of this paper).

Classes 3 and 4 – Feed through sites and network flows impacting Settlement Meters

A Class 3 Complex Site would be where the electrical configuration of a site requires the determination of Exports from Imports in order to calculate the gross measurement quantity of energy for a single MSID or dual MSIDs where generation exists (feed through sites and network flows impacting Settlement Meters). This could be where a customer's network takes supply from the local Distribution System and feeds out from the customer's network - either at the same or a different voltage - to another part of the local Distribution System. Alternatively it could be where electrical flows (either on the Distribution System or the customer's own network) are recorded by the Settlement Meters unintentionally. These will usually appear as additional "Imports and Exports" on different feeders.

A Class 3 Complex Site would be limited to:

- A single premise with the same Supplier (aside from instances of a Shared SVA Meter arrangement); and
- Where the distance between each metered point between the "customer's" incoming feeders and the isolated distribution network is within a set geographical limit.

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A Class 4 Complex Site would be the same as a Class 3, except with embedded generation. As with Classes 1 and 2, the Registrant would be expected to self-assess as to whether an MSID/MSIDs meet the principles of a Class 3 Complex Site.

As with Classes 1 and 2, the Issue Group agreed with the above definitions and believed it would be beneficial to categorise complex sites in this way. The criteria described were unanimously accepted as fitting into expectations of what members' considered a complex site.

Class 5 – Local Energy Netting

Responses to the Issue 88 RFI showed respondent's clear majority view that netting Export and Import within a complex site to facilitate local energy arrangements should be explicitly permitted. Class 5 Complex Sites would provide clarity and criteria for parties to adhere to when developing arrangements such as those described by Energy Local. However, the group did not think Class 5 Complex Sites should be defined by reference to purpose, or that the criteria would explicitly need to reference a local/community energy type scheme. The Issue Group acknowledged that the details of a solution to this end was beyond the scope of Issue 88, but agreed that, given the relevant expertise within the group, it would be beneficial to agree some high level principles for any future Modification Workgroup to consider. The Issue Group then considered the following principles that Elexon developed:

- Suppliers will be required to notify Elexon of a Class 5 Complex Site;
- MSIDs connected to an Associated Distribution System will not be excluded from partaking in a Class 5 Complex Site;
- A Class 5 Complex Site must only be implemented where the Import under the netting arrangement is subject to a Supply License Exemption (so as not to inadvertently result in final consumption levies not being paid in scenarios where they should be);
- Each MSID within the Class 5 Complex Site should be energised; and
- Elexon will maintain a central register of Class 5 Complex Sites.

Suppliers will be required to notify Elexon of a Class 5 Complex Site

Members considered whether Suppliers should notify Elexon of a Class 5 Complex Site, and whether such sites should be approved by Elexon. A majority of members agreed that, whilst Committee approval would provide assurance to industry, committee approval of all new sites and any changes to existing sites would be unduly burdensome. If this category was accepted and grew in popularity (to the hundreds or thousands of different areas), the requirement for committee approval would be a significant barrier to growth. Further, it would not be efficient to require Committee approval every time individual customers leave or join the scheme, and there is a need to consider efficiency in scaling up to meet decarbonisation targets. Other members agreed that it is not practical to reapprove on customer churn, but that it may be necessary for equipment changes. Addressing this point, a member highlighted that innovation trends tend to be non-linear and that it is a common mistake to look forward from current arrangements and assume linear, incremental take up. On this reasoning, they argued that any solution should consider what would be required for widespread adoption and customer/equipment flux.

The Issue Group concluded that Suppliers should be required to notify Elexon of a Class 5 Complex Site, but that an approvals process would not be conducive to growth of the arrangements it facilitates. Members recommend the following principles be considered by any subsequent Modification Workgroup:

- A process will need to be created to facilitate the notification of the creation of a Class 5 Complex Site;
- Notification may include details of all the MSIDs participating in the scheme;
- Notification may be required where individual “customers” opt in/out of the scheme to ensure the list of MSIDs remains up to date;
- Notification will be required where changes are made to the Primary Metering Equipment (not including Meter changes) or a significant change is made to the commercial arrangement under which the scheme operates (Change of Supplier (COS) for instance); and
- Whatever information is provided should be for one scheme, such that it all relates to a single grouping.

MSIDs connected to an Associated Distribution System will not be excluded from partaking in a Class 5 Complex Site

There were no contrary opinions voiced by the Issue Group to this principle. Elexon highlighted it was included at the request of a member for the avoidance of doubt that Associated Distribution Systems are not to be excluded from Class 5 Arrangements.

A Class 5 Complex Site must only be implemented where the Import under the netting arrangement is subject to a Supply License Exemption

Members noted the risk that Licensed Supply is (and should be) subject to Ofgem levies, EMR Levies and network charges. Exempt Supply may be exempt from these levies and so limiting Class 5 Complex Sites to License Exempt Supply should mitigate against the avoidance of levies and network charges (discussed further below).

Each MSID within the Class 5 Complex Site should be energised

Issue Group members unanimously agreed that the energisation status of MSIDs was irrelevant to Class 5 Complex Sites.

Elexon will maintain a central register of Class 5 Complex Sites

The Issue Group discussed whether Elexon should maintain a register of all Class 5 Complex Sites. Members questioned why a register would be necessary and what benefits it would bring, noting that the cost of implementation and maintenance of such a register would require reasonable justification. Elexon explained that a central register would provide it with a clear record of sites using a relatively new model of local balancing. This would be beneficial for the sake of assurance, ensuring that the sites are operating as would be expected. There have been a number of trading disputes that were related to unregistered connections being made to existing Complex Sites. These tend to be of high materiality. A central register of both LENSs (i.e. Complex Site Classes 1 and 2) and Class 5

complex sites would mitigate against the risk of new connections being made to these classes of complex sites without the Boundary Point Supplier being made aware.

A member expressed concern about the collection and storage of personal data (i.e. data relating to domestic customers, where the majority of these arrangements are expected to sit). The Issue Group agreed that this should not be the default, but recognised that this data would sometimes be required to resolve assurance-related issues. It was recognised that personal data must only be collected by Elexon where necessary, and that the 'standard' register data should not be that granular.

Network Charges, Supplier levies, impacts on Settlement

Some Members of the Issue Group highlighted their concern that the local energy schemes described, such as the example provided by Energy Local, results in the avoidance of network charges and other obligations. They also noted their belief that the necessary data to facilitate the arrangements, and thus achieve the benefits described, is already available. They did not agree with allowing the netting of Export and Import volumes across the Distribution System due to the unnecessary complications introduced and the potential for avoiding network charges and other obligations, thus requiring other parties to 'pick up the tab'.

These concerns were highlighted following Energy Local's presentation of their model. Energy Local explained that all Distributed Use of System (DUoS) charges are paid in accordance with requirements and as agreed with the responsible LDSO. To achieve this, all sites have the same Supplier, HHDC and MOA. The HHDC sends a D0036/275 to:

- The LDSO for the generation site with 'gross' energy data;
- The Supplier for the generation and multiple domestic sites with the 'net' energy data;
- The HHDA with the generation and multiple domestic sites with the 'net' energy data;

The Supplier then sends the LDSO a D0010 of the register reads for all the domestic properties, deemed to be the 'gross' consumption. Energy Local and its LDSO explained that the D0010 is then used for DUoS billing purposes. However, a member disagreed that this can be the case, noting their understanding that Metering Class F MSIDs (i.e. domestic smart Meters) are billed for DUoS using super customer billing based on the data reported in Settlement, as indicated in [this example DUoS charging statement](#), paragraph 2.3(c). Energy Local and its associated HHDC insisted this was not the case and that the submission of the D0010 in this manner has been agreed with the relevant LDSO and is appropriate and accurate. The Issue Group noted that this discussion was out of scope of Issue 88, and any impacts on DUoS should be addressed as part of the Modification Workgroup.

Similar concerns were raised around potential impacts on TNUoS charges, GSP Group Correction Factor (GGCF), Distribution Line Loss Factor (LLF), Transmission Losses, Supplier levies and BSC charges. The Issue Group agreed that the appropriate forum to investigate these concerns is the Modification Workgroup that will develop the detailed solution to implement Complex Site Classes.

What is 'local'?

Issue 88 members agreed that if Class 5 Complex Sites were to be adopted they should only be applicable to arrangements at a local level. For example, it would not be beneficial to Settlement for the Export and Import of two sites hundreds of miles apart to be netted off each other; clearly this is not the intent of Class 5 Complex Sites. However, a recurring question throughout Issue 88 was what could be considered local and how this could be defined. At a high level, members agreed that any Class 5 site should have a geographical limitation but creating clear definitions beyond this point became problematic. Some of those considered were:

- All MSIDs located within a specific geographic area i.e. within x square miles; and
- All MSIDs located under the same substation

When discussing whether a Class 5 Site could be contained within a specific area, the shortcomings of the approach quickly became clear. Members heard that a one-size-fits-all approach would not be appropriate considering the enormous variety in MSID density throughout GB. For example, there would likely be a much larger number of MSIDs in a single square mile in Central London than the same area in the Highlands of Scotland. This would make such arrangement unfeasible in those areas with lower population density. Conversely, if the area was significantly increased to accommodate this then the number of MSIDs able to join a single scheme within a densely populated area would open up the opportunity for gaming, risking the integrity of Settlement. As such, the Issue Group agreed that this approach should be discounted.

Energy Local proposed that MSIDs under the same substation would be a better limiter for MSIDs partaking in the scheme. There was general agreement with this view, however the Issue Group noted that this still has similar issues to restriction to a certain area, mainly that in rural areas Primary Substations may cover a larger area than in urban areas. There was also a comment about how the Primary Substation would be identified but Energy Local felt this was easily identifiable.

An Issue Group member suggested that keeping the grouping within a single GSP Group would be simplest for Settlement. This was not discussed at length as members agreed it should be considered by any subsequent Modification Workgroup.

Class 6 – Non-Standard Complex Sites

For completeness, Elexon devised Class 6 Complex Sites. This would be where a Supplier wishes to register a Complex Site that does not meet the criteria defined for Classes 1-5. To achieve this, an application process for non-standard Complex Sites would need to be devised, and the vires to grant approval would be delegated to the relevant Panel Committee. The Issue Group agreed that, should Class 6 Complex Sites be adopted, the approvals process should be written in such a way that it provides sufficient assurance to relevant parties without being an overly onerous process. It was suggested that this process could build upon the established Metering Dispensations process for ease of understanding. Elexon felt that the process suggested to be devised was akin to the non-standard BM Unit process or non-standard Trading Unit, but members agreed that this would ultimately be up to the Modification Workgroup.

The Issue Group agreed with this approach in principle, highlighting that the Supplier Volume Allocation Group (SVG) would be an appropriate committee and that the further details should be defined and discussed by the expected future Modification Workgroup.

Grandfathering Complex Sites

The Issue Group discussed the implications of grandfathering any complex sites currently live in Settlement that do not meet the newly defined criteria for the complex site classes. The majority of members agreed that, should a Modification introduce Complex Site Classes, existing sites should not be grandfathered. Instead they should be assessed against the new class criteria and apply through the non-standard class process if necessary. The Issue Group came to this conclusion due to the risk of parties rushing to develop non-standard complex sites before the grandfathering deadline, and the likely negative impact this would have on Settlement.

Complex Site Process Improvements

Complex Site Supplementary Information Form

The Complex Site Supplementary Information Form (CSSIF) is used by parties responsible for complex sites to detail the arrangements on the site. It is held in BSCP514 and populated by the HHMOA and sent to the HHDC to supplement the D0268 where the HHMOA has identified a site as complex by marking the 'Complex Site Indicator' on the D0268 as 'T' (True). The CSSIF is intended to provide all the information required for parties to accurately meter the Import/Export volumes on the site, but it has become evident that it is not fit for purpose in its current form.

Standardised CSSIF

The Issue Group was in agreement that the CSSIF held in BSCP514 was in need of improvement. The required information, format and proper usage of the CSSIF were all identified as in need of refinement, with members noting that the CSSIF as it stands is out-dated and lacks clarity. Some members highlighted that many parties are not using the form in BSCP514, with some sending spreadsheets instead. Elexon agreed to review the form and, using feedback from members, developed a standardised version for their review. Summary of changes are below:

- Effective to/from date;
- Addition of Class of Complex Site (dependent on the outcome of the Modification related to Complex Site Classes);
- Addition of all associated MSIDs to highlight Boundary/Embedded relationship;
 - This helps identify where an LEN is active with complex site arrangements. It will help Elexon and Suppliers identify additions and removals of connections to the LEN more quickly, mitigating the risk to Settlement.
- Removal of D0268 duplication;
- Smart Meter indicator;
- Comment box;
- Method of calculation where compensation method has been applied (i.e. dynamically in the Meter or via a constant applied to the complex site rule);
- Field for user to sign when CSSIF completed;
- Version number; and

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- Changed format from Word to Excel (easier format to understand and populate).

An 'Effective From' date (EFD) on the CSSIF would highlight the point a complex site became active. This is not currently included on the form, and is thought to be causing confusion and difficulties for parties as it is not clear whether the CSSIF they happen to have is the most up-to-date. Members were therefore in agreement that an EFD should be included in the CSSIF. Members also suggested the inclusion of an 'Effective To' date (ETD) and version number to further increase clarity.

Smart Meter Indicator

Some Parties have indicated that they wish to use Smart Meters as part of a complex site arrangement. The issue here is that Smart Meters cannot currently be included in the D0268. Elexon proposed adding a Smart Meter indicator to the CSSIF so that MOAs can include any Smart Meters on the form, informing the HHDC who will then know not to attempt to retrieve data from these Meters (as the data will be retrieved by the Supplier via the Data Communications Company (DCC)). As the CSSIF is part of the Meter Technical Details (MTDs) this would allow a full suite of Meters to be included in the information the HHDC receives and the HHDC would know that they will be receipt of data for Smart Meters and will have to retrieve data themselves for non-Smart Meters. Once all data is retrieved or received then the process of applying the complex rule would be no different than it is currently. Some members did not agree that complex sites should be permitted to include Smart Meters but no arguments were given that the above proposed process would not work. As such Elexon feel that the Smart Meter Indicator should be left in and consulted on with wider industry.

Single Line Diagrams (SLDs)

Members discussed the inclusion (or lack thereof) of Single Line Diagrams (SLDs) with the CSSIF describing the relevant complex site. These are generally included alongside the CSSIF to make clear the physical layout of the complex site and can be used to spot any inconsistencies or errors, but there is no obligation to compare the CSSIF to the corresponding SLD. A member wondered how a DC could spot a mapping error on the SLD. Elexon explained that whilst they could not do so with the SLD alone, they could when used in conjunction with the CS Supplementary form.

A member highlighted that the Code of Practice (CoP) is not always clear on what the complex site mapping is prior to Meter installation, explaining that sometimes they may not have the capacity to do so if the developer (or independent connection provider (ICP)) does not provide the relevant information. Elexon stated that issues with ICPs are not in scope for this workgroup. The relationship between ICPs and LDSOs do not hinder the complex site process specifically.

A member explained that BSCP514 puts the responsibility on the single appointed MOA to the site to ensure everything is accounted for – they must ensure the necessary information is provided. A member pointed out that the LDSO, rather than the MOA, would have the schematic for the site – the MOA did not necessarily have the information to create a SLD in the first instance.

Given the uncertainty around this point, Elexon suggested mandating the provision of the SLDs alongside the CSSIF in the relevant BSCPs. Members agreed that there should be a requirement within the BSCPs to send an SLD alongside the Complex Site Supplementary

form, with a caveat that HHDCs should still process CSSIF if an SLD is not received to avoid estimation.

Feeder Status

The Issue Group considered whether the CSSIF should be updated and re-submitted on a change in feeder status. A change in feeder status on the CSSIF would inform the HHDC that one or more of the existing feeders has become inactive/active and that the feeders should be removed or added to the complex site rule algorithm. It was the Issue Group's view that this is not sufficiently clear within the current complex site processes, and agreed that the requirement to update and re-submit the CSSIF on a change in feeder status within the complex site is required.

Complex Site Validation Test

Members suggested clarification of the data required to be sent from the HHDC to the MOA as part of a complex site validation test. It was noted that the validation test as described in 3.5.6 of BSCP502 (and 5.5.6 of BSCP514) is not sufficiently explicit that both raw metered data and the aggregate of the complex site rule should be sent from the HHDC to the MOA, and that both of these sets of data should be checked and confirmed before the validation test is considered 'passed'.

Communications

Members discussed the impacts of the lack of clear communication processes between the Supplier and Supplier Party Agents involved in the Complex Site arrangement. It was highlighted that it is not always clear where non-complex MSIDs are associated with a complex arrangement (e.g. embedded MSIDs on an LEN), creating difficulties on change of agent for those MSIDs.

A member asked whether there are guidelines for customers to determine whether a site is complex. Exelon explained that the only guidance currently available is in BSCP514:

"Complex Site' means; any site that requires a 'Complex Site Supplementary Information Form' to enable the HHDC to interpret the standing and dynamic Metered Data relating to SVA MS for Settlement purposes to be provided to the HHDC in addition to the D0268 'Half Hourly Meter Technical Details'"

Members asked whether Suppliers are always aware if their sites are classified as complex – if they contract with them are they aware of the Agents they need to appoint with any associated MPANs? A member noted that they are not always aware and that it causes difficulties: some customers know more about their sites than others and tracking information in their systems is dependent on the information obtained in D0268 'Half Hourly Meter Technical Details' data flows.

Two potential solutions to improve clarity on where non-complex MPANs are associated with a complex arrangement were suggested:

- Creation of a central registration system for complex sites; and
- Clarifying BSCPs to make it clearer to Suppliers and Agents whether MPANs are complex or not.

Members unanimously agreed that the costs and lead times associated with the introduction of a central registration system would more than likely outweigh the benefits provided, and so agreed that the guidance around this point should be made clearer. The Issue Group recommended a specific guidance note dedicated to complex sites be drafted, with the relevant examples taken out of the BSCPs and collated in a single document. At an early meeting it was considered that the LDSO should be involved in defining and agreeing that a particular connection arrangement is (or is not) a Complex Site (classes 1-4). The Group did not have any LDSO representation so this aspect was not debated further.

Negative Values

Elexon explained that it had received feedback from parties wherein most HHDC systems are unable to process and validate negative values, which are required to calculate the output of complex site rules related to generation on an embedded network. Elexon explained that the examples of some of the complex site rules require DC systems to be able to identify, interpret and process negative numerical values. Elexon are aware that some DC systems are unable to do this and so a workaround is employed where the negative value is subject to a *-1 multiplier.

A member expressed surprise that some DCs have this issue, noting that they are able to carry out the process with no problems. Members were agreed that the crucial point was to get the calculations right – how parties reached that point was largely irrelevant. Members agreed to supplement the examples out of the BSCPs with further information in a separate guidance note, whilst leaving the rules in the BSCP. This would demonstrate that there is more than one acceptable way to do the calculations.

Supplier to Supplier CSSIF

Elexon suggested including a Supplier-to-Supplier CSSIF to be sent on Change of Supplier (CoS). This is because Suppliers are not currently in the loop regarding complex sites, and the visibility may reduce confusion on CoS events. Members noted that often CoS go ahead without change of Agent and there would therefore be no reason to bring the Supplier in. A member noted that where Suppliers have previously asked for the CSSIF and that the relevant HHDC is able to either provide them, or refer them to the relevant MOA. As it was not clear what benefit a Supplier-to-Supplier CSSIF would bring, members agreed not to take it forward.

Export Metering Estimation

The Issue Group considered the comments received to the RFI around estimating Export metering and agreed that the root cause of any confusion are the related rules. Issue Group members agreed that the BSCPs are clear on what to do, but the question is rather whether or not it should be done. However, it was felt that this was beyond the original scope of Issue 88 and that if parties were concerned an alternative Issue could be raised that addressed this area specifically. Some members noted that the implementation of [Market Wide Half Hourly Settlement](#) may address the issues raised, though this is expected to be implemented in 2024. However, following the meeting Elexon investigated this and found that MHHS would not resolve the issues raised, as it seeks to transpose existing arrangements as they currently stand.

4 Conclusions

The table below summarises the conclusion reached in regards to the four issues described in the background section of this paper:

Issue	Conclusion
1 - Combining multiple Boundary Points into a single SVA Metering System may not be consistent with the BSC	Introduce clarity to the BSC to make clear that totalisation should be permitted. Include in the Modification to be raised in relation to the introduction of Complex Site Classes if possible.
2 - It is unclear whether Export and Import can be netted as part of a complex site arrangement	Raise a Modification to introduce Complex Site Classes and create clear criteria for what can and cannot be included as part of a complex site arrangement – further detail under 'Complex Site Classes' below.
3 - The concept of 'site' is not clearly defined	Raise a Modification to introduce Complex Site Classes, creating clear criteria for what constitutes a 'site' in the context of complex sites – further detail under 'Complex Site Classes' below.
4- Complex Site Process Improvements	Raise a Change Proposal to introduce the process improvements agreed by the Issue Group – further detail under 'Complex Site Process Improvements' below.

Complex Site Classes

There was consensus within the Issue group that a Modification could be raised by an interested Party to introduce Complex Site Classes 1-6. This would address issues 2 and 3 as listed in the background section. Classes 3, 4 and 5 would clearly allow netting of Export and Import as part of a complex site arrangement. Classes 3 and 4 would allow netting for the purposes of establishing Gross Import and Export values for a 'site' and Class 5 (and potentially 6 under certain circumstances) for the purposes of establishing a net Settlement value for a 'site'. The categorisation of different types of complex site arrangement would provide clear criteria for what constitutes a 'site' in the context of a complex site.

The introduction of Classes 1-4 had unanimous support, but Classes 5 and 6 (particularly Class 5) attracted criticism from a minority of members. It was their belief that the introduction of Class 5 (allowing netting of Export and Import across a distribution system in certain clearly defined circumstances) was unnecessary as the data required to achieve the desired outcome (schemes such as Energy Local's energy clubs) was already available. However, the Issue Group at large considered the progression of the Modification (to be raised by a stakeholder) to provide a benefit to industry via the clarity and facilitation of innovation it would engender. The Ofgem representative highlighted their interest in feeding into the Modification's progress.

The principles for Complex Site Classes agreed by Issue 88 were:

- A site where totalisation is used would not be considered "Complex" where no other mathematical differencing (netting) is required outside of the aggregation of multiple feeder into the same premise. For avoidance of doubt, where totalisation is coupled with netting this would require a Complex Site arrangement;

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- The criteria for each Complex Site class will be defined in either the BSC or CSDs. The processes around transfer of information will be defined in the BSCPs. Examples of each class of Complex Site will be included as guidance (either as an appendix or in a guidance note);
- Decision over the attributing of a Complex Site to a particular class will be via Supplier self-assessment against the different criteria;
 - Committee approval will not be required for implementation of a Complex Site (with the exception of Class 6)
- Classes 1-4 will be drafted based on the principles in the relevant section of this paper; and
- Should Complex Site Classes be introduced, existing sites should not be grandfathered.

The high level principles of Class 5 Complex Sites agreed by Issue 88 were:

- Suppliers will be required to notify Elexon of a Class 5 Complex Site;
- MSIDs connected to an Associated Distribution System will not be excluded from partaking in a Class 5 Complex Site;
- A Class 5 Complex Site must only be implemented where the Import under the netting arrangement is subject to a Supply License Exemption
- Elexon will maintain a central register of Class 5 Complex Sites

Members agreed that any Modification Workgroup should consider:

- In what circumstances should Class 5 arrangements be permitted? Specifically, the intention of Class 5 sites is for them to be in small-scale, 'local' areas. How can this be defined in an equitable way across the country without opening the arrangements up to gaming?
- What are the impacts of Class 5 Complex Sites on Settlement, network charges, Supplier levies, GGCF and Distribution and Transmission LLFs and how can these be mitigated? The Workgroup needs to consider the cross-code implications of the aforementioned impacts.
- How should the Class 6 application and approval processes work in practice?
- Does the Workgroup agree with Issue 88's conclusions on not grandfathering existing complex sites?
- Does the Workgroup agree with the Class 5 Complex Site principles agreed by Issue 88?
- Whether an Alternative solution should be progressed wherein only certain Classes are introduced (e.g. only Classes 1-4).
- Should Complex Site Classes be given a different name to differentiate against Complex Sites in DCUSA?

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Totalisation

The Issue Group agreed that the BSC should be amended to make clear that totalisation should be permitted. If possible, it is recommended that these clarifications be progressed alongside the Modification related to Complex Site Classes. This would address issue 1 as described in the background section.

Complex Site Process Improvements

To address issue 4 as described in the background section, the Issue Group unanimously agreed that a Change Proposal (CP) should be raised to implement the agreed improvements to the complex site process held within BSCP502 and BSCP514, as below:

- Amend and improve the complex site validation test;
 - Clarify that both the D0003 and the aggregated output of the Complex Site rule should be sent (by email, in the case of the Complex Site rule) from HHDC to HHMOA. The HHDC should check both as part of the Complex Site Validation test. The D0214 should only be sent on confirmation of proving against both data sets
- Mandate the use of the CSSIF;
- Make clear that a change in Feeder Status of any of the MSIDs within the complex site should result in an updated CSSIF;
- Create a requirement to provide an SLD to accompany CSSIFs related to Boundary Point MSIDs;
- The creation of a guidance note specific to complex sites; and
- Creation of a standardised CSSIF.

A summary of the changes to be included in the standardised CSSIF are in the relevant section of the paper. It was reviewed by the Issue Group at its meeting on 16 April 2021. Elexon has taken the feedback received and will apply it to the CSSIF before recirculating and agreeing redline text to members as part of the CP process prior to raising any formal changes.

Retail Energy Code

The REC will go live on 1 September 2021. BSCP514 - among other procedures and obligations currently under the BSC – will be transferred to the REC at that point. The aspects of BSCP502 that are proposed to be amended as part of the recommended CP will remain with the BSC. The complex site process is the same across both documents (as it is a duplication of the process for MOAs and HHDCs); therefore, any changes to BSCP502 will need to be reflected in BSCP514 (or the REC equivalent once implemented).

This interdependency across the REC and the BSC means that the changes should be progressed in parallel in the interests of understanding and clarity for market participants. To this extent, we will engage with the RECCo to ensure the respective changes under the BSC and REC are progressed efficiently and at the earliest opportunity, post REC go-live on 1 September 2021.

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Elxon are seeking a Party to raise this CP. Should no Party come forward, we will ask the relevant Committee(s), prior to raising the CP, whether they agree that the CP should be progressed. This will ensure the CP is not progressed with little hope of approval.






















Export Metering Estimation

The Issue Group agreed that there was a lack of clarity regarding the rules around estimating Export metering. However, it was felt that this was beyond the original scope of Issue 88 and that if parties were concerned an alternative Issue could be raised that addressed this area specifically. Some members noted that the implementation of MHHS may address the issues raised, though this is expected to be implemented in 2024. Upon investigation, Elxon found that MHHS will transpose the Export metering arrangements as they currently stand, and so will not resolve the issues highlighted.

Appendix 1: Issue Group Membership

Issue Group membership and attendance

Issue 88 Group Attendance							
Name	Organisation	29 April 2020	27 July 2020	25 Nov 2020	18 Feb 2021	16 April 2021	21 April 2021
Elliott Harper	Elxon (<i>Chair</i>)						
Craig Murray	Elxon (<i>Lead Analyst</i>)						
Christopher Day	Elxon (<i>Subject Matter Expert</i>)						x
Eden Ridgeway	Elxon (<i>Legal</i>)						
Colin Berry	Elxon (<i>Design Authority</i>)					x	x
John Lucas	Elxon (<i>Design Authority</i>)	x	x	x	x		
Kristina Leary	SMS		x	x			
Tom Chevalier	Power Data Associates obo AMO						
Clare Hannah	IMServ		x				
Ian Hall	IMServ		x				
Ben Wilkinson	SSE		x	x	x	x	x
Jonny Moore	Engie						
Meg Wong	Stark						
Nik Wills	Stark						

Issue 88 Group Attendance							
Name	Organisation	29 April 2020	27 July 2020	25 Nov 2020	18 Feb 2021	16 April 2021	21 April 2021
Peter Gray	SSE		x	x	x	x	x
John Greene	SSE		x	x	x	x	x
Phil Russell	Self-employed			x			
Dermot Hearty	Salient						
John Marshall	Scottish Power		x	x	x	x	x
Chris Harkess	Scottish Power		x	x	x	x	x
Derek Weaving	Centrica		x			x	x
Josh Logan	Drax		x	x	x	x	x
Andrea Duignan	Western Power Distribution		x		x	x	x
Alex Owen	Western Power Distribution		x	x	x	x	x
Liam Pitts	Npower		x		x	x	x
Lee Stone	E.ON	x					
Andy Colley	SSE	x		x		x	
Terry Carr	E.ON	x	x				
Kavin Baillie	Ofgem	x	x			x	
Holly Tomlinson	Energy Local	x	x			x	

Issue 88 Group Attendance

Name	Organisation	29 April 2020	27 July 2020	25 Nov 2020	18 Feb 2021	16 April 2021	21 April 2021
Mary Gillie	Energy Local	x	x			x	
Reg Platt	Emrgnt	x	x		x	x	x
Murray Mitchell	Low Carbon Contracts Company	x	x		x	x	x
Richard Brady	Western Power Distribution	x	x		x	x	x
Sarah Moore	Ameresco	x	x	x			

Appendix 2: Glossary & References

Acronyms

Acronyms used in this document are listed in the table below.

Acronyms	
Acronym	Definition
BM	Balancing Mechanism
BSC	Balancing and Settlement Code
BSCP	Balancing and Settlement Code Process
CDCA	Central Data Collection Agent
COS	Change of Supplier
CSSIF	Complex Site Supplementary Information Form
CVA	Central Volume Allocation
DCC	Data Communications Company
DCUSA	Distribution Connection and Use of System Agreement
DUoS	Distribution Use of System [charges]
DSR	Demand Side Response
EAC	Estimated Annual Consumption
EFD	Expected-from-Date
EMR	Electricity Market Reform
ETD	Expected-to-Date
GGCF	GSP Group Correction Factor
GSP	Grid Supply Point
HHDA	Half Hourly Data Aggregator
HHDC	Half Hourly Data Collector
HHMOA	Half Hourly Meter Operator Agent
ICP	Independent Connection Provider
LDSO	Licensed Distribution System Operator
LEN	License Exempt Distribution Network
LLF	Line Loss Factor
MDD	Market Domain Data
MHHS	Market Wide Half Hourly Settlement
MOA	Meter Operator Agent
MPAN	Meter Point Administration Number
MRA	Master Registration Agreement
MSID	Metering System Identifier
MTC	Meter Timeswitch Class

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Acronyms	
Acronym	Definition
PAB	Performance Assurance Board
REC	Retail Energy Code
RFI	Request for Information
SLD	Single Line Diagram
SMRS	Supplier Meter Registration Service
SVA	Supplier Volume Allocation
SVG	Supplier Volume Group
TAMEG	Technical Assurance of Metering Expert Group
TCR	Targeted Charging Review
TDC	Trading Disputes Committee

DTC data flows and data items

DTC data flows and data items referenced in this document are listed in the table below.

DTC Data Flows and Data Items	
Number	Name
D0003	Half Hourly Advances
D0010	Meter Readings
D0036	Validated Half Hourly Advances for Inclusion in Aggregated Supplier Matrix
D0214	Confirmation of Proving Tests
D0268	Half Hourly Meter Technical Details
D0275	Validated Half Hourly Advances
D0380	Half Hourly Advances for Inclusion in Aggregated Supplier Matrix

External links

A summary of all hyperlinks used in this document are listed in the table below.

All external documents and URL links listed are correct as of the date of this document.

External Links		
Page(s)	Description	URL
3	BSCP502 'Half Hourly Data Collection for SVA Metering Systems Registered in SMRS'	https://www.elexon.co.uk/csd/bscp502-half-hourly-data-collection-for-sva-metering-systems-registered-in-smrs/
3	BSCP514 'SVA Meter Operations for Metering Systems Registered in SMRS'	https://www.elexon.co.uk/csd/bscp514-sva-meter-operations-for-metering-systems-registered-in-smrs/
4	Retail Energy Code (REC) website	https://www.retailenergycode.co.uk/

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External Links		
Page(s)	Description	URL
5	CP1338 'Guidance for Complex Sites - Network Flows affecting Settlement Meter Readings'	https://www.elexon.co.uk/change-proposal/cp1338-guidance-for-complex-sites-network-flows-affecting-settlement-meter-readings/
7	Octopus Energy blog on local energy clubs	https://octopus.energy/blog/energy-local/
14	Market Wide Half Hourly Settlement information	https://www.elexon.co.uk/operations-settlement/market-wide-half-hourly-settlement/
14	Energy Local website	https://energylocal.org.uk/
15	Issue 88 webpage	https://www.elexon.co.uk/smg-issue/issue-88/
17	DCP328 'Use of system charging for private networks with competition in supply'	https://www.dcusa.co.uk/change/use-of-system-charging-for-private-networks-with-competition-in-supply/
21	Example DUoS charging statement	https://www.scottishpower.com/userfiles/document_library/SPM_LC14_Statement_2020.pdf