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Modification Proposal P70 - Requirements Specification

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b Distribution

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BSC Parties	

c Change History

Version 0.1 issued for review within ELEXON

Version 0.2 issued for review by the Modification Group

Version 1.0 issued for consultation and impact assessment

d Changes Forecast

None

e Related Documents

The following documents are referenced from within this document using the following convention [RD/*x*]:

1 DBFG Document – Requirements Specification – New Licensed Distributors, Version 0.4, 8 January 2002

2 Modification Proposal P62 - Requirements Specification – Version 1.0, 25 April 2002

3 Modification Proposal P70

f Intellectual Property Rights and Copyright

CONTENTS TABLE

1 INTRODUCTION

1.1 General

This Requirements Specification has been prepared by ELEXON Ltd, on behalf of the P70 Modification Group, in accordance with the terms of the Balancing and Settlement Code ('BSC'). The BSC is the legal document containing the rules of the balancing mechanism and imbalance settlement process and related governance provisions. ELEXON is the company that performs the role and functions of the BSCCo, as defined in the BSC.

An electronic copy of this document can be found on the BSC website, at www.ELEXON.co.uk.

The document supports the Assessment Procedure of Modification Proposal P70.

1.2 Structure of Document

The document is structured as follows:

- Section 2 provides a background to P70 and why it was raised;
- Section 3 provides an overview of the modification and what is trying to achieve, along its relationship to P62 and the issues to be faced in showing P70 can better facilitate the applicable BSC Objectives;
- Section 4 provides a summary of the Modification Group discussion on P70;
- Section 5 provides a summary of the implementation options being considered for P70 and an associated High Level Impact Assessment (HLIA) on the impacts on Central Volume Allocation (CVA) Systems.

1.3 Requirements

A part of their work the Distribution Business Focus Group (DBFG) produced a Requirements Specification [RD/1], which is also being used by MRASCo and SESL to define their changes to the Master Registration Agreement (MRA) and Settlement Agreement for Scotland (SAS). This document [RD/1] will continue to be used within P62 and P70 as a source of requirements, and a summary of the requirements is contained in Annex B of the P62 Requirements Specification [RD/2].

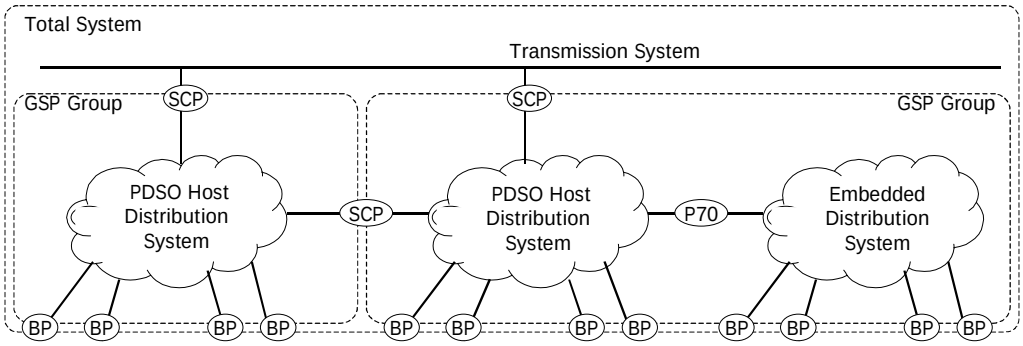
When referenced within this document the convention will be [MR5.x.x] for mandatory requirements and [DR5.x.x] for desirable requirements.

2 BACKGROUND

Currently a meter can only be registered in the Central Meter Registration Service (CMRS) if it is at a System Connection Point (SCP) between a Distribution System and the Transmission System or between a Distribution System and another Distribution System which is in another GSP Group, or if it is at a Boundary Point (BP) with the Total System.

P70 [RD/3] was raised by SEEBOARD on 1 March 2002, such that if a meter is installed between two Distribution Systems, within the same GSP Group, it should be allowed to be registered in CMRS and for data to be collected using the Central Data Collection Agent (CDCA). Such a meter is illustrated in Figure 2-1 as the meter "P70".

Figure 2-1 P70 Inter Distribution System Meter



P70 was raised as a result of the Utilities Act 2000, which came into effect on 1 October 2001 and creates a requirement for new licensed distributors to join the Balancing and Settlement Code (BSC), the Master Registration Agreement (MRA), and where appropriate comply with the Settlement Agreement for Scotland (SAS).

The main changes associated with the Utilities Act 2000 were contained within Modification Proposal P62, raised on 3 January 2002 by TXU UK Ltd. P62 is currently in the Assessment Procedure and further details can be found in [RD/2].

The text of Modification Proposal P62 noted the following change had been discussed at the DBFG, but was not intended to fall within the scope of P62:

> "Changes to allow distributors to register within Central Meter Registration Service (CMRS) the boundary metering between two Distribution Systems in the same GSP Group. (Such metering is not required for the purposes of Supplier Volume Allocation, but may be desirable for other reasons e.g. ensuring that the allocation of Distribution Use of System (DUoS) charges between Suppliers is equitable.)"

The DBFG believed that such a meter should be considered a desirable requirement [DR5.8.1] and that if it was installed, it should be registered in CMRS [DR5.6.1]. The DBFG supported SEEBOARD in raising P70 in order to allow this one aspect of new licensed distributors to be separately assessed.

At the Panel meeting 14 March 2002 Modification Proposal P70 was submitted into the Assessment Procedure, to be progressed in parallel with P62, such that an Assessment Report is presented to the Panel on 13 June 2002. The Panel further recognised that the assessment of P70 would need to be based on the assumption that P62 is itself approved

(i.e. P70 can be assessed as an option) and hence any costs could be considered as incremental costs to those applicable to P62.

3 OVERVIEW OF P70

This section provides an overview of what P70 is trying to achieve:

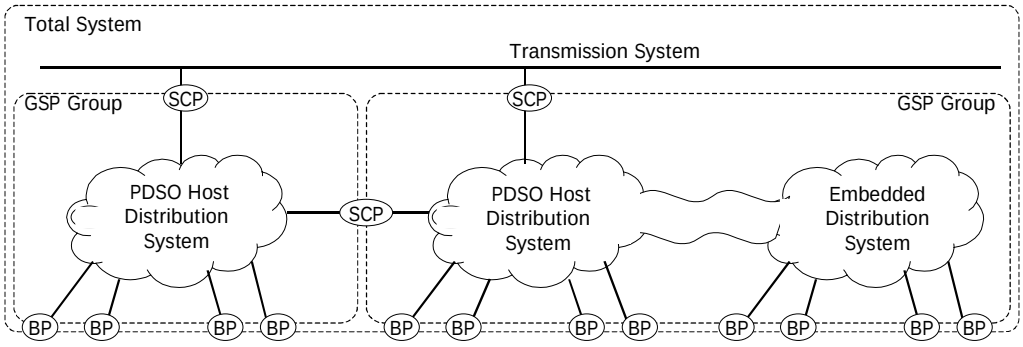
- section 3.1 describes how P62 is expected to work without the presence of a meter between the two Distribution Systems;
- section 3.2 explains why a modification is required to use CDCA to collect the data from such a meter, if it is installed;
- section 3.3 explains what benefit such a meter may provide to the distributor;
- section 3.4 looks at the problem of showing how P70 can better facilitate the Applicable BSC Objectives

3.1 Modification Proposal P62

One of the key features of Modification Proposal P62 is that for the purposes of Supplier Volume Allocation (SVA), new embedded Distribution Systems can be viewed as extensions to the host Distribution System, normally operated by the Public Distribution System Operator (PDSO).

The implications of this is that the meter data relating to all the Boundary Points, for all Distribution Systems within the same GSP Group, are aggregated together, allowing the operation of the GSP Group Correction Factor to continue to apportion errors across a large number of Non Half Hourly metering systems. This is shown in Figure 3.1, where the two network clouds have been "joined" to highlight that all Settlement metering is at the Systems Connection Points and Boundary Points with the combined network, and for the purposes of Settlement both networks are treated as one.

Figure 3.1 – P62 without a P70 Meter



The DBFG recognised that a meter between the two Distribution Systems may result in indirect benefits to Settlement, such as improved data quality, and would certainly be useful to the distributors concerned. However, as Settlement is performed without any data from the meter, it was only considered a desirable requirement [DR5.8.1]. As a result Modification Proposal P62 explicitly excluded consideration of such a meter.

It should be noted that the absence of P70 does not stop the distribution businesses having an agreement to install a meter and using a bilaterally agreed mechanism to retrieve the data.

3.2 Modification Proposal P70

P70 states that if such a meter was to be installed:

- CMRS compliant metering should be installed & registered under BSCP20;
- aggregation rules for the metering would be submitted under BSCP75, such that any new rules should result in the meter data being excluded from Settlement;
- CDCA would perform normal data collection, validation, meter advance reconciliation processes as per the BSC rules and data would be sent to interested parties (i.e. CDCA-I012, CDCA-I014 & CDCA-I030 files).

The DBFG recognised that it was possible to collect such data totally outside of the governance of the BSC, and without the support of BSC Systems. However, the DBFG also recognised the advantages of using an industry recognised infrastructure by recording the meter in CMRS and collecting the data using CDCA [DR5.6.1].

Currently it is not possible to achieve this under the current BSC baseline. This is because the definition in Section X-2 of a "CVA Metering System" is:

> "means a Metering System (at a Boundary Point or a Systems Connection Point) which in accordance with Section K is or is to be registered in the Central Meter Registration Service"

The current drafting of the BSC only allows two types of Metering System to be installed a Metering System at a "Boundary Point", which is defined as:

> "means a point at which any Plant or Apparatus not forming part of the Total System is connected to the Total System"

Or a Metering System at a "Systems Connection Point" which is defined as:

> "means a point of connection (whether consisting of one or more circuits) between two or more Systems excluding a point of connection between Distribution Systems in the same GSP Group"

The drafting in section K2.1 is consistent with these definitions and hence the current BSC drafting does not allow a meter that measures flows between two Distribution Systems in the same GSP Group to be registered in CMRS.

The defect being addressed by P70 is not whether such a meter should be installed or not, it is about changing the BSC to allow, but not to force, such a meter to be registered in CMRS, and collected using CDCA, should it be installed between the two Distribution Systems.

3.3 Benefits of an Inter Distribution System Meter

In order to understand whether it can be justified that the meter should be allowed to register in CMRS, it is also necessary to understand why it may be required.

Without such a meter the two distributors can only estimate the power transferred between the two Distribution Systems, based on the exports from the embedded Distribution System, as calculated by SVA, and a proportion of the combined losses for both networks (i.e. imports at the Systems Connection Points minus exports at all Boundary

Points). This may be sufficient for small and simple networks[1], but may be unsatisfactory for larger and more complex networks, especially if there are a number of different interconnections between a number of Distribution Systems in a GSP Group. Two particular issues serve to illustrate why not having a meter installed may be a problem under P62:

- DUoS Billing:
    - DUoS is only directly charged to the customer from the embedded distributor, however a component is payable to the host distributor, from the embedded distributor, for the loss adjusted value transferred across the host network from the GSP;
    - In the absence of a meter reading (independently and accurately established, i.e. a P70 meter) for the interconnected flow, the only way a host distributor can calculate an estimated reading would be by understanding the nature of the individual exports[2] from the embedded Distribution System. It may also be considered inappropriate for the host distributor to require such knowledge of a competitors network.
- Losses:
    - Within the context of Settlement it is only the overall losses from the combined network that are important. However this is not sufficient for a distributor, which needs to take into account different forms of loss: physical losses due to the distribution network, errors in unmetered supplies, incorrectly registered exit points, theft and profiling errors of non-half hourly meters;
    - the embedded distributor has a license obligation to publish Line Loss Factors (LLF) for their local network and each of these must include a component, obtained from the host distributor, for the losses attributed to distribution across the host network from the relevant GSP;
    - a PDSO[3] has an existing licence obligation to produce audited reports to Ofgem on physical losses attributable to their networks. A degree of these losses are allowable, however the remainder form part of their financial incentives. It is important to be able to accurately obtain these values, and not to assume what those losses should be, based on some formula for proportioning the estimated losses for the combined network. Meter data would enable the continued submission of regulatory returns/accounts to Ofgem with no material degradation of accuracy.

The argument behind P70 is that the provision of accurate and independent meter readings at the commercial boundary will improve the accuracy and confidence in any figures derived from such data and hence indirectly improve the quality of data (such as LLFs) used in Settlement and eventually customer bills from Suppliers. P70 argues this is best achieved using an industry recognised infrastructure (i.e. CMRS/CDCA), which can also improve the availability of this data and hence potential monitoring[4].

[1] The thresholds within the distribution licence exemptions are sufficiently high that many small networks could continue to operate unlicensed and hence be unaffected by P62 and P70.
[2] This would mean processing the data for each Consumption Component Class within the Hour Hourly data, and for each Standard Settlement Configuration within each non-Half Hourly Supplier Purchase Matrix.
[3] It is not known whether the license conditions for a new licensed distributor would contain such an obligation.
[4] One example may be the investigation of unaccounted losses related to GSP Group Correction problems.

3.4 BSC Objectives

The Volume Allocation Modification Group (VAMG) recognised that there is a natural incentive for distributors to require a meter on a commercial boundary between distribution businesses, and that data from such a meter could be collected using an industry recognised approach.

However, the VAMG also recognised that there was not a direct link to the BSC[5], as such a meter is not directly required for Settlement purposes.

Nevertheless, it can be argued that P70 indirectly promotes effective competition in supply (Applicable BSC Objective (c) [6]), as a result of benefits which occur outside the BSC, that themselves are caused directly by the implementation of this Modification, within the BSC.

Section 3.3 described some of these benefits that a distributor may experience should such a meter be installed. One such benefit related to the improved ability to establish DUOS billing. This is outside the BSC, although it constitutes a closely related activity. The other key benefit was that of improved assessment of distribution losses. This would lead, amongst other things, to improved data quality for LLFs. These LLFs are used in Settlement and it could be argued, therefore, to constitute an explicit relevance to the BSC Settlement arrangements.

As stated these benefits are also related to the size, complexity and number of the Distribution Systems active within a GSP Group. In practice it may be that in some cases the administration becomes sufficiently complex that such meters are seen as fundamental in determining accurate values for LLFs and underlying data for DUoS charging. Although the calculation of both of these is outside the governance of the BSC, the added assurance provided by collecting data using an industry recognised infrastructure, such as CMRS and CDCA, can result in an improvement of the overall data quality, which in turn can therefore promote competition in Supply (BSC Objective (c)).

Further consideration by the VAMG of the arguments for and against the proposal are given in the next section.

[5] The Applicable BSC Objectives are taken from the Transmission License and do not reference obligations resulting from other electricity licenses. The Modification Proposal raises the concern that a distributor has its own license obligations, which can be expressed in the similar way as BSC Objectives (a) and (b), but in relation to a Distribution System.

[6] The relevant BSC Objectives are contained in Condition C3.3 of NGC's Transmission Licence and are:

(a) the efficient discharge by the licensee of the obligations imposed upon it by this licence;
(b) the efficient, economic and co-ordinated operation by the licensee of the licensee's transmission system;
(c) promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity;
(d) promoting efficiency in the implementation and administration of the balancing and settlement arrangements.

4 VAMG DISCUSSION ON RATIONALE

4.1 Rationale For Recording Meter in CMRS

The VAMG discussed the benefits and issues related to the installation of such a meter and whether the data should be collected using CDCA (see Table 4.1).

The VAMG recognised that there was a fairly balanced argument, in that each argument for such a meter, had a corresponding and equally valid argument against. The VAMG also recognised the difficulties of simply relating the arguments for P70 to the Applicable BSC Objectives.

The VAMG noted it was also unclear of the likely number and size of new networks, and hence difficult to uniquely quantify the strength of each argument.

Table 4.1 Justification For/Against a CMRS Meter

Against	For
This meter is not required for Settlement and hence should not be collected by BSC Systems	CDCA is already used to collect data from reactive registers in CMRS registered meters and these are not used within Settlement
	Until there are some real examples of large complex networks, it is not possible to show that such a meter would not be important to the production of accurate Settlement data
There is nothing stopping these meters being registered and collected outside the BSC and CMRS/CDCA	This is a good technical solution and it would be efficient and cost-effective to re-use existing infrastructure and processes
	A recognised industry infrastructure will improve the level of confidence in the data quality
	A CDCA collected meter will be independent and easily accessible by both Parties
	A new Distribution System that is connected directly to the Transmission System, or another GSP Group, would be required by the BSC to install a meter at the Systems Connection Point. P70 provides a consistent solution for all network connection types
	A number of distribution businesses already have software systems to process CDCA produced data

Against	For
Such a meter could be perceived to be a barrier to entry and competition[7]	The BSC changes are only to allow, not force, such a meter to be registered in CMRS
	Electricity distribution is complex (voltage levels, embedded generation and losses) and accurate information at a commercial boundary is part of providing an "industrial strength solution"
	The cost of installing such a meter is a small proportion of the overall cost of the primary connection
	The host distributor will want a meter for commercial reasons and hence some meter costs may exist, regardless of whether P70 is implemented, or not.
There is a contractual risk of not correctly collecting data and this will have an impact on commercial liability and Service Level Agreements	The BSC legal drafting could limit the any obligations regarding the collection of such data
Such a meter could allow GSP Group Correction to be compared to an equivalent value solely for the embedded DS. This may be used to support arguments for new GSP Group	A private meter could also be used to support such a claim
Any costs to upgrade CDCA could be seen to act against improved competition in Supply	Any costs should be seen as part of the overall costs to introduce P62, to create an "industrial strength solution"
	The solution could minimise the changes CDCA, i.e. no or null aggregation
	If P70 is not approved then new proprietary mechanisms will be required to collect meter readings. These will introduce new, and possible multiple sets of, development costs
DUoS is not related to Settlement and is not directly related to improved competition in Supply	Accurate accounting of a meter will reduce the potential for double counting through conservative assumptions about what the reading would have been

4.2 Cost Recovery

The VAMG recognised that P70 provided an indirect benefit to Settlement, and that the primary benefit of P70 would be material to the distributors concerned. Furthermore the

[7] Ofgem have in the past found against the installation of such a meter within the Gas Market. This was related to a specific network and was not on the principle of installing such a meter, or using Settlement infrastructure to collect data.

VAMG considered that there should be some consideration of how the costs associated with P70 could be recovered.

4.2.1 Operational Costs

The BSC already provides the means to recover the operational costs for the meters in the form of Annex D-3 3.1.b, which states all CVA Metering Systems are charged at a rate of £50 per meter per month to the registrant. It is proposed P70 uses this mechanism to recover operational costs.

4.2.2 Development Costs

The VAMG discussed the following issues in relation to the targeting of the BSC Systems development costs:

- the costs associated with P70 could be considered to be part of the overall P62 costs, as they are required to make the P62 robust to large complex networks;
- the efficient operation of Distribution Systems is fundamental to Settlement and will benefit all Parties;
- the costs of the development may be sufficiently modest that their targeting would not be worth the cost of administering such targeting;

In addition the VAMG recognised the difficulties that would need to be considered if costs were to be targeted at distributors:

- one beneficiary would be new licensed distributors, however, it is not known how many of these there will be, and they are not current signatories of the BSC;
- not all existing distributors will have other licensed distributors operating in their local GSP Group and hence need of such a meter;
- not all existing distributors may decide to install such a meter for the networks in their local GSP Group;

The VAMG believed that this issue should be considered further by including a consultation question on cost recovery.

The following section considers the different implementation options and initial indications of the likely development costs.

5 IMPLEMENTATION OPTIONS

Three different implementation approaches have been identified, such that the meter does not affect Settlement. Further detailed description on these can be found in Annex A.

A High Level Impact Assessment (HLIA) was requested on the impact to the CVA Systems, in particular CMRS and CDCA. The results of this, and the indicative costs of altering the BSC Systems, are included in table 5.1. It should be noted that these costs only represent a subset of the overall costs and have only been provided as a guide to the scale of development. The full costs on the preferred option will not be produced until the Assessment Report.

Table 5.1 – Implementation Options and Indicative Costs

Features / Costs	Option 1	Option 2	Option 3
Aggregation Rule change	None	DSCP Id	New One
Raw meter readings provided in the CDCA-I012 report	Yes	Yes	Yes
Aggregated meter readings provided in the CDCA-I030 report	No	Yes	Yes
System Changes	Yes	No	Yes
HLIA Development cost (ex VAT)	£45,800	£12,300	£112,000
HLIA Maintenance cost per month (ex VAT)	£534	£0	£1,307

The costs in the HLIA impact were provided against the assumption the P62 will cover any changes necessary (if any) to allow licensed distributors to register metering systems and SCPs.

In addition the HLIA states that the Central Service Provider believes that:

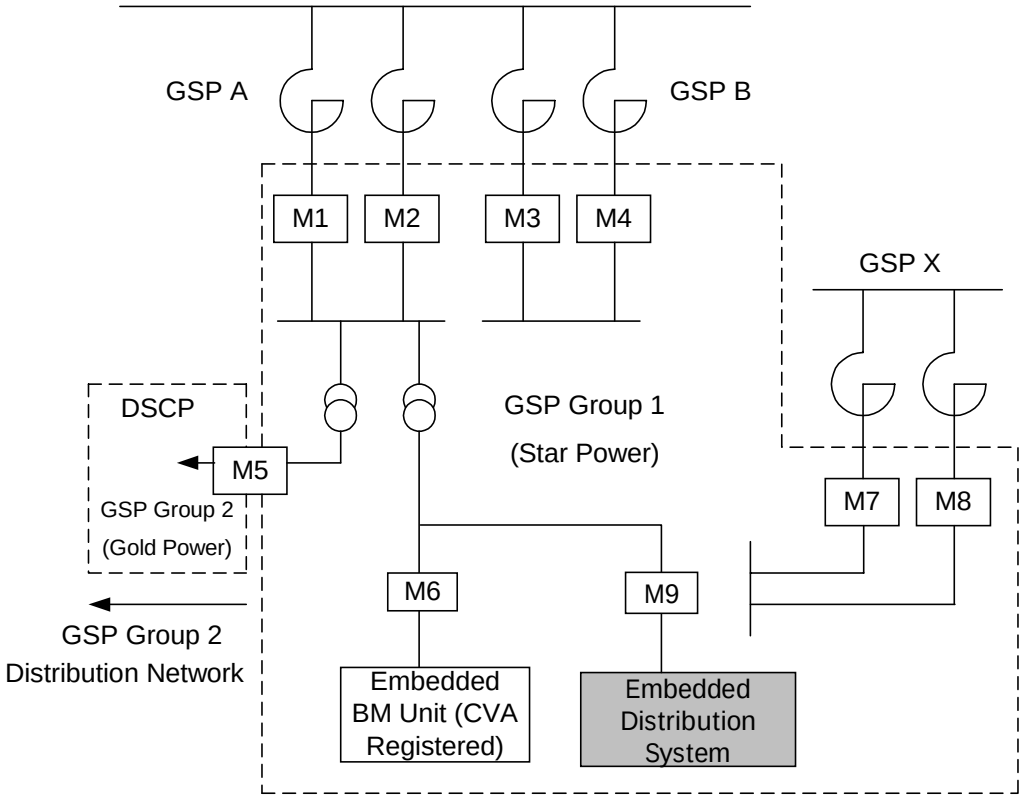
- Option 1 is considered least preferential as it relies on process changes, system reporting changes and least replication of the normal working practices;
- Option 2 increases the risk of incorrect data entering the Settlements Process as Aggregation Rules could be accidentally set up that do not produce a null effect;
- Although Option 3 is the most expensive, it is the preferred enduring solution as there is a minimum risk of incorrect data entering Settlements by manual error.

ANNEX A - APPROACHES TO REGISTERING A METER IN CMRS

This annex describes the three identified approaches to registering such a meter in CMRS in such a way that does not affect Settlement.

A.1 Example Network

The following example network is taken from BSCP75 and shows a typical GSP Group including DSCP and Group Take. It has been updated with M9 (to an embedded distribution network) and will be used to illustrate the changes in the aggregation rules for each of the identified options.



The aggregation rules for the basic example (without M9) are shown in the following table, unlike the approach used in BSCP75, the meters are referred to by the symbolic names (i.e. M1) rather than their metering system id and subsystem (i.e. 1239.STAR1.AE – 1239.STAR1.AI):

Tag	Name	Value
GSP Id	GSP_A	[M1] + [M2]
GSP Id	GSP_B	[M3] + [M4]
GSP Id	GSP_X	[M7] + [M8]
DCSP Id	DSCP_1	M5
BMU Id	BM_1	M6
GSP Group Id	GSP_1	[GSP_A] + [GSP_B] + [GSP_X] – [DSCP_1] – [BM_1]

A.2 Raw Meter Readings (Option 1)

This approach would not require any change to the existing aggregation rules and collected data would simply be made available in the CDCA-I012 as raw meter volumes for each meter subsystem, i.e. as 1300.RED9.AE and also 1300.RED9.AI. Software changes would be required to identify these metering systems and exclude them from the 'identify missing aggregation rules' report.

As raw meter volumes they would not be combined, include estimated values, or be associated with a Settlement Run. This would impact their usefulness to distributors.

A.3 Null Aggregated Effect (Option 2)

A new DSCP aggregation rule for M9 could be defined

Tag	Name	Value
DSCP Id	P70	M9

Once defined a replacement for the GSP Group Id definition for GSP_1 could be defined, as either:

([GSP_A] + [GSP_B] + [GSP_X] – [DSCP_1] – [BM_1]) + ([P70] – [P70])

or:

([GSP_A] + [GSP_B] + [GSP_X] – [DSCP_1] – [BM_1]) + ([P70] * 0)

Both approaches would ensure that the validation of the aggregation rules was successful and yet they would not affect the calculated value.

The aggregated value associated with the DSCP Id tag of P70 will be reported in the CDCA-I030. This value will include any necessary estimated data and will also be linked to a defined Settlement Run. The underlying data would also still be available as individual raw meter readings in the CDCA-I012.

A.4 New Aggregation Rule For non-Settlement meters (Option 3)

A problem with the solution identified in A.3 is that it risks overloading the "DSCP Id" type. One solution is to define a new aggregation rule type (i.e. NSM – non-Settlement meter) that could be defined for use by CDCA and unlike the existing rules the validation would ensure that this did not occur in any "GSP Group id" rules.

Tag	Name	Value
NSM	P70	M9

The data format of the CDCA-I030, and possibly other reports, would need to be updated to report this new type of meter and aggregation. It would also be available as individual raw meter readings in the CDCA-I012.

This approach will require a CDCA Software change.

ANNEX B – P70 CONSULTATION QUESTIONS

Respondent:		
Distribution Business: [8]	**Yes / No**	
Representing (please list all parties):		
Question [9]		Response
Q1	Do you believe there are circumstances when a meter between two Distribution Systems within the same GSP Group is justified?	**Yes / No**
Rationale:		
Q2	Do you believe that in those circumstances where a meter does exist between two Distribution Systems within the same GSP Group, it would have a net benefit if there were an option allowing such a meter to be recorded in CMRS and the data collected using CDCA?	**Yes / No**
Rationale:		
Q3	Do you believe that in those circumstances where a meter does exist between two Distribution Systems within the same GSP Group, it would better facilitate the applicable BSC Objectives if there were an option allowing such a meter to be recorded in CMRS and the data collected using CDCA?	**Yes / No**
Rationale:		
Q4	Do you believe that the benefits of this modification are sufficiently general and cross industry, that the development costs associated with this modification should be borne by all BSC Parties? If "No" please provide details on how costs should be recovered.	**Yes / No**
Rationale:		
Q5	Which do you believe is the appropriate implementation option?	**1 / 2 / 3**
Rationale:		
Do you have any further comments on Modification Proposal P70?		

[8] Please complete more than one response if replying for a mixture of distribution and non distribution companies
[9] P70 builds upon other changes introduced by P62, when answering these questions please assume that P62 is itself approved. If you have any comments to make in relation to this assumption please use the "further comments" box at the end of the form

