Balancing and Settlement Code

BSC PROCEDURE

Registration of Meter Aggregation Rules For Volume Allocation Units

BSCP75

Version 7.~~30~~ for CP1197

Date : 2 May 2007~~23 February 2005~~

BSC PROCEDURE 75 VERSION 7.~~3~~0 for CP1197

relating to

REGISTRATION OF METER AGGREGATION RULES FOR VOLUME ALLOCATION UNITS

1. Reference is made to the Balancing and Settlement Code and, in particular, to the definition of "BSC Procedure" in Section X, Annex X-1 thereof.

2. This is BSC Procedure 75, Version 7.~~3~~0 for CP1197 relating to Registration of Meter Aggregation Rules for Volume Allocation Units.

3. This BSC Procedure is to be effective from TBC~~23/02/2005~~.

4. This BSC Procedure has been approved by the Panel.

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For and on behalf of the
Panel

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AMENDMENT RECORD

VERSION	DATE	DESCRIPTION OF CHANGES	CRs INCLUDED	MODS PANEL REF
1.0	Code Effective Date	Designated version	n/a	n/a
2.0	11/30/2000	Work outstanding at Go Active resolution of inconsistencies inclusion of consultation comments	211	08/009
3.0	13/08/2002	Change Proposals for BSC Systems Release 2	CP546, 726, 781	ISG 16/166, ISG 18/193
4.0	24/06/2003	Change Proposals for the June 03 Release	CP570, CP756, CP821	
5.0	01/08/2003	Approved Modification P62 and an outstanding change for P55	P62, P55	P62 48/003
6.0	30/06/2004	Change proposal for the CVA Programme June 04 Release	CP971	ISG/40/003
7.0	23/02/2005	CVA Programme Feb 05 Release	BETTA 6.3, CP1049	
7.1	08/02/2007	Draft redlined changes to accompany ISG paper 73/02	n/a	ISG 73/02
7.2	01/03/2007	Draft redlined changes for DCP0003	DCP0003	n/a
7.3	02/05/2007	Draft redlined changes for CP1197	CP1197	n/a

CONTENTS

1   Introduction

1.1   Purpose and Scope of the Procedure

This BSCP defines the process for submission of Aggregation Rules by Parties to the Central Data Collection Agent (CDCA) for Volume Allocation Units as defined in Section R of the Code. This BSCP describes the key interfaces and timetable responsibilities for interested parties.

This procedure does not include the registration of Aggregation Rules for Supplier BM Units.

1.2   Main Users of the Procedure and their Responsibilities

This BSCP should be used by the following:

(a)   Party   for the submission of Aggregation Rules

(b)   CDCA   for validating and registering the Aggregation Rules

Throughout this procedure, timetables reflect the number of Working Days (WD) following defined events by which an activity should be completed.

1.3   Key Milestones

Timescales for the registration of Aggregation Rules can be reduced upon agreement between all relevant parties. Other key milestones in this procedure are:

- 20 WD notice for submission of Aggregation Rules
- Selection of Aggregation Rules for Range CCGT Modules with the same timescales as defined in the Grid Code

1.4   Balancing and Settlement Code Provision

This BSCP should be read in conjunction with the Code and in particular Section K and Section R.

This BSCP has been produced in accordance with the provisions of the Code. In the event of an inconsistency between the provisions of this BSCP and the Code, the provisions of the Code shall prevail.

1.5 Associated BSC Procedures

This procedure interfaces with the following BSCP~~s~~:

BSCP15   BM Unit Registration

BSCP20   Registration of Metering System for Central Volume Allocation

BSCP25   Registration of Transmission System Boundary Points, Grid Supply Points, GSP Groups and Distribution Systems Connection Points

BSCP28   Approval and Notification of CVA Line Loss Factors

BSCP38   Authorisations (or where appropriate BDTP38). Please note references throughout this document to BSCP38 also relate to the associated BDTP38 where appropriate

BSCP515   Licensed Distribution

1.6 Other

Typical examples concerning BM Unit configurations and guidance for Aggregation Rules can be found in section 4.1.

2   Acronyms and Definitions

2.1   List of Acronyms

The following is a list of acronyms used in BSCP75:

AE	Active Export
AI	Active Import
BDTP	BETTA Data Take On Procedure
CDCA	Central Data Collection Agent
CRA	Central Registration Agent
CRS	Central Registration System
CVA	Central Volume Allocation
DSCP	Distribution System Connection Point
ER	Expression Reference
FPN	Final Physical Notification
GSP	Grid Supply Point
LDSO	Licensed Distribution System Operator
LLF	Line Loss Factor
MSQ	Metering Subsystem Quantity
SMRS	Supplier Meter Registration Service
SVA	Supplier Volume Allocation
TC	Transmission Company
WD	Working Day

2.2   List of Definitions

Full definitions of the above acronyms in Section 2.1 are included in the Code.

<u>**CVA registered BM Unit / Volume Allocation Unit**</u>	<u>A BM Unit or Volume Allocation Unit comprising Plant and/or Apparatus whose Imports and Exports are measured by CVA Metering Systems.</u>
Effective From Date	The Settlement ~~d~~<u>D</u>ay from which the Aggregation Rules will become active.

Nominated Licensed Distribution System Operator	The Nominated LDSO is the LDSO who has obligations to submit the GSP Group Metered Volume Aggregation Rules. For the avoidance of doubt, the Nominated LDSO is the LDSO who was responsible for each GSP Group on 01 August 2003 or the Scottish Distribution Licensee in respect of that Bulk Supply Point Group under the Settlement Agreement for Scotland on 1 August 2003.
Contracted Licensed Distribution System Operator	The LDSO who provides the SMRS to the Registrant of the Metering System.
SVA registered BM Unit	A Supplier BM Unit.

3   Interface and Timetable Information

3.1   Registration of Aggregation Rules

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.1.1	At least 20 WDs prior to the Effective From Date	Submit Aggregation Rules for Volume Allocation Unit. (Examples of completing Form BSCP75/4.2 can be found in Section 4.3)	Party	CDCA	Form BSCP75/4.2 Registration of Aggregation Rules for Volume Allocation Unit. (CDCA-I001 Aggregation Rules)	Fax / Letter/ Email
3.1.2	Within 1WD of receipt of data from 3.1.1	The CDCA shall acknowledge receipt of the Aggregation Rules.	CDCA	Party	Form BSCP75/4.2 Registration of Aggregation Rules for Volume Allocation Unit.	Fax / Letter / Email
3.1.3	Within 1WD of receipt of data from 3.1.1	The CDCA shall validate the Aggregation Rules including: • Completeness and Authorisation • The appropriate Metering System(s) is registered on or before the Effective From Date	CDCA		Form BSCP75/4.2 Registration of Aggregation Rules for Volume Allocation Unit. BSCP38 Authorisations.	Internal
3.1.4	Within 2 WDs of receipt of data from 3.1.1 and if supporting information required	Request supporting information.	CDCA	Party	Additional information (including but not limited to network diagrams, connection agreements and installation documentation).	Fax / Letter/ Email
3.1.5	Within 3 WDs of request for supporting information	Provide supporting information requested in 3.1.4.	Party	CDCA	Supporting information as requested.	Fax / Letter/ Email
3.1.6	Within 1 WD of receipt of information from 3.1.5	The CDCA shall re-validate the Aggregation Rules.	CDCA		Supporting information.	Internal
3.1.7	Within 1 WD of 3.1.3 or 3.1.6 and if Aggregation Rules fail validation	Inform Party (detailing the reasons for the failure) and request Party to re-submit a new set of Aggregation Rules. Return to 3.1.1.	CDCA	Party	Reasons for failure and request Party to re-submit Aggregation Rules.	Fax / Letter/ Email

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.1.8	Following 3.1.3 or 3.1.6 and if the Aggregation Rules have been successfully validated	Where the Aggregation Rules are for a CVA registered BM Unit, associated with embedded ~~p~~Plant or ~~a~~Apparatus, or new GSP the CDCA will request that the Nominated LDSO provide revised GSP Group Metered Volume Aggregation Rules.	CDCA	Nominated LDSO	Revised GSP Group Metered Volume Aggregation Rules.	Fax/Letter/ Email
3.1.9	Following 3.1.8 and within 5 WD of successful validation	Provide revised GSP Group Metered Volume Aggregation Rules.	Nominated LDSO	CDCA	Revised GSP Group Metered Volume Aggregation Rules.	
3.1.10	Following 3.1.9 and within 5 WD of successful validation	The CDCA shall re-calculate the Aggregation Rules for the relevant GSP Group Take.	CDCA			Internal
3.1.11	Following 3.1.10 and within 5 WD of successful validation	Provide re-calculated GSP Group Take Aggregation Rules.	CDCA	Nominated LDSO	Re-calculated GSP Group Take Aggregation Rules.	Fax/Letter/ Email
3.1.12	Following 3.1.11 and within 5 WD of successful validation	Agree GSP Group Take Aggregation Rules with Contracted LDSOs.	Nominated LDSO	Contracted LDSO(s)	Agreement of the GSP Group Take Aggregation Rules.	
3.1.13	Following 3.1.12 and within 5 WD of successful validation	Confirm to the CDCA that the GSP Group Aggregation Rules are accurate.	Nominated LDSO	CDCA	Confirmation of the GSP Group Take Aggregation Rules.	Fax/Letter/ Email
3.1.14	Prior to Effective From Date	Produce confirmation report of aggregation rule data entered into system and provide to Party to confirm.	CDCA	Party	Aggregation rule report confirmation of data entered into systems. CDCA-I048 Report of Aggregation Rules	Fax / Letter/ Email
3.1.15	Prior to Effective From Date	Provide copy of the GSP Group Take Aggregation Rules to LDSO	CDCA	Nominated LDSO	Standing data reports prints of data entered into systems.	Fax / Letter/ Email

BSC Procedure 75
Subject: Appendices

Registration of Meter Aggregation Rules for
Volume Allocation Units

Version 7.~~3~~0 for CP1197

Section 4

4   Appendices

4.1   Typical Configurations and Aggregation Rules for Volume Allocation Units

4.1.1 Overview

In order to calculate the Metered Volume for a Volume Allocation Unit, Aggregation Rules have to be submitted by Parties to enable metered data values to be aggregated to the appropriate Metered Volume. The responsibilities are detailed in Section R of the Code. This means that Parties have an obligation to register Aggregation Rules with the CDCA for the following Volume Allocation Units in accordance with this BSCP (the Volume Allocation Units themselves are registered with the CRA):

- BM Units (other than ~~i~~Interconnector BM Units and Supplier BM Units)
- Grid Supply Points
- GSP Groups
- Interconnectors

Listed below are examples of the typical configurations of the four Volume Allocation Units that require Aggregation Rules to be submitted. Aggregation Rules are submitted using the Metering System ID and metering subsystem ID and, where appropriate, BM Unit ID, GSP ID, GSP Group ID and Interconnector ID.

The identifier for a specific flow consists of the Metering System ID, the metering subsystem ID and the measurement quantity.

- The Custom and practice is that Export Meters are used to measure flows from ~~p~~Plant or ~~a~~Apparatus and Import Meters are used to measure flows to ~~p~~Plant or ~~a~~Apparatus.
- Any flow on an Export Meter is classified as AE. Any flow on an Import Meter is classified as AI.
- In all cases, a net flow measured by a metering subsystem will be calculated as [AE-AI]. Hence, a net flow from ~~p~~Plant/~~a~~Apparatus will be treated as positive and a net flow to ~~p~~Plant/~~a~~Apparatus will be treated as negative. Therefore the Volume Allocation Unit which has a net ~~i~~Import will be treated as negative and a Volume Allocation Unit which has a net Export will be treated as positive.
- All net flows measured by a metering subsystem which are to be accounted for in a given Volume Allocation Unit will be summed. This will give an overall net flow into or out of the given Volume Allocation Unit.
- All net flows measured by a metering subsystem which are to be accounted for in any other Volume Allocation Units that are associated with the given Volume Allocation Unit should be subtracted from the above summated net flow. The outcome of the above two operations will be the net flow for the given Volume Allocation Unit.

In the case of GSP Group Takes, a further set of net flows need to be subtracted from the summated net flows derived in the above steps. These are the net flows measured by metering subsystems of CVA registered Volume Allocation Units which are embedded within the GSP Group. The prime responsibility for identifying these CVA registered Volume Allocation Units lies with the CDCA (rather than with Parties). However, the CDCA will fulfil this responsibility by requesting LDSOs to submit Aggregation Rules for GSP Group Take for their authorised area and the LDSOs shall comply with any such request.

In the illustrations that follow the above logic is used. However, the diagrams show metering subsystems, rather than individual meters, registers or channels.
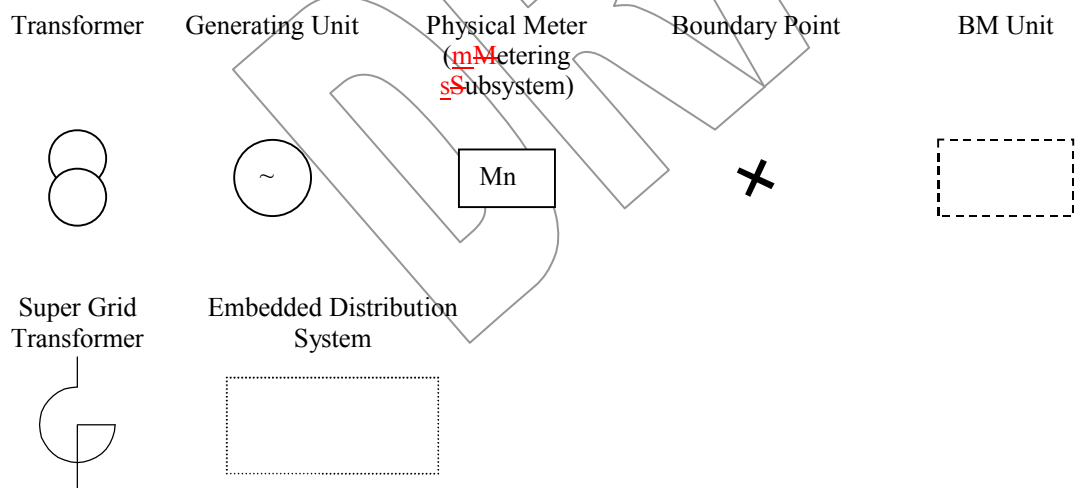
4.1.2 BM Units

Before Aggregation Rules can be submitted for BM Units the BM Units have to be defined and registered in accordance with ~~s~~Section K of the Code and BSCP15.
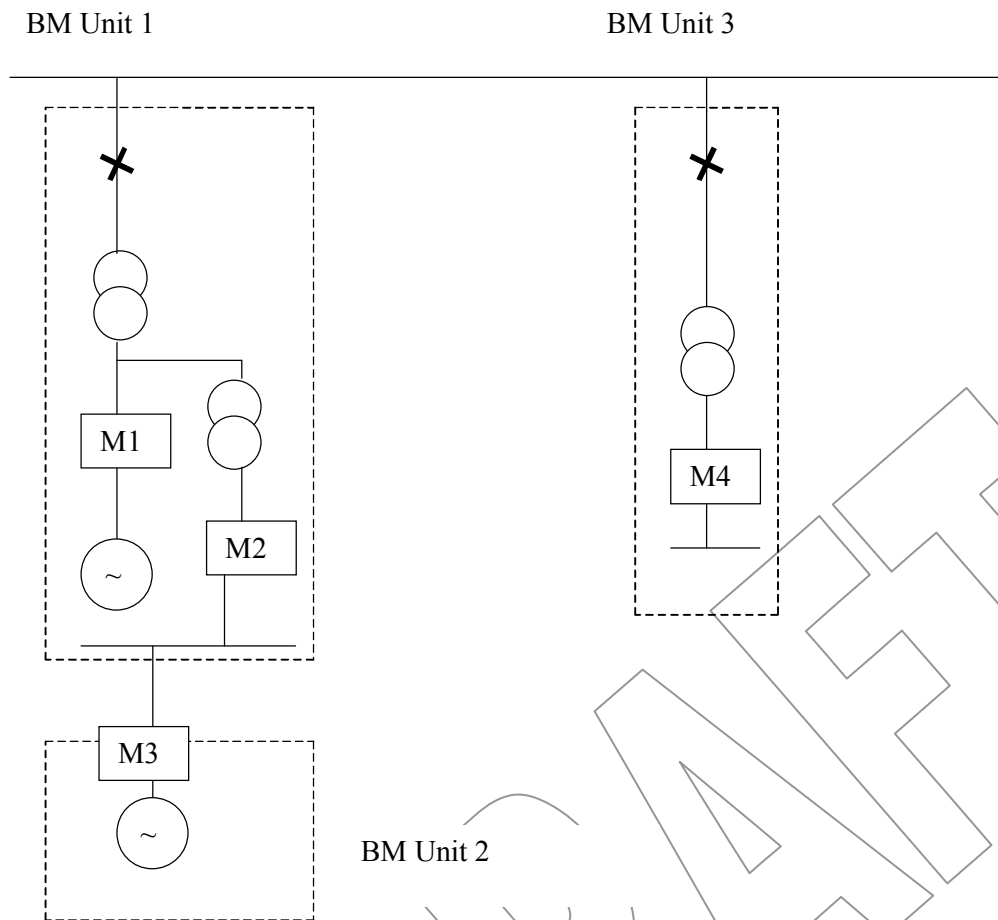
Detailed below are examples of typical BM Unit configurations for both generators and Suppliers. These are examples and Parties can submit different BM Unit configurations so long as the configuration is in accordance with the Code Rules and associated BSCP.

These examples do not include the application of (Distribution) Line Loss Factors (LLFs) in the interests of clarity. LLFs shall be applied as a multiplying factor to the values for each metering subsystem where appropriate.

Key

Transformer	Generating Unit	Physical Meter (~~m~~Metering ~~s~~Subsystem)	Boundary Point	BM Unit

Super Grid Transformer	Embedded Distribution System

4.1.3 Simplified Power Station

The above is a simplified example of a power station connected to the Transmission System. The power station is owned and operated by Star Power. Star Power has configured the power station into 3 BM Units. BM Unit 1 comprises the main Generating Unit and the associated demand for that Generating Unit. BM Unit 2 is an auxiliary Generating Unit. As the auxiliary Generating Unit has different operating costs to the main Generating Unit the Star Power wants to be able to submit Bids and Offers for each generator independently and therefore has declared the auxiliary Generating Unit as a separate BM Unit. BM Unit 3 is the main station demand. If Star Power did not trade the auxiliary Generating Unit separately, then M1, M2, and M3 could be configured as a single BM Unit.

All the meters in the above example are connected to one Outstation and constitute one Metering System. This Metering System has been registered by Star Power and the Metering System ID is 1234. The 4 physical meters (M1, M2, M3, M4) are 4 metering subsystems, referred to as STAR1, STAR2, STAR3 and STAR4 respectively, contained within the Metering System 1234.

For this example, three sets of Aggregation Rules need to be submitted to calculate the Metered Volumes associated with BM Unit 1, 2 and 3.
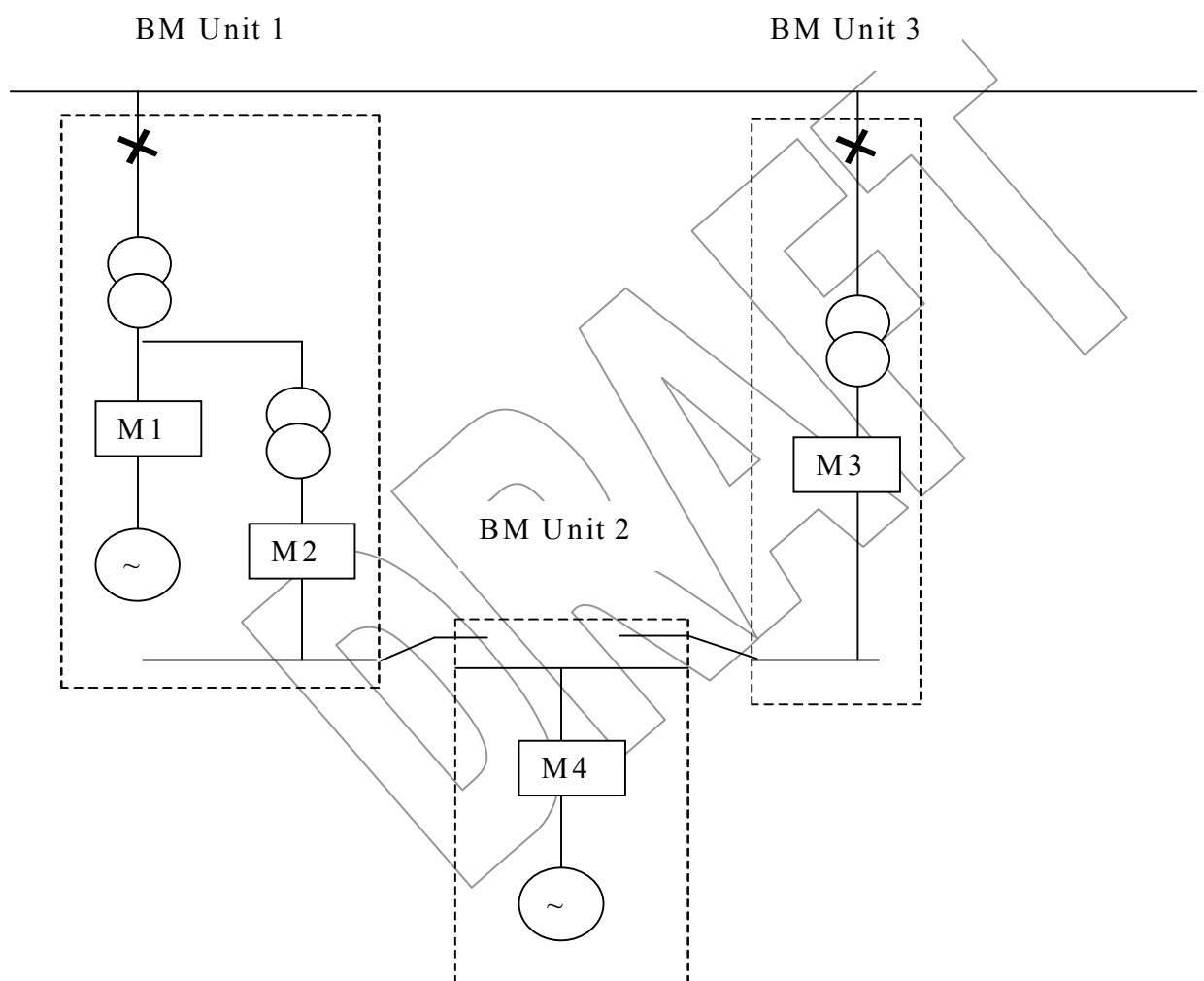
Aggregation Rules

BM Unit 1 =   [1234.STAR1.AE – 1234.STAR1.AI] + [1234.STAR2.AE – 1234.STAR2.AI] - [1234.STAR3.AE – 1234.STAR3.AI]

BM Unit 2 =   [1234.STAR3.AE – 1234.STAR3.AI]

BM Unit 3 =   [1234.STAR4.AE – 1234.STAR4.AI]

4.1.4 Power Station with Switchable Auxiliary Generating Unit

In this example the power station is owned and operated by Star Power. There are three BM Units, BM Unit 1 comprises the main generating unit and the associated demand for that Generating Unit, BM Unit 2 is an auxiliary Generating Unit and BM Unit 3 is the main station demand.

For this example the auxiliary Generating Unit is switchable. It can be connected to the Total System through either BM Unit 1 or BM Unit 3. Typically the auxiliary Generating Unit would be connected through BM Unit 1. However, if the main Generating Unit was shut down, then the auxiliary could be connected through BM Unit 3.

All the meters in the above example are connected to one Outstation and constitute one Metering System. This Metering System has been registered by Star Power and the Metering System ID is 1235. The four physical meters (M1, M2, M3 and M4) are four metering subsystems, referred to as STAR1, STAR2, STAR3 and STAR4 respectively contained within the Metering System 1235.

Aggregation Rules

Parties should register their Aggregation Rules using <u>one</u> of the following assumptions:

Assumption 1 – BM Unit 2 connected through BM Unit 1

BM Unit 1 =   [1235.STAR1.AE – 1235.STAR1.AI] + [1235.STAR2.AE – 1235.STAR2.AI] - [1235.STAR4.AE – 1235.STAR4.AI]

BM Unit 2 =   [1235.STAR4.AE – 1235.STAR4.AI]

BM Unit 3 =   [1235.STAR3.AE – 1235.STAR3.AI]

Assumption 2 – BM Unit 2 connected through BM Unit 3

BM Unit 1 =   [1235.STAR1.AE – 1235.STAR1.AI] + [1235.STAR2.AE – 1235.STAR2.AI]

BM Unit 2 =   [1235.STAR4.AE – 1235.STAR4.AI]

BM Unit 3 =   [1235.STAR3.AE – 1235.STAR3.AI] - [1235.STAR4.AE – 1235.STAR4.AI]

Whichever assumption is used will give the overall correct answer on a Trading Unit basis. The FPNs submitted by Parties can be submitted on the basis of whichever assumption is used.

The actual impact can better be seen by applying some actual meter readings to the above example:

Assuming the auxiliary Generating Unit is in operation and is connected through BM Unit 1, the following metered data would be obtained. Then whichever Aggregation Rule assumption is chosen the end result is the same at the Trading Unit level.

	Active Import (MWh)	Active Export (MWh)
Meter 1 (M1)	0	500
Meter 2 (M2)	0	50
Meter 3 (M3)	100	0
Meter 4 (M4)	0	50

	BM Unit 1	BM Unit 2	BM Unit 3	Trading Unit Net Volume
BM Unit volumes calculated through Aggregation Rules 1 (Assumption 1)	(500 - 0) + (50 - 0) - (50 - 0) = +500	(50 – 0) = +50	(0 – 100) = -100	+450
BM Unit volumes calculated through Aggregation Rules 2 (Assumption 2)	(500 – 0) + (50 – 0) = +550	(50 – 0) = +50	(0 – 100) – (50 –0) = -150	+450

4.1.5 Combined Cycle Power Station
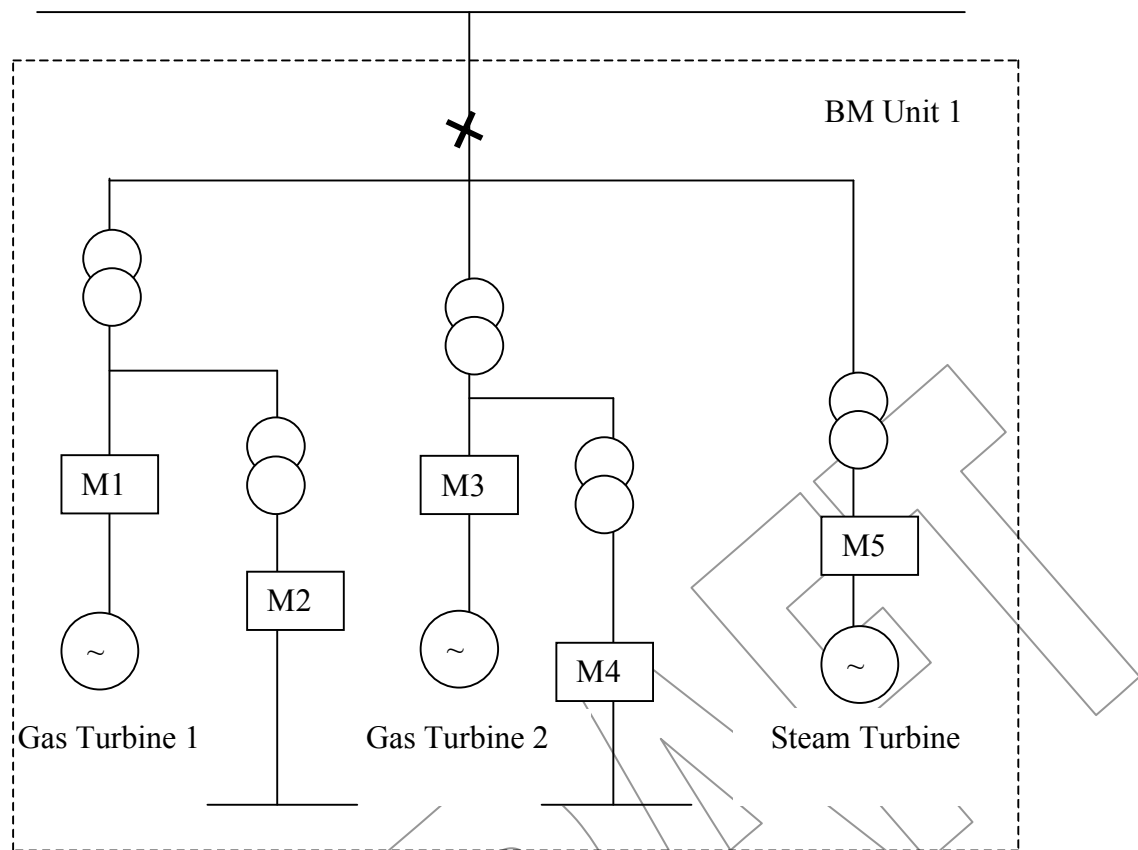
This example comprises of two gas fired turbines and one steam turbine connected to the Transmission System. The equipment is owned and operated by Star Power. The equipment cannot be independently operated and therefore Star Power has registered them as one BM Unit.

All the Meters in the above example are connected to one Outstation and constitute one Metering System. This Metering System has been registered by Star Power and the Metering System ID is 1236. The 5 physical Meters (M1, M2, M3, M4 & M5) are 5 m̶M̶etering s̶S̶ubsystems, referred to as STAR1, STAR2, STAR3, STAR4 and STAR5 respectively, contained within the Metering System1236.

BM Unit 1 = [1236.STAR1.AE – 1236.STAR1.AI] + [1236.STAR2.AE – 1236.STAR2.AI] + [1236.STAR3.AE – 1236.STAR3.AI] + [1236.STAR4.AE – 1236.STAR4.AI] + [1236.STAR5.AE – 1236.STAR5.AI]

4.1.6   Grid Supply Points and GSP Group Takes

GSPs are a number of Systems Connection Points at the same location at which the Transmission System is connected to a Distribution System. The submission of Aggregation Rules for GSPs and GSP Groups are the responsibility of the Distribution System Operator. The submission of Aggregation Rules for GSP Group Take is the responsibility of the CDCA.

Section 4.1.7 describes two different examples of a shared GSP. Section 4.1.8 describes a typical GSP which ~~The first example is a GSP with a Distribution Systems Connection Point. The second example~~ includes a Distribution Systems Connection Point~~, GSP Group Metered Volume~~ and GSP Group Take.

Sections 4.1.9-4.1.11~~The final three examples~~ describe~~s~~ different scenarios with embedded Distribution Systems where there is more than one Distribution System Operator within a single GSP Group.

4.1.7   Shared Grid Supply Point

The following Examples 1A and 1B apply to England and Wales, where the 132kV system is normally a distribution asset.

Example 1A: GSP shared between two GSP Groups:

275/400kV

M1   M2

132kV

M3   M4

GSP Group 2   GSP Group 1

(Gold Power)   (Star Power)
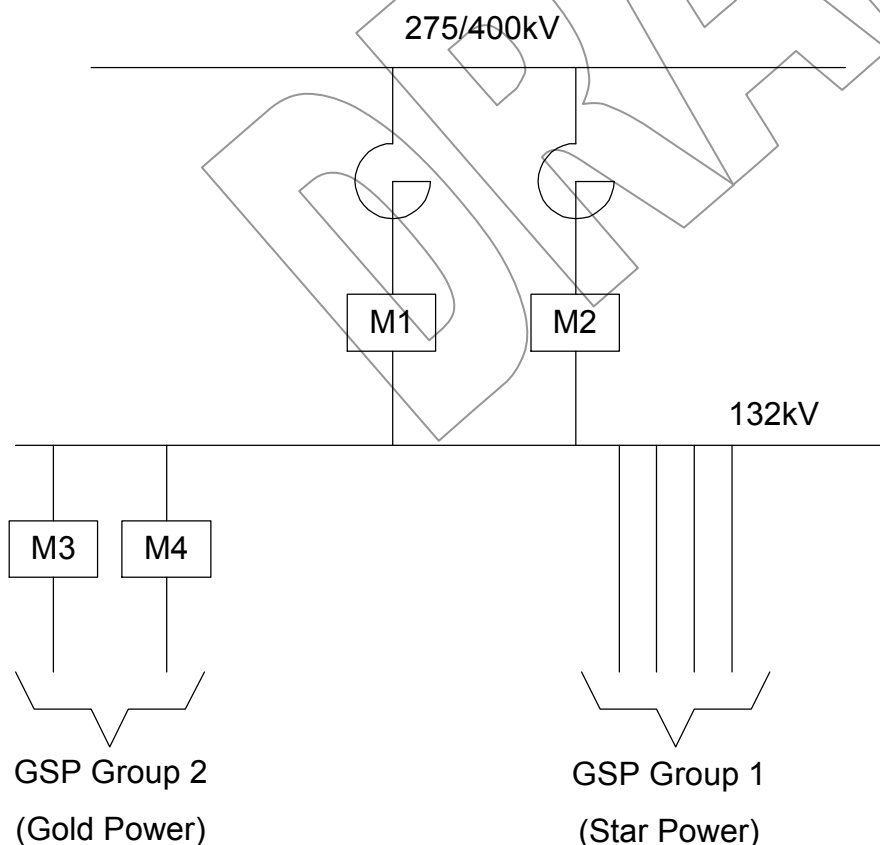
In this example the GSP is shared between two GSP Groups. The LDSO for GSP Group 1 is Star Power and for GSP Group 2 is Gold Power ~~and Star Power~~. Since it is a shared GSP, the 132kV busbar is a transmission asset.

The Codes of Practice state~~s~~ that the defined Metering Point should be at the Systems Connections Points of each LDSO to the common busbar. In this example Star Power have not metered their four circuits, instead they have a valid Metering Dispensation to utilise a difference metering scheme.   They submit Aggregation Rules which subtract the energy taken by Gold Power (measured by M3 and M4) from the ~~total~~ GSP Group 1 Metered Volume~~energy flow (as measured by M1 and M2)~~.

In this example Star Power has four feeders as opposed to Gold Power's two, and has elected to be the majority LDSO. Star Power (as the majority LDSO) would therefore register the metering M1 and M2 and would be responsible for registering the Aggregation Rules for the Metered Volume for the GSP. Both M1 and M2 belong to the same Metering System and ~~that~~ the Metering System is allocated the identifier 1234.   The physical meters M1 and M2 have metering subsystems identifiers of STAR1 and STAR2 respectively.

Gold Power is the LDSO~~icensed Distribution System Operator~~ for GSP Group 2 and would register the metering M3 and M4. Both M3 and M4 belong to the same Metering System and that Metering System is allocated the identifier 5678 and the physical meters M3 and M4 have metering subsystems GOLD1 and GOLD2.

~~GSP Metered Volume = [1234.STAR1.AE - 1234.STAR1.AI] + [1234.STAR2.AE – 1233.STAR2.AI]~~
~~This would be submitted by Star Power.~~

|	
GSP Metered Volume	[1234.STAR1.AE -1234.STAR1.AI] + [1234.STAR2.AE – 1234.STAR2.AI]
GSP Group 1 Metered Volume	[1234.STAR1.AE – 1234.STAR1.AI] + [1234.STAR2.AE – 1234.STAR2.AI] – [5678.GOLD1.AE – 5678.GOLD1.AI] – [5678.GOLD2.AE – 5678.GOLD2.AI] + the Aggregation Rules for all other GSPs within GSP Group 1 + the Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Star Power.

GSP Group 2 Metered Volume	[5678.GOLD1.AE – 5678.GOLD1.AI] + [5678.GOLD2.AE – 5678.GOLD2.AI] + the Aggregation Rules for all other GSPs within GSP Group 2 + the Aggregation Rules for all DSCPs connecting to/from GSP Group 2

This would be submitted by Gold Power.

Example 1B: GSP shared between a GSP Group and a BM Unit:
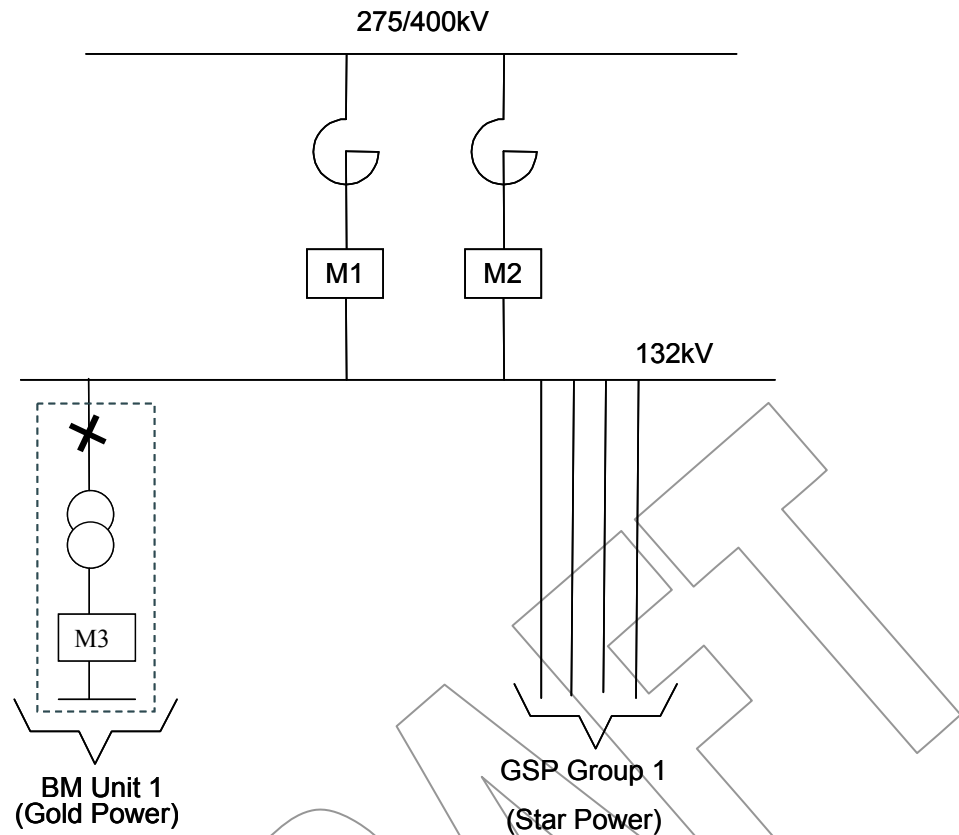
In this example the GSP is shared between a GSP Group, for which Star Power is the LDSO, and the BM Unit owned by Gold Power. Since it is a shared GSP, the 132kV busbar is a transmission asset, and the BM Unit is therefore directly connected. The Codes of Practice state that the defined Metering Point should be at the Systems Connections Points to the common busbar. In this example Star Power have not metered their four circuits, instead they have a valid Metering Dispensation to utilise a difference metering scheme. They submit Aggregation Rules which subtract the energy taken by Gold Power (measured by M3) from the total GSP energy flow (as measured by M1 and M2).

Star Power would register the metering M1 and M2 and would be responsible for registering the Aggregation Rules for the Metered Volume for the GSP. Both M1 and M2 belong to the same Metering System and that the Metering System is allocated the identifier 1234. The physical meters M1 and M2 have metering subsystems identifiers of STAR1 and STAR2 respectively.

Gold Power is the Lead Party for BM Unit 1 and would register the metering M3 and would be responsible for registering the Aggregation Rules for BM Unit 1. M3 is allocated the identifier 5678 and the physical meter has metering subsystem GOLD1.

|	
GSP Metered Volume	[1234.STAR1.AE -1234.STAR1.AI] + [1234.STAR2.AE – 1234.STAR2.AI] - [5678.GOLD1.AE – 5678.GOLD1.AI]
GSP Group 1 Metered Volume	[1234.STAR1.AE – 1234.STAR1.AI] + [1234.STAR2.AE – 1234.STAR2.AI] – [5678.GOLD1.AE – 5678.GOLD1.AI] + the Aggregation Rules for all other GSPs within GSP Group 1 + the Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Star Power.

BM Unit 1 Metered Volume	[5678.GOLD1.AE – 5678.GOLD1.AI]

This would be submitted by Gold Power.

4.1.8   Typical GSP including DSCP and GSP Group Take
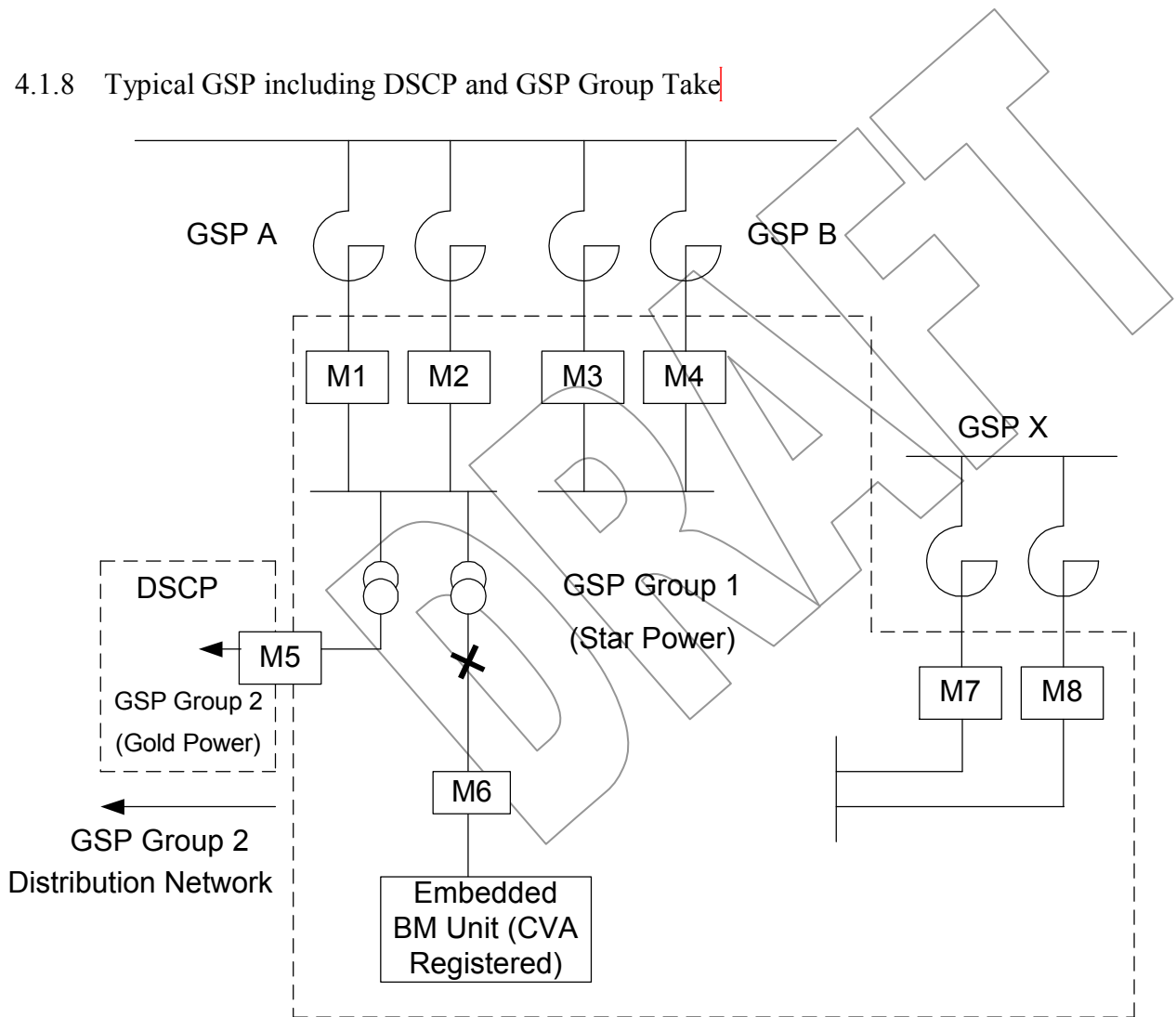
In this example the LDSO for GSP Group 1 is Star Power and for GSP Group 2 is Gold Power.

Star Power have registered the GSP Metering Systems at GSP A, GSP B and GSP X with the Metering System identifiers 1239, 1240 and 1241 respectively. Each of the Metering Systems have metering subsystems associated with them. GSP A has metering subsystems STAR1 and STAR2, GSP B has metering subsystems STAR3 and STAR4 and GSP X has metering ~~s~~Subsystems STAR7 and STAR8.

The DSCP is metered by M5. This belongs to the Metering System ID 1231 registered by Gold Power. The physical meter M5 corresponds to a ~~m~~Metering ~~s~~Subsystem identified as GOLD5. The Metering System ID 1231 has an associated Line Loss Factors Code LLF1.

The embedded BM Unit is a licence exempt generator owned by Green Inc. The Exempt Export BM Unit is registered with the CRA by Green Inc and the BM Unit ID is GREEN_BM. The Metering System associated with the meter M6 is registered by Green Inc and has a Metering System ID 1200 with metering subsystem ID GREEN6 and associated Line Loss Factors Code LLF2~~1~~.

Aggregation Rules for GSP Metered Volumes

GSP A =　　[1239.STAR1.AE – 1239.STAR1.AI] + [1239.STAR2.AE – 1239.STAR2.AI]

This would be submitted by Star Power.

GSP B =　　[1240.STAR3.AE – 1240.STAR3.AI] + [1240.STAR4.AE – 1240.STAR4.AI]

This would be submitted by Star Power.

GSP X =　　[1241.STAR7.AE – 1241.STAR7.AI] + [1241.STAR8.AE – 1241.STAR8.AI]

This would be submitted by Star Power.

Aggregation Rules for GSP Group Metered Volumes and GSP Group Take

Metered Volume for GSP Group 1 =　　[GSP A] + [GSP B] + [GSP X] – [[1231.GOLD5.AE – 1231.GOLD5.AI] * LLF1] + the Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Star Power.

BSC Procedure 75
Subject: Appendices

Registration of Meter Aggregation Rules for
Volume Allocation Units

Version 7.~~30~~ for CP1197

Section 4

Metered Volume for GSP Group 2 =   Aggregation Rules for all GSPs within GSP Group 2 + [[1231.GOLD5.AE – 1231.GOLD5.AI] * LLF1] + the Aggregation Rules for all DSCPs connecting to/from GSP Group 2

This would be submitted by Gold Power.

Green_BM =   [1200.GREEN6.AE ~~* LLF1~~ – 1200.GREEN6.AI] * LLF2~~]~~

This would be submitted by Green Inc.

Group Take for GSP Group 1 =   Metered Volume for GSP Group 1 - ~~[~~Green_BM~~]~~

Group Take for GSP Group 2 =   Metered Volume for GSP Group 2 – all embedded BM Units

These~~is~~ will be established by the CDCA.~~,~~ Parties are not required to submit these Aggregation Rules, however the CDCA can request that they do.

Note:
In this example, the Metering System at the DSCP (M5) is registered by Gold Power. As a result, the above Aggregation Rules treat an~~The DSCP metering could be registered by either Gold Power or Star Power. Depending on who registers the DSCP metering determines the way the metered value is treated. For example if Gold Power register the Metering System at the DSCP then an~~ Export ~~would be treated~~ as the flow from GSP Group 2 to GSP Group 1 and an Import as a flow of electricity from GSP Group 1 to GSP Group 2. However, in practice, the DSCP metering could be registered by either Gold Power or Star Power. I~~Likewise i~~f Star Power registered the Metering System at the DSCP then an Export would be from GSP Group 1 to GSP Group 2 and an Import from GSP Group 2 to GSP Group 1.

4.1.9 Distribution System with all its Boundary Points registered in SMRS, entirely embedded within another Distribution System
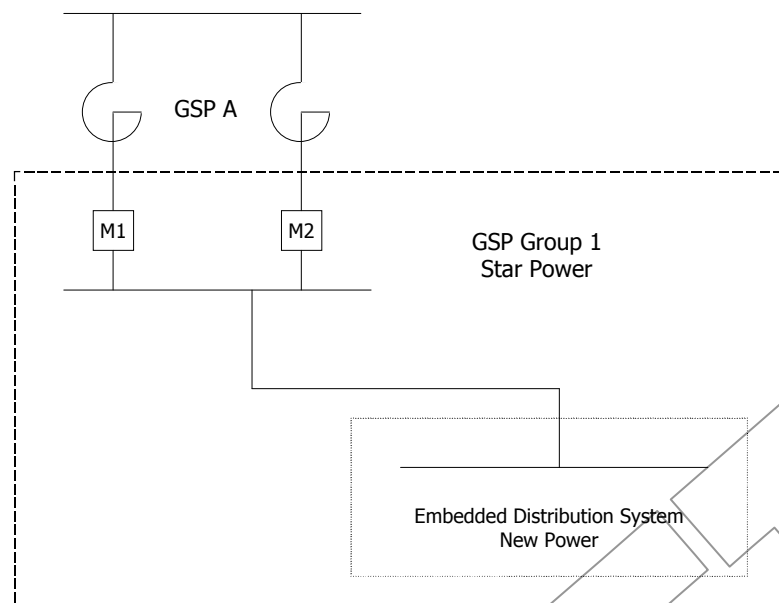
In this example, there are two Distribution Systems and two LDSOs in GSP Group 1. Star Power is the Nominated LDSO (i.e. ex-Public Distribution System Operator) for GSP Group 1 and New Power is an embedded LDSO).

Star Power has registered the GSP Metering Systems at GSP A with the Metering System identifiers 1239. This Metering System has metering subsystems STAR1 and STAR2 associated with it at GSP A.

Aggregation Rules for GSP Metered Volumes

GSP A = [1239.STAR1.AE – 1239.STAR1.AI] + [1239.STAR2.AE – 1239.STAR2.AI]

This would be submitted by Star Power.

Aggregation Rules for GSP Group Metered Volumes and GSP Group Take

Metered Volume for GSP Group 1 = [GSP A] + the Aggregation Rules for all other GSPs within GSP Group 1 + the Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Star Power.

The Group Take for GSP Group 1 is the same as the GSP Group Mmetered Vvolume as the embedded Distribution System has no CVA Boundary Points~~entry or exit points registered in Central Volume Allocation (CVA)~~ in GSP Group 1 and no contribution to the Aggregation Rules. All thetheir energy of the embedded Distribution System is accounted for inby SVA.

Group Take for GSP Group 1 = Metered Volume for GSP Group 1 - all embedded BM Units

This will be established by the CDCA.~~,~~ Parties are not required to submit these Aggregation Rules, however the CDCA can request that they do.

4.1.10 Distribution System entirely embedded within an existing Distribution System with one embedded BM Unit registered in CVA and all other entry/exit points registered in SVA
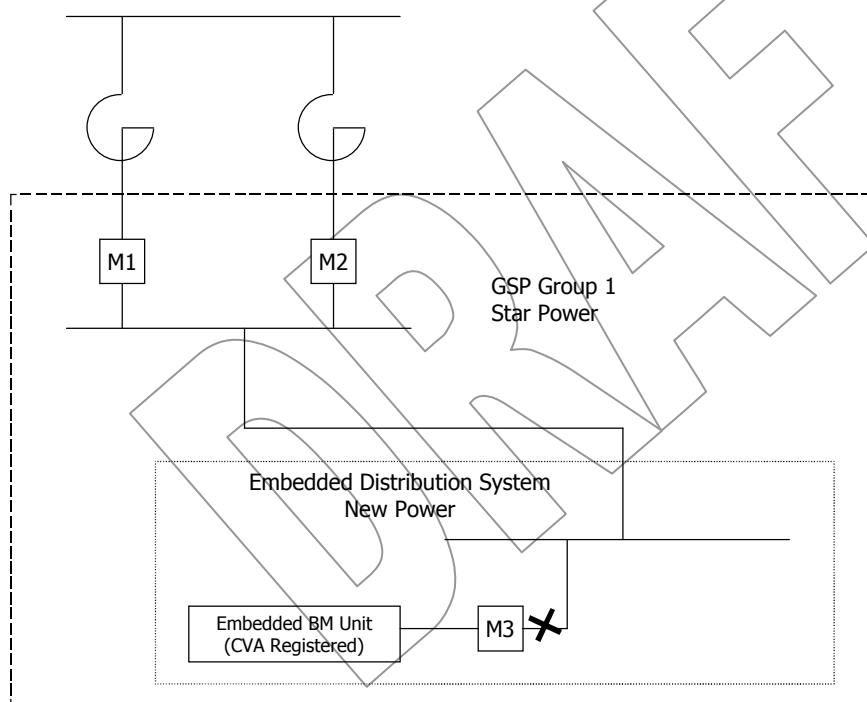
In this example, there are two Distribution Systems and two LDSOs in GSP Group 1. Star Power is the Nominated LDSO for GSP Group 1 and New Power is an embedded LDSO. The embedded BM Unit within New Power's Distribution System is a licence exempt generator owned by Green Inc.

Star Power has registered the GSP Metering Systems at GSP A with the Metering System identifiers 1239. This Metering System has metering subsystems STAR1 and STAR2 associated with it at GSP A.

The BM Unit is registered with the CRA by Green Inc and the BM Unit ID is GREEN_BM. The Metering System associated with the meter M3 is registered by Green Inc and has a Metering System ID 1200 with metering subsystem ID GREEN3 and associated Line Loss Factors Code LLF1.

Aggregation Rules for GSP Metered Volumes

GSP A =   [1239.STAR1.AE – 1239.STAR1.AI] + [1239.STAR2.AE – 1239.STAR2.AI]

This would be submitted by Star Power.

Aggregation Rules for GSP Group Metered Volumes and GSP Group Take

Metered Volume for GSP Group 1 =   [GSP A] + the Aggregation Rules for all other GSPs within GSP Group 1 + the Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Star Power.

Green_BM =   [1200.GREEN3.AE * LLF1 – 1200.GREEN3.AI] * LLF1]

This would be submitted by Green Inc.

Group Take for GSP Group 1 =   Metered Volume for GSP Group 1 - [Green_BM] - all other embedded BM Units

This will be established by the CDCA. Parties are not required to submit these Aggregation Rules, however the CDCA can request that they do.

4.1.11 Complex Case: Distribution System with two GSP connections to the Transmission System and a DSCP to another Distribution System Operator in a second GSP Group
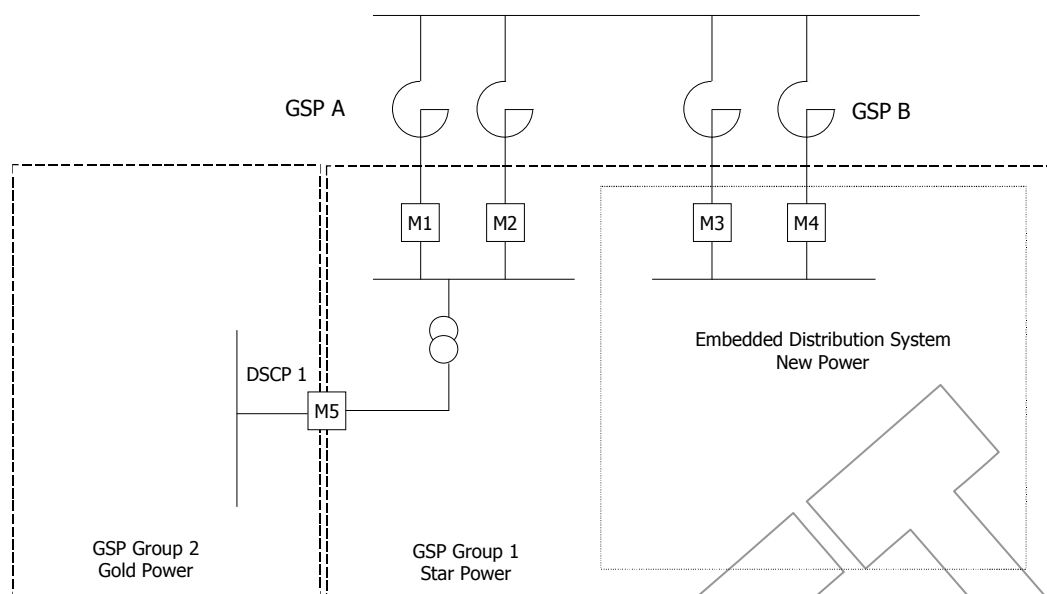
In this example, there are two Distribution Systems in GSP Group 1. Star Power is the Nominated LDSO for GSP Group 1 and New Power is an embedded LDSO. There is a DSCP to GSP Group 2 where Gold Power is the Nominated LDSO. It should be noted that the ~~A~~aggregation ~~R~~rules for GSP Group Metered Volumes would not change if the two GSPs A and B were physically distinct, as they are in the above diagram, or connected.

Star Power has registered the GSP Metering Systems at GSP A with the Metering System identifiers 1239. New Power has registered the GSP Metering Systems at GSP B with the Metering System identifier 1240. Each of the Metering Systems have metering subsystems associated with them. GSP A has metering subsystems STAR1 and STAR2, and GSP B has metering subsystems STAR3 and STAR4.

The DSCP 1 is metered by M5. This belongs to the Metering System ID 1231 registered by Gold Power. The physical meter M5 corresponds to a ~~m~~Metering ~~s~~Subsystem identified as GOLD5. The Metering System ID 1231 has an associated Line Loss Factors Code LLF1.

Aggregation Rules for GSP Metered Volumes

GSP A =   [1239.STAR1.AE – 1239.STAR1.AI] + [1239.STAR2.AE – 1239.STAR2.AI]

This would be submitted by Star Power.[1]

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[1] Changes to GSP Groups must be performed in accordance with BSC Section K1.8, which ensures that all Parties are aware of the changes.

GSP B =   [1240.STAR3.AE – 1240.STAR3.AI] + [1240.STAR4.AE – 1240.STAR4.AI]

This would be submitted by New Power.

DSCP 1 =   [[1231.GOLD5.AE – 1231.GOLD5.AI] * LLF1]

This would be submitted by Gold Power.

Note:

In this example, the Metering System at DSCP1 (M5) is registered by Gold Power. As a result, the above Aggregation Rules treat ~~The DSCP metering could be registered by either Gold Power or Star Power. Depending on who registers the DSCP metering determines the way the metered value is treated. For example, if Gold Power register the Metering System at the DSCP then~~ an Export ~~would be treated~~ as the flow from GSP Group 2 to GSP Group 1 and an Import as a flow of electricity from GSP Group 1 to GSP Group 2. However, in practice, the DSCP metering could be registered by either Gold Power or Star Power. ~~Likewise i~~If Star Power registered the Metering System at the DSCP then an Export would be from GSP Group 1 to GSP Group 2 and an Import from GSP Group 2 to GSP Group 1.

Aggregation Rules for GSP Group Metered Volumes and GSP Group Take

Metered Volume for   [GSP A] + [GSP B] – [DSCP1] + the Aggregation Rules for all other GSPs
GSP Group 1 =   within GSP Group 1 + the Aggregation Rules for all DSCPs connecting
                                   to/from GSP Group 1

This would be submitted by Star Power.

Metered Volume for   Aggregation Rules for all GSPs within GSP Group 2 + [DSCP 1] + the
GSP Group 2 =   Aggregation Rules for all DSCPs connecting to/from GSP Group 1

This would be submitted by Gold Power.

The Group Take for GSP Group 1 is the same as the GSP Group M~~m~~etered V~~v~~olume as the embedded Distribution System has no CVA Boundary Points~~entry or exit points registered in CVA~~ in GSP Group 1 and no contribution to the A~~a~~ggregation R~~r~~ules. All the~~ir~~ energy of the embedded Distribution System is accounted for in~~by~~ SVA.

Group Take for GSP   Metered Volume for GSP Group 1
Group 1 =

Group Take for GSP   Metered Volume for GSP Group 2 – all embedded BM Units
Group 2 =

The~~se~~se will be established by the CDCA~~.~~, Parties are not required to submit ~~these~~ Aggregation Rules, however the CDCA can request that they do.

4.1.12 Interconnectors

Interconnectors are defined as Apparatus that transfers Electricity to or from the Total System from or to an External System. NGC is responsible for registering the Metering Systems associated with Transmission Interconnectors and submitting the Aggregation Rules. Distribution System Operators are responsible for registering Metering Systems associated with Distribution Interconnectors and submitting the Aggregation Rules. Below is an example of an Interconnector.
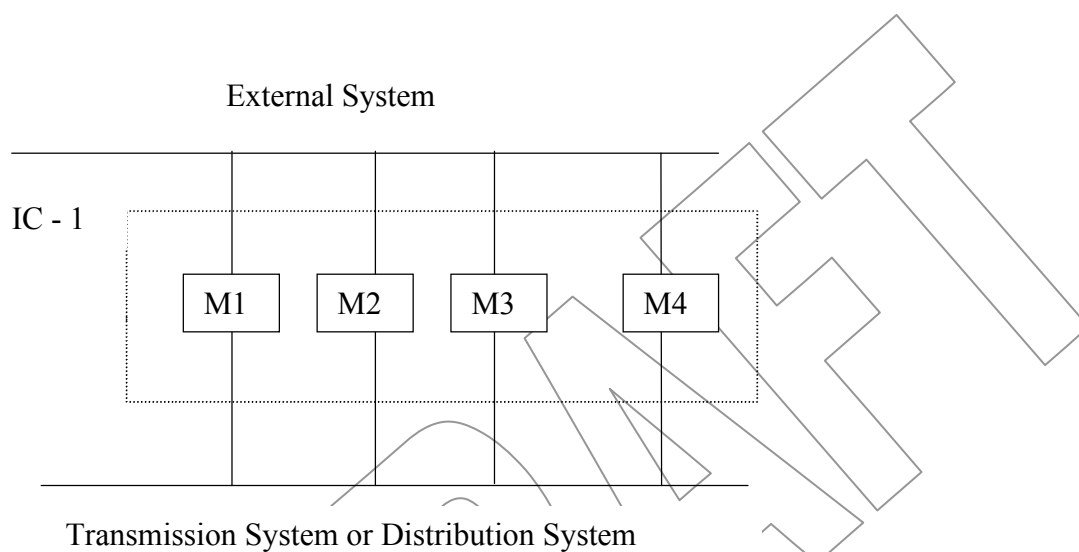
External System

IC - 1

| M1 | M2 | M3 | M4 |

Transmission System or Distribution System

All the Meters in the above example are connected to one Outstation and constitute one Metering System. This Metering System has been registered by NGC and the Metering System ID is 1250. The 4 physical meters (M1, M2, M3 & M4) are 4 steering subsystems, referred to as NGC1, NGC2, NGC3 and NGC4 respectively, contained within the Metering System 1250.

The Aggregation Rule for the above Interconnector will be submitted by NGC.

Metered Volume =   [1250.NGC1.AE~~]~~ – 1250NGC1.AI] + [1250.NGC2.AE~~]~~ – 1250NGC2.AI] + [1250.NGC3.AE~~]~~ – 1250NGC3.AI] + [1250.NGC4.AE~~]~~ – 1250NGC4.AI]

4.2　　BSCP75/4.2 Registration of Meter Aggregation Rules For Volume Allocation Units

To: CDCA	Date Sent: _____

From: Participant Details

Party ID: _____	Name of Sender: _____
Participation Capacity: _____	Contact email address: _____
Our Ref: _____	Contact Tel. No. _____

Name of Authorised Signatory: _____

Authorised Signature: _____	Password: _____

☐　Tick box if this is a Registration Transfer in accordance with BSCP68.

Section 1
Please Tick Aggregation Unit Type

BM Unit (B)		External Interconnector (I)		Internal Interconnector (D)		Grid Supply Point (P)		Grid Supply Point Group Take (G)	

Aggregation Unit ID	
Aggregation Unit Name (optional)	
Effective From Date	
Effective To Date (optional)	

Section 2

Expression Reference (ER)	MSQ, ER, BMU, GSP, DSCP or LLF	Reference	+, -, /, x	MSQ, ER BMU, GSP, DSCP or LLF	Reference
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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21					

PAGE 3 OF 3
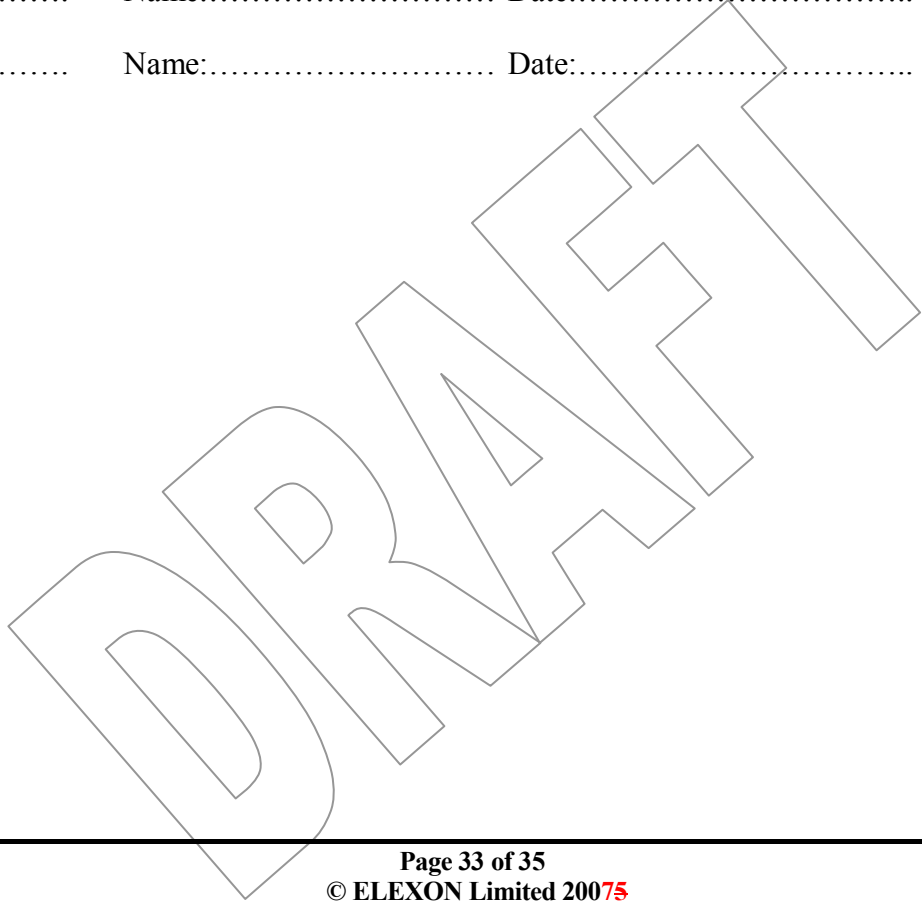
<u>**Section 3**</u>

From CDCA to Registrant

I hereby confirm that the Meter Aggregation Rules associated with the above Reference No. have been received.

Input by: Signed:…………………..   Name:………………………   Date:…………………………..

Checked by: Signed:…………………..   Name:………………………   Date:…………………………..

(For CDCA)

4.3   Examples of Registration Form (Section 2 of Form BSCP75/4.2)

Example 1   Power Station Connected to the Transmission System (based on BM Unit 1 in Section 4.1.3 of this BSCP)

Expression Reference ER	MSQ, ER, BMU, GSP, DSCP or LLF	Reference	+, -, /, x	MSQ, ER, BMU, GSP, DSCP or LLF	Reference
1	ER	2	-	ER	5
2	ER	3	+	ER	4
3	MSQ	1234.STAR1.AE	-	MSQ	1234.STAR1.AI
4	MSQ	1234.STAR2.AE	-	MSQ	1234.STAR2.AI
5	MSQ	1234.STAR3.AE	-	MSQ	1234.STAR3.AI
6					
7					
8					

Example 2   Power Station Embedded within a Distribution System (based on BM Unit 1 in Section 4.1.3 of this BSCP)

Expression Reference ER	MSQ, ER, BMU, GSP, DSCP or LLF	Reference	+, -, /, x	MSQ, ER, BMU, GSP, DSCP or LLF	Reference
1	ER	2	-	ER	5
2	ER	3	+	ER	4
3	ER	6	x	LLF	
4	ER	7	x	LLF	

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Expression Reference ER	MSQ, ER, BMU, GSP, DSCP or LLF	Reference	+, -, /, x	MSQ, ER, BMU, GSP, DSCP or LLF	Reference
5	ER	8	x	LLF	
6	MSQ	1234.STAR1.AE	-	MSQ	1234.STAR1.AI
7	MSQ	1234.STAR2.AE	-	MSQ	1234.STAR2.AI
8	MSQ	1234.STAR3.AE	-	MSQ	1234.STAR3.AI
9					
10					