Central Data Collection Agent

User Requirement Specification

Synopsis	The Central Data Collection Agent is responsible for collecting, validating and aggregating data from metering systems registered by BSC Trading Parties. This document describes the detailed requirements of this service.
Version	
Effective date	
Prepared by	ELEXON Design Authority

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1 Management Summary

The Central Data Collection Agent (CDCA) is one of the suite of seven services that support the operation of the Balancing and Settlement Code (BSC).

The Central Data Collection Agent (CDCA) collects, processes and aggregates metered data associated with Metering Systems registered with the Central Registration Agent (CRA), within the timescales required to enable settlement to meet the Payment Calendar.

The CDCA role is comprised of a number of key business processes:

- establish and maintain a database of registration data provided by the CRA and BSC Parties;
- receive, validate and maintain Metering Equipment Technical Details associated with each Metering System for each Meter Point;
- carry out proving tests on all new installations of Metering Equipment or where there has been a change to hardware for a Meter Point;
- collect, validate and record meter data, estimating metered values where necessary;
- carry out Meter Advance Reconciliations;
- maintain changes to aggregation rules which describe the relationship of the metering equipment to other components within the total system;
- aggregate and process meter volume data according to these rules for Credit Cover and Settlement Runs;
- supply aggregated Meter Volume data from the Settlement Runs to the SAA, the SVAA and the appropriate BSC Parties;
- supply aggregated meter volume data from the Credit Cover run to the ECVAA;
- support for the Disputes management process which enables BSC Parties to query the reported outcome of the Settlement and Reconciliation runs produced by the Settlement Administration Agent. This is in the context of supporting queries on the metering data supplied to the SAA.
- provide an audit trail for all data and report transactions.

The purpose of this document is to provide a complete specification of the set of business requirements which the CDCA service must satisfy for all of its various user types. These range from the BSC Parties to BSCCo Ltd and its various agents, including the operators of the CDCA itself and the other BSC services. Similar documents are maintained that define the requirements for the other services. A

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convention has therefore been used for uniquely identifying the requirements in each document, so as to ensure that the fulfilment of each requirement can be unambiguously traced through the subsequent functional specification, design and implementation. This is of particular importance for the implementation of the CDCA, SAA, and CRA services, which use a single integrated computer system. This document does not, however, attempt to describe the integration of those services, which would be inappropriate for this CDCA User Requirement Specification (URS).

The requirements which have been identified have been divided into four categories:

- Functional requirements – those requirements relating to a specific business activity, usually requiring some degree of automated support;
- Interface requirements – the requirements for the exchange of data between the CDCA, the other BSC services shown above, and the external participants (and covered in more detail in the Interface Definition and Design (IDD) documents);
- Non-functional requirements – those requirements relating to such activities as security (both physical and user access related), audit, and system housekeeping (systems backups and archiving etc.). It is anticipated that the majority of these will be common to all of the services to be provided; hence unless specific to CDCA these requirements are listed in the CRA URS, which is cross-referenced as appropriate.
- Service requirements – the underlying requirements for implementing and operating the overall CDCA service, including such as issues as volumetrics and performance.

These requirements are catalogued in sections 5 to 8 respectively.

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2 Introduction

This document is the User Requirements Specification (URS) for the Central Data Collection Agent role within the Balancing and Settlement Code Services. It is one of a set of documents forming the baseline for requirements of the seven BSC central system services. This document set comprises:

- BMRA URS;
- CRA URS;
- SAA URS;
- ECVAA URS;
- CDCA URS;
- FAA URS;
- SVAA URS;
- Interface Definition and Design (IDD) specification (this forms the master definition of all interfaces both between BSC central system services, and from each of these services to external parties).

The objective of this document is to provide a complete specification of the requirements that the CDCA service must meet, from the users' point of view. For this purpose, the "users" include BSCCo Ltd, National Grid as the balancing mechanism operator, BSC Service Users, and the CDCA Service Provider's own operators.

This User Requirements Specification forms the input to the System Specification for the CDCA Service. The System Specification constitutes the definition of the computer system requirements to be built in support of the CDCA Services.

Note that the current solution for the BSC central systems involves a bundled approach where the requirements of the SAA, CRA and CDCA services are met within the same computer system. As this URS is describing the requirements of the CDCA *service* in isolation, this document does not attempt to identify in detail where common requirements of these services are met by a shared function in the solution.

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2.1 Amendment History

Date	Issue	Details of Change
24/06/2010	16.0	Document rebadged and amended for June 2010 Release (CP1324)

Further details of this document's amendment history are available from BSCCo on request.

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3 Scope of Specification

This document provides a complete specification of the requirements for the Central Data Collection Agent (CDCA) Service within the BSC Services Agreement. The requirements are described from the point of view of the CDCA Service users.

The document is divided into the following chapters.

- Chapter 4, Business and System Overview - describes the business context of the CDCA Service. It includes a definition of the CDCA Service user population.
- Chapter 5, Functional Requirements - describes the functional requirements of the Service from the point of view of the Service users.
- Chapter 6, Interface Requirements - lists the interfaces with the external users of the Service.
- Chapter 7, Non-functional Requirements - describes the non-functional requirements of the Service.
- Chapter 8, Service Requirements - includes time-related service delivery requirements, including performance and volumetrics.
- Chapter 9, User Roles and Activities - describes the user roles associated with the service, with an outline of their anticipated activities.
- Appendix A, Glossary - includes a glossary of terms and acronyms.
- Appendix B, Requirements Compliance Matrix - shows the mapping of requirements defined by this document to requirements set out in the CDCA Service Description.
- Appendix C, Logical Data Model.
- Appendix D, Business Process Model.

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4 Business and System Overview

This section provides an overview of the Central Data Collection Agent (CDCA) business requirements and is for indicative purposes only. The definitive statement of requirements are given in the following chapters.

4.1 Summary of Business Requirements

The CDCA role is comprised of a number of key business processes:

- establish and maintain a database of registration data provided by the CRA and BSC Parties;
- receive, validate and maintain Metering Equipment Technical Details associated with each Metering System for each Meter Point;
- carry out proving tests on all new installations of Metering Equipment or where there has been a change to hardware for a Meter Point;
- collect, validate and record meter reading data, estimating metered values where necessary;
- carry out Meter Advance Reconciliations;
- maintain changes to aggregation rules which describe the relationship of the metering equipment to other components within the total system;
- aggregate and process meter volume data according to these rules for Credit Cover and Settlement Runs;
- supply aggregated Meter Volume data from the Settlement Runs to the SAA, the SVAA and the appropriate BSC Parties and their agents;
- supply aggregated meter volume data from the Credit Cover run to the ECVAA;
- support for the Disputes management process which enables BSC Parties to query the reported outcome of the Settlement and Reconciliation runs produced by the Settlement Administration Agent. This is in the context of supporting queries on the metering data supplied to the SAA.
- provide an audit trail for all data and report transactions.

4.2 The Settlement Calendar

The Settlement Calendar issued by the SAA requires the CDCA to perform its day to day processes to a schedule which meets the reporting delivery requirements of this Calendar.

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The settlement rules require the SAA to perform at least six standard settlement runs in respect of each settlement day on every working day, together with dispute runs as requested by the Trading Disputes Committee (TDC). The set of settlement runs to be carried out for each settlement day will consist of:

- Interim Initial Settlement;
- Initial Settlement;
- Reconciliation Settlement (3 runs)
- Final Reconciliation;
- Settlement Dispute (runs as necessary).

The settlement calendar will be constructed so as to smooth the processing of these settlement runs, as necessary, across available working days with the aim of reducing the necessity of running more than ten settlements runs on any given day.

The CDCA is required to supply the SAA with any revised aggregated data in order for the settlement runs to contain the best information available prior to the run.

The CDCA is required to supply the ECVAA with aggregated BM Unit Meter Volume data for Credit Cover purposes. Although not part of Settlement, this 'Credit Cover Volume Allocation Run' will be scheduled from, and be part of, the Settlement Calendar.

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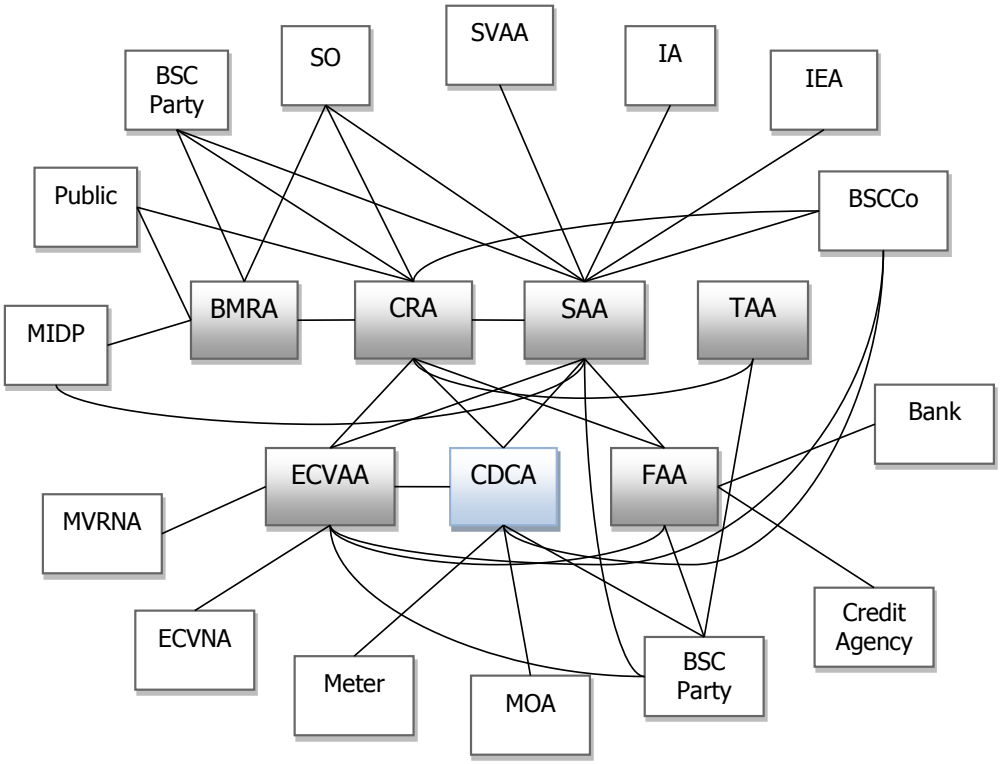
4.3 Service Context

The following diagram illustrates the context of the CDCA service within the wider market of the Balancing and Settlement Code. This is a simplified view for clarity; section 6 describes the interfaces from the CDCA service to other parties in detail.



Item	Description
Bank	A bank which receives debit and credit instructions from the Funds Administration Agent.
BMRA	Balancing Mechanism Reporting Agent.
BSC Party	Any user of Balancing and Settlement Code services.
BSCCo Ltd	The Balancing and Settlement Code Company Limited.
CDCA	Central Data Collection Agent.
CRA	Central Registration Agent
Credit Agency	A credit agency which provides credit cover data on Traders.
ECVAA	Energy Contract Volume Aggregation Agent.
ECVNA	Energy Contract Volume Notification Agent.
FAA	Funds Administration Agent.

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Item	Description
IA	Interconnector Administrator.
IEA	Interconnector Error Administrator
Meter	A physical meter registered within the Balancing and Settlement Code arrangements.
MIDP	Market Index Data Provider
MOA	Meter Operation Agent.
MVRNA	Metered Volume Reallocation Notifications Agent
Public	A member of the general public.
SAA	Settlement Administration Agent.
SO	System Operator
SVAA	Supplier Volume Aggregation Agent, equivalent to the current Initial Settlement and Reconciliation Agent (ISRA).
TAA	Technical Assurance Agent.
Transfer Coordinator	A role undertaken by BSCCo Ltd to coordinate transfers of metering between CVA (CRA & CDCA) and SVA in order to address the risk that Metering Systems are ‘double counted’ or ‘omitted’ from Settlements’.

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4.4 Requirements Summary

The following table summarises the requirements of the CDCA service. These are then described in detail in section 5, including the source reference for each requirement.

Requirement ID.	User Requirement
Functional	
CDCA-F001	Validate meter technical details
CDCA-F002	Validate aggregation rules
CDCA-F003	Produce report of aggregation rules
CDCA-F004	Undertake proving tests
CDCA-F005	Collect metering system data
CDCA-F006	Manually collect metering system data
CDCA-F007	Validation of meter readings
CDCA-F008	Report meter reading exceptions
CDCA-F009	Meter reading estimation
CDCA-F010	Reporting of alternative methods of estimation
CDCA-F011	Reporting of estimations
CDCA-F012	Resolving metering system faults
CDCA-F013	Undertake Meter Advanced Reconciliation
CDCA-F014	Investigate MAR discrepancies
CDCA-F015	Inform BSCCo Ltd of MAR errors
CDCA-F016	Calculate Credit Cover BMU Meter Volume Data
CDCA-F017	Change of Meter and Outstation
CDCA-F018	Validation of Line Loss Factors
CDCA-F019	Application of Line Loss Factors to meter readings
CDCA-F021	Time keeping
CDCA-F022	Report raw meter readings to BSC Party
CDCA-F023	Report raw meter readings to Distribution Businesses
CDCA-F024	Report raw meter readings to System Operator
CDCA-F025	Calculate aggregated Interconnector meter flow volume
CDCA-F026	Calculate aggregated BM Unit meter volumes
CDCA-F027	Calculate aggregated GSP Group Take volumes
CDCA-F028	Report aggregation exceptions
CDCA-F029	Meter communications management
CDCA-F030	Performance reporting
CDCA-F031	Receive settlement calendar
CDCA-F032	CDCA data to be archived
CDCA-F033	Settlement reporting
CDCA-F034	Metering protocols

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Requirement ID.	User Requirement
CDCA-F035	Transfer from SMRS
CDCA-F036	Transfer to SMRS
CDCA-F037	Registration Assistance
CDCA-F038	Report Aggregated Volumes
CDCA-F039	PARMS Reporting
Interface	
CDCA-I001	Receive Aggregation Rules
CDCA-I002	Receive Registration Data
CDCA-I003	Receive Meter Technical Data
CDCA-I004	Notify new Meter Protocol
CDCA-I005	Load new Meter Protocol
CDCA-I006	Issue Meter Data for Proving Test to MOA
CDCA-I007	Proving Test Report/Exceptions
CDCA-I008	Obtain Metered Data from Metering Systems, including Interconnectors
CDCA-I009	Meter Period Data collected via site visit
CDCA-I010	Exception Report for missing and invalid meter period data
CDCA-I011	Dial readings from meter, for MAR
CDCA-I012	Report raw meter data to BSC Party
CDCA-I013	Agreement with Estimated data by BSC Party
CDCA-I014	Estimated Data Report and Notification of Estimation Method
CDCA-I015	Metering Equipment Faults from MOA
CDCA-I016	Information from TAA
CDCA-I017	Meter Reading Schedule for MAR
CDCA-I018	MAR Reconciliation Report
CDCA-I019	MAR Remedial Action Report
CDCA-I020	Site Visit Inspection Report from Site Visit Agent
CDCA-I021	Notification of Metering Equipment Work from MOA
CDCA-I022	Line Loss Factors
CDCA-I023	Missing Line Loss Factors
CDCA-I024	*Archived data [Interface deleted]*
CDCA-I025	Aggregation Rule Exceptions
CDCA-I026	Aggregated Meter Volume Exceptions
CDCA-I027	Aggregated Interconnector Meter Flow Volumes to SAA
CDCA-I028	Aggregated BM Unit Metered Volumes to SAA
CDCA-I029	Aggregated GSP Group Take Volumes to BSC Party
CDCA-I030	Meter Period Data for Distribution Area
CDCA-I031	*Meter Period Data for Total System* [Interface deleted; covered by CDCA-I012]
CDCA-I032	Data Collection and Aggregation Performance Report

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Requirement ID.	User Requirement
CDCA-I033	File Receipt Acknowledgement
CDCA-I034	Settlement Calendar
CDCA-I035	Site Visit Report on Aggregation Rule compliance
CDCA-I036	GSP Group Take to SAA
CDCA-I037	Estimated Data Notification to BSC Party, MOA
CDCA-I038	Reporting Metering Equipment Faults
CDCA-I039	Information to TAA
CDCA-I040	BM Unit 'Credit Cover' Meter Volume Data Report
CDCA-I041	Interconnector Aggregation Report to BSC Party
CDCA-I042	BM Unit Aggregation Report to BSC Party
CDCA-I043	GSP Group Take to SVAA
CDCA-I044	Meter System Proving Validation from MOA
CDCA-I045	Meter Data from routine work and Metering Faults
CDCA-I046	Site Visit Inspection Report to MOA
CDCA-I047	Correspondence Receipt Acknowledgement
CDCA-I048	Report of Aggregation Rules
CDCA-I049	Total Demand per GSP
CDCA-I050	Data Exception Report from SAA
CDCA-I051	Report Meter Technical Details
CDCA-I054	Meter Status Report
CDCA-I055	Transfer from SMRS information
CDCA-I056	Transfer from SMRS report
CDCA-I057	Transfer to SMRS information
CDCA-I058	Transfer to SMRS report
CDCA-I059	Initial Meter Reading Report
CDCA-I060	SVA Agent Details
CDCA-I061	Receive System Parameters
CDCA-I062	*Not in use*
CDCA-I063	*Not in use*
CDCA-I064	MOA Proving Tests Report
CDCA-I065	MOA Fault Resolution Report
CDCA-I066	Demand Control Instructions to CDCA
CDCA-I067	Disconnected BM Units
CDCA-I068	Aggregated BM Unit Disconnection Volumes
Service	
CDCA-S001	Volumetric Requirements
CDCA-S002	Data Quality

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Note that there are a set of further Non-functional requirements of the CDCA Service - those requirements relating to such activities as security (both physical

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and user access related), audit, and system housekeeping (systems backups and archiving etc.). The majority of these are common to all of the services provided; hence unless specific to CDCA these requirements are listed in the CRA URS.

4.5 Numbering Scheme for Requirement Definitions

As described in section 2, the set of baseline requirement documents include a User Requirements Specification for each of the services of the central BSC systems. Within these documents each requirement across the set of services is uniquely identified to provide traceability of each individual requirement from URS to System Specification (functional specification) and then to Design Specification (technical specification).

The present solution maps the requirements for the BSC Services across a number of computer systems plus a set of manual processes, so it is vital that each requirement across the set of services is uniquely identified. This allows us to trace through each individual requirement from URS to System Specification and to Design Specification. At final issue, there will always be one System Specification (SS) for each of the computer systems, so for instance the SS which is produced for the CRA/SAA/CDCA system will ultimately include functions supporting the requirements derived from the three relevant URSs.

In keeping with industry good practise, this URS adopts a requirements numbering system that works as follows:

1. Each requirement is associated with either an individual service, or as common to all services supported by the central system. If a requirement applies to more than one service, but not all (e.g. two out of six), then the requirement is be restated for each, i.e. there would be two separately numbered requirements (which happen to be the same) in this example.

   Each requirement is thus be prefaced by one of the following codes, as a clear indicator as to which service generates the business need:

   - CRA (Central Registration Agent);
   - SAA (Settlement Administration Agent);
   - CDCA (Central Data Collection Agent);
   - ECVAA (Energy Contract Volume Aggregation Agent);
   - BMRA (Balancing Mechanism Reporting Agent);
   - FAA (Funds Administration Agent);
   - GEN (General).

2. Requirements are categorised into the following headings:

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- Functional (F), a specific business requirement of the service.
- Interface (I), a requirement for data exchange between services or to external parties.
- Non-functional (N), which includes auditing, security, resilience etc. The majority of these will probably be associated with the General (GEN) service.
- Service (S), which includes all time-related service delivery requirements, including performance and volumetrics.

3. Within a service, each requirement has a unique number in the range 001 to 999. Numbers are not unique across services. Leading zeroes are always included.

Combining 1, 2 and 3 thus gives the following format for numbering each requirement (including a separator character):

[Service]-[Category][Number]

For example:

- CRA-F001
- BMRA-S022
- GEN-N112
- CDCA-I033

4.6 Attributes of Individual Requirements

For each identified requirement, the following items of information are represented in a tabular format:

Requirement ID: a unique identifier for the requirement, as described above.

Status: while the majority of CDCA requirements are mandatory for the Go Live date, others may not necessarily be. This field indicates whether the requirement is Mandatory (M) or Optional (O) in this context.

Title: a short descriptive title for the requirement.

BSC reference: a cross reference to the BSC documentation which is the original source of the business need. In most cases this will include a reference to the relevant Service Description and where appropriate, any Change Proposals or Modifications that have affected a particular requirement.

Man/auto: this field provides an indication as to whether a given requirement is likely to be satisfied by a manual, as opposed to automated, mechanism. This is not

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however intended to be prescriptive, and the approach to supporting any individual requirement will be made definitively during the design phase.

Frequency: an indication of how often a business event will take place. Minimum, maximum and average frequencies, and any timing or scheduling requirements, are also identified here, as appropriate.

Volumes: data volumes associated with the requirement are identified here; this may include an estimate of the initial volume, and subsequent growth rates.

The requirement is then described in detail, with any associated specific non-functional and interface requirements separately identified.

5 Functional Requirements

This section describes the detailed set of business requirements for the Central Data Collection Service. To ensure traceability through to other deliverable documents such as the System Specification and Design Specification, each requirement is uniquely numbered, based on the convention described in section 4.

Note that where requirements refer to Line Loss Factors, this also includes embedded generation scaling factors.

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5.1 CDCA-F001: Validate meter technical details

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F001	M	Validate meter technical details	CDCA SD 5.1, 5.2, 5.4 BPM 3.4, 4.20, CP637, CP753, CP751, CP1201
Man/auto:	**Frequency:**	**Volumes:**	
Manual	On demand.	Average of 20 per month	

Functional Requirement:

1. The CDCA shall receive, validate and maintain records of Metering Equipment Technical Details (including passwords where appropriate) associated with each Metering System for each Meter Point, associated data collector outstation and communications facility applicable to that Metering System, as received from the relevant MOA or Registrant. The details will have effective dates which may be retrospective. Location and other access details for the metering equipment are required. Other data required by CDCA may include schematics and network diagrams from MOAs or Registrant. The CDCA shall take account of any updates received from the MOA or Registrant.

2. The Metering Equipment Technical Details received from the MOA or Registrant shall be validated against other data held by the CDCA to ensure their accuracy and validity, including against registration data provided by the CRA.

3. The meter technical details shall include the Code of Practice (CoP) for the metering system, and the CDCA shall verify that the stated configuration is compliant with this code of practice.

4. The CDCA shall also support the procedure of Dispensations, where it is allowed that a given metering system to be non-compliant with the required CoP. Data such as meter multiplier may be adjusted by the MOA or Registrant in order to compensate for the discrepancy. The CDCA shall be capable of recording the following items of data against the metering system in cases where a dispensation applies:

   - Dispensation Reference;
   - Dispensation Effective From Date;
   - Dispensation Effective To Date;
   - Reason for Dispensation.

   This data shall be supplied by the MOA or Registrant where applicable. There is currently no requirement for CDCA to actively monitor when these dates are reached. They will only be used as part of the manual process of validating new aggregation rules.

5. The CDCA shall identify meters registered with the CRA where no meter technical details have been received and liaise with the MOA or Registrant to ensure that they provide the required information.

6. In the event of validation failure, the CDCA shall liaise with the MOA or Registrant (as applicable) to inform them of the nature of the failure, and to agree the nature of the corrective action. This might be either constitute a re-send from the MOA or Registrant (as applicable) of the corrected data, or else agreement of changes of meter technical data to be made by the CDCA to their own database directly. In the latter case the CDCA shall confirm back to the MOA or Registrant (as applicable) the resulting meter technical data configuration.

7. In the event of validation failure specifically concerning the excessive width of the Meter Serial Number, the CDCA shall liaise with the associated MOA or Registrant (as applicable) and agree an abridged identifier. The mapping between the original Meter Serial Number and the abridged Meter Serial Number shall be recorded against the meter.

8. Where the registration is indicated as part of a transfer from SMRA, then
   If confirmation of the transfer has been received from the transfer coordinator:
   Enter the data ensuring the confirmed date is used as this may differ from that originally submitted.
   Send an extract of the entered data to the transfer coordinator and to the appropriate Distributor.
   Where confirmation has not been received:
   Carry out validation but do not enter the data.
   Send a copy of the request to the transfer coordinator and to the appropriate Distributor.

9. Once validated the meter technical details, as held in the CDCA, shall be reported to the MOA, Registrant, Distribution System Operator (if relevant) and System Operator.

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Non Functional Requirement:
Interfaces:
The Metering Equipment Technical Details shall be received in accordance with interface specification CDCA-I003. They shall be sent to the MOA, Registrant, Distribution System Operator (if relevant) and System Operator in accordance with interface specification CDCA-I051.
Issues:

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5.2 CDCA-F002: Validate aggregation rules

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F002	M	Validate aggregation rules	CDCA SD 4.1, 19.2, 22.1, 22.2 22.3, 22.4 BPM 3.2, 3.5, 4.12, CP753
Man/auto:	**Frequency:**	**Volumes:**	
Manual	On demand.	20 per month	

Functional Requirement:

1. The CDCA shall receive, from the BSC Party, the following information in support of Aggregation Rules:
   a) Metering System identifier;
   b) Aggregation Rule(s) for each of Physical Meter, Metering System, Meter Point, Grid Supply Point, GSP Group and Interconnector;
   c) Other information, as may be required, to support the Aggregation Rules. This may include, but shall not be limited to the following:-
      network diagrams;
      schematics;
      NGET connection agreement;
      installation documentation;

2. The CDCA shall provide a database which allows for the addition, modification and deletion of Aggregation Rules and other information and data provided by BSC Parties and Agents. Aggregation rules will have effective dates which will be in clock time (i.e. always apply from midnight local time) and may be retrospective

3. The CDCA shall validate all Aggregation Rules received from the relevant BSC Party, by comparing the Metering Systems involved in the aggregation with the registration information received from the CRA to determine the correctness of the Aggregation Rules.

4. The CDCA shall identify metering systems registered with the CRA for which no aggregation rules exist. Missing or invalid aggregation rules will be identified and reported to the BSC Party.

5. The CDCA shall use the data from the CRA to verify completeness of the aggregation rules across all BSC Parties, for instance to ensure that rules exist for all Grid Supply Points and Grid Supply Point Groups.

6. Where the registration is indicated as part of a transfer from SMRA, then
   If confirmation of the transfer has been received from the transfer coordinator:
      Enter the data ensuring the confirmed date is used as this may differ from that originally submitted.
      Send an extract of the entered data to the transfer coordinator and to the appropriate Distributor.
   Where confirmation has not been received:
      Carry out validation but do not enter the data.
      Send a copy of the request to the transfer coordinator and to the appropriate Distributor.

Non Functional Requirement:

The CDCA shall undertake a site visit, where necessary, in order to verify the validity of the Aggregation Rules.

Interfaces:

The details of the aggregation rules to be provided to the CDCA will be in accordance with interface specification CDCA-I001.

Missing or invalid aggregation rules are notified in accordance with the interface requirement CDCA-I025.

Issues:

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5.3 CDCA-F003: Produce report of aggregation rules

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F003	M	Produce report of aggregation rules	CDCA SD 4.6 BPM 3.2
Man/auto:	**Frequency:**	**Volumes:**	
Manual	Ad hoc.	20 per month	
Functional Requirement:			
The CDCA shall produce a physical copy of the aggregation rules to the BSC Party to ensure the correct recording of the aggregation rules. This shall be provided on demand and as confirmation of the process of loading the rules into the system.			
Non Functional Requirement:			
Interfaces:			
This report will be produced in accordance with interface requirement CDCA-I048.			
Issues:			

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5.4 CDCA-F004: Undertake proving tests

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F004	M	Undertake proving tests	CDCA SD 7.1-7.6, 14.2 BPM 2, CP753, CP1201
Man/auto:	**Frequency:**	**Volumes:**	
Manual	On demand	20 per month	

Functional Requirement:

1. The CDCA shall carry out proving tests on all new installations of Metering Equipment for a Meter Point or where there has been a change to hardware for a Meter Point which is directly related to the collection of metered data. The need for a proving test may thus be triggered either by:
   a) notification of a new metering system by the CRA, including transfers from SMRS (via interface CDCA-I002);
   b) notification of changes to meter technical details by the MOA or Registrant, for instance as a result of BSC Party instructions (via interface CDCA-I003);
   c) changes to the configuration of metering equipment by the MOA or Registrant, as a result of MAR discrepancies or other fault identified by the CDCA (via interface CDCA-I003)

2. CDCA shall support the use of 'injection set' data, if available, to support proving tests. This data should not go into Settlements – it should only be recorded before the Metering System Effective Start Date registered by the CRA.

3. For proving tests which are conducted on or after the start of the metering system Effective Start Date, any Active data recorded by a meter on or after the Effective Start Date shall be used for reporting into the Settlement process, subject to passing validation and main/check filtering.

4. The CDCA shall check all communication links on new Metering System installations prior to the collection of data for settlement purposes and transfer the test data received to the relevant MOA responsible for that Metering System for validation of accuracy. The MOA shall provide confirmation as to whether the metered data is correct or otherwise.

5. The CDCA will use metered data collected from new Metering System installations in reports to BSC Parties and for settlement purposes even if the results of the proving test are incomplete at that time.

6. Where the MOA does not provide the CDCA with a validation of the collected data for a Metering System proving test, the CDCA shall contact the MOA requesting such validation.

7. Where the CDCA has undertaken a proving test and forwarded the collected meter data to the MOA for validation and is notified by the relevant MOA that the metered data received from the CDCA is incorrect, the CDCA shall determine in conjunction with the MOA and the Registrant, the reason(s) for such inaccuracies or incompleteness, and rectify accordingly.

8. The CDCA shall report any proving, validation and communications errors associated with any Metering System to the relevant MOA and send a duplicate of this report to the registrant BSC Party. Where the proving test was carried out as part of a transfer from SMRS, the report shall also be sent to the Transfer Coordinator.

Non Functional Requirement:

Interfaces:

Interface requirement CDCA-I002 describes registration data received from the CRA.
Interface requirement CDCA-I003 describes meter technical data from the MOA or Registrant.
Interface requirement CDCA-I006 describes the issuing of meter data for the proving test.
Interface requirement CDCA-I044 describes the proving test data validation from the MOA.
Interface requirement CDCA-I007 describes the proving test report including exceptions.

Issues:

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5.5 CDCA-F005: Collect metering system data

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F005	M	Collect metering system data	CDCA SD 8.1- 8.4, 8.7 BPM 3.3
Man/auto:	**Frequency:**	**Volumes:**	
Automatic	Daily	1100 - 5000 per day	

Functional Requirement:

1. The CDCA shall collect metered data from all Metering Systems registered with the CRA, as follows:-
   a) at a point of connection with a generator and the Total System;
   b) at a Grid Supply Point;
   c) at a point of connection between transmission networks;
   d) at a point of connection between two Distribution Networks;
   e) at a point of connection between a non-embedded customer and the Total System;
   f) at any premises which consume energy that are electrically connected to a Distribution Network that are not registered as trading with an SMRA;
   g) Others as notified by the CRA.

2. For each registered meter the CDCA shall collect and record meter period data for both main and check meters as follows:
   a) Export Active Energy;
   b) Import Active Energy;
   c) Export Reactive Energy; and
   d) Import Reactive Energy;

3. The CDCA shall collect meter period data relating to all Main and Check meters, and for the corresponding data collector outstation registers, where installed and operational, and which are used for settlement purposes.

4. The CDCA shall collect remote meter data by Interim settlement timescales. Where meters cannot be read remotely, the CDCA shall make reasonable endeavours to collect data within Interim settlement timescales, and should have collected data no later than for Initial settlement. Specific requirements will be defined in the Service Level Agreements.

5. The CDCA shall record and store all meter period data collected from Metering Systems and any cumulative register readings which may be used for Meter Advance Reconciliation purposes.

6. The CDCA shall record and store all meter period data collected from Metering Systems and any cumulative register readings which may be used for Meter Advance Reconciliation purposes

7. The CDCA shall perform procedures to ensure operational completeness of data in advance of settlement reporting runs to the SAA and BSC Parties.

Non Functional Requirement:

Interfaces:

This interface will be produced in accordance with interface requirement CDCA-I008.

Issues:

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5.6 CDCA-F006: Manually collect metering system data

Requirement ID: CDCA-F006	**Status:** M	**Title:** Manually collect metering system data	**BSC reference:** CDCA SD 8.5
Man/auto: Manual	**Frequency:** On demand.	**Volumes:**	
Functional Requirement:			
1. The CDCA shall make provisions to collect the meter period data manually, by visit to site, where collection of meter period data via a communication link is not possible. 2. The retrieved data is to be validated, aggregated and reported in the same method as that collected automatically. 3. Even if data is being collected manually, the CDCA shall perform this activity in timescales such that the data may be reported according to the Settlement Calendar.			
Non Functional Requirement:			
Interfaces:			
The data to be retrieved is defined in interface requirement CDCA-I009			
Issues:			

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5.7 CDCA-F007: Validation of meter readings

Requirement ID: CDCA-F007	**Status:** M	**Title:** Validation of meter readings	**BSC reference:** CDCA SD 9.1-9.3, 10.2, 10.10 BPM 3.4, P55, CP751 CP1153
Man/auto: Automatic	**Frequency:** Daily .	**Volumes:** 5000 per day	

Functional Requirement:

1. The CDCA shall validate all Active and Reactive metered data for Import and Export as follows, subject to the exception that validation rules (i) and (k) below shall not be applied to Reactive data, but to Active data only.

   a) that data is received from the correct number of channels;
   b) that the difference between data from Primary and Secondary outstations do not vary by more than an amount which can be attributed to allowable time shift (as detailed in Appendix D Calculation of Tolerances)
   c) where variation exists in excess of that prescribed in b) above is evident, investigate the reason(s) and treat both readings as suspect;
   d) that the difference between Main and Check meters or the relevant outstation channel data associated with the Main and Check meters do not vary by more than an acceptable tolerance which is related Appendix D Calculation of Tolerances to the accuracy requirements of that prescribed in the relevant Code of Practice (the actual tolerances are detailed in Appendix D Calculation of Tolerances);
   e) where variation in excess of that prescribed in d) above is evident, investigate the reason(s);
   f) that data is received for the correct number of periods since last retrieval;
   g) that the meter or associated outstation time is within ±20 seconds of Universal Co-ordinated Time at each interrogation, and take appropriate action as described in CDCA-F021;
   h) investigate any alarms identified during the data collection process;
   i) that nominal maximum or minimum values for the channel , if defined and communicated to the CDCA by BSCCo Ltd or the Registrant BSC Party, have not been exceeded. Note a zero reading value is considered to be a special case, and will therefore never trigger an exception;
   j) that meter period data is not null, in the case where readings for a channel should be expected according to the meter technical data, the channel having been previously successfully checked in a proving test;
   k) where the outstation provides a cumulative total register for a channel providing period data for settlement, check that the difference between successive cumulative readings and the sum of the meter period energy over the same time interval (known as "pulse checking" or "mini-MAR") is within a tolerance of ± 5%. Where the tolerance is exceeded, a fault investigation will be performed, and where this reveals a suspected fault then this is reported using CDCA-I038.

2. The CDCA shall also in addition to these validation rules specified above, use such other validation rules as may be appropriate in order to verify the validity of the metered data;

3. The CDCA shall retain records of the originally collected metered data and any alarm flags recorded in the meter or data collector outstation, as appropriate, the reason for failure where the value is invalid and the reason for accepting any data previously flagged as suspect.

4. Where data is missing or suspect and the outstation is also used by SMRS, the CDCA shall, if appropriate, check the status of the metering equipment with the SVA HHDC.

Non Functional Requirement:

Interfaces:

Issues:

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5.8 CDCA-F008: Report meter reading exceptions

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F008	M	Report meter reading exceptions	CDCA SD 8.6, 19.2 BPM 3.11, 4.12, CP511
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** Approximately 100 exceptions per day (1% of 5000 metering systems, each with two physical meters on average)	

Functional Requirement:

1. The CDCA shall provide the relevant BSC Party (the Registrant) and MOA with exception reports when the meter reading data is either not available for collection or the data is deemed to be invalid.

2. This shall apply to data associated with Check channels as well as to Main channels, for all measurement quantities.

Non Functional Requirement:

Interfaces:

This report will be produced in accordance with interface requirements CDCA-I010, CDCA-I054.

Issues:

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5.9 CDCA-F009: Meter reading estimation

Requirement ID: CDCA-F009	Status: M	Title: Meter reading estimation	BSC reference: CDCA SD 10.1, 10.3, 10.4, 10.5, 10.6, 10.8,10.11 BPM 3.4, CP566, CP751, CP988
Man/auto: Manual	Frequency: Ad hoc	Volumes: Approximately 50 per day (1% of 5000)	

Functional Requirement:

1. Except in relation to Demand Disconnection Volumes, the CDCA shall estimate metered values, in accordance with the estimation rules defined in the following tables, where errors in the meter period data are notified to the CDCA by the relevant MOA, or any other source, or where the CDCA believes the data to be in incorrect.

2. The CDCA shall estimate a value for each period for which metered data is either missing or incorrect, in accordance with the following rules, and apply a flag to indicate that the metered data has been estimated. The flag is applied even if Check data has been used as the estimation method, as described below. Check data may only be used if it has passed all validation rules, as described in CDCA-F007.

3. The following rules shall be applied in the given order, for estimation of generation meters :

	Cause	Data Estimation Method
1	Main Meter data missing or incorrect in Primary Outstation; Main Meter data correct in Secondary Outstation;	Data for Settlements shall be substituted from the Main Meter data from the Secondary Outstation (this is treated as actual Primary data and hence reported in the I012 and not in the I037).
2	Main Meter data missing or incorrect on all outstations; Check Meter installed and fully functional, including its associated Primary outstation.	Data for Settlements shall be copied from the Primary outstation Check Meter data (Method A).
3	Main Meter data missing or incorrect in Primary, and, where applicable, Secondary Outstations; Check Meter installed, but not fully functional. Outstation data reflects Main Meter and Check Meter measurements.	Metered values shall initially be estimated to zero, the responsible BSC Trading Party informed, requesting any supporting evidence, including Meter register readings, to ensure that generation was taking place during the period affected. The CDCA shall contact the SO to determine generation schedules and evidence of generation during the period(s) affected. The CDCA shall investigate and validate, to the best of its ability, all possible sources of data to determine an estimation for each of the missing integration period (Method K).

4. The following rules are to be applied in the given order for estimation of demand meters:

	Cause	Data Estimation Method
1	Main Meter data missing or incorrect in Primary outstation; Main Meter data correct in Secondary outstation;	Data for Settlements shall be substituted from the Main Meter data from the Secondary outstation (this is treated as actual Primary data and hence reported in the I012 and not in the I037).
2	Main Meter data missing or incorrect on all outstations; Check Meter installed and fully functional, including its associated Primary outstation.	Data for Settlements shall be copied from the Primary outstation Check Meter data (Method D).
3	Main Meter data missing or incorrect in Primary, and, where applicable, Secondary Outstations;	a) Where a Meter register advance is available and actual demand can be calculated, the integration period data may be estimated by profiling, using:

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	Check Meter installed, but not fully functional. Outstation data reflects Main Meter and Check Meter measurements.	the average load shape based on the same period over the previous week, month or following week, taking into account non-working days and public holidays (Method E); or b) Where a Meter register advance is unavailable, the average demand values and load shape may be estimated based on the same period data:- Over the previous week, month or following week, taking into account non-working days and public holidays (Method I); or c) Where only, 1, 2 or 3 integration period data is missing or incorrect manual values may be entered which ensure a match with the real data trends either side of the missing or incorrect data (Method M).

5. The BSC Party's own estimate may be used if received no later than 41 WD before the RF run and if agreed by the CDCA.

6. The CDCA shall use an alternative method for producing an estimate in circumstances where it is known that the data estimation methods specified above would not be appropriate.

7. The CDCA shall make every reasonable endeavour to complete any data estimation and procure agreement to those data estimations from the BSC Party or Parties in the required timescales in order to submit the estimated or substituted data to the Initial Settlement process.

8. The CDCA shall in all cases seek to obtain agreement from the relevant BSC Party or Parties to the data estimations or substitution of metered values prior to their use in settlement. However, the estimated value created by the CDCA shall be entered into settlement according to settlement calendar timescales, irrespective of whether or not the BSC Party has agreed with the value by this time. The BSC Party must raise a Dispute if they wish to challenge the value used.

9. Estimation shall only be performed for active energy data. Reactive data will not be estimated.

10. The CDCA shall check that nominal maximum or minimum values for the channel , if defined and communicated to the CDCA by BSCCo Ltd or the Registrant BSC Party, have not been exceeded by the estimate. Note that a zero reading value is considered to be a special case, and will therefore never trigger an exception.

Non Functional Requirement:

The creation of Estimated data shall not cause any original (invalid) meter reading values to be lost; these must be accessible for audit purposes, as described in GEN-N001 in the CRA URS.

Interfaces:

For clarity, the use of actual and estimated data at channel/register level within CDCA interfaces is summarised below.

- Raw reading data for all channels, including Main and Check registers, should be sent out at Day+1 via interface CDCA-I012. The data is marked as valid/invalid/missing at this stage.

- If a Main register is invalid or missing, then the following steps occur.

- The invalid data is reported in the Exception Report CDCA-I010.

- The estimation process is invoked in order to create estimated data for the invalid/missing periods, according to the algorithms in CDCA-F009. Note that this can include the use of data from a Check channel; this IS regarded as estimated data if used. Only Active Import and Active Export registers are estimated.

- The CDCA's estimate is sent to the registrant BSC Party via interface CDCA-I037, Estimated Data

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Notification. • The BSC Party responds to accept the estimate via interface CDCA-I013, Agreement with Estimated Data (or the CDCA and Party iterate until acceptance is reached or the Settlement Calendar due date for the data is reached, whichever is sooner). • Any estimated data at register level is used within the process of creating the Aggregated data reports for Settlement purposes. • The estimated data is then formally reported at register level as per CDCA-F011 by CDCA monthly or on request, via the interface CDCA-I014, Estimated Data Report (see CDCA-F010 and CDCA-F011).
Issues:

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5.10 CDCA-F010: Reporting of alternative methods of estimation

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F010	M	Reporting of alternative methods of estimation	CDCA SD 10.7
Man/auto:	**Frequency:**	**Volumes:**	
Automatic	As required	Minimal	
Functional Requirement:			
Where alternative methods of estimation not detailed in CDCA-F009 have been used, these will be notified to the recipients of the estimated data.			
Non Functional Requirement:			
The report must be provided by the CDCA in the same timescales that the estimates themselves are reported.			
Interfaces:			
This report shall be in accordance with the interface requirement in CDCA-I014.			
Issues:			

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5.11 CDCA-F011: Reporting of estimations

Requirement ID: CDCA-F011	Status: M	Title: Reporting of estimations	BSC reference: CDCA SD 10.9 BPM 3.11, CR134
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** High	
Functional Requirement:			
1. Except in relation to Demand Disconnection Volumes, the CDCA shall, where the meter period data has been estimated, provide an Estimated Data Report to BSCCo Ltd, the relevant BSC Party (the Registrant), the MOA, and the Distribution Business or TC . This report shall identify the dates and times for which the meter period data has been estimated and details of the estimation procedure. 2. The Report is sent to either the Distribution Business or TC as appropriate, based on the registration data received from the CRA (TC are interested in sites directly connected to the Transmission network). 3. The report shall indicate whether the estimate has been agreed/not agreed between the CDCA and the BSC Party.			
Non Functional Requirement:			
Interfaces:			
This report shall be in accordance with the interface specified in CDCA-I014.			
Issues:			

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5.12 CDCA-F011a: Estimation and Reporting of Demand Disconnection Volumes

Requirement ID: CDCA-F011a	**Status:** M	**Title:** Reporting of Demand Disconnection Volume estimations	**BSC reference:** CDCA SD 10.13, P305
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** High	

Functional Requirement:

1. The CDCA shall receive and maintain details of Demand Control Events sent to it by the BMRA (CDCA-I066).

2. The CDCA shall receive and maintain details of Disconnected BM Units sent to it by the TC or Distribution Business (CDCA-I067).

3. As soon as it receives details of Disconnected BM Units, the CDCA shall share these details with the BSCCo.

4. Using the Disconnected BM Unit details, the CDCA shall identify related Settlement Dates and Settlement Periods.

5. The CDCA shall receive estimated Demand Disconnection Volume data from the BSCCo and record these estimates with the Disconnected BM Unit data it maintains.

6. For Settlement Dates affected by a Demand Control Event, the CDCA shall send an Aggregated BM Unit Disconnection Volumes report to the SAA (i.e. the CDCA-I068/SAA-I044). This report shall identify the dates and times for which the Demand Disconnection Volume data has been estimated.

Non Functional Requirement:

Interfaces:

The CDCA will receive details of Disconnected BM Units in CDCA-I067.

The CDCA shall report Aggregated BM Unit Disconnection Volumes to the SAA in accordance with the interface specified in CDCA-I068.

Issues:

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5.13 CDCA-F012: Resolving metering system faults

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F012	M	Resolving metering system faults	CDCA SD 11.1-11.6 BPM 3.3
Man/auto:	**Frequency:**	**Volumes:**	
Manual	As required	Approximately 10 per day (0.2% of 5000)	

Functional Requirement:

1. The CDCA shall record all details received from the MOA in respect of Metering Equipment faults. Any information received shall be validated that it is from the MOA registered with the CRA for that Metering System.

2. The CDCA shall confirm the details of the fault report with the MOA and with the relevant BSC Party (the Registrant), and act upon the information received, either separately or jointly with the MOA, to ensure that valid data is sent to the SAA.

3. The CDCA shall record and report to the MOA all suspected metering faults detected while performing its responsibilities, carry out site inspections and liaise with the Technical Assurance Agent (TAA) as necessary. A duplicate of the fault report to the MOA is also sent to the relevant BSC Party registrant.

Non Functional Requirement:

Interfaces:

This data will be passed between agents in accordance with interface requirements CDCA-I015 and CDCA-I038.

The liaison with the TAA is defined in the interface requirements CDCA-I016 and CDCA-I039.

Issues:

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5.14 CDCA-F013: Undertake Meter Advance Reconciliation

Requirement ID: CDCA-F013	**Status:** M	**Title:** Undertake Meter Advance Reconciliation	**BSC reference:** CDCA SD 12.2 - 12.6, 12.11, 19.2 BPM 3.8, 4.12, 4.2 CP1153, CP1324
Man/auto: Manual	**Frequency:** As per Functional Requirements 1, 2, 3 & 4	**Volumes:** Approximately 100 per working day, based upon 5000 metering systems.	

Functional Requirement:

1. For Meters with separate Outstations the CDCA shall ensure that meter reading is carried out on the registers of all physical meters recording active energy and the active energy registers of associated data collector outstations, where applicable, which provide meter period data collected by the CDCA for settlement purposes, at least once every three months.

2. For Meters with separate Outstations located Offshore at Offshore Power Park Modules the CDCA shall ensure that meter reading is carried out on the registers of all physical meters recording active energy and the active energy registers of associated data collector outstations, where applicable, which provide meter period data collected by the CDCA for settlement purposes, at three months for the first Meter Advance Reconciliation and thereafter at least once every twelve months.

3. For Meters with integral Outstations that do not provide an electronic cumulative reading of the prime Meter register equivalent to the total consumption or production of the Meter, the CDCA shall ensure that meter reading is carried out on the registers of all physical meters recording active energy, which provide meter period data collected by the CDCA for settlement purposes, at least once every six months.

4. For Meters with integral Outstations that provide an electronic cumulative reading of the prime Meter register equivalent to the total consumption or production of the Meter, the CDCA shall ensure that meter reading is carried out on the registers of all physical meters recording active energy, which provide meter period data collected by the CDCA for settlement purposes, at least once every twelve months.

5. All records of active energy meter readings shall be input into the Meter Advance Reconciliation process, recording the relevant dates and times of readings, and comparing the advance of the register reading with the sums of the meter period data relevant to that register reading over the same time period.

6. The CDCA shall validate that the time at which the physical meter reading was taken as either in Universal Co-ordinated Time or local clock time and take this potential variation into account when comparing the sum of half-hourly values in the reconciliation. Note that the meters themselves always operate using a UTC time reference (i.e. GMT).

The results of each Meter Advance Reconciliation shall be validated, and the CDCA shall provide the relevant BSC Party (the Registrant) with a reconciliation report detailing the actual difference calculated for each active energy meter or associated outstation register. The report may also be supplied to the relevant MOA, and the Distribution business if required, and to the BSCCo Ltd if needed to support a dispute.

Non Functional Requirement:

The CDCA shall in all cases, ensure that authorisation for access is granted to procure meter readings.

When attending a site to perform a meter reading for MAR purposes, the CDCA shall also perform visual inspections to ensure that:-

a) there is no evidence of damage to the Metering Equipment;
b) there is no evidence of fuse failure;
c) all indicator lamps are operational;
d) there is no evidence of tampering with the Metering Equipment;
e) there is no evidence of safety measures being compromised; and
f) the appropriate metering seals are correctly applied to the Metering Equipment in accordance with prescribed standards which will be equivalent to Appendix 8 of Schedule 5 of the Meter Operation Code of Practice Agreement.

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Interfaces:
This is to be in accordance with interface requirement CDCA-I011 for incoming dial readings, and CDCA-I018 for reporting. Meter period data is collected using interfaces CDCA-I008 (for automatically collected data) and CDCA-I009 (for manually collected period data).
Issues:

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5.15 CDCA-F014: Investigate MAR discrepancies

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F014	M	Investigate MAR discrepancies	CDCA SD 12.7 - 12.9 BPM 3.8, 4.2, CP609
Man/auto: Manual	**Frequency:** Ad hoc	**Volumes:** 2 per day based upon 2% of the 100 MARs undertaken each day, based on 5000 metering systems.	

Functional Requirement:

1. The CDCA shall in conjunction with the relevant MOA, undertake an investigation, where a discrepancy greater than ±0.1% is detected between the active energy meter register or associated data collector outstation register and the sum of the respective meter period data used in settlements. When investigating a discrepancy in excess of this value, the CDCA shall take into account any period where data estimations have been substituted in the half-hourly settlement data.

2. The CDCA shall take appropriate remedial action to resolve the discrepancy, and notify the relevant BSC Party or Parties of the remedial action(s) taken, if any, accordingly. The BSCCo Ltd rules will apply in this case.

Non Functional Requirement:

Interfaces:

This is to be in accordance with interface requirement CDCA-I019.

Issues:

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5.16 CDCA-F015: Inform BSCCo Ltd of MAR errors

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F015	M	Inform BSCCo Ltd of MAR errors	CDCA SD 12.10 BPM 3.5. 3.8, 4.2
Man/auto: Manual	**Frequency:** Ad hoc	**Volumes:** 2 per day based upon 2% of the 100 MARs undertaken each day, based on 5000 metering systems	

Functional Requirement:

1. The CDCA shall provide the BSCCo Ltd with a reconciliation report, where there is an error in excess of that defined in CDCA-F014, which may be used as evidence in the resolution of a dispute raised by a BSC Party or Parties.

2. Note that this report shall only include the exception cases, as opposed to the more general MAR Report CDCA-I018 (see CDCA-F013). This report however includes exceptions for all metering systems, for all lead BSC Parties.

3. The report shall be provided on an ad hoc basis as exceptions occur, not a regular monthly basis.

Non Functional Requirement:

Interfaces:

This is to be in accordance with interface requirement CDCA-I018.

Issues:

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5.17 CDCA-F016: Calculate Credit Cover BMU Meter Volume Data

Requirement ID: CDCA-F016	**Status:** M	**Title:** Calculate Credit Cover BMU Meter Volume Data	**BSC reference:** P215
Man/auto: Automatic	**Frequency:** Once per Credit Cover run	**Volumes:** 240000 (5000 BM Units * 48)	

Functional Requirement:

1. The CDCA shall calculate 'Credit Cover' BM Unit meter volume data to meet the settlement time table requirements;

2. The CDCA shall in respect of Meter Point volumes aggregate Metering System period data relating to that Meter Point to produce a Meter Point volume for each Settlement Period. Where insufficient Metering System period data exists for a given Settlement Period for a given Meter Point then no aggregated value will be generated. Meter Point volumes shall be produced for those points registered with the CRA which are associated with BM Units which have a Credit Qualifying Status of 'True' for the target Settlement Date.

3. Each BM Unit's 'Credit Cover' meter volume data will be generated by aggregating all Meter Point volume data relating to that BM Unit to produce a BM Unit volume for each Settlement Period. Where insufficient Meter Point volume data exists for a given settlement period for a given Meter Point then no aggregated value will be generated but instead a value of NULL will be recorded. Meter volume data shall be produced for those points registered with the CRA for BM Units which have a Credit Qualifying Status of 'True' for the target Settlement Date.

4. The CDCA shall in determining the BM Unit Meter Volume data apply the relevant Line Loss Factors to the Meter Point volumes for each Settlement Period;

5. The CDCA shall always use the latest meter and registration data available at the time a Credit Cover Run is performed;

6. Aggregation shall only take place on active energy data. The most recent Metering System period data, either actual or estimated, will be used, excluding only period data that is of zero value and has failed Primary/Secondary or Main/Check validation (as defined in CDCA-F007).

Non Functional Requirement:

Note that Line Loss Factors must be applied where appropriate, as described in CDCA-F019.

Interfaces:

This functional requirement is supported by interface CDCA-I040.

Issues:

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5.18 CDCA-F017: Change of Meter and Outstation

Requirement ID: CDCA-F017	**Status:** M	**Title:** Change of Meter and Outstation	**BSC reference:** CDCA SD 14.1, 14.2, CP1201
Man/auto: Manual	**Frequency:** Ad hoc.	**Volumes:** 50 per month	
Functional Requirement:			
The CDCA shall liaise with the MOA, where advised by the MOA that a meter or associated data collector outstation is to be changed or re-programmed, to collect the meter period data and any cumulative register readings from such meter or associated data collector outstation prior to the removal or re-programming of the meter or data collector outstation. On replacement or reprogramming of the meter or associated data collector outstation, the CDCA shall carry out a proving test as necessary, as described in CDCA-F004.			
Non Functional Requirement:			
Interfaces:			
The MOA or Registrant shall advise the change using the interface CDCA-I003.			
Issues:			

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5.19 CDCA-F018: Validation of Line Loss Factors

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F018	M	Validation of Line Loss Factors	CDCA SD 15.1, 15.2
Man/auto: Automatic	**Frequency:** Annually	**Volumes:** 17520000 factors (1000 metering systems * 365 * 48 - see below)	

Functional Requirement:

1. The CDCA shall receive, record and maintain all Line Loss Factors received from BSCCo Ltd relating to any Metering System.

2. The CDCA shall validate such Line Loss Factors, received from BSCCo Ltd, in accordance with the data quality requirement CDCA-S002. Distribution Businesses provide Line Loss Factors to BSCCo Ltd for Validation.

3. The CDCA shall ensure that any missing line loss factors are identified and action taken to ensure that they are received and processed.

4. Embedded generation and demand sites have Line Loss Factors applied to their meter readings during aggregation.

5. Some points of connection between Distribution networks may have Line Loss Factors applied during aggregation.

Non Functional Requirement:

There are approximately 8,000 sites currently in Stage 2 settlement (currently registered with an SMRA) which have a maximum demand of greater than 1 MW, and are thus theoretically capable of participating in the Balancing mechanism for Stage 1 and migrating to CRA registration. In practice, however, only a few hundred are likely to take part; CDCA should assume a maximum of 1,000 sites for sizing purposes. This can be considered to be included within the 5,000 metering systems in other categories registered with the CRA.

Note that each instance of the flow may contain up to 200000 records, and that it is legal for replacement data to be provided where necessary.

Interfaces:

The line loss factors will be received in accordance with interface requirement CDCA-I022.

Confirmation of missing line loss factors will be passed to BSCCo Ltd in accordance with interface requirement CDCA-I023.

Issues:

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5.20 CDCA-F019: Application of Line Loss Factors to meter readings

Requirement ID: CDCA-F019	**Status:** M	**Title:** Application of Line Loss Factors to meter readings	**BSC reference:** CDCA SD 15.3 BPM 3.4, 3.6, CP548
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** 240000 (5000 metering systems *48 periods)	

Functional Requirement:

1. The CDCA shall apply by multiplication any Line Loss Factors, as required, to the meter period data values collected from the relevant meters or associated data collector outstations after validation, and prior to Aggregation. They shall be applied to individual meter point volumes. They shall only be applied to active energy values.

2. If the CDCA does not have a specific Line Loss Factor for a Metering System then a Line Loss Factor from the same period of a date the previous year is applied instead. The date is determined according to the following rules:

    - Current date = d; same date a year ago = d'
    - If d = 29 February then d' = 28 February
    - If d is a clock change day then d' = corresponding clock change day
    - If d is not a clock change day but d' is a clock change day then set d' = d' + 1
    - If there is no Line Loss Factor for the required period on d' then set Line Loss Factor = 1.00000, otherwise use the Line Loss Factor for the same period on d'

3. An Aggregation Rule will indicate that a Line Loss Factor must be applied; the actual factor used is selected for a particular report calculation is selected according to the relevant Settlement Day and Period Id.

Non Functional Requirement:

Interfaces:

Issues:

5.21 CDCA-F020: (Not in use)

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5.22 CDCA-F021: Time keeping

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F021	M	Time keeping	CDCA SD 17.1-17.3
Man/auto: Automatic / Manual	**Frequency:** Daily.	**Volumes:** N/A	

Functional Requirement:

1. The CDCA shall set the CDCA's systems in accordance with the Universal Co-ordinated Time clock, adjusting the time as necessary, at least once in every 24 hours.

2. The CDCA shall check all meters and associated outstation clocks at each retrieval of metered data and synchronise to the Instation Universal Co-ordinated Time clock, as necessary, according to the following process:

    a) If an Outstation Clock is less than 20 seconds out compared with the Instation Universal Co-ordinated Time clock, the clock will not be reset.

    b) If an Outstation Clock has drifted by between 20 and 60 seconds, the clock will be reset without issuing a report. If this is discovered to happen regularly on a long term basis then a report should be issued to the MOA and BSC Party.

    c) If an Outstation Clock has drifted by 60 or more seconds, the clock will be reset and a report should be issued to the MOA and BSC Party.

    d) If an Outstation Clock has drifted by 15 minutes or more since the last interrogation, the clock will not be reset, and instead the MOA will be called in by the CDCA to investigate the problem, as per CDCA-F021.

3. The CDCA shall ensure that any hand-held interrogation unit used for retrieving metered data at site is set to the Universal Co-ordinated Time clock at least once every 2 days.

Non Functional Requirement:

Interfaces:

Issues:

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5.23 CDCA-F022: Report raw meter readings to BSC Party

Requirement ID: CDCA-F022	**Status:** M	**Title:** Report raw meter readings to BSC Party	**BSC reference:** CDCA SD 19.1, BPM 3.11
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** 240000 period readings to all Parties in total (5000 metering systems * 48 periods)	

Functional Requirement:

1. The CDCA shall provide the relevant BSC Party with a Metering System data collection report relating to the raw meter period data collected from each meter or associated outstation. This raw data report shall be provided on the day after the Settlement Day, including at weekends and bank holidays.

2. Where actual data is not available to this timetable, but is available later, the actual data shall be reported to the BSC Party as soon as is practicable, for instance as part of the reporting run for the subsequent Settlement Day if possible.

3. The readings will include active and reactive energy data.

4. Raw data is at the channel level, including both main and check data.

5. The report will not include any estimated data.

6. All readings reported will not be line loss adjusted. The report will reference metered data in clock time rather than GMT (i.e. for a Settlement Day starting from midnight local time).

7. The report shall include a marker to indicate where data is missing because the meter could not be accessed. If there are zeroes read by the meter, these shall be included in the report.

Non Functional Requirement:

No cumulative register information shall be included in this report.

Interfaces:

This report is to be produced in accordance with the interface requirement CDCA-I012.

Note that raw meter readings are not sent to the SAA, as the latter is interested only in aggregated data.

Issues:

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5.24 CDCA-F023: Report raw meter readings to Distribution Businesses

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F023	M	Report raw meter readings to Distribution Businesses	CDCA SD 19.4
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** 240000 period readings to all Parties in total (5000 * 48)	

Functional Requirement:

1. The CDCA shall forward the meter period data for all Grid Supply Point Metering Systems, Metering Systems at points of connection between transmission networks and at points of connection between two Distribution Networks, to the registrant host Distribution Business, where required. This raw data report shall be provided on the day after the Settlement Day, including at weekends and bank holidays.

2. Where actual data is not available to this timetable, but is available later, the actual data shall be reported to the Distribution Business as soon as is practicable, for instance as part of the reporting run for the subsequent Settlement Day if possible.

3. The readings will include active and reactive energy data.

4. Raw data is at the channel level, including both main and check data.

5. The report will not include any estimated data.

6. All readings reported will not be line loss adjusted. The report will reference metered data in clock time rather than GMT (i.e. for a Settlement Day starting from midnight local time).

7. The report shall include a marker to indicate where data is missing because the meter could not be accessed. If there are zeroes read by the meter, these shall be included in the report.

8. The report shall be sent to only one Distribution business, namely the one that registered the metering system with the CRA (in the case of metering systems at a point of connection of two distribution businesses). It shall be the responsibility of the registered Distribution Business, not the CDCA, to supply any data to the Distribution Business on the other side of the connection. Similarly, it is only the registrant Distribution Business which shall supply all aggregation rules relating to that metering system; in this case the rules shall indicate that the meter readings are to contribute to the GSP Group take of one distribution area, and to be removed from the GSP Group Take of the other Distribution business.

Non Functional Requirement:

Interfaces:

This report is to in accordance with the interface requirement CDCA-I012.

Issues:

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5.25 CDCA-F024: Report raw meter readings to System Operator

Requirement ID: CDCA-F024	**Status:** M	**Title:** Report raw meter readings to System Operator	**BSC reference:** CDCA SD 19.5
Man/auto: Automatic	**Frequency:** Daily	**Volumes:** 240000 period readings to all Parties in total (5000 * 48)	

Functional Requirement:

1. The CDCA shall forward the meter period data for all Grid Supply Point Metering Systems, Grid Entry Point Metering Systems, Metering Systems at points of connection between transmission networks and at points of connection between two Distribution Networks, to SO where required. Metering Systems at Embedded Sites connected to the Distribution network, specifically for embedded generation, shall also be included in this report. The data in this report is used to calculate Transmission Use of System charges, for Ancillary Services Business purposes, and System Operation purposes. This raw data report shall be provided on the day after the Settlement Day, including at weekends and bank holidays.

2. Where actual data is not available to this timetable, but is available later, the actual data shall be reported to the SO as soon as is practicable, for instance as part of the reporting run for the subsequent Settlement Day if possible.

3. The readings will include active and reactive energy data.

4. Raw data is at the channel level, including both main and check data.

5. The report will not include any estimated data.

6. All readings reported will not be line loss adjusted. The report will reference metered data in clock time rather than GMT (i.e. for a Settlement Day starting from midnight local time).

7. The report shall include a marker to indicate where data is missing because the meter could not be accessed. If there are zeroes read by the meter, these shall be included in the report.

Non Functional Requirement:

Interfaces:

This report is to in accordance with the interface requirement CDCA-I012.

Issues:

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5.26 CDCA-F025: Calculate aggregated Interconnector meter flow volume

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F025	M	Calculate aggregated Interconnector meter flow volume	CDCA SD 4.5, 22.5, 22.6, 22.13, 22.14 BPM 3.6.1, CP548, CP629
Man/auto: Automatic	**Frequency:** Once per settlement run	**Volumes:** Initially 96 (2 Interconnectors * 48 readings). The number of Interconnectors is expected to increase to 5 or 6.	

Functional Requirement:

1. The CDCA shall aggregate the collected or estimated metered data, taking into account any Line Loss adjustment factors, into the relevant External Interconnector for each settlement period. An External Interconnector is a point of connection between Transmission Businesses. Points of connection between distribution businesses are not relevant to this process.

2. Line Loss factors associated with External Interconnectors shall be supplied to the CDCA by BSCCo Ltd.

3. The CDCA shall in respect of all external Interconnectors, aggregate the relevant Metering Systems period data to produce Meter Point volumes. The CDCA shall aggregate all Meter Point volumes with respect to each external Interconnector to obtain a total Interconnector flow volume for each settlement period for that external Interconnector.

4. The CDCA shall ensure that, where the aggregation of data contains a value which has previously been estimated, the flag assigned at the time of estimation remains with the aggregated volume data throughout settlement.

5. The CDCA shall always use the latest meter and registration data available at the time an Aggregation Run is performed.

6. Aggregation shall only take place on active energy data.

7. The aggregation process shall take account of registration effective settlement dates for each meter point.

8. The aggregation process shall take place to meet the settlement timetable requirements.

9. Line Loss Factors must be applied where appropriate, as described in CDCA-F019.

Non Functional Requirement:

Interfaces:

Issues:

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5.27 CDCA-F026: Calculate aggregated BM unit meter volumes

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F026	M	Calculate aggregated BM unit meter volumes	CDCA SD 4.5, 22.7, 22.8, 22.9, 22.13, 22.14 BPM 3.6, CP629
Man/auto: Automatic	**Frequency:** Once per settlement run	**Volumes:** 240000 (5000 BM Units * 48)	

Functional Requirement:

1. The CDCA shall in respect of Meter Point volumes aggregate all Metering System period data relating to that Meter Point to produce a Meter Point volume for each settlement period. Meter Point volumes shall be produced for those points registered with the CRA for:
   - Direct Connected Consumer Demand;
   - Direct Generation and Demand at generation sites;
   - Embedded Generation; and
   - Embedded Demand;

2. The CDCA shall in respect of BM Unit volumes aggregate all Meter Point volumes relating to that BM Unit to produce a BM Unit volume for each settlement period. BM Unit volumes shall be produced for those points registered with the CRA for:
   - Direct Connected Consumer Demand;
   - Direct Generation and Demand at generation sites;
   - Embedded Generation; and
   - Embedded Demand;

3. The CDCA shall in determining the BM Unit volumes for Embedded Generation Gensets and Demand and Embedded Demand, apply the relevant Loss Factors to the Meter Point volumes for each settlement period;

4. The CDCA shall ensure that, where the aggregation of data contains a value which has previously been estimated, the flag assigned at the time of estimation remains with the aggregated volume data throughout settlement;

5. The CDCA shall always use the latest meter and registration data available at the time an Aggregation Run is performed.

6. Aggregation shall only take place on active energy data.

7. The aggregation process shall take account of registration effective settlement dates for each meter point.

8. The aggregation process shall take place to meet the settlement time table requirements.

Non Functional Requirement:

Note that Line Loss Factors must be applied where appropriate, as described in CDCA-F019.

Interfaces:

Issues:

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5.28 CDCA-F027: Calculate aggregated GSP Group Take volumes

Requirement ID: CDCA-F027	**Status:** M	**Title:** Calculate aggregated GSP Group Take volumes	**BSC reference:** CDCA SD 4.5, 22.11-14 BPM 3.6.2, CP629
Man/auto: Automatic	**Frequency:** Once per settlement run	**Volumes:** 576 (12 GSP groups * 48)	

Functional Requirement:

1. The CDCA shall in respect of GSP Group Take volumes, use Aggregation Rules to aggregate all Metering System energy volumes relating to the GSPs of that GSP Group, to produce a GSP Group Take volume for each settlement period;

2. The CDCA shall adjust the GSP Group Take volumes for Inter-Distribution Network Connections, any Embedded Generation or Embedded Demand registered with the CRA, Direct Connected Consumer Demand and External Interconnector Demand;

3. The CDCA shall ensure that, where the aggregation of data contains a value which has previously been estimated, the flag assigned at the time of estimation remains with the aggregated volume data throughout settlement;

4. The CDCA shall always use the latest meter and registration data available at the time an Aggregation Run is performed.

5. Aggregation shall only take place on active energy data.

6. The aggregation process shall take account of registration effective settlement dates for each meter point.

7. The aggregation process will take place to meet the settlement time table requirements.

8. The CDCA shall support the capability to report on the basis that there may be more than one GSP Group for any given Distribution area.

Non Functional Requirement:

Note that Line Loss Factors must be applied where appropriate, as described in CDCA-F019.

Interfaces:

This functional requirement is supported by interfaces CDCA-I043, CDCA-I036, CDCA-I049.

Issues:

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5.29 CDCA-F028: Report aggregation exceptions

Requirement ID: CDCA-F028	**Status:** M	**Title:** Report aggregation exceptions	**BSC reference:** CDCA SD 19.2 BPM 4.12
Man/auto: Manual	**Frequency:** Ad hoc	**Volumes:** Low	
Functional Requirement:			
The CDCA shall provide exception reports to the relevant BSC Party for all exceptions encountered during an aggregation process.			
Non Functional Requirement:			
Interfaces:			
Reporting to be in accordance of interface requirement CDCA-I026.			
Issues:			

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5.30 CDCA-F029: Meter communications management

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F029	M	Meter communications management	CDCA SD 20.1-20.2
Man/auto:	**Frequency:**	**Volumes:**	
Automatic	On going	N/A	

Functional Requirement:

The CDCA shall, in conjunction with the relevant MOA, be responsible for the administration of all communication links with Metering Systems.

The CDCA shall be responsible for the procurement of communication links where new connections are required to new metering installations.

Non Functional Requirement:

Interfaces:

Issues:

Our tender requires that we are able to make use of the existing telemetry infrastructure in order to be able to remotely interrogate the existing metering equipment. This facility must be confirmed by the BSCCo Ltd.

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5.31 CDCA-F030: Performance reporting

Requirement ID: CDCA-F030	**Status:** M	**Title:** Performance reporting	**BSC reference:** CDCA SD 19.6
Man/auto: Automatic	**Frequency:** As required	**Volumes:** Low	
Functional Requirement:			
The CDCA shall provide performance reports on the data collection and data aggregation functions to the BSCCo Ltd.			
Non Functional Requirement:			
Interfaces:			
This performance data to be reported in accordance with interface requirement CDCA-I032.			
Issues:			

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5.32 CDCA-F031: Receive settlement calendar

Requirement ID: CDCA-F031	**Status:** M	**Title:** Receive settlement calendar	**BSC reference:** CDCA SD 21.1, 21.2, 21.3
Man/auto: Manual	**Frequency:** Annually	**Volumes:** One copy of the calendar to each BSC Party and other interested party	
Functional Requirement:			
The CDCA shall procure such market related data as necessary to enable the CDCA to carry out its obligations under the Service Description and, on successful validation of the data received, input the data into its systems where necessary. Market related data shall include the Settlement Calendar, received from the SAA. If the Calendar cannot be validated the CDCA shall report this to BSCCo Ltd.			
Non Functional Requirement:			
Interfaces:			
Issues:			
This functional requirement is supported by interface CDCA-I034.			

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5.33 CDCA-F032: CDCA data to be archived

Requirement ID: CDCA-F032	Status: M	Title: CDCA data to be archived	BSC reference: CDCA SD 16.2 16.5 BPM 3.9, 4.7
Man/auto: Automatic	**Frequency:** Weekly	**Volumes:**	

Functional Requirement:

The CDCA shall archive the following data from its systems :

a) all static data related to registration and aggregation rules
b) original raw metering system readings
c) any revised readings, (either due to validation, estimation changes or MAR)
d) all aggregated volumes
e) all line loss factors
f) all other loss factors (e.g. for 'slugging')

Non Functional Requirement:

See Non-functional requirement GEN-S004 in the CRA URS.

Interfaces:

Issues:

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5.34 CDCA-F033: Settlement reporting

Requirement ID: CDCA-F033	Status: M	Title: Settlement reporting	BSC reference: CDCA SD 3, 23.1, 4.3, 8.8 BPM 3.7, 3.10, DISG
Man/auto: Automatic, and via shared database	**Frequency:** per settlement timetable	**Volumes:**	

Functional Requirement:

The CDCA shall produce all settlement reports in accordance with the settlement calendar, for all relevant parties as listed in the external interfaces description in section 6.

Only metering systems registered with the CRA, which have effectiveness dates encompassing the trading day being reported, shall contribute to settlement reports.

Interfaces:

Settlement reports are the set of reports produced by CDCA in the context of a report run timed to send data to the SAA and BSC Parties, and the SVAA. These include the interfaces described in: CDCA-I027, CDCA-I041, CDCA-I028, CDCA-I042, CDCA-I036, CDCA-I029, CDCA-I030, CDCA-I043, CDCA-I012, CDCA-I049.

Note that outbound interfaces to SAA are via a shared database; those to BSC Parties are via external reports.

Issues:

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5.35 CDCA-F034: Metering protocols

Requirement ID: CDCA-F034	Status: M	Title: Metering protocols	BSC reference: CDCA SD 6.1-2
Man/auto: Manual	Frequency:	Volumes:	

Functional Requirement:

The CDCA shall ensure that its data collection systems are equipped with the appropriate protocols for every type of approved meter or associated outstation registered by the CRA, for which the CDCA is responsible for collecting metered data for settlement purposes.

Non Functional Requirement:

1. The CDCA shall provide a service to support the approval of additional protocols in support of new metering products identified for use in the market.

2. The CDCA will inform all MOAs registered with the CRA of any newly approved protocol within seven days of approval.

3. The CDCA shall procure and install any such newly approved protocols onto its data collection systems when notified by an MOA or a Protocol Provider of its impending use, such that data can be collected from the meter.

Interfaces:

MOAs to be informed of new protocols by interface requirement CDCA-I004.

CDCA to load data for new protocols defined in interface requirement CDCA-I005.

Issues:

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5.36 CDCA-F035: Transfer from SMRS

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F035	M	Transfer from SMRS	CP753
Man/auto:	**Frequency:**	**Volumes:**	
Manual			

Functional Requirement:

A. When a new transfer notification is initiated, CDCA will receive three flows.
Meter Technical Details for the new metering system(s) (CDCA-I003)
Aggregation Rules for the new BM Unit(s) (CDCA-I001)
Transfer from SMRS details (CDCA-I055)

1. The Meter Technical Details must not be entered. Once validated, a copy of the received details is sent to the nominated Distributor and to the Transfer Coordinator.
2. The aggregation rules must not be entered. Once validated, a copy of the received rules is sent to the nominated Distributor and to the Transfer Coordinator.
3. check that MTD have been received for all metering systems indicated on the transfer initiation
4. check that aggregation rules have been received for all BM Units indicated on the transfer initiation and these correctly associate the BM Units with the Metering Systems indicated on the form
5. update the relevant GSP Group Take aggregation rule, and send copies of the proposed amended rule to the relevant Distributor and to the Transfer Coordinator. (CDCA-F002)
6. send a report to the transfer coordinator (CDCA-I056)
7. organise a proving test (CDCA-F004)

B. The Transfer coordinator will subsequently submit a CDCA-I055 to confirm the transfer. This flow will contain the confirmed effective from date.

1. Wait until CRA publishes the new Metering System Data
2. apply the changes (Meter Technical Details then BM Unit Aggregation Rules as received and validated above, then GSP Group Take aggregation rule) using the confirmed effective from date.
3. send a report to the transfer coordinator (CDCA-I056) to confirm that the transfer has been completed
4. perform a proving test (CDCA-F004)

C. If the Transfer coordinator submits a CDCA-I055 rejecting the transfer:

1. Any new meter technical details entered as part of the transfer will be deleted
2. Any amendments to meter technical details entered as part of the transfer will be reversed
3. Any new aggregation rules entered as part of the transfer will be deleted
4. Any amendments to aggregation rules entered as part of the transfer will be reversed

D. If the transfer coordinator submits a CDCA-I055 to confirm progress, the CDCA shall respond with information regarding the progress of the transfer including completed and outstanding operations

Non Functional Requirement:

7 working days after the confirmed effective from date, check that realistic values are being obtained from the new/modified BM Units & GSP Groups and report to the Transfer Coordinator.

Interfaces:

The CDCA shall receive notification of transfer using flow CDCA-I055
The CDCA shall issue of transfer reports using flow CDCA-I056

Issues:

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5.37 CDCA-F036: Transfer to SMRS

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F036	M	Transfer to SMRS	CP753
Man/auto: Manual	**Frequency:**	**Volumes:**	

Functional Requirement:

A. When a new transfer notification is initiated, CDCA will receive:
Transfer to SMRS details (CDCA I057)

1. Check that the Metering System and BM Units are linked by a aggregation rules
2. update the relevant GSP Group Take aggregation rule, and send copies of the proposed amended rule to the relevant Distributor and to the Transfer Coordinator. (CDCA-F002)
3. send a report to the transfer coordinator (CDCA-I058)

B. The Transfer coordinator will subsequently submit a CDCA-I057 to confirm the transfer. This flow will contain the confirmed effective from date.

1. update the relevant GSP Group Take aggregation rule, and send copies of the amended rule to the relevant Distributor and to the Transfer Coordinator. (CDCA-F002)

C. If the Transfer coordinator submits a CDCA-I057 rejecting the transfer, the process is abandoned (at this stage no changes have been made).

D. If the transfer coordinator submits a CDCA-I057 to confirm progress, the CDCA shall respond with information regarding the progress of the transfer including completed and outstanding operations

Non Functional Requirement:

5 working days after the confirmed effective to date, check that realistic values are being obtained from the new BM Units & GSP Groups and report to the Transfer Co-ordinator

Interfaces:

The CDCA shall receive notification of transfer using flow CDCA-I057
The CDCA shall issue of transfer reports using flow CDCA-I058

Issues:

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5.38 CDCA-F037: Registration Assistance

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F037	M	Registration Assistance	CP753
Man/auto:	**Frequency:**	**Volumes:**	
Manual	On request	low	
Functional Requirement:			
Where a metering system is being transferred from SMRS, the CDCA shall, if requested, provide guidance on conversion of D0268 Half Hourly Meter Technical Details to the CVA MOA Note: The CDCA is not expected to understand the D0268, and will use reasonable endeavours to assist in the completion of the flow			
Non Functional Requirement:			
Interfaces:			
Issues:			

5.39 CDCA-F038: (Not in use)

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5.40 CDCA-F039: PARMS reporting

Requirement ID:	Status:	Title:	BSC reference:
CDCA-F039	M	PARMS reporting	P99
Man/auto:	**Frequency:**	**Volumes:**	
Manual	Monthly	low	

Functional Requirement:

The CDCA shall report PARMS Serials CM01 (CVA MOA Proving Tests) and CM02 (CVA MOA Fault Resolution) to BSCCo Ltd, after the end of every month.

For the CM01 Serial, the CDCA shall collate the following data for each Meter Operator Agent / GSP Group combination:

- the number of MSIDs that had a proving test outstanding during the month, i.e. the number of MSIDs where:
  - scheduled date of the Proving Test < Period End Date
  - Proving Test completion date was during the month and later than the scheduled date, or the Proving Test is still to be completed.
- for Proving Tests that are outstanding at the time of the report (i.e. the scheduled date of the Proving Test < date of report and a Proving Test has not been completed successfully):
  - the average number of days after the scheduled date that the Proving Test has been outstanding;
  - the number of faults outstanding after the scheduled date of the Proving Test.

For the CM02 Serial, the CDCA shall collate the following data for each Meter Operator Agent / GSP Group combination:

- the number of MSIDs that had a new or existing fault during the month;
- the number of faults reported for the first time during the month;
- for faults that have been outstanding for more than 15 Business Days on the date of the report, the average number of working days that a fault was outstanding;
- for faults resolved during the month, the average number of working days that a fault was outstanding.

The Period End Date is the date of the last day of the calendar month.

Non Functional Requirement:

Interfaces:

Reporting to be in accordance with the Interface Requirements CDCA-I064 and CDCA-I065.

Issues:

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6 Interface Requirements

6.1 Overview

The CDCA Service shall provide an interface to the following external parties.

Other Service Providers:

- Central Registration Agent (CRA)
- Settlement Administration Agent (SAA)
- Energy Contract Volume Allocation Agent (ECVAA)
- Supplier Volume Allocation Agent (SVAA)
- Technical Assurance Agent (TAA) (manual only)

Other external parties:

- BSCCo Ltd
- BSC Party (Registrant)
- System Operator (SO)
- Meter Operation Agent (MOA)
- Distribution business

In addition, the CDCA provides an interface to the physical metering equipment which collects meter reading data. This may be via an automated data capture device (e.g. MV-90), or via the procured services of a Site Visit Agent.

The CDCA Service shall provide inbound and outbound interfaces as summarised in the following table. Each interface requirement is described in detail below.

Details of the content of interfaces relevant to the CDCA are contained in the Interface Definition and Design (IDD). It is the intention that this URS and the IDD should be fully consistent. However, in the event that some inconsistency is found, the definition in the IDD should be assumed to take precedence until such time as the inconsistency can be corrected at the next document release.

Reqt No.	Interface Requirement	Inbound/ Outbound	Interface User	Mechanism
CDCA-I001	Receive Aggregation Rules	Inbound	BSC Party	Manual
CDCA-I002	Receive Registration Data	Inbound	CRA	Via shared

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Reqt No.	Interface Requirement	Inbound/ Outbound	Interface User	Mechanism
				database
CDCA-I003	Receive Meter Technical Data	Inbound	MOA/ Registrant	Manual
CDCA-I004	Notify new Meter Protocol	Outbound	MOA	Manual
CDCA-I005	Load new Meter Protocol	Inbound	MOA/protocol provider	Manual
CDCA-I006	Issue Meter Data for Proving Test	Outbound	MOA	Manual
CDCA-I007	Proving Test Report/Exceptions	Outbound	MOA, BSC Party	Automatic /Manual
CDCA-I008	Obtain Metered Data from Metering Systems, including Interconnectors	Inbound	Physical meters/ Data Capture Device (MV-90)	Automatic
CDCA-I009	Meter Period Data collected via site visit	Inbound	Hand Held Device/Data Capture Device (MV-90)	Manual
CDCA-I010	Exception Report for missing and invalid meter period data	Outbound	BSC Party, MOA	Automatic
CDCA-I011	Dial readings from meter, for MAR	Inbound	Hand Held Device/Data Capture Device (MV-90)	Manual
CDCA-I012	Report raw meter data	Outbound	BSC Party, Distribution Business, System Operator	Automatic
CDCA-I013	Agreement with Estimated data	Inbound	BSC Party	Manual
CDCA-I014	Estimated Data Report and Notification of Estimation Method	Outbound	BSCCo Ltd, BSC Party, MOA, Distributor, SO	Automatic
CDCA-I015	Metering Equipment Faults	Inbound	MOA	Manual
CDCA-I016	Information from TAA	Inbound	TAA	Manual
CDCA-I017	Meter Reading Schedule for MAR	Outbound	BSC Party, MOA	Manual
CDCA-I018	MAR Reconciliation Report	Outbound	BSC Party, MOA, BSCCo Ltd, Distributor	Manual
CDCA-I019	MAR Remedial Action Report	Outbound	BSC Party, MOA,	Manual

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Reqt No.	Interface Requirement	Inbound/ Outbound	Interface User	Mechanism
			Distributor, BSCCo Ltd	
CDCA-I020	Site Visit Inspection Report from Site Visit Agent	Inbound	Site Visit Agent	Manual
CDCA-I021	Notification of Metering Equipment Work	Inbound	MOA	Manual
CDCA-I022	Line Loss Factors	Inbound	BSCCo Ltd	Automatic
CDCA-I023	Missing Line Loss Factors	Outbound	BSCCo Ltd	Manual
CDCA-I024	Archived data; [interface deleted]	N/A	Internal to CDCA	N/A
CDCA-I025	Aggregation Rule Exceptions	Outbound	BSC Party	Manual
CDCA-I026	Aggregated Meter Volume Exceptions	Outbound	BSC Party	Manual
CDCA-I027	Aggregated Interconnector Meter Flow Volumes	Outbound	SAA	Via shared database
CDCA-I028	Aggregated BM Unit Metered Volumes	Outbound	SAA	Via shared database
CDCA-I029	Aggregated GSP Group Take Volumes	Outbound	BSC Party, Distributor, SO	Automatic
CDCA-I030	Meter Period Data for Distribution Area	Outbound	Distributor, BSC Party	Automatic
CDCA-I031	*Meter Period Data for Total System [Interface Deleted - covered by CDCA-I012]*	*Outbound*	*System Operator*	*Automatic*
CDCA-I032	Data Collection and Aggregation Performance Report	Outbound	BSCCo Ltd	Manual
CDCA-I033	File Receipt Acknowledgement	Outbound	BSC Party	Automatic
CDCA-I034	Settlement Calendar	Inbound	SAA	Manual
CDCA-I035	Site Visit Report on Aggregation Rule compliance	Inbound	Site Visit Agent	Manual
CDCA-I036	GSP Group Take to SAA	Outbound	SAA	Via shared database
CDCA-I037	Estimated Data Notification to BSC Party, MOA	Outbound	BSC Party, MOA	Manual
CDCA-I038	Reporting Metering Equipment Faults	Outbound	MOA, BSC Party	Manual
CDCA-I039	Information to TAA	Outbound	TAA	Manual
CDCA-I040	BM Unit 'Credit Cover' Meter Volume Data Report	Outbound	ECVAA	Automatic
CDCA-I041	Interconnector Aggregation Report to BSC Party	Outbound	BSC Party	Automatic
CDCA-I042	BM Unit Aggregation Report to BSC Party	Outbound	BSC Party, SO	Automatic
CDCA-I043	GSP Group Take to SVAA	Outbound	SVAA	Automatic

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Reqt No.	Interface Requirement	Inbound/ Outbound	Interface User	Mechanism
CDCA-I044	Meter System Proving Validation from MOA	Inbound	MOA	Manual
CDCA-I045	Meter Data from routine work and Metering Faults	Inbound	MOA/MV-90	Manual
CDCA-I046	Site Visit Inspection Report to MOA & BSC Party	Outbound	MOA, BSC Party	Manual
CDCA-I047	Correspondence Receipt Acknowledgement	Outbound	BSC Party, BSCCo Ltd	Manual
CDCA-I048	Report of Aggregation Rules	Outbound	BSC Party	Manual
CDCA-I049	Total Demand per GSP	Outbound	System Operator	Automatic
CDCA-I050	Data Exception Report from SAA	Inbound	SAA	Automatic/Manual
CDCA-I051	Report Meter Technical Details	Outbound	BSC Party, MOA, Distributor, System Operator	Manual
CDCA-I054	Meter Status Report	Outbound	BSC Party, MOA, Distributor	Automatic
CDCA-I055	Transfer from SMRS information	Inbound	Transfer Coordinator, BSC Party	Manual
CDCA-I056	Transfer from SMRS report	Outbound	Transfer Coordinator	Manual
CDCA-I057	Transfer to SMRS information	Inbound	Transfer Coordinator, BSC Party	Manual
CDCA-I058	Transfer to SMRS report	Outbound	Transfer Coordinator	Manual
CDCA-I059	Initial Meter Reading Report	Outbound	BSC Party	Manual
CDCA-I060	SVA Agent Details	Inbound	SVA Registrant, CVA Registrant	Manual
CDCA- I061	Receive System Parameters	Inbound	BSCCo Ltd	Manual
CDCA-I062	*Not in use*			
CDCA-I063	*Not in use*			
CDCA-I064	MOA Proving Tests Report	Outbound	BSCCo Ltd	Manual
CDCA-I065	MOA Fault Resolution Report	Outbound	BSCCo Ltd	Manual
CDCA-I066	Demand Control Instructions to CDCA	Inbound	SAA	Via shared database
CDCA-I067	Disconnected BM Units	Inbound	SO, DSO	Manual
CDCA-I068	Aggregated BM Unit Disconnection Volumes	Outbound	SAA	Via shared database

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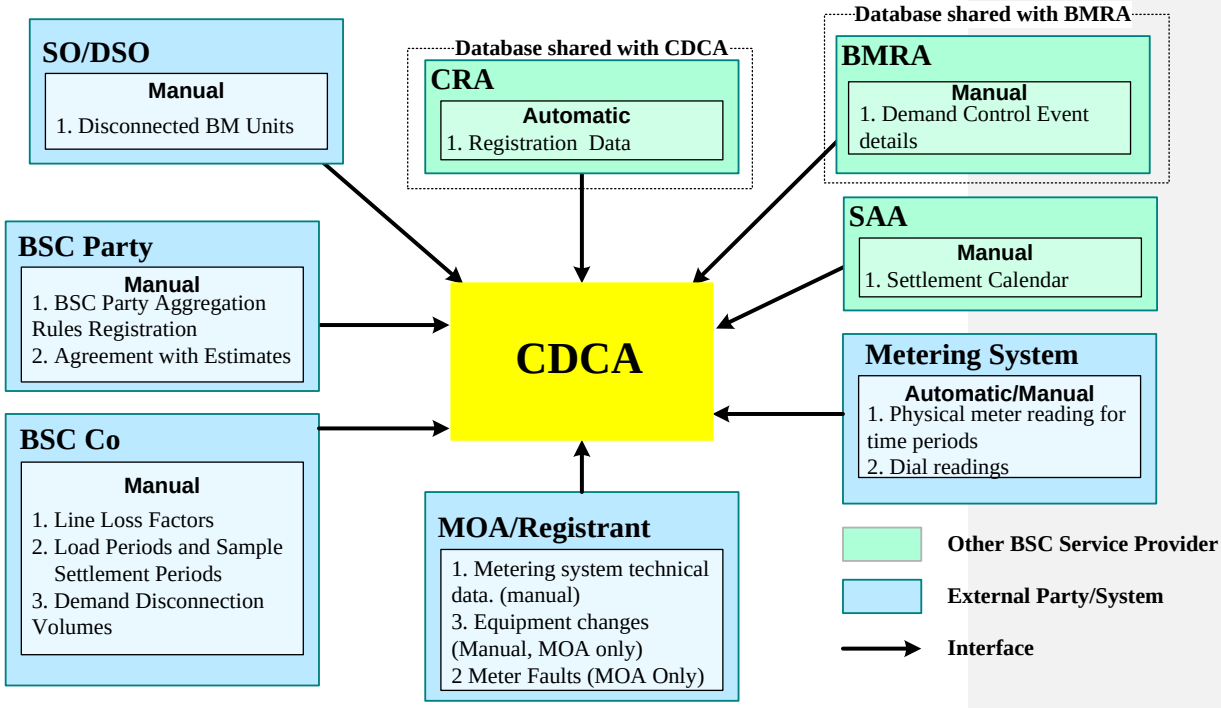
The following diagrams illustrate the key interface requirements.



CDCA Service: Inbound Interface Requirements

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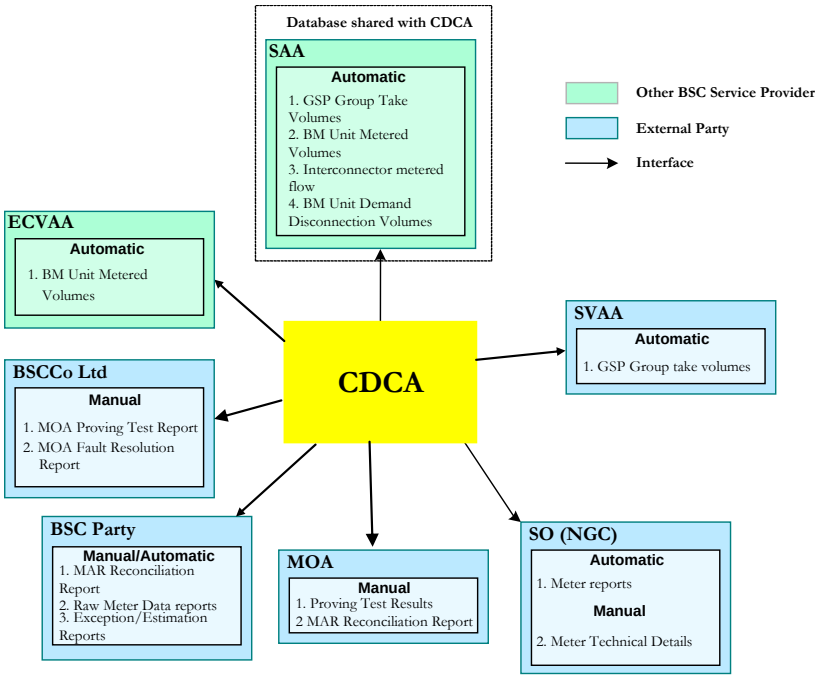

CDCA Service: Outbound Interface Requirements

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7 Non-functional Requirements

The non-functional requirements of the CDCA Service are common to those of the CRA Service, and are thus described in the CRA URS.

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8 Service Requirements

This section describes the specific service requirements for CDCA. Common service requirements are described in the CRA URS.

8.1 CDCA-S001: Volumetric Requirements

Requirement ID: CDCA-S001	**Status:** M	**Title:** Volumetric Requirements	**BSC reference:**
Man/auto: Manual & Automatic	**Frequency:** As required	**Volumes:** As below.	

Non Functional Requirement:

There are currently approximately 9,500 physical meters used in Stage 1 metering. These comprise about 4,700 main/check pairs. These meters are interrogated via approximately 2,000 Outstations. This is regarded as the number of "metering systems" currently in use. The CDCA shall allow approximately 5,000 as a maximum for sizing the CDCA services.

Volumetric requirements are given in the individual functional and interface requirements earlier in this document. For reference, the sizing requirements are repeated below.

The table below presents assumed volume information for the CDCA Service. The CDCA Service must initially be capable of handling the AVG volumes, but it must be designed to handle the HIGH volumes. The systems provided to support the CDCA Service must be capable of being readily upgraded, without major re-design, to handle the HIGH volumes.

The LOW figures represent the lowest probable numbers at the Go-Live Date, derived from the nearest equivalent in the current arrangements. The AVG figures represent the current best estimate of numbers after the Trading Arrangements have had time to bed down. The HIGH figures represent a 'worst case' scenario, which could be approached over a period of years.

Volume Assumptions

Assumption	Volumes		
	LOW	AVG	HIGH
BM Units		1,000	5,000
BSC Traders	100	200	300
Settlement Periods	46	48	50
Energy Accounts per BSC Trader	2	2	2
Metering Systems	4,000	5,000	10,000

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8.2 CDCA-S002: Data Quality

Requirement ID:	Status:	Title:	BSC reference:
CDCA-S002	M	Data Quality	
Man/auto:	**Frequency:**	**Volumes:**	
Manual & Automatic	As required	Applies to all incoming data	

Non Functional Requirement:

The CDCA shall ensure that all incoming data is fit for purpose, and meets a deemed level of quality. This shall include the following activities.

For files received electronically, data shall be checked that it is of the correct format, including the following checks:

- all records within a data file, and fields within a record, are in the correct sequence, and correctly delimited;
- all records and fields defined as mandatory are present in the data;
- no record type or field is repeated more than the maximum number of repetitions allowed;
- no record type or field is repeated more than the minimum number of repetitions allowed;
- the data type and in-field formatting of each field is correct;
- the length of the field is not outside the minimum and maximum allowed;
- no field contains a value outside its specified range of values; for instance a minimum or maximum value for numeric fields, a permitted date range, or a valid set of codes.

Similar checks will be made for data received manually from external parties, in order to ensure data quality is acceptable.

The Service Provider shall implement procedures to ensure that data is transcribed from manual sources accurately, where such data is entered into a computer system.

The Service Provider shall refer back to the sender of the data if *for any reason* the agent has reason to believe that the supplied data is incorrect or incomplete.

Issues:

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9 User Roles and Activities

The user roles which will support the day to day operation of the CDCA service are common to those supporting the CRA Service, and so are described in the CRA URS.

These roles and activities will be refined and developed in more detail during detailed business process definition.

The following parties are associated specifically with the CDCA business processes in the wider context, and may thus be considered as "users" of the service. The detailed functional requirements and data interfaces necessary to support these parties are described earlier in this document.

Role	Summary of Activities related to CDCA
BSCCo	Receives details of Disconnected BM Units from the CDCA and provides estimates of Demand Disconnection Volumes to the CDCA.
BSC Party	Receives detailed meter data reports daily from CDCA, and MAR reports approximately quarterly.
CRA	Provides registration data to the CDCA which defines the set of items such as the BM Units relevant to each trading period.
Distribution Business	Receives meter data reports
MOA	Receives metering equipment work approval, MAR reports and Site Visit Inspection reports from CDCA, as well as confirmation of new meter protocols as they come into operational use. Works with CDCA on proving tests for metering systems and any subsequent data validation or fault-related problems.
SAA	Receives daily reports of collected meter data from CDCA, as input to the Settlement process.
SVAA	Receives GSP Group Take Energy volumes daily as input to the stage 2 settlement process.
ECVAA	Receives daily reports of BM Unit meter volume data from CDCA as input to the Credit Check process.
System Operator	Receives meter data reports

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Appendix A Glossary

A standard glossary is included in the CRA URS.

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Appendix B Requirements Compliance Matrix

Service Description Compliance Matrix

The following table shows the mapping of requirements defined in this URS document to the requirements set out in the Service Description for Central Data Collection.

Note that general requirements (shown as "GEN-…") are described in the CRA URS.

Service Description Requirement Number	URS Requirement Reference Number	Notes
1	N/A	Performance standards referenced in 1.6 are addressed in the Service Level Agreements
2.1	N/A	Period of responsibility for provision of services therefore no mapping of requirements.
3.1	CDCA-F033	Service availability
4.1	CDCA-F002 CDCA-I001	Aggregation Rule Interface from BSC Parties and Agents
4.2	GEN-N001	Audit Trail of Aggregation rules
4.3	CDCA-F025 CDCA-F026 CDCA-F027	Registration date check for meter inclusion in settlement
4.4	GEN-N001	Audit trail of all registration data changes
4.5	CDCA-I002	Meter point details validation from BSC Parties
4.6	CDCA-F003 CDCA-I048	Provision of read only database of registration details
4.7	CDCA-I002	Registration data from CRA
4.8	CDCA-I002	BSC Party details from CRA
4.9	CDCA-I002	Interconnector Administrator details from CRA
4.10	CDCA-I002	MOA details from CRA
4.11	CDCA-I002	Metering System details from CRA
4.12	CDCA-I002	Boundary Point details from CRA
4.13	CDCA-I002	Meter Point details from CRA
4.14	CDCA-I002	BM Unit details from CRA
4.15	N/A	Trading Unit details from CRA - no longer required, as per ITT Erratum 3
5.1	CDCA-F001 CDCA-I003	Meter Technical details from MOA
5.2	CDCA-F001	Updates of meter technical details from MOA
5.3	GEN-N001	Audit trail of meter technical details
5.4	CDCA-F001	Validation of meter technical details
6.1	CDCA-F034	Use of all metering protocols
6.2	CDCA-F034	Provide approval service for new metering protocols
6.3	CDCA-F034 CDCA-I004 CDCA-I005	Inform MOAs of new meter protocol
7.1	CDCA-F004	Undertake proving test in new / changed meter hardware
7.2	CDCA-F004	Communications checks
7.3	CDCA-F004	Ensure that only valid data used in settlements
7.4	CDCA-F004	Request validation of proving test results from MOA
7.5	CDCA-F004 CDCA-I006	Send meter data to MOA for proving test
7.6	CDCA-F004 CDCA-I007	Send proving test report/exceptions to MOA [URS Review added BSC Party]
7.7	CDCA-F039	Provide PARMS reports on proving tests

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Service Description Requirement Number	URS Requirement Reference Number	Notes
8.1	CDCA-F005 CDCA-I008	Obtain metered data from metering systems including Interconnectors
8.2	CDCA-F005	Perform data collection for active and reactive energy
8.3	CDCA-F005	Collect meter data from main and check meters
8.4	CDCA-F005	Collect data by initial settlement timescales
8.5	CDCA-F006 CDCA-I009	Period energy data from meter via handheld's file where comms is not available
8.6	CDCA-F008 CDCA-I010	Exception reports for missing and invalid data to BSC Party and MOA
8.7	CDCA-F005 CDCA-I008 CDCA-I011	Period data from meter, and also dial readings from meter, for MAR
8.8	CDCA-I012	Report raw meter data
9.1	CDCA-F007	Period meter validation rules
9.2	CDCA-F007	Additional validation rules
9.3	CDCA-F007 CDCA-I008	Load original data including alarm flags from meter or outstation
10.1	CDCA-F009	When to estimate
10.2	GEN-N001	Retention of original values
10.3	CDCA-F009	Flagging estimated
10.4	CDCA-F009	Estimation rules for generation
10.5	CDCA-F009	Estimation rules of demand data
10.6	CDCA-F009	Estimation
10.7	CDCA-F010 CDCA-I014 CDCA-I037	Notify BSC Party and MOA of estimation method [and BSCCo Ltd]
10.8	CDCA-F009	Estimation timing
10.9	CDCA-F011 CDCA-I037 CDCA-I014	Estimated Data Report to SAA and BSC Party [URS review changed SAA to BSCCo Ltd]
10.10	GEN-N001	Retention of original data and alarm flags
10.11	CDCA-F009 CDCA-I013	Obtain agreement on estimate from BSC Party cf 10.4
10.12	CDCA-F007	Check missing or suspect SVA meter data with HHDC
10.13	CDCA-F011a CDCA-I066	Receive and maintain details of Demand Control Events
10.14	CDCA-F011a CDCA-I067 CDCA-I068	Ensure estimates of Demand Disconnection Volumes are submitted to SAA
11.1	CDCA-F012 CDCA-I015	Metering Equipment faults from MOA
11.2	CDCA-F012	Check MOA identity
11.3	CDCA-F012	Confirm fault with MOA and act
11.4	CDCA-F012 CDCA-I015	Report metering faults to MOA
11.5	CDCA-F012	Carry out site inspections where necessary
11.6	CDCA-F012 CDCA-I016 CDCA-I039	Exchange of information with TAA Inbound Outbound
11.7	CDCA-F039	Provide PARMS reports on metering faults
12.1	CDCA-I017	Meter Reading Schedule for MAR, to BSC Party and MOA
12.2	CDCA-F013 CDCA-I011	Dial Readings for MAR
12.3	CDCA-F013	Authorisation access
12.4	CDCA-F013	MAR comparison
12.5	CDCA-F013	Account for meter time in MAR process

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Service Description Requirement Number	URS Requirement Reference Number	Notes
12.6	CDCA-F013 CDCA-I018	MAR Reconciliation Report to BSC Party MAR Reconciliation Report to MOA MAR Reconciliation Report to SAA - SAA workshop said this was not needed MAR Reconciliation Report to BSCCo Ltd added from URS Workshop
12.7	CDCA-F014	Investigate MAR discrepancy with MOA
12.8	CDCA-F014	Take account of estimations in MAR
12.9	CDCA-F014 CDCA-I019	Notify BSC Party of remedial action following MAR
12.10	CDCA-I018	Provide MAR Exception report [Note that URS Review changed this to go to BSCCo Ltd, not SAA]
12.11	CDCA-F013 CDCA-I020	Site Visit Inspection report from site visit agent
12.12	CDCA-I019	Provide reconciliation report
12.13	CDCA-F012	Carry out visual inspections
12.14	CDCA-F007	Carry out mini-MARs where appropriate
12.15	CDCA-I038	Report mini-MAR results
13.1	CDCA-I021 CDCA-I046	Receive notification of metering equipment work from MOA
13.2	CDCA-I021	Receive request to remotely interrogate meter
13.3	CDCA-I021	Receive meter readings before meter work
14.1	CDCA-F017 CDCA-I021	Meter/Outstation Change plans from MOA
14.2	CDCA-F004	Provision of Proving test
15.1	CDCA-F018 CDCA-I022 CDCA-I023	 Line Loss Factors from BSCCo Ltd Missing Loss Factors to BSCCo Ltd (as defined by URS Workshop)
15.2	CDCA-F018	Validation of line loss factors
15.3	CDCA-F019	Line loss factor application
15.4	CDCA-F019	Apply default line loss factors
15.5	CDCA-F019	Apply retrospective line loss factors
15.6	CDCA-F019	Apply line loss factors prior to aggregation
16.1	CDCA-F020	On line Data retention
16.2	CDCA-F032 GEN-S004	Recoverable archives
16.3	CDCA-F032 GEN-S004	Requirements for data archiving
16.4	GEN-S004	Archiving periodicity
16.5	GEN-S004	Data availability
17.1	CDCA-F021	System clock timing
17.2	CDCA-F021	Meter clock synchronisation
17.3	CDCA-F021	Hand held meter clock synchronisation
18.1	CDCA URS Section 12.2	Input/ output data flow as per Appendix A
19.1	CDCA-F022 CDCA-I012	Raw meter period data to BSC Party [Clarification also adds instance to System Operator]
19.2	CDCA-F002 CDCA-F008 CDCA-F013 CDCA-F028 CDCA-I010 CDCA-I025 CDCA-I026 CDCA-I018	Exception Reports to BSC Party: Collected meter data Aggregation Rules Aggregated meter volumes exceptions MAR

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Service Description Requirement Number	URS Requirement Reference Number	Notes
19.3	CDCA-I027 CDCA-I041 CDCA-I028 CDCA-I042 CDCA-I036 CDCA-I029	Aggregated meter data reports to SAA and BSC Party: Interconnector Meter Flow Volumes to SAA Interconnector Meter Flow Volumes to BSC Party BM Unit Metered Volumes to SAA BM Unit Metered Volumes to BSC Party GSP Group Take to SAA GSP Group Take to BSC Party
19.4	CDCA-F023 CDCA-I030	Meter data reports to Distribution business
19.5	CDCA-F024 CDCA-I012	Meter data reports to SO - as BM System Operator, TUoS charging, Ancillary Services Business
19.6	CDCA-F030 CDCA-I032	Data Collection and aggregation performance reports to BSCCo Ltd
19.7	CDCA-F012 CDCA-I039 CDCA-I016	Support to the Technical Assurance Agent
19.8	CDCA-F016 CDCA-I040	Credit Qualifying BMU metered volumes to ECVAA
19.9	CDCA-F011a CDCA-I068	Send Demand Disconnection Volumes to SAA
20.1	CDCA-F029	Procurement and administration of communication lines
20.2	CDCA-F029	Data format for communication with BSC Party
20.3	CDCA-I033	Acknowledge receipt of all data from BSC Party
20.4	COMMS URS	Checking receiver of data
21.1	CDCA-F031 CDCA-I034 CDCA-I002	Settlement Calendar from SAA Accredited MOA details from CRA
21.2	CDCA-F031 CDCA-I002	Report problems with Settlement Calendar or Accredited MOAs
21.3	COMMS URS	Market data receipt validation
22.1	CDCA-F002	Aggregate according to BSC Party rules
22.2	CDCA-F002	Aggregation rules from BSC Party
22.3	CDCA-F002	Validation of aggregation rules
22.4	CDCA-F002 CDCA-I035	Site Visit Report on Aggregation Rule compliance, from Site Visit Agent
22.5	CDCA-F025 CDCA-F026	Perform aggregation
22.9	CDCA-F026	Apply loss factors for BM Unit volumes
22.10	CDCA-F027	Includes GSP Group Take to SAA
22.11	CDCA-F027	Implies send GSP Group Take volumes to BSC Party
22.12	CDCA-F025 CDCA-F026 CDCA-F027	Identification of estimates in aggregations
22.13	CDCA-F025 CDCA-F026 CDCA-F027	Report revised data to SAA
22.14	CDCA-F035	Validate aggregation rules on SMRS/CMRS transfers
22.15	CDCA-F016	Perform credit run
23.1	CDCA-F033	Data transfer timings
24	CDCA-F035 CDCA-F036	Transfer between CMRS and SMRS
25.1	GEN-S008	Data retention requirements

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Data Collection Performance Standards

Appendix C of the Service Description describes requirements for Data Collection Performance Standards. These are addressed within the Service Level Agreements. See also CDCA-S001, CDCA-F030 and CDCA-I032.

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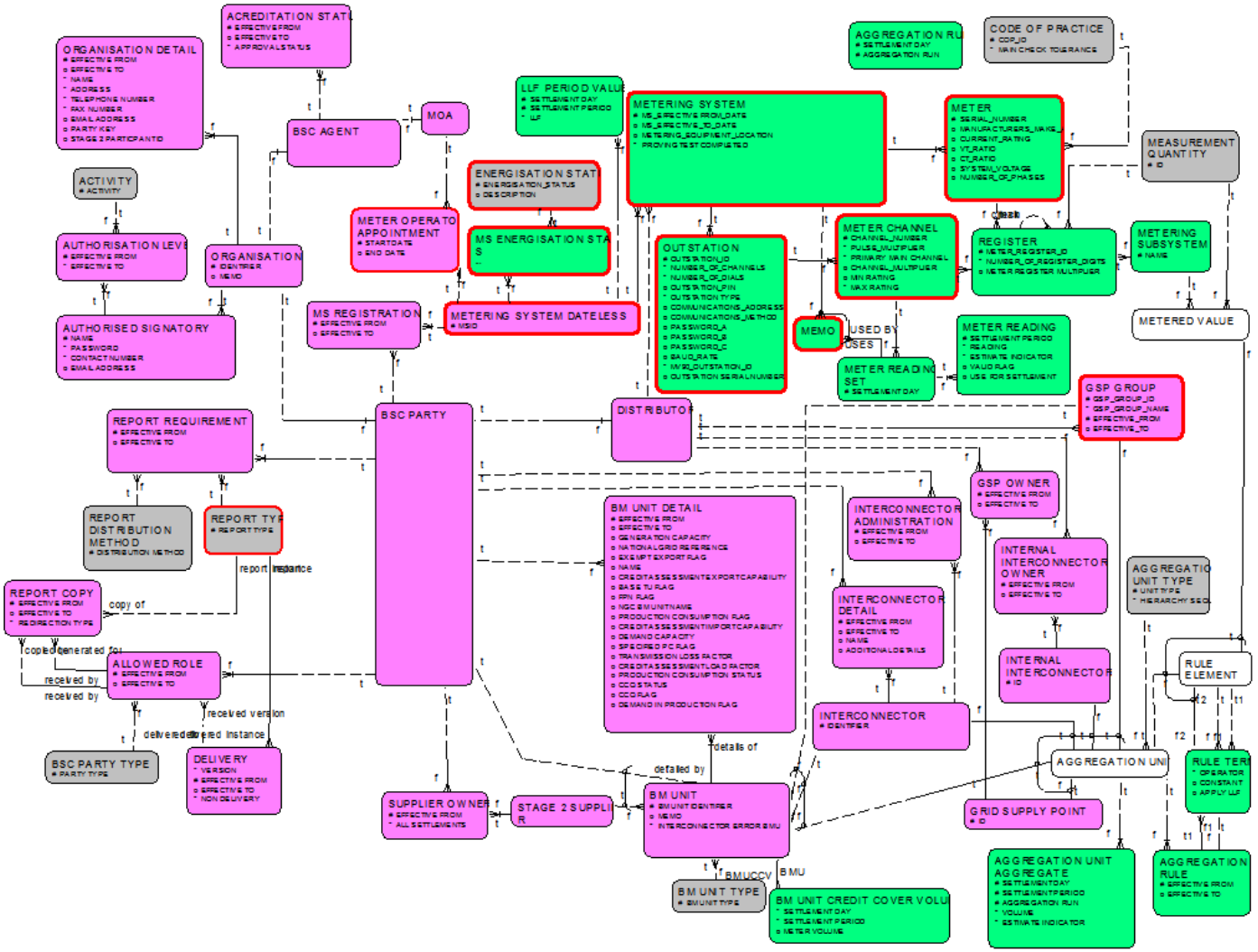
Appendix C Logical Data Model

The logical data model to support the requirements of the CDCA Service is shown below. The Approval Status entity contains details of Qualification.



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Appendix D Calculation of Tolerances

Primary-Secondary Outstations

This validation shall be carried out at the point where data is loaded into CDCA. Data between associated Primary and Secondary Outstation channels (e.g. Main-1 and Main-2; Check-1 and Check-2) shall be compared on a period, by period basis. Where the values differ by more than a defined tolerance, then both values should be considered 'suspect quality', and flagged as such.

The tolerance margin value used for the Primary/Secondary validation comparison, between two period values, will be defined using the equation:

(<Time-Shift Factor> / 1800) * <Max. reading value for channels>

Where:

1. The value '1800' represents a Settlement Period's worth of seconds;
2. The 'Time-Shift Factor' will be an adjustable system parameter, that is initially set to a figure of 20 seconds (equivalent to allowing a time drift of 10 seconds either way);
3. The 'Max. reading value for channels' will be the maximum period reading value for both channels, for the Settlement Day concerned. Note: It is *not* the Maximum Rating for the channels (as defined in the MTDs).

For example:

> Two channels, A and B, are compared as part of Primary/Secondary validation, for a particular settlement day. The largest reading value in channel A's meter reading set for that day is 101.6, and the largest reading value in channel B's meter reading set for that day is 103.2. As 103.2 is therefore the largest meter reading value for both channels on that day, the tolerance margin used for comparing these two channel's sets will be calculated as: (20 / 1800) * 103.2 = 1.14667. Two period values, 85.2 and 86.9, are compared as part of this validation. Because the difference between these two values (1.7) is greater than the calculated tolerance margin, both these values are therefore considered to be suspect, and will be reported.

Primary/Secondary validation shall be carried out for both Active and Reactive Energy channels. It shall be attempted whenever new data is loaded.

Where data is only available from one Outstation, this validation cannot be carried out and the data shall NOT be flagged as having failed validation. Where new data is for one channel and data already exists for the other, these shall be compared.

If both readings are below the de minimis threshold defined for the Code of Practice applicable to the Outstation then the comparison shall not be NOT performed. The threshold is a percentage of the channel's Maximum Rating (as defined in the Meter Technical Details).

The threshold value shall be calculated for each pair of Primary/Secondary channels using the equation:

<Prim/Sec threshold percentage> * <Channels Maximum Value>

Where:

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- The 'Prim/Sec threshold percentage' is defined for the CoP ID of the physical meter on which the channels' register sits, as defined in the MTD effective for the settlement day in question.
- The 'Channels Maximum Value' is the Maximum Value of the Channels (it should be the same for both), as defined in the MTD effective for the settlement day in question.

For example:

> Two channels, A and B, have data loaded from the same file, and are compared as part of Primary/Secondary validation. Both channels are connected to the same register, which is on a physical meter with a CoP ID of 'A'. The 'Primary/Secondary threshold percentage' for this CoP ID is defined on the system as 5.0%. The 'Maximum Rating' for these two channels, as defined by their MTDs is 50.0 MWh. Therefore the threshold for this pair of channels is 0.05 * 50.0 = 2.5 MWh. The reading values for period 1 are 1.1 and 1.2 for channel A and B respectively. As both values are below the threshold, Primary/Secondary validation is not carried out for these two reading values, and the quality of the data is not considered suspect. The reading values for period 2 are 2.3 and 2.5 for channel A and B respectively. As only one reading value is below the threshold, Primary/Secondary validation can be carried out for these two reading values.

Values that are flagged as having failed Primary/Secondary validation cannot be used in Settlement without the intervention of the operators. Data having failed Primary/Secondary validation shall be considered 'suspect quality', and suspect data cannot be used in Settlement.

Main-Check Registers

Allowable errors between Main and Check Meters used in CVA Metering Systems, shall be 1.5 times the Class accuracy of the Meters, as defined in the relevant Code of Practice (CoP).

CoP 1 Meters are to Class 0.2S and therefore the Main / Check tolerance is set at ± 0.30%.

At certain times some Meters operate at very low levels compared with the overall rating of the Meter. Different validation percentages are applied depending on the loads in the relevant time period.

For Active Energy the bands are:

- greater than 5% of Meter rating (currently applied to all loads)
- greater than 2% and less than or equal to 5% of Meter rating
- equal to or less than 2% of Meter rating

Different percentages can be established for each band dependent upon the CoP. The actual values for these lower load checks will need to be approved by the relevant BSC Committee, and therefore should initially be set as the current values until such time as the proposed values are approved, as shown in the table below:

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CoP	>5% of Max Value for Channel	At >2% to <=5% of Max Value for Channel (Default)	At <= 2% of Max Value for Channel (Default)
1	± 0.30 %	± 0.50 %	± 1.00 %
2	± 0.75 %	± 1.00 %	± 2.25 %
3	± 1.50 %	± 2.00 %	± 2.50 %
5	± 3.00 %	± 4.00 %	± 5.00 %
5 1	± 3.00 %	± 4.00 %	± 5.00 %
5 2	± 3.00 %	± 4.00 %	± 5.00 %
6	± 0.30 %	± 0.50 %	± 1.00 %
7	± 0.30 %	± 0.50 %	± 1.00 %
A	± 0.75 %	± 1.00 %	± 2.25 %
B	± 0.30 %	± 0.50 %	± 1.00 %
C	± 0.75 %	± 1.00 %	± 2.25 %
D	± 0.75 %	± 1.00 %	± 2.25 %
E	± 0.30 %	± 0.50 %	± 1.00 %
F	± 0.30 %	± 0.50 %	± 1.00 %
G	± 0.75 %	± 1.00 %	± 2.25 %
G 1	± 0.75 %	± 1.00 %	± 2.25 %
G 2	± 0.75 %	± 1.00 %	± 2.25 %
H	± 0.75 %	± 1.00 %	± 2.25 %
I	± 0.75 %	± 1.00 %	± 2.25 %
J	± 0.30 %	± 0.50 %	± 1.00 %
K1	± 0.30 %	± 0.50 %	± 1.00 %
K2	± 0.30 %	± 0.50 %	± 1.00 %
N	± 0.30 %	± 0.50 %	± 1.00 %

For Reactive Energy the proposed bands are:

- greater than 10% of Meter rating (currently applied to all loads)
- less than or equal to 10% of Meter rating

Different percentages can be established for each band dependent upon the CoP. The actual values for these lower load checks will need to be approved by the relevant BSC Committee, and therefore should initially be set as the current values until such time as the proposed values are approved, as shown in the table below:

CoP	>10% of Max Value for Channel (Default)	At <=10% of Max Value for Channel (Default)
1	± 3.0 %	± 6.0 %
2	n/a	n/a
3	n/a	n/a
5	n/a	n/a
5 1	n/a	n/a
5 2	n/a	n/a
6	± 3.0 %	± 6.0 %
7	± 3.0 %	± 6.0 %
A	n/a	n/a
B	± 3.0 %	± 6.0 %
C	n/a	n/a

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CoP	>10% of Max Value for Channel (Default)	At <=10% of Max Value for Channel (Default)
D	n/a	n/a
E	± 3.0 %	± 6.0 %
F	± 3.0 %	± 6.0 %
G	n/a	n/a
G 1	n/a	n/a
G 2	n/a	n/a
H	n/a	n/a
I	n/a	n/a
J	± 3.0 %	± 6.0 %
K1	± 3.0 %	± 6.0 %
K2	± 3.0 %	± 6.0 %
N	± 3.0 %	± 6.0 %

All values quoted above, for both Active and Reactive Energy, relating to de minimis levels and allowable errors should be system variables and NOT 'hard coded'. The values chosen in each case are 'proposed values' and should not be considered as 'fixed' until such time as approval to use has been granted.

Note: 'n/a' in the table above means 'not applicable', i.e. there is no requirement relevant CoP to install Main and Check Reactive meters, only a Main meter. In such cases no Main/Check validation should occur, and the reading values involved should therefore not be flagged as Main/Check suspect. The System should be defined so that any 'n/a' may be replaced by a value at a later date, if this becomes necessary.

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