	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## SERVICE REQUEST DETAILS


<b>Service Request Nr</b>	GCS12 – Meter Data Management System
<b>Service Request Short Description</b>	The MDMS is a cornerstone solution that is required to store, process and manage meter data in support of the Prepaid Meter Conversion Programme. The MDMS serves not only as a data repository but as an umbrella of services that enable additional processing (calculators, Validation, Editing and Estimation (VEE) and analytics).
<b>Requester(s)</b>	
<b>Business Sponsor</b>	
<b>GIT Customer Area</b>	
<b>Business Process Manager</b>	
<b>Business Relationship Manager</b>	

## Elicit – Document – Confirm

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		


## Contents

<b>1.</b>	<b>CONTROL TABLE .....</b>	<b>5</b>
	<b>Document Tracker .....</b>	<b>8</b>
<b>2.</b>	<b>CUSTOMER AND STAKEHOLDER DETAILS.....</b>	<b>9</b>
2.1	Customer Information .....	9
2.2	Group IT Information.....	10
<b>3.</b>	<b>ABBREVIATIONS .....</b>	<b>11</b>
<b>4.</b>	<b>GLOSSARY OF TERMS / DEFINITIONS.....</b>	<b>14</b>
<b>5.</b>	<b>BUSINESS REQUIREMENTS SPECIFICATION DOCUMENT OVERVIEW .....</b>	<b>16</b>
<b>6.</b>	<b>BACKGROUND AND CONTEXT .....</b>	<b>17</b>
6.1	Business Strategy supported .....	17
6.2	Reason for the requirement (Background).....	22
6.3	Data flow diagram – Context Diagram.....	36
<b>7.</b>	<b>BUSINESS PROCESSES .....</b>	<b>38</b>
7.1	As-is business process.....	38
7.2	To-be business process .....	40
<b>8.</b>	<b>BUSINESS REQUIREMENTS SCOPE AND PRECONDITIONS .....</b>	<b>41</b>
8.1	Define what is in scope in relation to the population of the business requirement. ....	41
8.2	Define what is out of scope in relation to the population of the business requirement. ....	42
8.3	Define any preconditions, dependencies and non- functional requirements that impact the business requirement .....	43
<b>9.</b>	<b>BUSINESS REQUIREMENTS .....</b>	<b>46</b>
9.1	High level Requirements.....	46
9.2	Detailed requirements and Business rules.....	48
9.3	Use Case Model.....	61
9.4	User interface requirements .....	63
9.5	Reporting requirements.....	65
9.6	Information/data requirements.....	71

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

9.7	System Integration requirements.....	75
9.8	System Performance requirements .....	77
9.9	Security requirements .....	78
9.10	Archiving requirements .....	81
9.11	Operating environment .....	81
<b>10.</b>	<b>TRAINING .....</b>	<b>82</b>
10.1	Define the training requirements:.....	82
10.2	Define the possible types of training that will be required: .....	82
10.3	Define who will be designing the training, if known.....	82
<b>11.</b>	<b>LEGAL REQUIREMENTS .....</b>	<b>83</b>
11.1	Define the legal requirements.....	83
11.2	Intellectual Property.....	83
<b>12.</b>	<b>DISASTER RECOVERY REQUIREMENTS .....</b>	<b>83</b>
12.1	Define the disaster recovery requirements.....	83
<b>13.</b>	<b>BUSINESS CONTINUITY .....</b>	<b>83</b>
13.1	Confirm that the business is aware that the solution resulting from this requirement need to form part of a business continuity plan. ....	83
<b>14.</b>	<b>CAPACITY PLANNING REQUIREMENTS.....</b>	<b>84</b>
14.1	Define the basic capacity planning requirements.....	84
<b>15.</b>	<b>ENVIRONMENTAL MANAGEMENT .....</b>	<b>84</b>
15.1	Define the basic environmental management requirements.....	84
<b>16.</b>	<b>SERVICE LEVEL AGREEMENT.....</b>	<b>84</b>
16.1	Define the basic Service Level Agreement requirements.....	84
<b>17.</b>	<b>SUPPORT AND MAINTENANCE CONTRACT .....</b>	<b>85</b>
17.1	Define Support and Maintenance Contract Impact (if any).....	85
<b>18.</b>	<b>PROPOSED SOLUTIONS/ARCHTECTURE/TECHNOLOGY .....</b>	<b>86</b>
18.1	Define the possible architecture (Graphically and/or text representation that could be used to meet the business requirement). ....	86
18.2	List any technology which could be considered in the development of the proposed solution. ...	87
<b>19.</b>	<b>COSTING.....</b>	<b>88</b>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

<b>20.</b>	<b><i>POSSIBLE OPTIONS</i></b> .....	<b>90</b>
<b>21.</b>	<b><i>DOCUMENTS TO BE UPDATED</i></b> .....	<b>94</b>
	21.1 Define the document actions pertaining to this BRS: .....	94
<b>22.</b>	<b><i>REFERENCES</i></b> .....	<b>94</b>
<b>23.</b>	<b><i>DOCUMENT ACKNOWLEDGEMENT</i></b> .....	<b>96</b>
<b>24.</b>	<b><i>DOCUMENT APPROVAL</i></b> .....	<b>97</b>
<b>25.</b>	<b><i>APPENDIX</i></b> .....	<b>97</b>
<b>25.1</b>	<b><i>Generation Division: Alarm Reports</i></b> .....	<b>97</b>
<b>25.2</b>	<b><i>Generation Division: Energy Metering Concept</i></b> .....	<b>99</b>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 1. CONTROL TABLE

This table defines what sections of the document need to be completed.

Section Number	Section Description	Change Control	Demand BRS1	Demand BRS2	ACE Demand	DTM2 / Innovation Project
2.1	Customer Information	Y	Y	Y (Review)	Y	Y
2.2	Group IT Information	Y	Y	Y (Review)	Y	Y
3	Abbreviations	Y	Y	Y (Review)	Y	Y
4	Glossary of Terms / Definitions	Y	Y	Y (Review)	Y	Y
5	Business Requirements Document Specification Overview	Y	Y	Y (Review)	Y	Y
6.1	Business Strategy supported	Y	Y	Y (Review)	Y	Y
6.2	Reason for the Requirement	Y	Y	Y (Review)	Y	Y
6.3	Data flow diagram	Y	N	Y	Y	N
7.1	As-Is Business Processes	Y	Y	Y (Review)	Y	Y
7.2	To-Be Business Processes	Y	N	Y	Y	Y
8.1	Define what is in scope in relation to the population of the business requirement.	Y	Y	Y (Review)	Y	Y
8.2	Define what is out of scope in relation to the population of the business requirement.	Y	Y	Y (Review)	Y	Y
8.3	Define any preconditions, dependencies and non- functional requirements that impact the business requirement.	Y	Y	Y (Review)	Y	Y
9.1	High Level Requirements (Executive Summary)	Y	Y	Y (Review)	Y	Y
9.2	Detailed requirements and Business rules	Y	Y	Y (Review)	Y	Y
9.3	Use Case Model (visual of functional requirements)	N	N	Y	N	Y

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



**Group IT**  
**Business Requirement Specification (BRS)**  
 Meter Data Management System  
**GCS12**

Template Identifier	240-43921804	Rev	5
Document Identifier	240-83570075	Rev	3
Authorisation Date	21 April 2017		
Review Date	October 2019		

Section Number	Section Description	Change Control	Demand BRS1	Demand BRS2	ACE Demand	DTM2 / Innovation Project
9.4	User Interface Requirements (Assume that an user interface requirement together with new capabilities will never meet the change control criteria of 200 hours or less)	N	N	Y	Y	N
9.5	Reporting Requirements	Y	N	Y	Y	Y
9.6	Information / Data Requirements	N	N	Y	Y	Y
9.7	System Integration Requirements	N	N	Y	Y	Y
9.8	System Performance Requirements	N	N	Y	N	Y
9.9	Security Requirements	N	N	Y	Y	Y
9.10	Archiving Requirements	Y	N	Y	N	Y
9.11	Operating Environment	N	N	Y	Y	Y
10.1	Define the Training Requirements, if known	Y	N	Y	Y	N
10.2	Define the possible types of training that will be required, if known	Y	N	Y	Y	N
10.3	Define who will be designing the training, if known	N	N	Y	N	N
11.1	Define the legal requirements	Y	Y	Y (Review)	Y	Y
11.2	Intellectual Property (never remove the statement)	Y	Y	Y	Y	Y
12.1	Define the disaster recovery requirements (for new solutions this needs to be done together with Information Security)	N	N	Y	N	N
13.1	Confirm that the business is aware that the solution resulting from this requirement needs to form part of a business continuity plan	Y	N	Y	Y	Y
14.1	Define the basic capacity planning requirements	N	N	Y	N	N
15.1	Define the basic environmental management requirements	N	N	Y	N	N
16.1	Define the basic Service Level Agreement requirements	N	N	Y	N	N
17.1	Define the basic Support and Maintenance Contract Requirements	N	N	Y		N

**Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



**Group IT**  
**Business Requirement Specification (BRS)**  
 Meter Data Management System  
**GCS12**


Template Identifier	240-43921804	Rev	5
Document Identifier	240-83570075	Rev	3
Authorisation Date	21 April 2017		
Review Date	October 2019		

Section Number	Section Description	Change Control	Demand BRS1	Demand BRS2	ACE Demand	DTM2 / Innovation Project
18.1	Define the possible architecture (Graphically and/or text representation that could be used to meet the business requirement). SEA to advise.	N	Y (SEA)	Y (SEA)	N	Y
18.2	List any technology which could be considered in the development of the proposed solution	N	Y (SEA)	Y (SEA)	N	Y
19	Costing - normally unknown at BRS1 stage / not high confidence level	Y	Y (BRM & SEA)	Y (Review)	N	N
20	Possible Options - not high confidence level	Y	Y (SEA)	Y (Review)	Y	Y
21.1	Documents to be Updated	Y	N	Y	Y	N
22	References	Y	Y	Y (Review)	Y	Y
23	Document Acknowledgement	Y	PDF	Y	Y	Y
24	Document Approval	Y	PDF	Y	Y	Y

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## Document Tracker


Version	Change Log	Author	Date

## Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 2. CUSTOMER AND STAKEHOLDER DETAILS


### 2.1 Customer Information

Name	Department & Division	Role / Expertise	Contact Info	Comments
If BRS is being developed for an approved project the following additional information needs to be defined:				
		Business Sponsor/s		Indicated above
		Other		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 2.2 Group IT Information


Name	Department & Division	Role / Expertise	Contact Info	Comments

PLCM Phase (if applicable)	Pre-Project Planning			
Project Number (if applicable)	ID	IT99999	WBS	C.IT99999 N.IT99999

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		


### 3. ABBREVIATIONS

Abbreviation	Description
ACD	Appliance Control Device
ACE	Analytics Centre of Excellence
AD	Active Directory
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
ARIS	Architecture of Integrated Information Systems
BCP	Business Continuity Plan
BI	Business Intelligence
BRS	Business Requirements Specification
BRS	Business requirements specification (this document)
C&I	Control and Instrumentation
CC&B	Customer Care & Billing.
CIM	Common Information Model
CIS	Customer Information System
CIU	Customer interface Unit
CoE	Centre of Excellence
COTS	Commercial off the shelf
CPP	Critical Peak Pricing
CVM	Current and Voltage Monitor
DAS	Data Acquisition System
DDW	DISM Data Warehouse
DFD	Data Flow Diagram
DMS	Data Management Systems
DR	Disaster Recovery
DR	Demand Response
DRMS	Demand Response Management System
DSM	Demand Side Management
DTM2	Digital Transformation Mode 2 Programme
EMDAS	Energy Management Data Acquisition System
FTP	File Transfer Protocol
GCS	Group Customer Services
GIT	Group Information Technology Division, also referred to as Group IT

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Abbreviation	Description
GPS	Global Positioning System
GPSS	Generation Power Sales System
Gx	Eskom Generation division
HAN	Home Area Network
HHU	Hand Held Unit
HV	High Voltage
IPP	Independent Power Producer
IT	Information Technology
ITSO	Information Technology Service Operations
KPA	Key Performance Area
KPI	Key Performance Indicator
kVA	Kilo Volt Amperes (Apparent Power)
LPU	Large Power Users including internal tariff metered, international, agricultural customers
LV	Low Voltage
MATS	Meter Asset Tracking System
MDMS	Meter Data Management System
MS	Master Station
MTS	Main Transmission Substation
MV	Medium Voltage
MV90	Multi-Vendor 90 Utility Translation System
Mvar	Mega Vars (Reactive Power)
MVIL	Multi-Vendor Integration Layer
MWh	Mega Watt hours
NERSA	National Energy Regulator of South Africa
NMD	Notified Maximum Demand
ODS	Operational Data Store
PCM	Process Control Manual
PDA	Personal Digital Assistant
PP	Prepaid
PTM&C	Protection, Telecoms, Metering and Control
QOS	Quality of Supply
RFP	Response for proposal
SA	Service Agreement ( CC&B V Model)
SARS	South African Revenue Service
SC	Study Committee

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Abbreviation	Description
SCADA	Supervisory Control and Data Acquisition
SCOT	Steering Committee of Technology
SEA	Strategy Execution Architecture
SGC	Supply Group Code
SGE	Smart Grid Enablement
SLA	Service Level Agreement
SP	Service Point ( CC&B V Model)
SPU	Small Power Users
SSL	Secure Sockets Layer
TOU	Time of Usage
TSC	Technical Service Centre
Tx	Eskom Transmission division
UI	User Interface
VEE	Validate, Estimate, Edit
VPN	Virtual Private Network
VPS	Virtual Power Station
WAN	Wide Area Network

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		


#### 4. GLOSSARY OF TERMS / DEFINITIONS

Term	Definition
ALFS	ALFS is an in house, web based application designed to assist the user with enquires and management of metering data uploaded via the Regional MV90 to CC&B. Regional MV90 data is uploaded to an Oracle database where it is consolidated and verified before being loaded into CC&B.
AMI Programme	The AMI programme is an initiative that provides smart metering technology with the associated communications and back-end systems for the residential customer base. This technology will enable the roll-out of a residential time-of-use (TOU) tariff as well as enable a number of operational benefits for the Distribution Division such as remote automated meter reading, revenue protection, tamper detection, remote connect/disconnect, accurate billing, demand response, etc.
Business Rule	A business rule is a rule that defines or constrains some aspect of business and always resolves to either true or false. Business rules are intended to assert business structure or to control or influence the behaviour of the business. Business rules describe the operations, definitions and constraints that apply to an organization. Business rules can apply to people, processes, corporate behaviour and computing systems in an organization, and are put in place to help the organization achieve its goals.
CC&B	Oracle Customer Care and Billing solution
Check Metering	A redundant metering system (a completely separate installation) that has a separate and dedicated CT core but may have only one dedicated VT winding, shared with the Main metering system.
Cloud	Simply put, cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet (“the cloud”).
CS Online	Customer services online: a web based system that is used by customers to access their account details and consumption profile
DAS	Regional MV90 systems. The software package capable of reading the data from all meter types for the transfer to other applications such as the billing system.
Dynamic Tariff Structures	Tariff structures such as time-of-use, real time pricing, wholesale tariffs, commodity linked pricing structures, inclining block tariff (IBT) and Critical Peak Schedules
External Agents	Sends information to and receive information from analysis area of study/focus area
Extraneous supplies	Energy taken from the generation process and used for purposes other than auxiliary power.
Firewall	A firewall is a network security system that monitors and controls the incoming and outgoing network traffic based on predetermined security rules
Four Quadrant	A metering system that is capable of determining the direction of active and reactive

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

<b>Term</b>	<b>Definition</b>
metering	energy transfer, measuring these quantities and correctly differentiating the quantities in accordance with the geometrical representation as per standards IEC 60375 and DST 32-326. (Export and Import).
Gross Generated	The electrical energy produced by a generator, metered at the star point CTs of the generator.
Gross Output	The electrical energy produced at the terminals of a generator.
HV	High voltage network [33KV to 765KV]
Hybrid Architecture	Hybrid clouds combine public and private clouds, bound together by technology that allows data and applications to be shared between them. By allowing data and applications to move between private and public clouds, hybrid cloud gives businesses greater flexibility and more deployment options.
LV	Low voltage networks [0V to 1000Volt]
Maximo	Enterprise asset management system used in Dx for work order management performing planned and forced work management.
Meter	Device for measuring and totalling the variable consumption of a product. Note in general a meter consists of a sensor and an integrating device that displays the total consumption in metrological units. (Integrated values).
Metering	Recording of active and reactive energy, with units of MWh and Mvarh respectively.
MV	Medium voltage networks [1K to 33KV]
MV90	MV90, a metering data acquisition system, is used to retrieve customer and statistical meter readings for the purpose of customer billing and settlements. The Regional MV90 keeps 30 minutes of interval data and sends the data to a CC&B.
National Prepayment strategy	One of the strategic interventions that have been proposed is the migration of all Eskom customers from conventional metering to smart prepaid metering. It is anticipated that this approach will improve Eskom's financial position by improving the certainty of collecting revenue and simultaneously addressing debt collection challenges.
Platform as a Service	Platform-as-a-service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases needed for development.
Process	Set of activities that describe how an activity is executed. Set of activities that transform data.
SAIDI	System Average Interruption Index: a KPI which indicates how long the average customer's power supply is down in a year's time space.
SCADA	Used to collect analogue meter reading data for forecast information. SCADA quantities should not be included into a MDMS. SCADA is real-time values – not historical values.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Term	Definition
Sent Out Energy	The energy metered at the high voltage side of the Generator Transformer.
Sent Out of a Power Station	The Net Output of a power station less the power supplied by external networks in assisting with generation.
Service Agreement	A Service Agreement is a contract between Eskom and a customer. The SA contains terms and conditions which dictate how CC&B calculates and charges for the supply to the customer.
Service Point	A SP is the specific point on a property where a meter is installed
SGC	Stands for Supply Group Code. A code given for both STS and Proprietary meters to allow a certain area of meters to buy tokens from various Credit Dispensing Units with the matching Supply Group Codes. A supply group is unique per distributor and area. One supply group can be linked to many algorithm technologies and many suppliers' meters.
Single phase and Poly phase meters	A device for measuring and totalling the variable consumption of a product. In general a meter consists of a sensor and an integrating device which displays the total consumption in metrological units.
Software as a Service	Software-as-a-service (SaaS) is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure and handle any maintenance, like software upgrades and security patching. Users connect to the application over the Internet, usually with a web browser on their phone, tablet or PC.
SPU	Small power users: includes both AMI smart metered residential customers, Eskom conventionally billed residential customers and prepaid customers
System	An organized, purposeful structure that consists of interrelated and interdependent elements (components, entities, factors, members, parts etc.). These elements continually influence one another (directly or indirectly) to maintain their activity and the existence of the system, in order to achieve the goal of the system

## 5. BUSINESS REQUIREMENTS SPECIFICATION DOCUMENT OVERVIEW

The Business Requirements Specification defines what the functionality and requirements are by providing information that assists in the design and implementation of the proposed solution/change.

This document excludes how the proposed solution/change will be implemented as well as the technology specifications.

The purpose of this document is thus to record and confirm the business requirements for:


➤ New solution

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

In order to be able to complete the BRS different skill sets are required, for example business analysis, architecture analysis, business intelligence analysis, system analysis and so forth.

## 6. BACKGROUND AND CONTEXT

### 6.1 Business Strategy supported

The National Prepayment strategy plans to deploy approximately 6 million meters by 2023. A MDMS is a critical enabler and base infrastructure that is required to manage the large volumes of meter data generated by all these meters. Eskom thus requires an integrated solution to satisfy its storage of metering data, improved meter reading as well as cater for present and future Smart Metering requirements. This project is required to deliver the Meter Data Management (MDMS) solution that will support and manage meter data.

Meter data management system (MDMS) is a central repository system that performs long-term data storage and management for the vast quantities of data delivered by metering systems. This data consists primarily of usage data and events that are imported from the head-end servers managing the data collection in advanced metering infrastructure (AMI) or automatic meter reading (AMR) systems. It renders the complexity of different head-ends and acquisition technologies invisible to the enterprise applications. It stores all the meter data collected from different smart meters, and processes it as required by the enterprise applications. The MDMS serves not only as a data repository but as an umbrella of services that enable additional processing (calculations, Validation, Editing and Estimation (VEE) and analytics).

Support Critical Targets to drive the delta Budgets using (Design to Cost) DTC II, **Advanced Analytics to deliver savings of R14 bn.**

- Field Force effectiveness tools
- Predictive Maintenance
- Detection of non-technical losses
- Roll out smart grids

MDMS will be able to support Advanced Analytics:

An MDMS is a standalone solution that provides the following to utilities:


- Common integration point for disparate back office systems
- Common repository for meter reads and interval data from different sources
- Common solution for translating data into a common format for a wide range of business purposes
- Common source that sends alarms to varied business systems for required actions
- Common engine for enabling advanced analytics that support smart grid applications

When used in its entirety, an MDMS must:

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

- Store all meter reads as the system of record
- Validate the accuracy and performance of meter reads and outage event data
- Assess possible diversion situations or issues requiring a field visit
- Improve estimation and validation using multi-dimensional analytics
- Enable large-scale deployments and Smart Grid initiatives
- Synchronize data between MDMS, head end databases and back end systems
- Improve utility back office operations and understand the potential of the Eskom smart grid investment
- Accommodate the utilities' transition to multiple interval meter reads, and be able to handle the massive amounts of data that is received. In this context, the MDMS that Eskom requires should be able to cater for up to 5,000,000 customers (currently)

An MDMS, at a high level, must cater for:

- Support Smart Grid Enablement (SGE), though the provisioning of a smart meter compliant, intelligent back-end
- Meter readings from multi-channel, bi-directional smart meters
- A metering communication system that provides a complete solution to collect meter reading data and also tracks the state of smart meter assets (E.g. forwards a "last gasp" signal from a meter when it fails)
- Automated metering data collection
- Conservation Rates – with the availability of interval energy usage information, the design and implementation of new rate structures designed to incentivise conservation behaviour at the customer level
- Events detection capabilities (tampering, outages, meter failures etc.)
- Energy balancing to support non-technical losses identification


The MDMS should not be limited to data storage as device management, which is fully inclusive of meter management, is critical in the process to enable full device management and lifecycle management of all the appropriate devices that may be used, especially meters and meter management. This is critical due to the large volumes of new devices that will be deployed.

There is a need for utilities to transition to a Smart Grid vision by enabling incremental functionality for which the MDMS is a key component. The MDMS will enable the following Smart grid capabilities.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Foundation	Enable the core data integration and management functionality
Analytics	Turn data into useful information for smart grid operational analytics
Visualization Platform	Visually display geo-spatial grid data to assist decision making.
Advanced Metering Infrastructure	Provide smart metering interfaces and services for metering data and events including adapters to multiple head-end vendors and meter data management systems
Demand Response	Capture real-time responses to changing demand and supply of electricity to enable integrated demand response operations and virtual power plant capabilities
Outage Intelligence	Process real-time message events from intelligent meter and grid devices into consumable information for outage management systems
Substation Fault Intelligence	Process PMU measurement data at distributed remote substations to perform fault classifications and analytics
Grid State Connectivity	Enable utilities grid state connectivity information via data repository and services
Security	Secure clients Smart Grid programs by applying security framework & capabilities

Figure 1: Smart Grid Capabilities


#### 6.1.1 Select the Eskom strategic pillar/s that are supported by this requirement

Strategic Pillars	Supported (Y/N)	How
Become a customer-centric organisation that stimulates demand.	Y	By making integrated data available to customers to enable effective energy management
Ensure the reliability and availability of power capacity to support South Africa's economic growth ambitions.		
Continue capturing efficiencies in operating and capital costs to achieve a sustainable tariff path for the economy.	Y	Protect Revenue - Reduced revenue loss due to the identification of theft of power directly from the distribution grid and tampering with the meters, as well as revenue —leakage in some customer processes
New capabilities.	Y	Ensure that futuristic renewable energy can be effectively measured separately and recorded accordingly to enable selling these items at a premium rate to customers with selective choices

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Decarbonisation of the economy.		
Innovation and transformation.	Y	Ensure availability of micro interval data to enable effective planning and maintenance of the grid in areas where there is high network utilisation
Deliver a funding plan and key enablers that ensure successful delivery of the Corporate Plan.		

#### Additional Considerations

##### 1. Financial Sustainability:

Broad opportunity exists to reduce technology and outage and maintenance costs and improve services. Increase the collection of revenue and reduce non-technical energy losses. Effective meter device management including lifecycle management as well as device type management will reduce poor quality devices and in turn increase costs to the utility and the consumers. Saving of the data interfaces will be achieved as billing determinant programs are not required in the billing application reducing overhead costs of CIS solution

##### 2. Operational Sustainability:

Maximise operation efficiencies by achieving improved billing accuracy through automated reading especially in the new smart metering and smart grid deployment. Decreasing call centre costs through minimised customer bill enquiries, and on-site maintenance costs through remote diagnosis metering infrastructure capability.

##### 4. Revenue and Customer Sustainability:

Eskom is migrating all of its customers to smart prepayment metering to improve revenue collection and ensure a sustainable operating business model. Up-front cash payments, minimisation of non-technical losses and the realisation of the smart grid are the key drivers of migrating all market sectors to smart prepaid metering.


- 6.1.2 Select the Critical targets that support the Delta budget, if any, that are supported by this requirement.

Critical targets to drive Delta budget	Supported (Y/N)	How
Revenue growth: Achieving an annual growth of 2.1% in local demand and 8% in cross-border demand by 2021.	Y	<p><b>Protect Revenue</b> - Reduced revenue loss due to the identification of theft of power directly from the distribution grid and tampering with the meters, as well as revenue —leakage in some customer processes</p> <p><b>Achieve Operational Efficiencies</b> – Improved reliability and lower operating costs in areas such as meter reading, distribution system maintenance, and outage management</p> <p><b>Support Advanced Customer</b></p>

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		


		<p><b>Applications</b> – Provide a substantial portion of the foundational infrastructure required to modernise the grid in support of advanced customer applications such as distributed generation, electric vehicles, demand response, substation energy balancing, HV, MV and LV grid balancing, power station energy efficiency monitoring and future applications</p> <p><b>Optimise Capacity</b> - One of the strategies to optimise capacity is to move more customers onto time of usage metering, by using various smart meters in the different customer segments. This will create more complex billing requirements and generate significant data volumes, but will allow Eskom to more accurately price peak capacity.</p>
Primary Energy: Reducing Primary Energy spend by R43 billion over the next five years through greater efficiencies and industry restructuring, (e.g. cost-plus-mine acquisition and consolidation).		
Capital savings: Reducing planned capital expenditure, (capex) spend, by R25 billion over the next five years.		MDMS deployment will enable support for better network planning with clear understanding of network utilisation. It will enable priority setting in Distribution and directly support better spend of CAPEX
Advanced analytics: Driving further efficiencies through digitization and advanced analytics worth R6 billion in EBITDA.	Y	MDMS will directly, in LPU environment, support detail understanding of billing data for 92% of Eskom revenue. Energy balancing will be enabled to much more micro level that can directly attribute to digitisation and savings.
PSP's: Identifying opportunities ie Multi Utility hosting – Eskom MDMS implemented in cloud and other utilities to use.	Y	MDMS was deployed in Canada as an overarching National solution being used by multiple utilities in the country. There can be opportunities if deployed properly

### 6.1.3 Define the Divisional Focus areas / mandates being supported (derived from divisional plan or Business Relationship Manager).

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

- Group Customer Services
  - Enhanced Customer Services
  - Improved and Integrated Revenue Management
- Group Technology
  - Provide end to end outage management services
  - Select metering technologies for suitable SA conditions
- Distribution
  - Sustain Network Performance
    - Improving network visibility and control
    - Reduce restoration time
  - Limit Energy Losses
    - Limit illegal connections and meter tampering
- Transmission
  - Demand Response Management

## 6.2 Reason for the requirement (Background)

6.2.1 Identify the reason why the requirement exists i.e. what are the current business challenges.

The following describes the key Reasons for the implementation of the MDMS in Eskom based on the challenges Eskom faces in the short and medium term.


- Eskom top customers and other LPU customers is generating 93% of our revenue. Currently running on older, unstable metering systems. Need to provide a stable and comprehensive MDMS solution for LPU Customers that will provide required capabilities.
- Energy losses managed in Reactive manner. Lack of proper visibility. Need ability to respond quickly to Losses. Implementing MDMS solution and acquiring and consolidating 30 minute interval data, stats metering and other isolated data, will provide ability to do energy balancing at 30 minute interval
- Smart metering. The deployment of AMI in the residential market will significantly further increase storage requirements
- Have access to a single online meter data management system for all metering data;
- Promote accessibility of quality meter data management data to interested stakeholders;

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.




	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

- Acquire meter data from all metering data sources in Eskom in a single domain;
- Ensure data consistency and improved meter data quality for billing and reporting purposes;
- Ensure proper implementation of meter data model and linking of metering devices;
- May reduce the quantity of data that will need to be carried by data clients of MDMS (through the sending of aggregated data to such systems);
- Benefit from improved processes, due to improved and more readily available meter management data
- Benefit in terms of Learning & Growth, due to the wealth of meter data available, e.g. improves forecasting. Users of such data will be in a better position to determine their own needs as well as discover new patterns in meter data, thereby improving strategic decision making;
- Manage conventional and prepaid metering devices: enabled future benefit due to the fact that it will be easier to locate the meter based on GPS locations if made available, will require intense integration;
- Streamline credit and collection processes by shortening the revenue cycle;
- Provide more accurate billing due to more accurate meter reading data based on actual meter readings especially in the residential market;
- Better negotiate regional, divisional and specialised energy provision contracts, due to improved and more readily available meter management data;
- Streamline data management to enable better energy settlements;
- Be able to identify and improve network performance; due to improved and more readily available meter management data;
- Perform more accurate maintenance planning; due to improved and more readily available metering performance and event related data;
- Perform more accurate network capacity planning; due to improved and more readily available meter management data indicating capacity utilisation;
- More accurate peak forecasting for capacity planning; due to improved and more readily available meter management data at interval levels;
- Ability to support longer term AMI & smart metering strategy.
- Provide the data sources for any future Load Shedding initiatives;
- Provide the data to enable Eskom to implement Electricity rationing in a more real time;

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

- Provide ability to see potential additional sales for large power customers based on capacity committed vs actual usage at interval usage levels;
- Provide external customers with access to their metering data through an appropriate web portal;
- Statistical metering data exists in various data repositories across Eskom, with no effective method of extracting or distributing this data. MDMS will collate all metering data measurements in a single repository with huge consequential benefits.

## CONFIDENTIAL NOT FOR PUBLIC CONSUMPTION

- Figure 2: Debt Ratio's by Customer Group, September 2017

Eskom requires an effective and suitable integrated metering, automated energy; load and data management solution for all our customers. This will include all statistical metering and as such deploy an advanced micro energy loss tool that will enable measurement from feeders to customers on a digital platform. It will also have the capability to store all relevant meter information as well as the associated status and events of the meters. The IPP customer metering will be clearly differentiated and will enable Eskom to clearly measure the impact and timing of renewable energy.

In addition the National Prepayment strategy plans to deploy approximately 6 million meters by 2023 which will further support this strategy if mass interval data need to be stored for this customer base. A MDMS is a critical enabler and extended base infrastructure will be required to manage the large volumes of meter data generated by all these meters.

The MDMS must cater for all metering devices currently in use by Eskom, such as:

- Analogue (manually read) meters
- Automated Meter Reading meters
- Next Generation Smart meters
- Statistical meters
- Single and multi-phase consumption
- Prepaid and conventionally billed meters
- Also support other type of meters (Water, Gas)

## CONFIDENTIAL NOT FOR PUBLIC CONSUMPTION


Figure 3: Prepaid Metering Strategy - Phase Implementation

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> <b>Meter Data Management</b> <b>System</b> <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## Meter Data Management Functionality

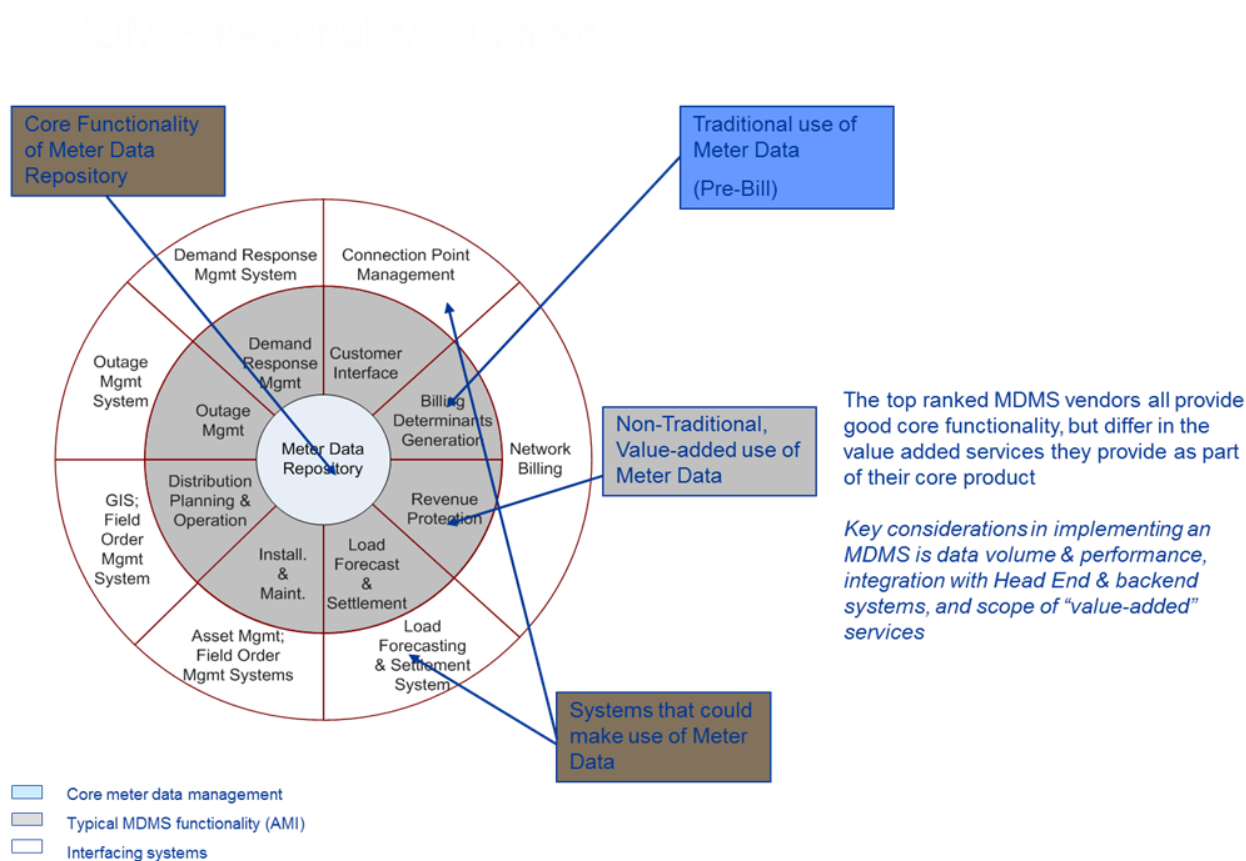


Figure 4: MDMS Core, Traditional and Value added Capabilities

The MDMS is increasingly viewed as a central system providing not only the core meter data repository functionality but also enabling a number of non-traditional uses such as: demand-response, network loss management, outage event analysis, deployment planning and real-time interactions with customer portals.

*Key considerations in implementing an MDMS is data volume and performance, integration with Head End and backend systems, and scope of "value-added" services.*

### Core MDM Functionality

- On demand request and response capabilities


#### AMI Data collection & processing

- Ability to process AMI interval and usage data from disparate AMI systems, back office systems & communication devices
- Interval and diagnostic data processing, storage and versioning

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

- Operational data store, process aggregator and enabler for AMI Systems
- Device lifecycle management
- Ability to synchronize information on associations between physical devices (meter, channels, network) and customer information (premise, service point, account)
  - Registering, de-registering, commissioning, de-commissioning of meters
- Reporting and Analytics
- Deployment & read reports, error & exception management
  - Support actual load analysis by Load management systems

#### **Traditional Use of MDMS (Pre-Bill)**

- Billing Determinant Generation
- Complex billing functionality, TOU/CPP billing support
- AMI interval data interface to billing systems
- Configurability of VEE rules

#### **Value-Added Use of MDMS**

- Management of smart grid data (statuses, events, instrumentation) and non-consumer devices (e.g. feeder meters, transformer meters)
- Revenue Protection & Theft detection support (irregular consumption patterns, leakage)
- Short- and long-term forecasting assessment
- Two-way communication capability (e.g. remote connects/disconnects, power status check, interactive reads, pings)
- Real time VEE
- Support for HAN device lifecycle management and DR event management
- Support business process automation via event notification services
- Customer portal support for what-ifs, consumption, costs and rate information
- Support for Load management via aggregated consumption information
- Provide data for Outage and Power Quality analysis
- Demand response measurement and verification analysis

#### 6.2.2 The Metering Project Timeline View

The following figure illustrates the proposed Metering Project Timeline View

### **CONFIDENTIAL NOT FOR PUBLIC CONSUMPTION**

#### **Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Figure 5: Metering project timeline view

#### Metering project timeline notes


- The Enygma replacement will start in November 2017 and the duration is expected to be 8 months..
- In January 2018 – ALFS will be moved to Enygma.
- MDMS should start in January 2018.
- All data from Enygma and smart metering will take approximately 24 months and would include procurement, dependent on solution and some basic integration. Other integration interfaces ie Outage management, ADMS would need to be built. MDMS has multiple integration points and therefore integration would be phased..
- An implementation partner selection would depend on solution chosen ie Software as a service, Platform as a Service etc.
- Funding is critical enabler

### 6.2.3 Project and Deployment Phasing Approach

#### **Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

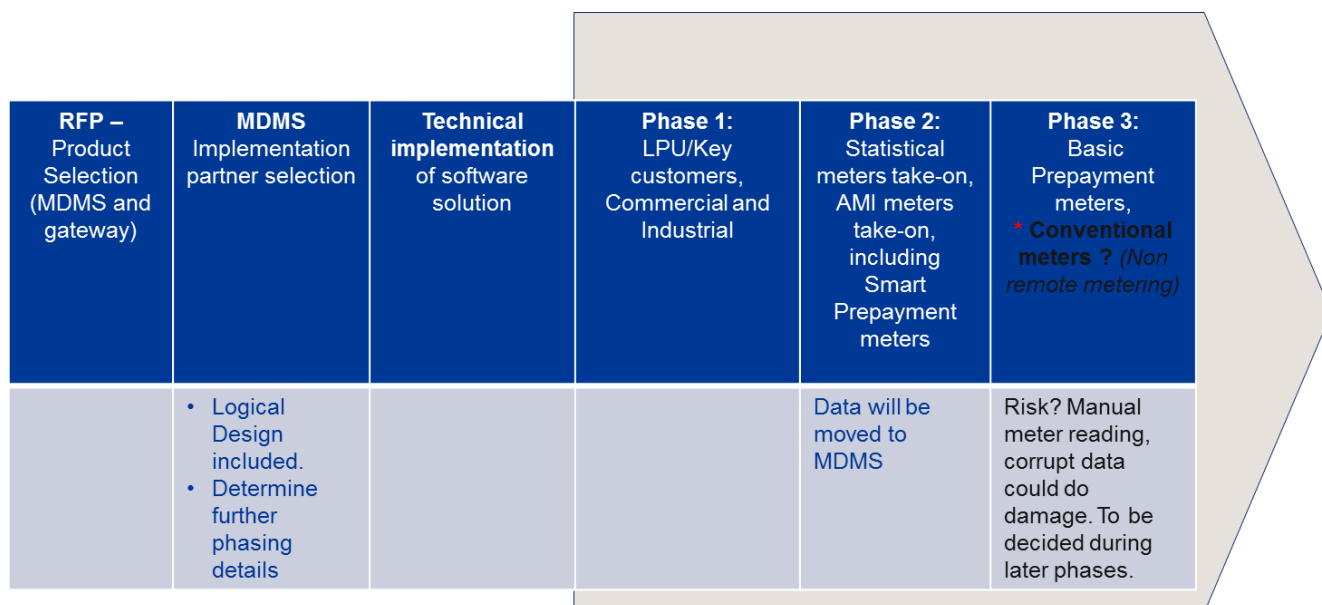


Figure 6: MDMS: Project and Deployment Phasing Approach


#### MDMS Project and Deployment Phasing Approach Notes

- Keep integration with Enygma and implement MDMS. Run them in parallel. Test properly before switchover.
- To realize the benefit of the MDMS, need to implement LPU's first.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

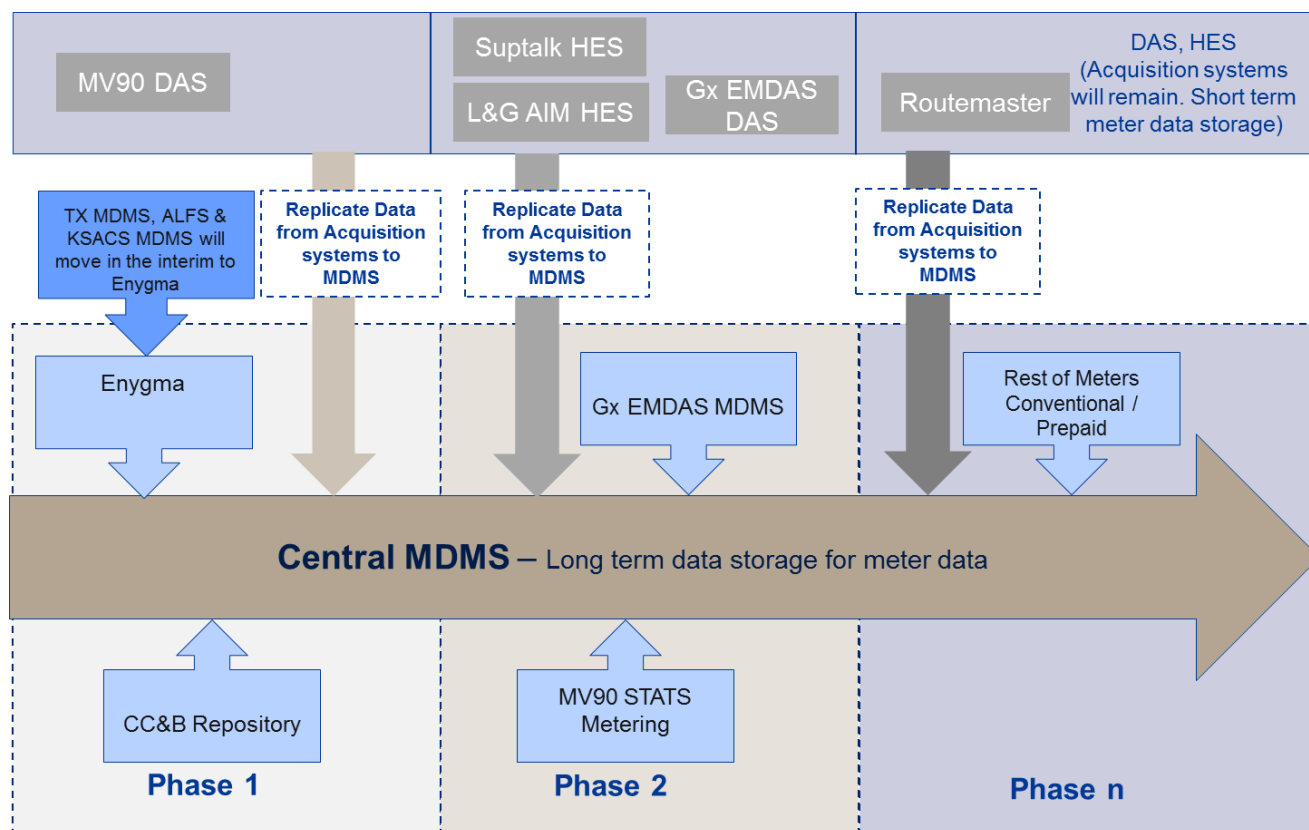


Figure 7: MDMS: Project and Deployment Phasing Approach


#### 6.2.4 Define current “**As-Is**” situation i.e. how is the situation currently been managed

- The registration, configuration and maintenance of meters are currently a manual process within the LPU and residential markets.
- There are currently multiple sources of meter reading data in Eskom and various types of LPU meters exist. These meters have multiple channels, on which readings are recorded, with various intervals of recording.
- The majority of AMR meter readings are processed through MV90 and stored in CC&B and the resultant amount of metering data is continuously increasing the required storage.
- Statistical metering data exists in various data repositories across Eskom, with no effective method of extracting or distributing this data.
- Prepaid Smart meter rolled out as pilot in Sandton & Midrand, managed via the AIM HES.
- Split metering has been rolled out at various areas around country. Remote reading capabilities are also available. However, the rollout speed has hampered certain capabilities around remote management of readings/meters
- Energy losses are managed in a Reactive manner. There is a Lack of proper visibility. Need ability to respond quickly to Losses.
- LV Data to be included. To enable Smart Grid implementation

#### **Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> <b>Meter Data Management</b> <b>System</b> <b>GCS12</b>	<b>Template Identifier</b>	240-43921804	Rev	5
			240-83570075	Rev	3
		<b>Authorisation Date</b>	21 April 2017		
		<b>Review Date</b>	October 2019		

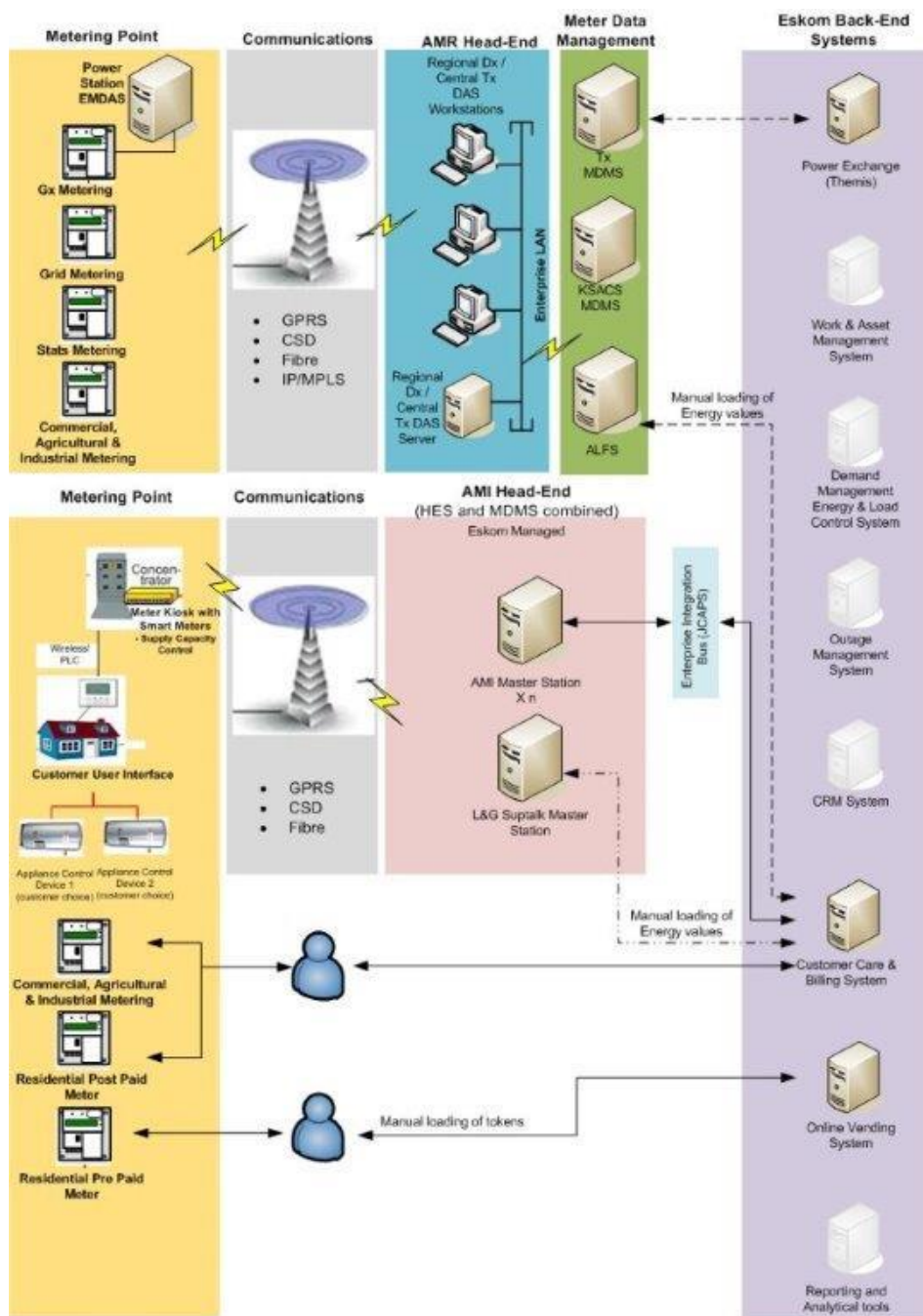



Figure 8: Current Metering Situation

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

### 6.2.5 Interim Situation

- There are currently 2 MDMS in place (ALFS and Tx MDMS). The AIM HES also contains a Master station (Includes mini MDMS but it cannot keep the data for long period). Eskom requires long term data storage. The Sup talk Master Station has no integration. There is a need to provide additional HES system solutions.
- ALFS and Tx MDMS is currently running on Oracle 10 g. This needs to be upgraded. The upgrade will take place as the MDMS implementation is 24 months and won't mitigate the risk.
- In the interim architecture ALFS and Tx MDMS will be replaced by a new system solution called Enygma . Enygma would then move to MDMS in the future architecture state.
- MV90 would also be replaced by the use of Smart Meters

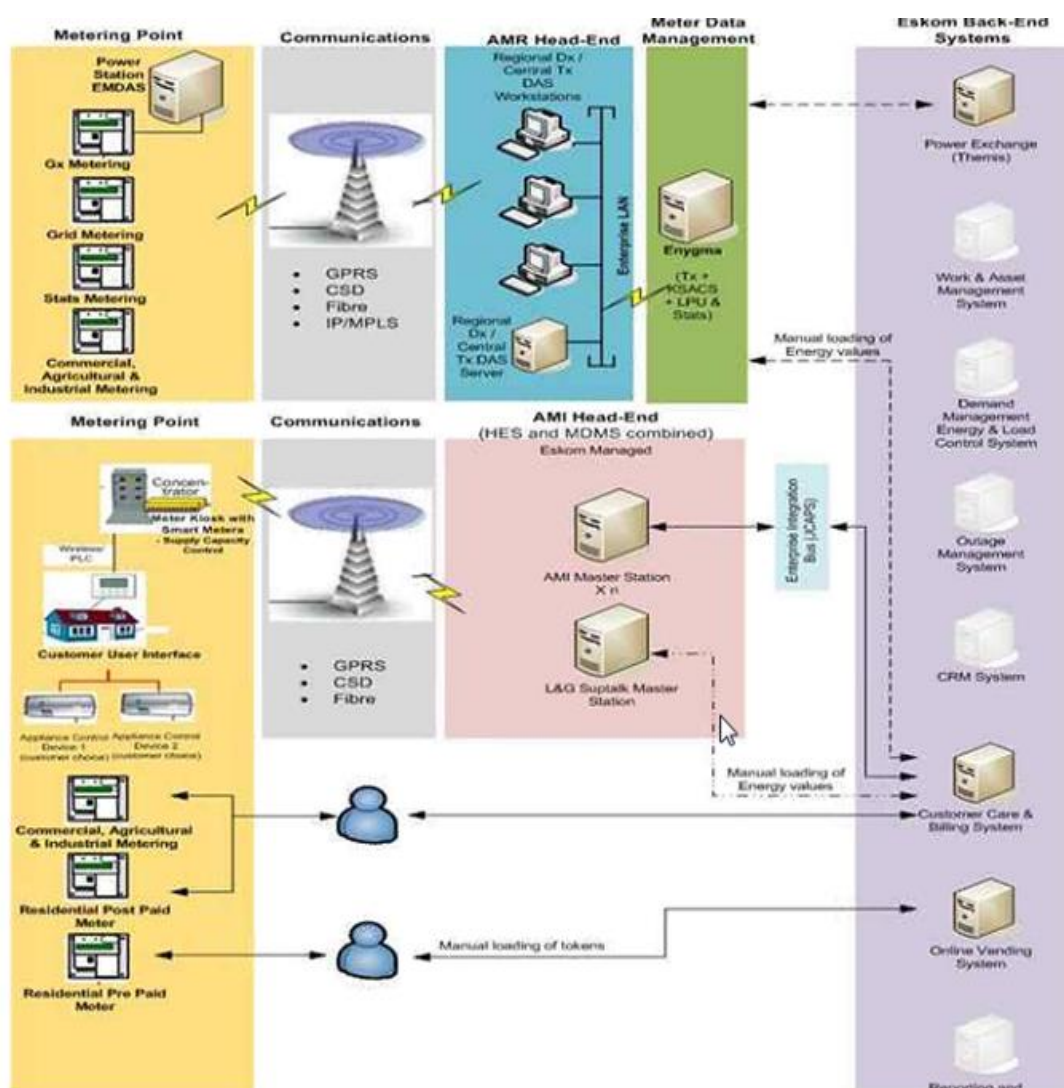



Figure 9: Interim Architecture

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

6.2.6 Define the **“To-Be” situation** i.e. how would the business prefer to work/operate to address the business challenges.


- All meter readings that exist in Eskom across all divisions, such as Distribution (Customer Services), Transmission (Tx) and Generation (Gx) must be included in a single meter reading repository, which will be the MDMS.
- The MDMS system needs to enable all profiling related deals and structures to enable appropriate billable values to be created for special arrangements, wheeling agreements etc.
- Take or pay claws need to be fully enabled as these are key billing derivatives in the Transmission and Key customer operational areas.
- It is expected that the MDMS will replace CC&B as the current repository of metering data storage. Similar circumstances may exist in other business units which may need to be addressed by the MDMS
- The MDMS will serve as a centralised repository from which all systems will be able to query ‘raw’ and ‘check’ metering data
- The MDMS will perform as a key system in Eskom’s Residential Demand Response solution. It will be utilized jointly with another other demand response system (still to be selected). The Demand Response system will utilize the metering and event data stored on the MDMS both pre and post a Demand Response event.
- Depending on the outcome of the National Demand Response Aggregator Strategy, the MDMS may be utilized to support a demand response programme as well as to store 3rd party data such as municipalities.
- MDMS will be one of the base technologies for the Smart Grid.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>		Template Identifier	240-43921804	Rev	5
			Document Identifier	240-83570075	Rev	3
			Authorisation Date	21 April 2017		
			Review Date	October 2019		

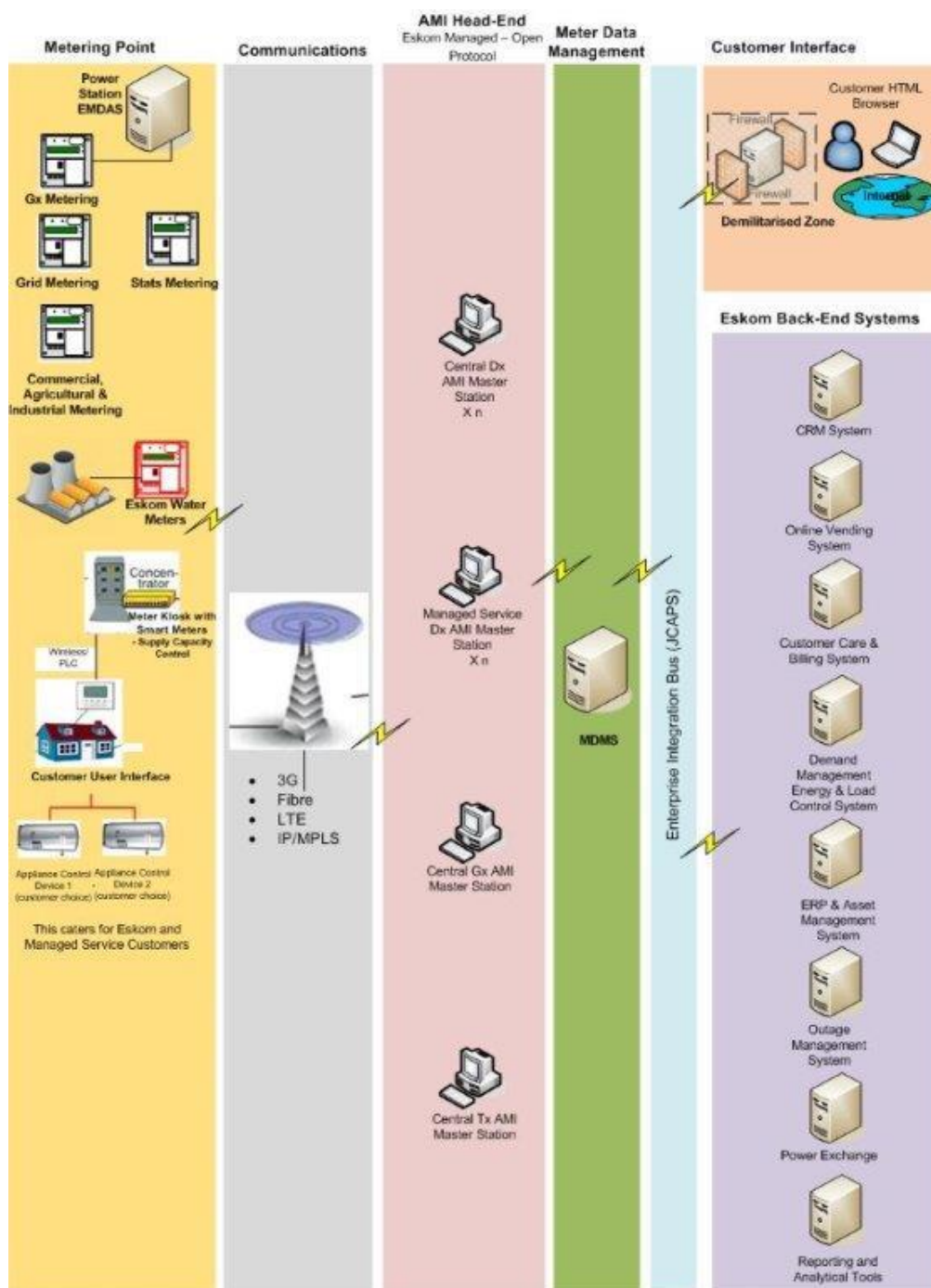



Figure 10: To be Situation (Long term Architecture)

#### 6.2.7 Define the **high level gaps** between the “As-Is” and “To-Be” state

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

<b>As Is Statement</b>	<b>To Be Statement</b>	<b>Therefore the high level gap is:</b>
Multiple Meter reading repositories. Meter readings (interval data) exist in other divisions, such as Transmission (Tx) and Generation (Gx) and other business units.	Single meter reading repository	Transition all meter reading repositories into one central meter repository. The MDMS will serve as a centralised repository from which all systems will be able to query 'raw' and 'check' metering data concerning all LPU Eskom customers
Disparate metering data sources	Single metering data sources	Transparent automated integration from multiple collection systems to one central repository. Numerous utilities in France as well as Germany use an integrator to collect the data and transport it to appropriate systems. Eskom continues to drive a "WE MUST DO" approach which generally fails in the deployments
Consumption data for SPU and Prepayment not available. Raw data used to bill customer	AMI and C&I meter data need to be gathered in a central repository where it can be profiled, validated and transferred (only Billable values) to Customer Care and Billing System (CC&B) as well as other respective systems	MDMS to provide integrated collection, central repository of meter data. Storage repository with services like Verification, Editing, Estimation and analysis to analyse the big data. The data storage load on CC&B caused by interval metering data will be replaced and managed by the MDMS.
CC&B as storage system for official meter related data. The majority of AMR meter readings are acquired and processed through MV90 and stored in CC&B and regularly archived on cheaper storage capabilities. The actual source data is being stored in the MV90 domains and will need to be integrated into the MDMS solution.	MDMS as the storage system for meter protocols and the appropriate data that will be integrated from the MV90 platforms	The data storage load on CC&B caused by interval metering data will be replaced and managed by the MDMS. Similar circumstances may exist in other business units which may need to be addressed by the MDMS. Data migration from CC&B to MDMS and position MDMS as the central data repository
Inability to curb revenue loss due to unavailability of accurate meter usage data in a single repository linked to appropriate feeder balancing statistical	Identify and reduce revenue losses, by being able to better identify such losses, due to improved and more readily available meter management	Integrated collection, central repository of meter data that will enable feeders to be balanced not only at a network level but even at interval levels

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

<b>As Is Statement</b>	<b>To Be Statement</b>	<b>Therefore the high level gap is:</b>
metering.	data	if defined properly. Enhanced Storage repository with services like Verification, Editing, Estimation, analysis to analyse the big data to Identify and reduce revenue losses.
The majority of the registration, configuration and maintenance of meters is currently a manual process within the LPU and residential markets	Ability to support Meter Asset Management	The MDMS will be able to facilitate Meter Asset Management & device Lifecycle management.
Statistical metering data exists in various data repositories across Eskom, with no effective method of extracting or distributing this data	MDMS is the central repository for statistical meter data.	Statistical Meter data to be incorporated into the MDMS.
Prepaid Smart meter rolled out as pilot in Sandton & Midrand, managed via the AIM HES. The Metering data is stored in HES.	Metering data is stored in the HES. Need to be moved to the MDMS.	Transition all meter reading repositories into one central meter repository. The MDMS will serve as a centralised repository from which all systems will be able to query 'raw' and 'check' metering data for all SPU and LPU Eskom customers

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

### 6.3 Data flow diagram – Context Diagram

This is used to assist in understanding the scope of the business requirement. It serves as the starting point for the documentation of the detailed business requirements.

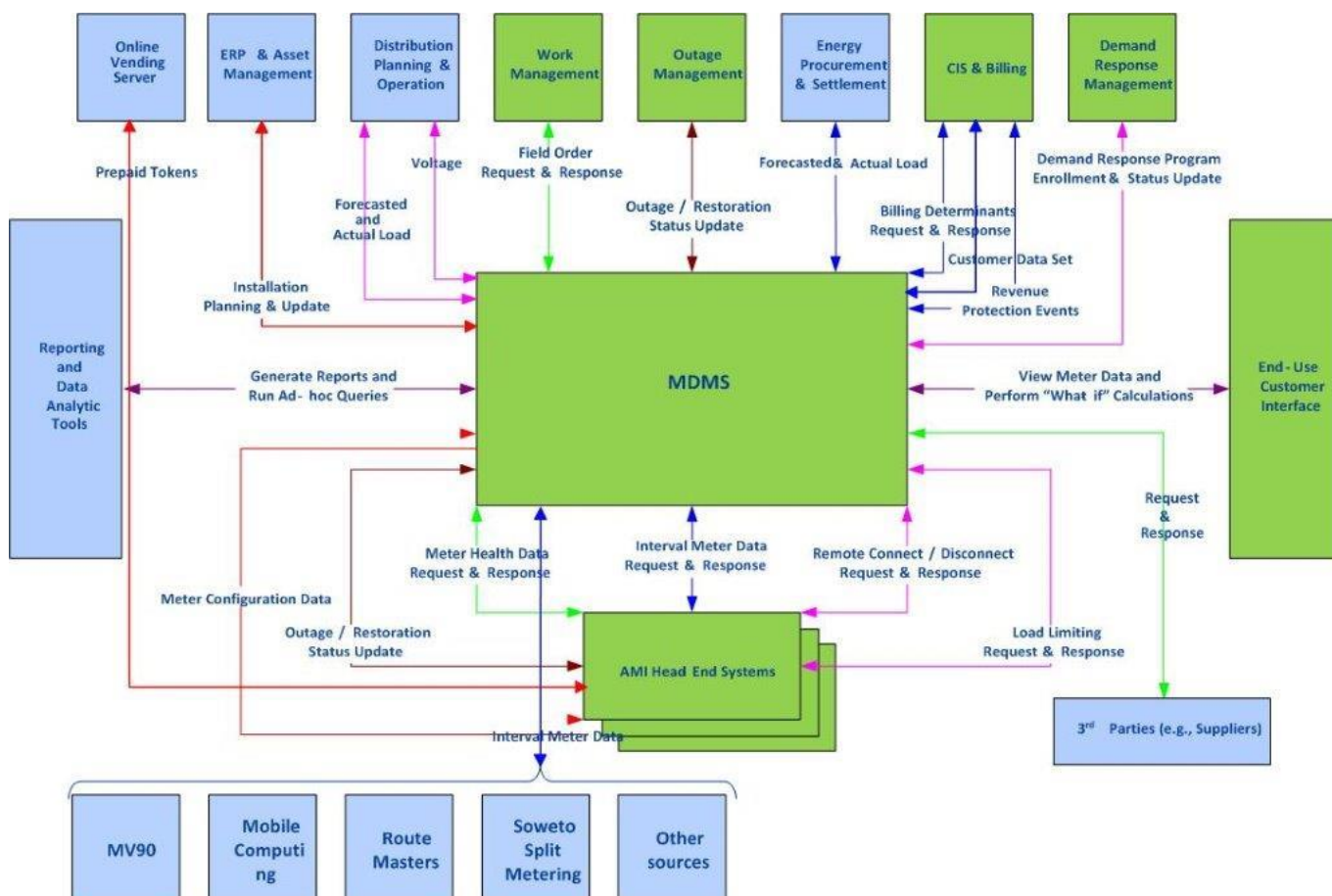


Figure 11: Information Flow diagram


Some of the important data flows are listed below.

AMI_MDMS Information Flow (Automated)	Description
Meter Readings	Request and response of Peak, off peak and total register readings
Meter Readings Request	The date that the meter reading is requested
ACD Indicator	Indicating whether or not the Appliance Control function is enable or disabled on the meter

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Tariff Ref	It is a reference of the tariff currently active on the Service Agreement/Meter
Meter Asset Details	Meter asset specific details including meter id, serial number, meter type
Service Point Reference	A reference describing where the meter is currently operating.
Meter Asset Registration	The Serial Number and Configuration reference required to register meter assets
Remote Connect Disconnect Commands	Inform master station to process remote Connect or disconnect command
Meter & Manufacturer Details	The Meter Model and Manufacturer details
Tariff Changes	Any change in tariff name, structure or rate will be communicated to the master stations
Meter Asset Registration	The Serial Number and Configuration reference required to register meter assets
Distribution planning and operation	Forecasted and Actual Load
Distribution planning and operation	Voltage
Work Management se	Field Order – Request and response
Outage management	Outage / Restoration Status update
Energy procurement and settlement	Forecasted and actual load
CIS and Billing	Billing determinants-Request and response
	Customer Data set
	Revenue Protection events
Demand Response Management	Demand Response Program enrollment and status update
End User customer interface	View Mater data Perform “what if calculations”
3 <sup>rd</sup> Party (Suppliers)	Request and response

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 7. BUSINESS PROCESSES

### 7.1 As-is business process

7.1.1 Define the impacted business PCM/PCM's and provide ARIS location details.

PCM number	PCM description	ARIS / EHPUM link
240-65034203	Process Control Manual (PCM) for Manage Customer Services Master Data	<a href="https://hyperwave.eskom.co.za/240-65034203">https://hyperwave.eskom.co.za/240-65034203</a>
240-56302025	Process Control Manual (PCM) for Revenue Management	<a href="https://hyperwave.eskom.co.za/240-56302025">https://hyperwave.eskom.co.za/240-56302025</a>
240-51041814	Process Control Manual (PCM) for Customer Contact Management - Optimise Customer Interaction	<a href="https://hyperwave.eskom.co.za/240-51041814">https://hyperwave.eskom.co.za/240-51041814</a>
240-55054906	Process Control Manual (PCM) for Customer Base Management	<a href="https://hyperwave.eskom.co.za/240-55054906">https://hyperwave.eskom.co.za/240-55054906</a>
	Process Control Manual (PCM) for Outage Management (Wires)	<a href="https://hyperwave.eskom.co.za/240-111502338">https://hyperwave.eskom.co.za/240-111502338</a>
	Process Control Manual (PCM) for Manage Energy Losses (Manage Energy Flow)	<a href="https://hyperwave.eskom.co.za/240-55054915">https://hyperwave.eskom.co.za/240-55054915</a>
	Group Technology – PTMC	
	Process Control Manual (PCM) for Integrated Demand Forecasting and Supply Planning	<a href="https://hyperwave.eskom.co.za/240-56536765">https://hyperwave.eskom.co.za/240-56536765</a>
	Network Asset Creation (NAC) – Need to confirm what the new process is.	
240-41708860	Transmission Manage Generator use of Network	<a href="https://hyperwave.eskom.co.za/240-41708860">https://hyperwave.eskom.co.za/240-41708860</a>
	Process Control Manual (PCM) for Operate and Monitor Plant	<a href="https://hyperwave.eskom.co.za/32-1313">https://hyperwave.eskom.co.za/32-1313</a>
	Manage Generation Production Assurance	<ul style="list-style-type: none"> <li>Operate the Business <ul style="list-style-type: none"> <li>Generation Production <ul style="list-style-type: none"> <li>L3 Manage Generation Production Assurance</li> </ul> </li> </ul> </li> </ul>

7.1.2 Copy / paste the relevant PCM activities that support the As-Is process.


PCM	Activities
Manage Customer Services Master	<ol style="list-style-type: none"> <li>Create Customer Services Master Data</li> <li>Update/Maintain Customer Services Master Data</li> </ol>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.




	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Data	
Revenue Management	<ol style="list-style-type: none"> <li>1. Process Measured Usage</li> <li>2. Execute Billing</li> <li>3. Manage Credit and Collections</li> </ol>
Customer Contact Management	<ol style="list-style-type: none"> <li>1. Handle Customer Interactions</li> </ol>
Customer Base Management	<ol style="list-style-type: none"> <li>1. Connect Customer</li> <li>2. Manage Move in - Move out/Reinstatements</li> </ol>
Integrated Demand Forecasting and Supply Planning	<ol style="list-style-type: none"> <li>1. Manage risks by utilising the metering and consumption data provided by MDMS.</li> <li>2. Negotiate regional/divisional/specialized contracts by investigation of energy usage patterns, derived from consumption data provided by MDMS.</li> <li>3. Manage energy procurement by investigating patterns of energy usage, derived from consumption data in MDMS.</li> <li>4. Manage and process energy settlement by using the settlement functionality as provided by MDMS.</li> </ol>
Outage Management	<ol style="list-style-type: none"> <li>1. Improve network visibility of metering devices: MDMS will include linking data to both an account and the Eskom power grid hierarchy</li> </ol>
Outage Management	<ol style="list-style-type: none"> <li>1. Perform better maintenance and planning by consulting MDMS for meter location and statistical data</li> </ol>
Network Asset Creation (NAC)	<ol style="list-style-type: none"> <li>1. Improved network planning due to availability of meter location and statistical data. – <a href="#">Need to confirm what the new process is.</a></li> </ol>
Optimise Customer Interaction (OCI):	<ol style="list-style-type: none"> <li>1. Integrate MDMS Customer module into CSONline.</li> <li>2. Handle accounts, meters, payments and prepaid cards: Create a new service type for consumption queries will be included in this value chain.</li> <li>3. Handle outbound customer contact: in the event of the CSONline system being disabled, the contact centre will resolve consumption queries.</li> </ol>
Generation: Manage Generation Production Assurance	<ol style="list-style-type: none"> <li>1. Perform Plant Performance Analysis</li> <li>2. Perform Production planning</li> <li>3. Perform Specialised Performance Analysis</li> </ol>
Transmission Manage Generator use of Network	<ol style="list-style-type: none"> <li>1. Monitor Generator supply</li> <li>2. Monitor Customer Load</li> <li>3. Consolidate Power Delivery</li> <li>4. Determine Energy Supply</li> <li>5. Determine Additional Energy Delivered</li> </ol>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 7.2 To-be business process

7.2.1 Define which business activities will be impacted by this customer request.


PCM	Activities
Manage Customer Services Master Data	3. Create Customer Services Master Data 4. Update/Maintain Customer Services Master Data
Revenue Management	4. Process Measured Usage 5. Execute Billing 6. Manage Credit and Collections
Customer Contact Management	2. Handle Customer Interactions
Customer Base Management	3. Connect Customer 4. Manage Move in - Move out/Reinstatements
Integrated Demand Forecasting and Supply Planning	5. Manage risks by utilising the metering and consumption data provided by MDMS. 6. Negotiate regional/divisional/specialized contracts by investigation of energy usage patterns, derived from consumption data provided by MDMS. 7. Manage energy procurement by investigating patterns of energy usage, derived from consumption data in MDMS. 8. Manage and process energy settlement by using the settlement functionality as provided by MDMS.
Outage Management	2. Improve network visibility of metering devices: MDMS will include linking data to both an account and the Eskom power grid hierarchy
Outage Management	2. Perform better maintenance and planning by consulting MDMS for meter location and statistical data
Network Asset Creation (NAC)	2. Improved network planning due to availability of meter location and statistical data. – <a href="#">Need to confirm what the new process is.</a>
Optimise Customer Interaction (OCI):	4. Integrate MDMS Customer module into CSONline. 5. Handle accounts, meters, payments and prepaid cards: Create a new service type for consumption queries will be included in this value chain. 6. Handle outbound customer contact: in the event of the CSONline system being disabled, the contact centre will resolve consumption queries.
Generation: Manage Generation Production Assurance	4. Perform Plant Performance Analysis 5. Perform Production planning 6. Perform Specialised Performance Analysis
Transmission Manage Generator use of Network	6. Monitor Generator supply 7. Monitor Customer Load 8. Consolidate Power Delivery 9. Determine Energy Supply

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

	10. Determine Additional Energy Delivered
--	---

7.2.2 Define any new business processes that will be a result of this requirement, if applicable. If no change in business process, state that.

No New Business Processes anticipated

## 8. BUSINESS REQUIREMENTS SCOPE AND PRECONDITIONS


### 8.1 Define what is in scope in relation to the population of the business requirement.

Unique identifier number	In scope
MDMSIS1.	The purchase and installation of the meter data management solution.
MDMSIS2.	Deployment of the Meter Data Management Solution
MDMSIS3.	The purchase, installation and deployment of the MVIL (Depending on solutions)
MDMSIS4.	The purchase and installation of the required hardware: i.e. servers, client Workstations etc. (Depending on solution option)
MDMSIS5.	Detailed design of the implementation
MDMSIS6.	Integration of the solution with relevant Eskom systems in appropriate phases. Integration with (CC&B, Maximo). Limited to enable billing (This is the most critical). Phasing with regard to integration to be determined in subsequent stages
MDMSIS7.	Customised development of data interfaces, implementation fit components, reporting tools and data take-on/archiving components
MDMSIS8.	Testing of solution deployment, data interfaces, reporting tools and data take-on/archiving components
MDMSIS9.	Training of solution administrators, users and support and maintenance personnel
MDMSIS10.	Change management
MDMSIS11.	Business process analysis
MDMSIS12.	BRS, Functionality required. Including additional capabilities to be looked at.
MDMSIS13.	MV90 Transition to MDMS in subsequent phases
MDMSIS14.	Migration of historical data
MDMSIS15.	Stats metering should be priority. Stats metering does not have a home at present. This data is important for planning, forecasting and losses management (Energy balancing) etc. MV90 data is currently archived. To recover data from the

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Unique identifier number	In scope
	archive is inefficient.
MDMSIS16.	LPU Meters inclusion is also critical. This is Key for losses and losses management
MDMSIS17.	Replacement of ALFS (Enigma) with MDMS.


## 8.2 Define what is out of scope in relation to the population of the business requirement.

Unique identifier number	Out of scope
MDMSOS1.	HES (Head End System). Project for HES already underway.
MDMSOS2.	Current AMR (To cater for Older LPU Meter Readings) – MV90 to link to MDMS This will therefore be a phased approach.
MDMSOS3.	Demand Response Management. Project underway to determine possible solutions
MDMSOS4.	Smart meter enablers. Phased delivery of smart meter enablers. There is another project that will look at this ie: Virtual tokens, currency vending etc
MDMSOS5.	Any changes to master data source systems, although the potential for MDMS identifiers in such systems do exist
MDMSOS6.	MDMS will not be a long term data store for SCADA data, although metering and consumption data will be stored by MDMS, which may be required by SCADA (virtual metering data calculated for export to SCADA)

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		


### 8.3 Define any preconditions, dependencies and non- functional requirements that impact the business requirement

Unique identifier number	Business Activities	Processes	Projects (IT and Business)	Technology (if known)	Other (define)
MDMSPD1.	Automated Meter Reading – Started with AIM. MV90.		National Prepayment project	Smart Meter	
MDMSPD2.	Analytics Components necessary to add value to meter data				
MDMSPD3.	Requirements of all Eskom customers and business units incl. Distribution, Transmission and Generation to be determined		MDMS		
MDMSPD4.	Relevant HES to acquire data		National Prepayment Project - HES	TBD	
MDMSPD5.	Budget for MDMS				
MDMSPD6.	Resources to implement MDMS				CC&B resources, analysts, developers, project managers, architects, integration resources
MDMSPD7.	Integration with source systems. Possible changes to be implemented in source systems		CC&B and other systems during later phases.		
MDMSPD8.	Business support of implementation				
MDMSPD9.	There should be someone		Smart Meter Rollout, Smart		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Unique identifier number	Business Activities	Processes	Projects (IT and Business)	Technology (if known)	Other (define)
	accountable to have an Overall view of all Smart meter, Smart Grid initiatives so that there alignment and no duplication.		Grid		
MDMSPD10.	<b>Outage Management Capability of end devices (Meters)</b> - Outage management benefits and capabilities of MDMS will be depended on how smart the smart meters are. The Current 40 000 meters rolled out in Sandton/Midrand does not cater for any outage functionality. The smart meter Should be able to tell per meter if it is off and talk to the MDMS. Meter needs to have the required capability in order to realize the benefit. Meter specification and tender should be aligned. The MDMS business realization benefit is very dependent on ensuring that the meter has the capability to send through and manage all these functionalities and		Smart Meter Rollout, Smart Grid		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Unique identifier number	Business Activities	Processes	Projects (IT and Business)	Technology (if known)	Other (define)
	requirements. This will otherwise result in us having a very powerful backend that would not work with the front end.				
MDMSPD11.	<b>Sequencing of required components:</b> The solution is dependent on a number of critical components ie HES, MDMS, Integration etc. We should have a roadmap that indicates the implementation sequencing of each of these components. All projects that are related to the MDMS need to be aligned.				
MDMSPD12.	Stability of the meters as well as the accessibility of the meters will affect implementation				
MDMSPD13.	Control of Scope creep as a result of business increasing their expectations of MDMS functionality				

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 9. BUSINESS REQUIREMENTS

### 9.1 High level Requirements

- 9.1.1 Define the high level business requirements that set the scene for understanding what the detailed requirements are

This project is required to deliver the Meter Data Management (MDMS) solution that will support and manage meter data. The MDMS solution is a repository of metering data from different meter data collection sources that is capable of providing Validation, Editing and Estimation (VEE); use calculation; and aggregation to support billing, load profiling, forecasting and asset use functions.

The MDMS will interface with various Eskom systems, either receiving or sending data, and with AMI Master Stations (Head End Systems).

Furthermore, the solution will have to fit into and create a cohesive architecture that can scale to meet Eskom's growing demands for AMI residential as well as Commercial and Industrial (C&I) metering services.


#### High-level non-functional requirements include:

- **Keep Customer Bills Accurate** – achieving the conservation benefits, operational efficiencies, and revenue protection - lead to utility rate reductions which translate directly into customer and utility company savings
- **Enable customers to actively manage their energy choices** (electricity, gas, solar), adopt new energy and conservation solutions and benefit from an electric grid that is modern, reliable, safe and cost-effective, by seamlessly integrating between the MDMS and the customer facing systems, such as CS Online
- **Improve Customer Service** – provide detailed information on consumption and cost, and enable better customer communication around outages through integration with customer facing systems
- **Achieve Conservation and Energy Efficiency** – energy and capacity savings achieved through time-of use rates, effective communication and incentives to customers, customer direct control of energy use, and grid operational improvements
- **Achieve Operational Efficiencies** – improved reliability and lower operating costs in areas such as meter reading, distribution system maintenance, and outage management
- **Protect Revenue** – reduced revenue loss due to the identification of theft of power directly from the distribution grid and tampering with the meters, as well as revenue “leakage” in some customer processes
- **Achieve Environment and Social Benefits** – facilitating customer conservation, energy efficiency, reduced greenhouse gas emissions, and improve safety for employees and the public through the availability and visibility of consumption profiles
- **Support Advanced Customer Applications** – provide a substantial portion of the foundational infrastructure required to modernise the grid in support of advanced customer applications such

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

as renewable energy, co-generation, electric vehicles, demand response, micro grids, substation energy balancing, HV, MV and LV grid balancing, power station energy efficiency monitoring and future applications

- **Be compliant with the Common Information Model (CIM)** message modelling structures, as well as the Oracle CC&B V model
- **Compliant to all South African regulatory policies and framework** e.g. Protection of Personal Information (POPI) act

The high level requirements can be described as follow:


- AMI Data collection & processing
- VEE functionality (validation, estimation and editing)
- Billing Determinant Generation
- Two-way communication capability (Remote connect\disconnect)
- On demand request and response capabilities
- Device lifecycle management
- AMI interval data interface to billing systems (Master data configuration, Meter Lifecycle)
- Demand response management
- Management of smart grid data and non-consumer devices (Managing non-technical losses, Managing of meter events (tamper, outages) and alarms)
- Revenue Protection & Theft detection support
- Reporting and Analytics
- Support Capabilities
- Meter Events and Statuses
- Configuration and Management
- Smart Meter Capabilities
- Outage and Power Quality analysis

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

## 9.2 Detailed requirements and Business rules

9.2.1 Define the detailed business requirements in number form ensuring that the functionality is sorted and described in functionality groupings.


### A. AMI Data collection & processing

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Meter Reading	MDMSBRA1.	<p>The raw meter data is captured by various meters and automated metering devices in the field and transferred to relevant systems to store and/or process the interval data. The MDMS will be required to communicate to vendor specific Head-end systems, and store any submitted meter data.</p> <p>The measurements could be obtained at different time intervals of which 30 minute intervals are the most common. The main objective is to link the different measurements to a specific location even if the recording device changes over time. MDMS needs to be able to store data from all smart meter suppliers that conform to the best practice for smart metering.</p> <p>Ability to process AMI interval and usage data from disparate AMI systems, back office systems and communication devices.</p>	The number of channels on which meter data is collected should not be a set value, but rather configurable based on the metering capability: currently the meters are set up to record two channels of active power and four channels of reactive power, i.e. six channels. Requests for additional channels are in progress	Phase 1
Data Storage	MDMSBRA2.	Ability to manage processing, storage and versioning of interval and diagnostic data. Operational data storage, process aggregator and enabler for AMI systems		Phase1
Data Acquisition	MDMSBRA3.	There should not be a limitation on what MDMS can be provided with in terms of hourly metering data (MWh Import, MWh Export, Q1 Mvarh, Q2 Mvarh, Q3 Mvarh and Q4 Mvarh, for any metering point available in EMDAS).	Generation Requirement:	
Data Acquisition	MDMSBRA4.	Ability to allow for transfer of pure binary signals. Allow direct binary alarms from EMDAS to outside systems. The MDMS could facilitate this transfer.	<p>Generation Requirement:</p> <p>The only way of getting communication out of EMDAS is via the following methods:</p> <ul style="list-style-type: none"> <li>•Direct FTP connection to a specific folder via the Eskom</li> </ul>	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
			Intranet. • Email alerts sent to specified users. • EMDAS Data Server's web interface or emergency Remote Desktop via Key-Switch.	
Data Acquisition	MDMSBRA5.	Must be capable of accepting manually-entered values, which should be recorded in a log, in such a manner as to be traceable, without overwriting any automatically recorded values.	<b>Generation:</b> Where a manually entered value is present, it should be used in preference to the automatic value and clearly identified in all reports. Capture data according to standard file format and then upload to MDMS to prevent data contamination.	
Data Acquisition	MDMSBRA6.	Must be able to co-ordinate time synchronization of energy meters. This could be a function of the HES.		


#### B. VEE functionality (validation, estimation and editing)

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Data Cleansing	MDMSBRC1.	Ability to cleanse data; this would include data validation, estimation and editing.  Different VEE rules and configurations are applicable across smart metered and non-smart metered SPU and LPU customers  AMI Residential VEE is concerned with simple batch driven VEE- that is, a set number of standardised configurations applicable across all AMI Residential meters. These configurations are concerned with 3 consumption periods: Peak, off peak and total.  LPU VEE is concerned with complex configurations that are tailored per LPU customer and the MDMS must be able to be configured to enable these validations.		Phase1

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		Ability of MDMS to provide for the calculating and storing of virtual readings from energy meters for potential data extract to SCADA		
Real Time VEE	MDMSBRC2.	Ability to provide real time validation, estimations and editing. The meter data repository creates billing determinants by validating and if necessary, automatically estimate each meter read.		

### C. Billing Determinant Generation

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Improved Billing	MDMSBRC1.	Ability to perform calculations and aggregations such as: the generation of billing determinants for billed meters as well as statistical metering		
Dynamic Tariff Structures	MDMSBRC2.	Billing tariffs are to be dependent on configurable interval consumption data (time of use). Peak/Off-peak and critical-peak day tariffs, for all customers are to be calculated and displayed via various communication channels.	Complex consumption billing calculation functionality, TOU/CPP billing determinants	


### D. Two-way communication capability

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Remote / Automated Disconnections / Reconnections.	MDMSBRD1.	Ability to support integrated and automated disconnections /reconnections. power status checks, interactive reads and pings	<p><i>Proper rules to be determined. Control measure to be in place to protect network and people.</i></p> <p>Actual request for disconnection / Reconnection could be initiated from front end system, actioned by the relevant HES and facilitated by the MDMS. All relevant data and logs related to the action will be stored in the MDMS.</p> <p>It is important to determine what</p>	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
			functionality will reside at what level ie Meter, HES, MDMS.HES will perform core functionality but not be for long term storage.	

#### E. On demand request and response capabilities

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
On Demand Data Read	MDMSBRE1.	Ability to read a specific meter on request/demand.	Users must be able to extract smart meter data readings for any region or area. The integration gateway needs to regulate the requests for on demand meter reads to Master Station systems, and prevent overloading of these systems.	
On Demand Customer Information Access	MDMSBRE2.	Ability to provide information via web portal capability to provide customer with on demand enquiry Platform.  It is imperative that interval data should be visible to customers, users etc. to enable transparency and quick resolution of business and customer queries.	Also includes Metering COE and Metering & Measurements SC requirement	


#### F. Device lifecycle management

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Meter Configuration Management	MDMSBRF1.	Ability to synchronize information between physical devices (meter, channels, network) and customer information (premise, service point, account)  Eskom Billing System and head-end systems to have synchronized meter configurations and the ability to verify these	This action will be triggered by the HES. All relevant data and logs will be stored in MDMS  End to End (Meter, Kiosk, SP,SA etc) to	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		configurations throughout the lifecycle of the meter and the billing application.	indicate relationship, to be clearly mapped.	
Meter Lifecycle	MDMSBRF2.	Ability to facilitate registering, de-registering, commissioning, de-commissioning of meters	This action will be triggered by the HES. All relevant data and logs will be stored in MDMS	
Meter Lifecycle	MDMSBRF3.	<ul style="list-style-type: none"> <li>Automatic registering of data concentrator/network gateway on the HES and MDMS</li> <li>Automatic registering of Kiosk Controller on HES and MDMS</li> <li>Automatic registering of meter on the HES and MDMS</li> </ul>	Metering COE and Metering & Measurements SC This action will be triggered by the HES. All relevant data and logs will be stored in MDMS	
Meter Lifecycle	MDMSBRF4.	Ability to support Meter Asset Management	Metering COE and Metering & Measurements SC	
Meter Lifecycle	MDMSBRF5.	Ability to support CC&B Meter Configuration Sync / End Device Asset Sync (Prepaid Metering)	Metering COE and Metering & Measurements SC	

## G. AMI interval data interface to billing systems

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Master Data Configuration	MDMSBRG1.	<p>Ability to integrate with existing systems.</p> <p>Configure master data and structure in such a way taking into account the various points of reference of the different users. The use of master data in the feeder systems for initial population and updating of the MDMS should be considered as well as a record of how master data will be updated.</p>		


## H. Demand response management

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Demand response measurement and verification analysis	MDMSBRH1.	Ability to provide support for Demand/Response preplanning as well as post Demand/Response event analysis through vendor experience and lessons	MDMS will store, analyse all applicable data related to DR. MDMS will be the	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		learned, as well as application of best practices in this regard	trigger for the event, but the HES will most probably be the Executor for the action. Although the capability for DR lies in MDMS & HES, care should be exercised when executing any of these functions as there could be other impacts.	
Demand response measurement and verification analysis	MDMSBRH2.	Ability to support demand response and control functions viz load limiting, critical peak pricing and Appliance control. <ul style="list-style-type: none"> <li>• ACD</li> <li>• Load Limiting</li> <li>• TOU</li> <li>• Frequency Control</li> </ul>	Metering COE and Metering & Measurements SC  Tx IDM	


## I. Management of smart grid data and non-consumer devices

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Managing Non-Technical Losses	MDMSBRI1.	Ability to cater for the recording of metering events including: tampers, outages and voltage (according to NRS 048 – at 10 minute intervals) highs/lows.  The data will be collected and processed by the MDMS. Furthermore, this collected data will be exposed to back end systems for further data analytics. This functionality will satisfy the business requirements for curtailing energy losses and enhancing ability of revenue management processes.	Need statistical metering in for QOS. Therefore need to decide on deployment approach. Requirements are not to have only a portion of technical losses. Need to cover all.  Energy balancing information in the form of energy delivered and sold at various levels of the network need to reside in Central Repository (MDMS)  Currently include stats metering from MV90 and sales information from	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
			CC&B – linked using CNL.	
Equipment Data analysis	MDMSBRI2.	Ability to provide historical analysis of transformer data during abnormal events for the purpose of upgrades/replacements.		

## J. Revenue Protection & Theft detection support

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Tamper Detection	MDMSBRJ1.	Ability to receive tamper detection alerts from the smart meter to the Master Station (Head End System), and the registration of this data to the MDMS	Architecture design is important. Should not duplicate alerts unnecessary. Alerts / Tamperers should be relayed to the appropriate system for action.	
Consumption Management	MDMSBRJ2.	Ability to monitor irregular consumption patterns and leakage by enabling real-time alert monitoring of devices and grid capabilities	Need to be specific where you want to implement real time. There is a cost impact to this. Transformer and Lines, you would want to gather real time events. Others, just the event. Will also impact the rollout and implementation.	

## K. Reporting and Analytics


Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Exception management	MDMSBRK1.	Ability to provide deployment & read reports, error and exception management		
Load analysis	MDMSBRK2.	Ability to provide actual load analysis by load management systems		
Outage and Power Quality	MDMSBRK3.	Ability to provide data for outage and power quality analysis		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Pricing tariff rate planning	MDMSBRK4.	Ability to provide access to historic meter data to build rate plans that win regulatory approval and to understand the revenue implications of newly developed rates as well as direct impact on customers and the utility		
Outage and Power Quality	MDMSBRK5.	Ability to provide QOS information from meters. URS caters for QOS from QOS devices.	Metering COE and Metering & Measurements SC This does not have to be in the dedicated storage space in MDMS. Could be a separate database linked to MDMS.	

## L. Support Capabilities

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Lifecycle and DR management support	MDMSBRL1.	Ability to provide support for HAN device lifecycle management and demand response event management		
Business process automation support	MDMSBRL2.	Ability to support business process automation via event notification services		
Customer Support	MDMSBRL3.	Ability to provide customer portal support for what-ifs, consumption, costs and rate information		
Load management support	MDMSBRL4.	Ability to provide support for load management via aggregated consumption information		


## M. Meter Events and Statuses

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Meter Events and Statuses	MDMSBRM1.	Ability for MDMS to cater for the following events and statuses: <ul style="list-style-type: none"> <li>Reporting on power outage</li> <li>Load control status</li> <li>Load limit status</li> <li>Appliance control device status</li> <li>Meter battery health status</li> </ul>	Metering COE and Metering & Measurements SC  2 way communication to the meter. Communication to meter will be	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		<ul style="list-style-type: none"> <li>Reporting of meter alarms</li> <li>Reporting on kiosk events</li> <li>Kiosk status</li> </ul>	executed by the HES i.e. Send request to the meter will be via HES.	
Meter Events and Statuses	MDMSBRM2.	<b>Generation:</b> Alarms/ notifications of data transfer from EMDAS to Phoenix. Currently using emails to indicate alarms.	This method is proving very effective for fault finding, and in the event that emails/ alarms are not sent out, this is also an indication that something is wrong	

## N. Configuration and Management


All of these actions will be executed by the HES. Applicable data and analysis to trigger such events will be facilitated by the MDMS.

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Configuration and Management	MDMSBRN1.	Ability to initiate change from prepayment to post-paid mode and vice versa from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN2.	Ability to configure and change account remotely from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN3.	Ability to configure and change of tariffs remotely from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN4.	Ability to remote update of meter firmware	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN5.	Ability to remotely update the Data Concentrator/Network Gateway via the MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN6.	Ability to facilitate remote update of Kiosk Controller firmware	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN7.	Ability to facilitate the remote kiosk management access	Metering COE and Metering &	

## Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
			Measurements SC	
Configuration and Management	MDMSBRN8.	Ability to configure load control parameters from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN9.	Ability to configure appliance control remotely from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN10.	Ability to facilitate the clearing of alarms remotely from MDMS	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN11.	Ability to set the meter clock remotely	Metering COE and Metering & Measurements SC	
Configuration and Management	MDMSBRN12.	Ability to support the remote conversion to currency prepaid token implementation.	Metering COE and Metering & Measurements SC	

## O. Smart Meter Capabilities


Most of these actions will be executed by the HES. Applicable data and analysis to trigger such events will be stored in the MDMS.

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
Prepayment	MDMSBRO1.	Backend prepayment for Larger Power Users (Prepayment tool for LPU's) <ul style="list-style-type: none"> <li>Current tariffs must be catered for (i.e demand charges, network charges, etc.)</li> <li>Provide for an interface to send commands to metering points via a communication interface</li> <li>Provide for an interface to send commands to metering points via SCADA</li> </ul>	Metering COE and Metering & Measurements SC  LPU will probably not be done via Meter. But whether it is done on CC&B or MDMS, Algorithm for customer utilization, needs to be catered for in either MDMS or CC&B. Some customers are on Prepayment. Not by meter, but by a prepayment arrangement.	

## Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
			Therefore needs to be looked at. Need to find a gateway, either linked via HES and MDMS that we can talk to these meters to measure utilization in real time, to determine costs etc. Currently being done outside the normal system and is quite resource intensive. Could also look at a separate HES for LPU.	
Prepayment	MDMSBRO2.	Ability to support retrieval of credit status	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO3.	Ability to support "power consumption exceeded the maximum power limit" as set with an STS token.	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO4.	Ability to support STS tokens to be manually entered at the HES system and communicated to the meter via the smart metering network (PSG Tokens usually entered at HES system)	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO5.	Ability to support virtual tokens	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO6.	Ability to support automated bulk SGC update -	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO7.	Ability to verify tokens entered on meter (Accept, Reject, Used, Old, Lockout...) – Also to provide status to back end systems	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO8.	Provision of emergency credit. Provided in current meter specification. <i>Group Technology indicated that the meter has the capability to allow an emergency credit to be available when the meter runs out of credit. When the customer tops up credit again, this emergency credit utilized will first be decremented</i>	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO9.	Ability to support currency token.	Metering COE and Metering & Measurements SC	
Prepayment	MDMSBRO10	Ability to support the provision of customer	Metering COE and	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		statements for PPU (Prepaid Customers to compare their usage)	Metering & Measurements SC	
Smart Meters	MDMSBRO11	Ability of meter to be able to tell if it is off and send data to the MDMS. (ie Ability of meter to support Outage Management)	Outage Management	


## P. Outage and Power Quality analysis

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
QOS	MDMSBRP1.	Ability to support under / overvoltage events	Metering COE and Metering & Measurements SC	
QOS	MDMSBRP2.	Ability to support under frequency detection	Metering COE and Metering & Measurements SC	
QOS	MDMSBRP3.	Ability to support phase balance	Metering COE and Metering & Measurements SC	
QOS	MDMSBRP4.	Ability to support telemetry (Limited QOS data logging)	Metering COE and Metering & Measurements SC	
Outage Management	MDMSBRP5.	<p>Ability to support customer outage visibility. See customers without supply on a geospatial map. Also flag RMC, CC on individual customers without supply. Automated tracing and customer notification on outages</p> <ul style="list-style-type: none"> <li>Ability to, for instance, link a customer who logged an outage, with his buying patterns (No Buying and Low Buying etc.) that will enable us to interrogate the account before responding.</li> </ul>	Metering COE and Metering & Measurements SC MDMS will be the Meter Data warehouse. There will be other systems and databases ie Outage Management. There should be proper integration. We should not be creating silos wrt. Systems and databases.	
Outage Management	MDMSBRP6.	<p>Ability to support network fault location (outage detection).</p> <ul style="list-style-type: none"> <li>Ability to identify closest transformer or breaker to fault.</li> </ul>	Metering COE and Metering & Measurements SC	
Outage Management	MDMSBRP7.	<p>Ability to support automatic LV dispatching (Future: discrimination between LV, MV and HV)</p> <ul style="list-style-type: none"> <li>Automatic dispatching relevant to individual meter faults. Pilot LV</li> </ul>	Metering COE and Metering & Measurements SC	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		Customers first.		
Outage Management	MDMSBRP8.	Ability to support communication: outage statuses. <ul style="list-style-type: none"> <li>Automated tracing.</li> <li>Customer notification and status updates on planned / unplanned outages.</li> </ul>	Metering COE and Metering & Measurements SC	
Outage Management	MDMSBRP9.	Rejected Work Orders <ul style="list-style-type: none"> <li>Ability of MDMS to capture, aggregate, analyse data and make information available. MDMS can use VEE rules to determine if it is a Rejected Works Order.</li> <li>Help to identify where high concentration of rejected Works Orders are. Also to identify where Campaigns are not effective, Resource training etc.</li> </ul>		
Outage Management	MDMSBRP10.	Customer side faults <ul style="list-style-type: none"> <li>Ability of Smart meter to detect if power is on from Eskom Side at the meter.</li> </ul>	Can Eskom decrement customer side fault charges (on prepaid meter) from a purchased prepaid token? Also bill customer separately?	
Outage Management	MDMSBRP11.	Campaign effectiveness <ul style="list-style-type: none"> <li>Ability of Meter to receive and display campaign notifications.</li> </ul> <i>Availability of other communications technology to meter, secure Wi-Fi etc to enable bi directional communications and failover.</i>		
Outage Management	MDMSBRP12.	Deferred work <ul style="list-style-type: none"> <li>Ability of MDMS to discriminate between Meter faults (ie Logged after hours, Red Zone etc) and apply appropriate action ie Defer Work Order</li> </ul>		


#### Q. Additional Requirements (Metering COE and Metering & Measurements SC)

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
IPP	MDMSBRQ1.	Ability to provide output of generation (ie PV). Measurement of power customer is		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

Functionality grouping	BRS Number	Functionality	Business Rule No and Description & Comments	Priority / phasing
		generating		
Small scale embedded generation	MDMSBRQ2.	Ability to provide output of generation (ie PV).Measurement of power customer is generating		
Mobility	MDMSBRQ3.	Interface from mobility side to go and update when there is a meter change out or Moves etc, The Use smart devices etc – You can electronically updated forms- info sent to system. Don't need to have a paper trail. There needs to be more simplified workspace. Needs to be covered as a requirement		

### 9.3 Use Case Model

9.3.1 The intent of the use case is normally for medium to large / complex software design requirements. It is thus not yet necessary for change controls and high level analysis.

The Use Cases will be further developed in subsequent Project phases.


BRS Number	Use Cases	Details
MDMSUC1	Meter and System Data Management	The purpose of this use case is to ensure that customers are correctly linked to the new smart meters and that the appropriate meter information is correctly propagated through the V-Model via Multi-Vendor Integration Layer (MVIL) and MDMS.
MDMSUC2	Load Control - On Demand	The load control schedule controls the time periods when the customers' appliance control devices will switch off the pre-selected non-essential devices (e.g. geyser and swimming pool pump, etc). This use case represents the Load Control on Demand.
MDMSUC3	Meter Reading - Per Schedule	This Use Case represents the sending of meter readings to AMI Meters in Interval Read Schedules, thus ensuring that the meter readings are recorded at specified intervals.
MDMSUC4	Load Control - Per Schedule	The load control schedule controls the time periods when the customers' appliance control devices will switch off the pre-selected non-essential devices (e.g. geyser and swimming pool pump, etc). This use case represents the Load Control Per Schedule.
MDMSUC5	TOU Aggregation and Billing	This use case is to ensure that the customers are ultimately billed at a higher rate for usage during peak periods and at a lower rate during off-peak periods.
MDMSUC6	Malfunctions / Tamperers /	This use case represents configuration and notification of

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.




	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

	Outages	tampers from the meter, propagation of alarms through the HES via the MDMS and to the Back End Systems.
MDMSUC7	Remote Connect / Disconnect	This use case represents remotely sending a request to either disconnect a meter or reconnect a meter. The request could be sent from the billing system via the MDMS to the HES for disconnect/reconnect.
MDMSUC8	Meter Reading - On Demand	This use case represents the functionality to establish connection with HES to send or receive request from/to Billing System via the MDMS for an on-demand meter read (open meter read, close meter read, customer enquiry)
MDMSUC9	Customer Information Delivery	Functionality includes: Sending interval usage response for specific time periods to CS Online and receiving register reads response for specific time periods from CS Online, Messaging for: Notification of outstanding payment, billing, tariff update. Data will be sourced via the MDMS.
MDMSUC10	Tariff Structure Implementation and alignment	This use case represents the ability of the HES to accommodate tariff structures and to align tariff tables with CC&B
MDMSUC11	Remote configuration of Meters	This use case represents the ability of the HES to perform various remote configurations on the smart meter via the MDMS
MDMSUC12	Data Analysis	This use case represents the ability of the MDMS to perform various data analysis, trend analysis etc
MDMSUC13	Outage Management	This use case represents the ability of the MDMS to support various outage management functions ie Fault location, Meter loss of supply & power restoration

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

## 9.4 User interface requirements


9.4.1 Define the user interface requirements in relation to the functionality required.

<b>BRS Number</b>	<b>Functionality</b>	<b>Type of user interface</b>	<b>For new solution/requirement: Provide visual view of how the user will interact with the screen.</b>
MDMSUI1.	Data processing	Web / GUI Interface	Process the meter readings into the meter data store
MDMSUI2.	Meter asset validating	Web / GUI Interface	Validates the meter asset against the Enterprise Asset Management
MDMSUI3.	Meter data management	Web / GUI Interface	Repository for interval and non-interval meter readings. Provides validating, editing and estimations and prepares meter reading for billing. Performs ancillary functions for supporting outages, work order management and pricing simulations.
MDMSUI4.	Command management	Web / GUI Interface	Send and process meter commands to and from the meters i.e disconnection command
MDMSUI5.	Billing determinants calculations	Web / GUI Interface	Functionality within MDM that deals with all billing and meter to cash events
MDMSUI6.	Meter reading aggregation	Web / GUI Interface	Aggregating the meter reading by account or service point
MDMSUI7.	Audit and Reporting	Web / GUI Interface	Provides the operational report and audit trail that comes standard as part of the MDM
MDMSUI8.	Exception Management	Web / GUI Interface	Functionality handles meter device, interface, reports exceptions and raises workflow items for action
MDMSUI9.	Meter Management Events	Web / GUI Interface	Functionality within MDM that handles all variants of events and alerts.
MDMSUI10.	Prepayment Usage Support	Web / GUI Interface	Provide a capability to compare prepaid usage between the prepaid tokens bought and the actual prepaid meter reading usage
MDMSUI11.	Configuration Management	Web / GUI Interface	Functionality with in the tool that looks after optimal functioning of all elements that defines the usefulness of the tool.
MDMSUI12.	Validate, Edit and Estimation	Web / GUI Interface	This is the core MDM functionality to validate, edit and estimate missing reads in order to prepare for billing determinants
MDMSUI13.	Command Management	Web / GUI Interface	Enables the MDM to send the commands to the meter i.e ping command, online meter readings etc
MDMSUI14.	Meter Reading Profiling	Web / GUI Interface	Capability to provide customers load profiles. The presentment of the load profile can be through a portal.
MDMSUI15.	MDM Administration	Web / GUI Interface	Provides MDM administration functionality

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

BRS Number	Functionality	Type of user interface	For new solution/requirement: Provide visual view of how the user will interact with the screen.
			to create users, profiles, to administer the MDM.
MDMSUI16.	Profile Mapping	Web / GUI Interface	Provides ability to create Regions, groups, customer etc from scratch or modify existing groups. Provides ability to assign users (responsible individuals) to respective groups.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		

## 9.5 Reporting requirements


- 9.5.1 Define the reporting requirements in number form ensuring that the functionality is sorted per report.  
Detailed Reporting requirements will be determined in subsequent Project phases

BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
MDMSRR1.				Statistical meter reading extracts									
MDMSRR2.				Energy Balancing data extracts									
MDMSRR3.				Energy settlements data extracts									
MDMSRR4.				Energy profiling data extracts									
MDMSRR5.		Energy usage		Load forecasting Trend analysis Peak/Low consumption Selectable individual readings									
MDMSRR6.				Data extraction for the enabling of Settlements, graphical profiling and trending.									
MDMSRR7.				Data extraction for the enabling									

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		

BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
				of Linking of meters to customer, premises and the power grid									
MDMSRR8.		Meter Point Summaries		Gross active and reactive energy production/consumption, for each unit,		Generation							
MDMSRR9.		Meter Point Summaries		Total Gross active and reactive energy production/consumption for the station.		Generation							
MDMSRR10.		Utilisation Reporting		24 hour, 7 day, 30 day, 365 day moving window reports, as of time of query		Generation			Any user selectable period.	Utilisation expressed as a percentage of rated machine capability per generator.			
MDMSRR11.		Efficiency Reporting		24 hour, 7 day, 30 day, 365 day moving window reports, as of time of query		Generation			Any user selectable period.	Efficiency expressed as a percentage per generator,			

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		

BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
										calculated as the sum of all auxiliary load divided by generated power.			
MDMSRR12.		General Reports		Last hour, last day, last month,		Generation			Any user selectable period.				
MDMSRR13.		MV90 Uploads		<ul style="list-style-type: none"> <li>MV90 Upload Log</li> </ul>		Transmission MDMS	The mdef files uploaded to the MDMS for a certain period and substation						
MDMSRR14.		MV90 Uploads		<ul style="list-style-type: none"> <li>Data Availability</li> </ul>			The availability and status of data is summarised in the data availability report for whole days.						
MDMSRR15.		MV90 Uploads		<ul style="list-style-type: none"> <li>Official Report</li> </ul>			Shows what data was used to generate official data in the ODS per day.						
MDMSRR16.		MV90 Uploads		<ul style="list-style-type: none"> <li>Auto-Plugged Report</li> </ul>			This report shows a record of what						

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		


BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
							data has been auto-plugged						
MDMSRR17.		MV90 Uploads		<ul style="list-style-type: none"> <li>Data Management Log</li> </ul>			Keeps a record of data that has been accepted or rejected by the DAS operators						
MDMSRR18.		MV90 Uploads		<ul style="list-style-type: none"> <li>Changed Data Log</li> </ul>			Logs the days for which data was overwritten with re-uploaded data.						
MDMSRR19.		Meter Profile Data		Meter Profile Data		Transmission MDMS	This report shows Profile Data stored on the MDMS Processed Data: Staging Data: Changed Data:						
MDMSRR20.		Official / Totalised Profile Data		<ul style="list-style-type: none"> <li></li> </ul>			The official profile data report consists of Profile Data taken from either main or check meters						
MDMSRR21.		Special Reports		KVA Report		Transmission MDMS	The KVA report will calculate the KVA import and						

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.




	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		

BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
							export values on a half hourly interval basis,						
MDMSRR22.		Special Reports		Percentage Variance Setup		Transmission MDMS	The percentage variance report will be calculations on main – check pairs.						
MDMSRR23.		Special Reports		Percentage Variance Report		Transmission MDMS							
MDMSRR24.		Special Reports		Monthly Reports		Transmission MDMS	The Monthly Official Report calculates the full month's total for each Official linked to the selected customer.						
MDMSRR25.		Special Reports		processed Files		Transmission MDMS	The processed files report shows on an hourly account of the number of files received by the MDMS, those that have been processed, rejected as well as those files						

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT</b> <b>Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>							Template Identifier	240-43921804	Rev	5
								Document Identifier	240-83570075	Rev	3
								Authorisation Date	21 April 2017		
								Review Date	October 2019		

BRS Nr	KPI	Name of Measure	Measure Specific Doc Nr	Business Definition of Measure	Business calculation	Business Rule	Functionality	Priority/ Phasing	Frequency	UOM (Unit of Measure)	Strategic Objective	KPA	Is data available for reports? Indicate Y/N and define what the data sources are/will be
							which are still being processed.						
MDMSRR26.		Special Reports		Processing Times		Transmission MDMS	The processing times report shows the number of files received, and the minimum, average and maximum times taken to process those files on an hourly basis,						

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 9.6 Information/data requirements


### 9.6.1 Define the data and information requirements.

BRS Number	Functionality	Define source/s of data. If data currently not available complete section 6.5.2	Owner of data	Data migration requirement? Indicate Y/N. If N explain why. If Y define migration requirement.
MDMSDR1	<b>Control and Signal</b> <ul style="list-style-type: none"> <li>Disconnect &amp; Reconnection</li> <li>Reset</li> <li>Demand response</li> </ul>	Eskom <ul style="list-style-type: none"> <li>C&amp;B</li> <li>VPS</li> </ul>	Eskom <ul style="list-style-type: none"> <li>GCS</li> </ul>	N (Integration required via CC&B to do remote disconnect / reconnect)
MDMSDR2	<b>Installation and Configuration</b> <ul style="list-style-type: none"> <li>Tariff parameters</li> <li>Meter history</li> <li>Appliance control schedule</li> </ul>	Eskom <ul style="list-style-type: none"> <li>C&amp;B</li> <li>VPS</li> </ul>	Eskom <ul style="list-style-type: none"> <li>GCS</li> </ul>	N
MDMSDR3	<b>Readings</b> <ul style="list-style-type: none"> <li>Meter Readings, Request and response of Peak, off peak and total register readings</li> <li>Date requested</li> <li>Special Read</li> </ul>	Eskom <ul style="list-style-type: none"> <li>C&amp;B</li> </ul>	Eskom <ul style="list-style-type: none"> <li>GCS</li> </ul>	N
MDMSDR4	<b>Events</b> <ul style="list-style-type: none"> <li>Power reliability and quality</li> </ul>	Eskom <ul style="list-style-type: none"> <li>Maximo</li> </ul>	Eskom <ul style="list-style-type: none"> <li>Dx</li> </ul>	N
MDMSDR5	<b>Status</b> <ul style="list-style-type: none"> <li>Meter health and tamper Detection</li> <li>Malfunction</li> <li>Low Voltage</li> <li>Outage</li> <li>Register readings</li> <li>Token</li> <li>Tariff</li> <li>ACD</li> </ul>	Eskom <ul style="list-style-type: none"> <li>Maximo</li> <li>CC&amp;B</li> <li>VPS</li> </ul>	Eskom <ul style="list-style-type: none"> <li>Dx</li> </ul>	N
MDMSDR6	Meter mode and type conversion	Eskom <ul style="list-style-type: none"> <li>CC&amp;B</li> </ul>	Eskom <ul style="list-style-type: none"> <li>Dx</li> </ul>	N
MDMSDR7	<b>Time Synchronization</b>	Will be configured on HES	Eskom	N
MDMSDR8	Data analysis	Eskom HES Will perform basic & limited data analysis. Permanent solution will be the MDMS	Eskom	N

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

BRS Number	Functionality	Define source/s of data. If data currently not available complete section 6.5.2	Owner of data	Data migration requirement? Indicate Y/N. If N explain why. If Y define migration requirement.
MDMSDR9	Energy balancing	Non available for LV. Bulk meters will be installed at Kiosk / Minisub	Eskom • GCS	N (New data from bulk meters)
MDMSDR10	Customer Information delivery	Eskom • CC&B	Eskom • GCS	N (Available data to be ported to CSOnline or CIU or Customer Mobile)
MDMSDR11	Outage Management • Meter supply status • Outage status • Automatic LV Dispatch	Eskom • Maximo	Eskom • GCS	N

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## Data Sources

Data will be extracted from the following sources:

Division	Classification	Data Acquisition	Database	Settlement Systems
Generation	Gross Generated	EMDAS	EMDAS	GPSS
	Gross Output			
	Unit Auxiliaries			
	Sent Out (Calculated)			
Transmission	Net sent out	MV90	TX MDMS	Phoenix
	ITM			EIT
	IPP			Themis
	International			
Distribution	Statistical	MV90	ALFS	CC&B
	LPU			
Group Customer Service	SPU	Route Master		CC&B
		AMI	L&G HES	CC&B
		Split Metering	L&G Sup talk	CC&B

Table 1: Data Sources


### Data Sources Notes:

Generation	These are only available in cases where the EMDAS installed meets the required standard (240-62581162)- get details of number and the required metering is installed
Generation	In order to receive data from EMDAS, MDMS needs to accommodate the current method of hourly data transfer and processing used by Phoenix.
Generation	EMDAS is in many ways a fixed system, with a specific set of functions. Configurable perhaps, but only to a certain degree.
Generation	The established data transfer method, used for communicating with Phoenix is via direct FTP connection to a remote folder, done on an hourly basis. The

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

	data transfer should not be compromised.
Generation metering	Generator Bay Metering HV Yard Metering Unit Transformer Metering Unit Auxiliaries Metering Station Transformer Metering Station Boards Metering Extraneous Supply Metering
Generation EMDAS	<p>The Energy Management and Data Acquisition System (EMDAS) based at each generating site in Generation is required to send hourly energy data to the Phoenix system on an hourly basis via File Transfer Protocol (FTP). The file that is sent every hour is processed automatically by Phoenix and the file format needs to be clearly defined and unambiguous.</p> <p>The data that is captured and stored by EMDAS will be available for the following purposes:</p> <ul style="list-style-type: none"> <li>a) Provision of energy data for Plant Performance management, operational purposes and economic evaluation of Power Station generators, unit transformers and auxiliaries,</li> <li>b) Confirmation of payment amounts for energy consumed by the Power Station for operational requirements, as well as for energy generated and sent out to Transmission/Distribution,</li> <li>c) Quarterly reporting of energy generated to NERSA.</li> <li>d) For stations that contribute towards the carbon footprint, an environmental tax levy is payable to SARS, based on the amount of active energy generated (Gross Generated Output).</li> </ul> <p>The Generation metering system is also used to cross-check the energy transfer between Transmission/Distribution for electricity, exported to or consumed from the national grid by Generation, with the official billing points being under the control of Transmission/Distribution</p>

9.6.2 If any data is currently not available the business needs to define the plans they have in place to ensure how and when the data will be available.

No data or information lacking currently. This could however change as the detailed Business Requirements and functionality is compiled.

<b>BRS Number</b>	<b>Gap</b>	<b>Owner of data</b>	<b>Business plan to source data</b>
	Full access to MV90 data is an issue. Data only received on request. Assumption is that the MDMS will take		

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

BRS Number	Gap	Owner of data	Business plan to source data
	over the role of MV90 repository or store all MV90 data??		

9.6.3 Insert data model if available or make reference to the data model if available (not applicable to change controls/demands).

*To be defined in Next Phase*

## 9.7 System Integration requirements

9.7.1 Define if and what the system integrations might be. (Request assistance from application support owner)

The diagram below illustrates the integration between the various systems and MDMS

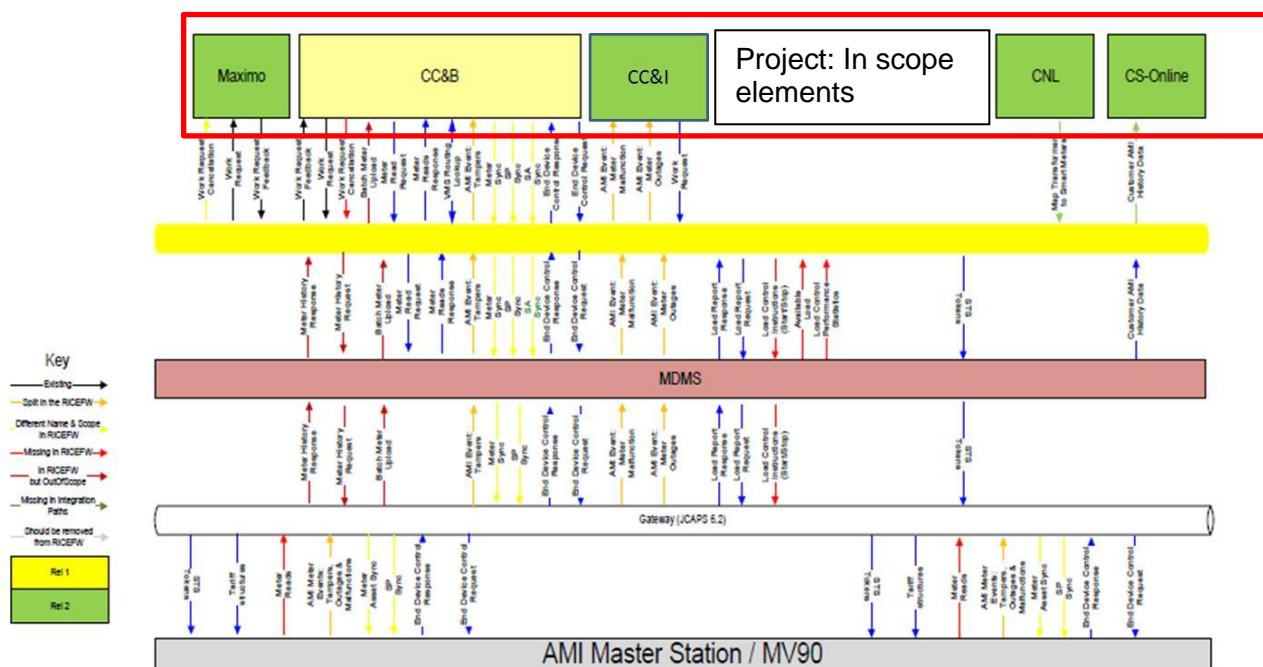



Figure 12: High Level Integration Architecture

## Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited. Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		


The following table lists the Integration interfaces. More detailed interfaces will be defined in subsequent phases.

<b>BRS Number</b>	<b>Functionality</b>	<b>Impacted Systems</b>	<b>Sending System Owner</b>	<b>Receiving System Owner</b>	<b>What information needs to be integrated</b>
MDMSII1.	Work Request Cancellation	CC&B Maximo	CC&B	Maximo	
MDMSII2.	Work Request Feedback	CC&B Maximo	Maximo	CC&B	
MDMSII3.	Work Request Outage	CC&B CC&I	CC&B	Maximo	
MDMSII4.	Meter Read Request	CC&B MDMS	CC&B/HES	MDMS/HES	
MDMSII5.	Meter Reads Response	CC&B MDMS	HES/MDMS	CC&B	
MDMSII6.	Meter Asset Sync	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII7.	SP Sync	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII8.	AMI Event tampers	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII9.	Tariffs Structures	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII10.	End Device Controls	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII11.	End Device Controls Feedback	CC&B MDMS	CC&B/HES	HES/MDMS	
MDMSII12.	Event Notification	CC&I MDMS	CC&I/HES	HES/MDMS	
MDMSII13.	AMI Event Meter Outages	CC&I MDMS	CC&I/HES	HES/MDMS	
MDMSII14.	AMI Event Meter Malfunction	Master Station MDMS	HES/MDMS	MDMS/CC&I	
MDMSII15.	Tariffs Structure	CC&B Master Station MDMS	CC&B/HES	HES/MDMS	
MDMSII16.	Meter Reads	Master Station MDMS	CC&B/HES	HES/MDMS	
MDMSII17.	AMI meter events	Master Station MDMS	HES/MDMS	MDMS/CC&I	
MDMSII18.	End Device Controls	Master Station MDMS	HES	MDMS	
MDMSII19.	End Device Controls feedback	Master Station MDMS	HES	MDMS	
MDMSII20.	Meter Asset Sync	Master Station MDMS	MATS/CC&B	HES/MDMS	

### **Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

BRS Number	Functionality	Impacted Systems	Sending System Owner	Receiving System Owner	What information needs to be integrated
MDMSII21.	SP Sync	Master Station MDMS	CC&B	MDMS/HES	
MDMSII22.	SA Sync	Master Station MDMS	CC&B	MDMS/HES	

Table 2: Integration Interfaces

#### Integration gateway considerations:

- Preferably a commercial off-the-shelf (COTS) product
- Cater for multiple pre-defined meter protocols (PDP)
- Regulate incoming and outgoing data load (throttling)
- Cater for future protocols and interfaces.
- Provide an open, non-proprietary, freely available (at no cost and licencing) CIM compliant interface standard for data acquisition systems to seamlessly integrate with the MDMS.
- Provide an interface implementation best practice document and test suite for standard compliance testing and verification.

## 9.8 System Performance requirements

- 9.8.1 Define the performance requirements and explain their rationale. This will be used as input for the design / confirm existing performance requirements.

Performance and storage requirements for the MDMS must remain linear over a time series graph, indicating that the more storage and processing capability that is added, will result in a linear ability to handle more smart metering devices


As the MDMS will collect, store and analyse data for various systems/ users, it is important that each system/user is given the correct priority eg Billing data could be given a higher priority.

Capability grouping	BRS Number	Functionality	Performance Requirement	Motivation
		<b>Communication Frequency</b> (How often?)	<b>Permissible Latency</b> (How quickly?)	
Performance and Storage	MDMSPR1.	Constantly	Real-time - <1 sec lag from request to response	
Performance and Storage	MDMSPR2.	Hourly	Near real-time - <10 sec round trip	
Performance and Storage	MDMSPR3.	Daily	Non-issue - need a reasonable return when requested	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Capability grouping	BRS Number	Functionality	Performance Requirement	Motivation
Performance and Storage	MDMSPR4.	As and when	Specified window of time	

### Scalability

- Reduce cost/time to gather and reconcile meter data from multiple collection systems
- Provide higher quality data from operating a single enterprise-wide data repository
- Improve reliability, security and consistency of meter data for billing and analytics
- Reduce the number of errors associated with increased data collection and intervals
- Interface to numerous Eskom's analytical software applications

### Data Volumes

- The MDMS will store both raw data (as received from head-end systems or backend systems such as MV90 and CC&B) and 'check' or calculated data that have been processed through VEE functions (for instance billing determinants for CC&B)

### Reliability

The meter stores data in 30 minute intervals and the MDMS thus should be suitable for the requirements of the various business applications and data gathering functionality. It is therefore crucial that the MDMS is available when needed. Data accuracy must be exceptional, as this system will be used to calculate billing determinants for financial systems (e.g. CC&B).

The system should have an audit trail capability based on the fact that the system would be utilised for estimation purposes.

## 9.9 Security requirements


- 9.9.1 Define user identity authentication requirements and audit requirements.  
The Security Requirements will be detailed in subsequent phases.

BRS Number	Functionality	Define different types of access and what permissions that role has	Define system auditability requirements
MDMSSEC1	User Access Management	<ul style="list-style-type: none"> <li>• User Identity &amp; Access Management – For Vendor solutions</li> <li>• Authentication of all connections, users and devices across the Vendor solutions</li> <li>• Account management</li> <li>• Use of directory services, certificates and tokens</li> <li>• Single sign on – Use of AD</li> </ul>	NDA
MDMSSEC2	Security Standards &	<ul style="list-style-type: none"> <li>• Solutions must follow</li> </ul>	TBD

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

<b>BRS Number</b>	<b>Functionality</b>	<b>Define different types of access and what permissions that role has</b>	<b>Define system auditability requirements</b>
	Regulatory Compliance	applicable standards (NRS 049) <ul style="list-style-type: none"> <li>• Data Privacy - including protecting customer data, usage data, and audit requirements</li> <li>• Security Assessments, Penetration testing and application security testing</li> </ul>	
MDSSEC3	Robust Technical/Data Architecture Security	<ul style="list-style-type: none"> <li>• Threat analysis should drive the security solution incorporated in MDMS</li> <li>• Security should be tiered across Data, Application, Infrastructure, Transport, and Governance</li> <li>• Technical architecture should be designed to support information protection requirements (e.g. Secured network zoning, etc.)</li> <li>• Remote access to sensitive information should be restricted and require strong authentication (e.g. VPN)</li> </ul>	TBD
MDSSEC4	End Point Security	<ul style="list-style-type: none"> <li>• General computing &amp; HES devices (e.g. Meters, HHU, Collectors, PC, PDA, and Laptop) should be encrypted to safeguard sensitive information</li> <li>• Sensitive information should be rendered unreadable both at-rest and in-transit</li> <li>• Physical security of the end point devices i.e. meters, Access points, etc. should be tamper-proofed and monitoring enabled</li> </ul>	TBD
MDSSEC5	Network Security	<ul style="list-style-type: none"> <li>• Security controlled by use of Firewalls</li> <li>• Network communications</li> </ul>	TBD

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

BRS Number	Functionality	Define different types of access and what permissions that role has	Define system auditability requirements
		protected by secured network i.e. VPN, SSL, for networks across LAN, WAN, Wireless, Wired, etc	
MDMSSEC6	Application Security	<ul style="list-style-type: none"> <li>Applications must go through the security analysis and should be addressed for vulnerabilities, security standards, etc</li> <li>Applications should be secured with authorization, data integrity &amp; confidentiality controls</li> </ul>	TBD
MDMSSEC7	Data Security	<ul style="list-style-type: none"> <li>Critical data should be secured using encryption, encoding and hashing techniques</li> <li>Specific techniques should be identified for specific data types &amp; data locations</li> </ul>	TBD
MDMSSEC8	Logging & Audit	<ul style="list-style-type: none"> <li>All security related events &amp; activities should be logged and monitored across the HES solution stack, including centralized logging as possible</li> <li>Operational processes can include fraud monitoring, behavioural analysis, incident management, etc.</li> </ul>	Request for data access to be controlled according to Eskom policies. Non-Disclosure Agreements (NDA) for data access required from respective Business owners


9.9.2 Define any security or privacy certifications that must be satisfied. If unknown at this stage, state that.

- Compliance with POPI Act
- Electricity Regulation Act, 2006
- ELECTRONIC COMMUNICATIONS AND TRANSACTIONS ACT (ECT), 2002 Act No. 25,2002

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 9.10 Archiving requirements

- 9.10.1 State the retention period required for the data/information.  
Archiving will be detailed further in subsequent phases.

BRS Number	Functionality	Define source/s of data	Owner of data	Retention Period	Indicate if on-line, off-line

- In order to comply with financial regulations, it is required that meter reading data be kept for up to 7 years
- Eskom Network Planning keeps data for up to 25 years – summarised network load values must therefore be built up in MDMS over a 25 year period, to cater for this requirement
- A rolling period of six months' worth of online data must be kept to satisfy customer queries, while the rest of the data can be archived as follows:
  - One year archive with high availability – i.e. the data needs to be retrievable within 4 hours of the data request; and
  - The remainder of the data to be retrievable within 5 working days from the date the data was requested
- The MDMS archiving policy must be aligned with Group IT's archiving strategy

## 9.11 Operating environment

- 9.11.1 Define the physical environment in which the solution needs to be used (e.g. field with lots of dust, radioactive, office only etc.).  
This will depend on the solution implemented ie Platform as a service, Software as a service, Hybrid architecture etc. If housed within Eskom the following environments will apply.


BRS Number	HES Component	Environment
MDMSOE1	MDMS Server	Eskom Data Centre Room as per Eskom GIT Guidelines
MDMSOE2	MDMS Storage	Eskom Data Centre Room as per Eskom GIT Guidelines
MDMSOE3	MDMS Database Server	Eskom Data Centre Room as per Eskom GIT Guidelines
MDMSOE4	MVIL	Eskom Data Centre Room as per Eskom GIT Guidelines
MDMSOE5	APN	Eskom Data Centre Room as per Eskom GIT Guidelines
MDMSOE6	Network Gateway	Not part of Scope
MDMSOE7	Meter Kiosks	Not part of Scope

- 9.11.2 Define the computer operating environment that the business requirement must be able to operate in.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

This is a check to confirm whether Eskom's standard specification desktop and laptops can be used or if specialised hardware and software needs to be procured

## 10. TRAINING

### 10.1 Define the training requirements:

Training requirements will be determined in subsequent phases and will be dependent on the solution provided.

#### MDMS Training

BRS Number	Functionality	Training Required (Y/N)	Scenario to be trained on
MDMSTR1.	MDMS Core Administration	Y	Core administration of the MDMS solution
MDMSTR2.	MDMS User Administration	Y	Management of users (Add, Delete etc)
MDMSTR3.	MDMS Configuration	Y	Perform all configuration activities on the MDMS
MDMSTR4.	MDMS Support and Maintenance	Y	Technical And non-technical support of the MDMS

### 10.2 Define the possible types of training that will be required:

Course Name/Types of training	Possible duration

### 10.3 Define who will be designing the training, if known


This will be determined in subsequent phases.

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 11. LEGAL REQUIREMENTS

### 11.1 Define the legal requirements.

BRS Number	Functionality	Legal Requirement. Response Y/N If Yes, provide legal document number / clauses
MDMSLR1.	Protection of Private info -POPI Act	
MDMSLR2.	Regulation 773	
MDMSLR3.	ECT Act (or Electronic Communications and Transactions Act 25 of 2002)	Act No. 25,2002 No 23708

### 11.2 Intellectual Property

All intellectual property belongs to Eskom.

## 12. DISASTER RECOVERY REQUIREMENTS

### 12.1 Define the disaster recovery requirements

A separate disaster recovery plan needs to be defined for MDMS. This plan must be compliant with the Group IT DR plan and strategies. A separate DR environment needs to be provisioned for MDMS, with an instant failover (hot DR) configuration.

Data loss	Time to recover	Criticality to business.
-----------	-----------------	--------------------------

## 13. BUSINESS CONTINUITY


### 13.1 Confirm that the business is aware that the solution resulting from this requirement need to form part of a business continuity plan.

Business continuity plan exists	N
Name of BCP	NA
Name of BCP owner	NA
If BCP does not exist, what plans are in place from a customer view to define a BCP	TBD
If BCP needs to change, what plans are in place from a customer view to update the BCP	TBD

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 14. CAPACITY PLANNING REQUIREMENTS

### 14.1 Define the basic capacity planning requirements.

According to your understanding confirm if new hardware will need to be purchased.	This will depend on the solution decided.
Motivate the answer.	Eskom strategy is to move to support Cloud implementations. Software as a service will probably not require hardware if chosen.
According to your understanding confirm if extra disk space will be utilised.	This will depend on the solution decided.
Motivate the answer.	Eskom strategy is to move to support Cloud implementations. Software as a service will probably not require extra disk space.
According to your understanding confirm if additional network capacity will be required.	This will depend on the solution decided.
Motivate the answer.	Eskom strategy is to move to support Cloud implementations. Software as a service will only require integration to the provider.
Define approximate number of concurrent users	TBD

## 15. ENVIRONMENTAL MANAGEMENT

### 15.1 Define the basic environmental management requirements.

According to your understanding confirm if there will or will not be an impact on the environment in terms of hardware.	No Impact
Motivate the answer.	All related Hardware will be housed in a data centre.

## 16. SERVICE LEVEL AGREEMENT


### 16.1 Define the basic Service Level Agreement requirements.

Confirm if existing SLA will be impacted.	Yes
---	-----

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Motivate the answer.	New Solution to be introduced
Name of SLA & validity period.	TBD
Name of SLA Owner.	
Provide confirmation of interaction with SLA Owner	Yes
Provide SLA requirements if existing SLA not in place.	TBD

## 17. SUPPORT AND MAINTENANCE CONTRACT


### 17.1 Define Support and Maintenance Contract Impact (if any).

Confirm if existing contracts will be impacted.	Yes
Motivate the answer.	If transiting to a new solution, current MDMS solution and related contracts will be impacted.
Name of contract & validity period.	TBD
Name of Contract Owner.	New MDMS
Provide confirmation of interaction with Contract Owner	Yes
Provide input to contract requirements if existing contract not in place.	TBD

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 18. PROPOSED SOLUTIONS/ARCHTECTURE/TECHNOLOGY

### 18.1 Define the possible architecture (Graphically and/or text representation that could be used to meet the business requirement).

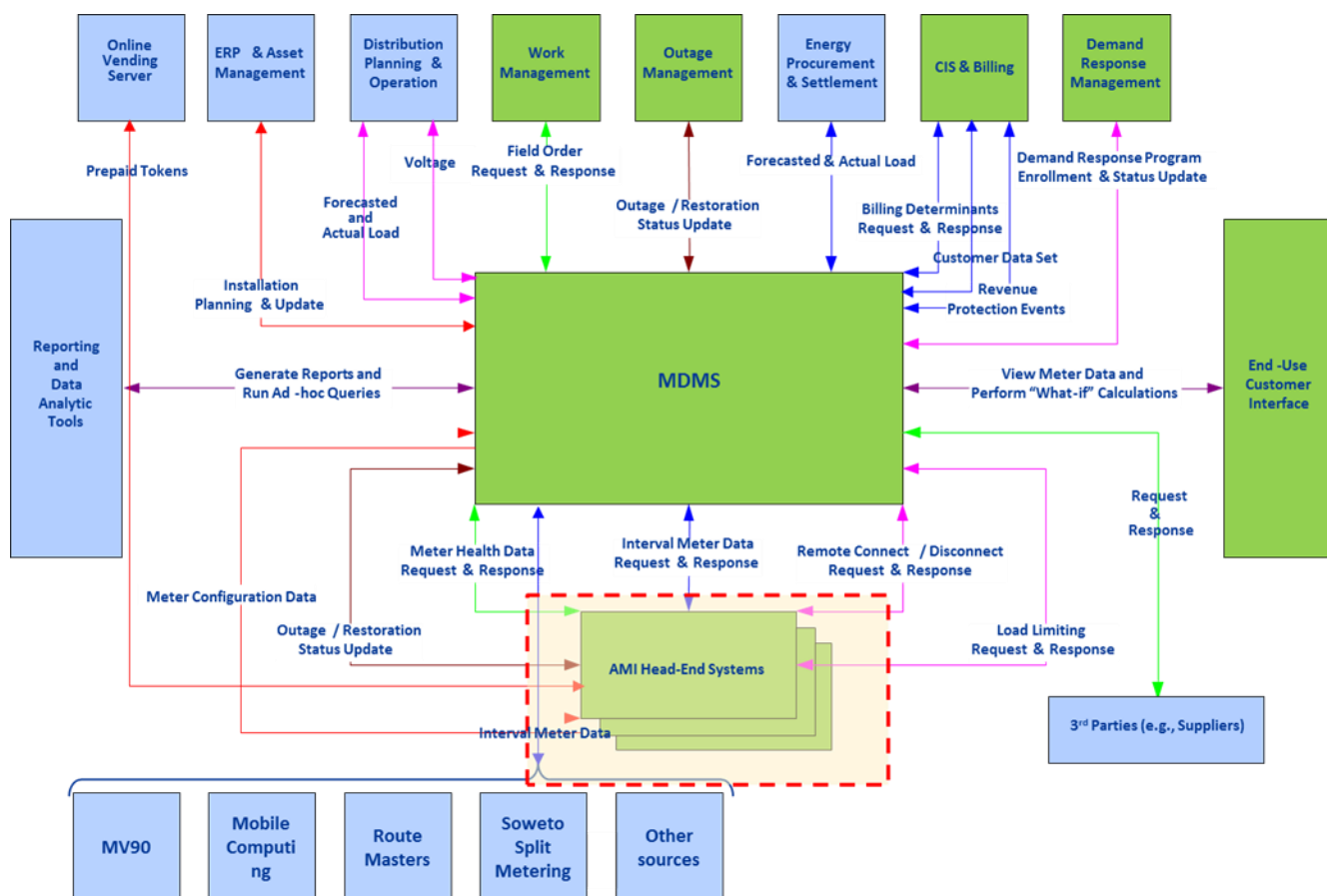



Figure 13: Eskom MDM Solution Architecture

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

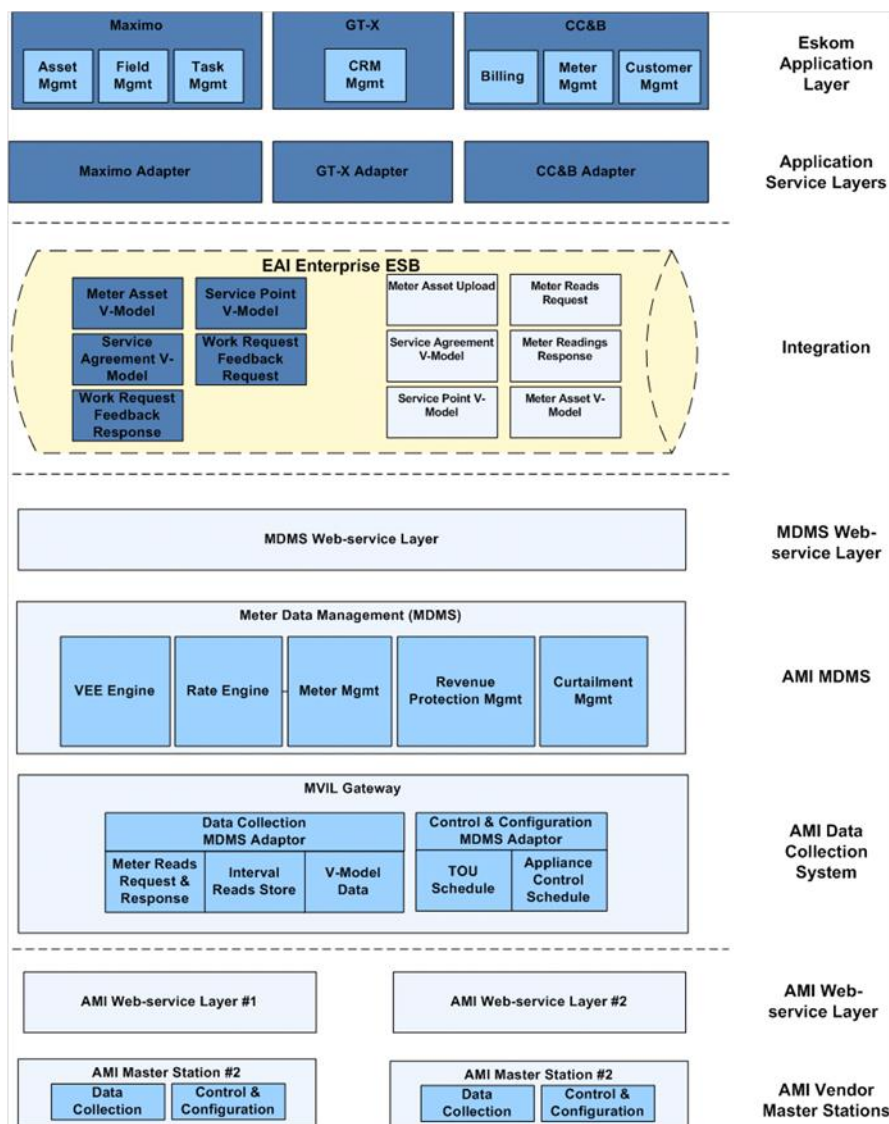


Figure 14: Architecture interim and Future view

## 18.2 List any technology which could be considered in the development of the proposed solution.


Cloud Options for implementation

- Software as a service
- Platform as a service

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 19. COSTING

Costs for the MDM depends on

- Vendor (Integration to Billing System)
- Licenses (number of Customers in )

Description	Hours	Rand value
<b><i>Number of development man-hours &amp; cost per skill level:</i></b>		
Define quantity of personnel here		
<b><i>Number of testing manhours &amp; cost per skill level:</i></b>		
Define quantity of personnel here		
License costing		0
Vendor costing		0
Any other costing information		0
<b>TOTAL APPROXIMATE COST</b>	-	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Figure 15: Estimated Costing


**CONFIDENTIAL NOT FOR PUBLIC CONSUMPTION**

**Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 20. POSSIBLE OPTIONS


### a) Option 1: Implementation of MDMS Solution using Cloud: **Software as a Service**

Description	Implement a Meter Data Management System to store, process and manage meter data. The MDMS solution will include meter data management functionality for data, validation, processing, and aggregation. It will interface with various Eskom systems, either receiving or sending data, and with AMI Master Station/s.
Critical knowledge /skills /enabling factors required to provide a successful delivery	<ul style="list-style-type: none"> <li>• Cloud Implementation</li> <li>• Security</li> <li>• Integration</li> </ul>
Option Risks	<ul style="list-style-type: none"> <li>• Unable to interface with systems</li> <li>• Unavailability of resources</li> <li>• Unacceptably slow performance</li> <li>• No business buy in</li> <li>• Failure of pre-deployment testing</li> <li>• Failure of data take-on</li> <li>• Systems bypass MDMS for metering Data Access</li> <li>• Non-Metering data is stored in MDMS</li> <li>• Complex data calculations and manipulation is implemented</li> <li>• Changes need to be made to data source systems</li> <li>• System becomes responsible for data uploads to other systems</li> <li>• System becomes responsible for complex data validation</li> <li>• Simultaneous implementation of meter reading software and other supporting applications</li> <li>• Delays in resolving key project issues as required over the entire course of the project</li> </ul>
Advantages	<p><b>Business:</b></p> <ul style="list-style-type: none"> <li>• Increase in collection of revenue</li> <li>• Reduction in non-technical energy losses</li> <li>• Effective meter device management including lifecycle management as well as device type management that will</li> <li>• Reduce poor quality devices that increase costs to the utility and the consumers</li> <li>• Increase in productivity</li> <li>• Data Interfaces saving as billing determinant programs are not required in the billing application reducing</li> <li>• overhead costs of CIS solution</li> <li>• Reporting saving</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Will always have the latest technology software solution</li> <li>• Inclusive of maintenance</li> <li>• Customer can perform configuration</li> </ul>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

	<ul style="list-style-type: none"> <li>The most cost effective Cloud service as you only lease the software and not the resource. Reduces the cost of software ownership by removing the need for technical staff to manage install, manage, and upgrade software</li> <li>Reduces the cost of licensing software.</li> <li>Requires minimal planning and is easy to setup, as applications are usually simple in usage and readymade.</li> <li>Rapid deployment as the software is fully provisioned on demand</li> <li>The customer does not need to worry about the management of applications, as this is all handled by the provider.</li> <li>Software is usually very stable, as it is supported by the Cloud provider's large infrastructure and I.T team</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>Would incur capital and operating expenditure</li> </ul> <b>Technology</b> <ul style="list-style-type: none"> <li>Although configuration will be permitted, not much customization will be permitted</li> <li>The customer has no control over the system processing its data.</li> <li>There is no control over which customers use the software; the software is used by a large amount of users.</li> <li>Little control over deployment, upgrade and testing methodology (e.g. Dev, UAT, Live systems availability)</li> <li>Currently only a limited number of software solutions are offered in the form of SaaS.</li> <li>Integration with other software on any other systems is either difficult or unsupported (e.g. single sign-on)</li> <li>Cloud provider has full access to customers' data, unless cryptography is used (But this would mean no processing could be done on the Cloud thus reducing the usefulness of the Cloud).</li> </ul>
Fit to need:	100%
Estimated duration of implementation	TBD


## b) Option 2: Implementation of MDMS Solution using Cloud: **Platform as a Service**

Description	Implement a Meter Data Management System to store, process and manage meter data. The MDMS solution will include meter data management functionality for data, validation, processing, and aggregation. It will interface with various Eskom systems, either receiving or sending data, and with AMI Master Station/s. The Implementation of the MDMS Solution will be using Cloud: Platform as a Service. This solution can be either Off Premise/ On premise or a Hybrid solution
Critical knowledge /skills /enabling factors required to provide a successful delivery	<ul style="list-style-type: none"> <li>Cloud Implementation</li> <li>Security</li> <li>Integration</li> </ul>
Option Risks	<ul style="list-style-type: none"> <li>Unable to interface with systems</li> <li>Unavailability of resources</li> <li>Unacceptably slow performance</li> </ul>

### **Controlled Disclosure**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

	<ul style="list-style-type: none"> <li>No business buy in</li> <li>Failure of pre-deployment testing</li> <li>Failure of data take-on</li> <li>Systems bypass MDMS for metering data access</li> <li>Non-Metering data is stored in MDMS</li> <li>Complex data calculations and manipulation is implemented</li> <li>Changes need to be made to data source systems</li> <li>System becomes responsible for data uploads to other systems</li> <li>System becomes responsible for complex data validation</li> <li>Simultaneous implementation of meter reading software and other supporting applications</li> <li>Delays in resolving key project issues as required over the entire course of the project</li> </ul>
Advantages	<p><b>Business</b></p> <ul style="list-style-type: none"> <li>Increase in collection of revenue</li> <li>Reduction in non-technical energy losses</li> <li>Effective meter device management including lifecycle management as well as device type management that will</li> <li>reduce poor quality devices that increase costs to the utility and the consumers</li> <li>Increase in productivity</li> <li>Data Interfaces saving as billing determinant programs are not required in the billing application reducing</li> <li>overhead costs of CIS solution</li> <li>Reporting saving</li> <li>NRS057 –Code of practice for electricity metering – compliance</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Can requisition resources as required, scaling as demand grows, rather than investing in hardware with redundant resources.</li> <li>Still cost effective in comparison to IaaS, as you are still essentially leasing the software platform not a resource.</li> <li>Unlike SaaS you can bring your own software to run on the platform therefore you have full control of software.</li> <li>Full control over the users accessing the software and the processing of data (to a certain extent, due to little knowledge of underlying VM and insider threat).</li> <li>Improved support for integration with other systems due to the above.</li> <li>Minimal management of the VM, as this is still handled by the provider.</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>Would incur capital and operating expenditure</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>Need to have additional contracts for software solution</li> <li>No Control over the VM or processing of data, this is a big security risk as you don't know what's happening with your data.</li> <li>Possibly no control over platform depending on Cloud provider.</li> <li>Platform is most likely a shared platform.</li> <li>Management task can become time consuming and tedious as you are</li> </ul>

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

	responsible for updates and upgrades of application. • Not as cost effective as SaaS and not as much control over VM as IaaS.
Fit to need:	80%
Estimated duration of implementation	TBD

### c) Option 3: Do Nothing – Data remain stored in the head-end solutions and CC&B

Description	The do nothing option implies that you leave the system as it currently is.
Critical knowledge /skills /enabling factors required to provide a successful delivery	None
Option Risks	<ul style="list-style-type: none"> <li>Eskom would not be able to utilise the benefits of access to a single central portal to meter reading data.</li> <li>Various systems would still need to interface with each other for the acquisition of meter management data, resulting in the need for customized development on each of these systems.</li> <li>Productive man hours will be lost due to the searching for unavailable metering data.</li> <li>Project development costs of projects reliant on metering data will escalate.</li> <li>The benefits of better quality of meter management data cannot be leveraged.</li> </ul>
Advantages	Saving of MDMS Project costs
Disadvantages	<ul style="list-style-type: none"> <li>Cost of systems requiring access to meter data. I.e. cost of interfacing with meter reading data.</li> <li>Inability to curb revenue loss due to unavailability of accurate meter usage data in a single repository.</li> <li>Cost of custom development for data calculations.</li> <li>Unavailability of a single meter reading data set.</li> <li>Inability to effectively calculate trends and forecasts, as well as statistical information.</li> <li>Loss of productivity due to unavailability of clear meter reading data access guidelines.</li> </ul>
Fit to need:	0%
Estimated duration of implementation:	Not applicable


### Recommended Option:

Option number	<b>Option 1: Implementation of MDMS Solution</b>
---------------	--

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

	using Cloud: <b>Software as a Service</b>
Can it be done under the current SLA:	TBD
If YES, list the vendor and the contract reference #.	TBD
Is software or licenses required? Provide details	YES
Estimated Cost:	TBD

## 21. DOCUMENTS TO BE UPDATED

### 21.1 Define the document actions pertaining to this BRS:

- Confirm that the following documentation is in place, *if applicable*.
- Define any documents such as business processes, training documents, testing documents etc. that will need to be updated as a result of this requirement.
- Define any documentation that will need to be created as a result of this requirement.

Type of Documentation	In Place Y/N/NA	To Be Updated Y/N	To Be Created Y/N
Business Continuity Plan	N	N	Y
Business procedures	N	N	Y
Disaster Recovery Plan	N	N	Y
Process Control Manual(s)	Y	Y	N
Policy document	Y	Y	N
Strategy document	Y	Y	N
Sponsor/requester sign-off	N	N	Y
Training Documentation	N	N	Y

## 22. REFERENCES


The following documents have been referenced or used to compile this Business Requirements Specification

Number	Name	Location
32-85	Eskom Information Security Policy	<a href="https://hyperwave.eskom.co.za/32-85">https://hyperwave.eskom.co.za/32-85</a>
240-55410927	Cyber Security Standard for Operational Technology	<a href="https://hyperwave.eskom.co.za/240-55410927">https://hyperwave.eskom.co.za/240-55410927</a>
	ECT Act (or Electronic	

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

Number	Name	Location
	Communications and Transactions Act 25 of 2002)	
240-61478952	EMDAS User Requirement Specification	
240-56359083	Metering and Measurement Systems for Power Stations in Generation Standard	
240-62581162	Generation Energy Management and Data Acquisition System (EMDAS) Standard	
ENE_TX_MDMS_TM_0506_01	Transmission: Training manual for the Metering Data Management System (MDMS)	Enerweb Document
Eskom_MDMS_URS_v4_307014	Eskom Meter Data Management System User Requirement Specification	Document for previous MDMS project in 2012
MDMS Business Case ver 24.doc	Meter Data Management System (MDMS) Business Case	Document for previous MDMS project in 2012

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 23. DOCUMENT ACKNOWLEDGEMENT

By signing this document, the people listed record their agreement on the contents of this document.

Disclaimer: Formal governance processes will need to be followed prior to obtaining approval for the implementation of the business requirements specification and the initiation of a project plan.


Name	Role	Signature	Date

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	<b>Group IT Business Requirement Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 24. DOCUMENT APPROVAL

By signing this document, the people listed record their agreement on the contents of this document.

*Disclaimer: Formal governance processes will need to be followed prior to obtaining approval for the implementation of the business requirements specification and the initiation of a project plan.*

Name	Role	Signature	Date

MDMS Business Requirements Specification  
Version 5.41

## 25. APPENDIX


### 25.1 Generation Division: Alarm Reports

Details of alarms/notifications

#### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT Business Requirement Specification (BRS) Meter Data Management System GCS12</b>	<b>Template Identifier</b>	<b>240-43921804</b>	<b>Rev</b>	<b>5</b>
		<b>Document Identifier</b>	<b>240-83570075</b>	<b>Rev</b>	<b>3</b>
		<b>Authorisation Date</b>	<b>21 April 2017</b>		
		<b>Review Date</b>	<b>October 2019</b>		

id	name	description	type	timestamp	acknowledged	acknowledgeDate	Ack_name
2700	FTP	Do FTP:ERROR : Could not find file c:\FTP\	5	2017/09/15 08:54:32 AM	False		
2701	FTP	Do FTP:ERROR : The remote name could not be resolved: spnppl1.eskom.co.za	5	2017/09/16 06:05:14 PM	False		
2702	Time Not Synchronised	Time Sync Error(s) = 66	3	2017/09/16 06:38:20 PM	False		

Empty email in the case where no alarms/notifications have been raised


id	name	description	type	timestamp	acknowledged	acknowledgeDate	Ack_name
----	------	-------------	------	-----------	--------------	-----------------	----------

Figure 16: Generation Division Alarm reports

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	<b>Group IT</b> <b>Business Requirement</b> <b>Specification (BRS)</b> Meter Data Management System <b>GCS12</b>	Template Identifier	240-43921804	Rev	5
		Document Identifier	240-83570075	Rev	3
		Authorisation Date	21 April 2017		
		Review Date	October 2019		

## 25.2 Generation Division: Energy Metering Concept

A conceptual arrangement for energy metering required for operational, reporting and accounting purposes within Generation is depicted in the Figure below.

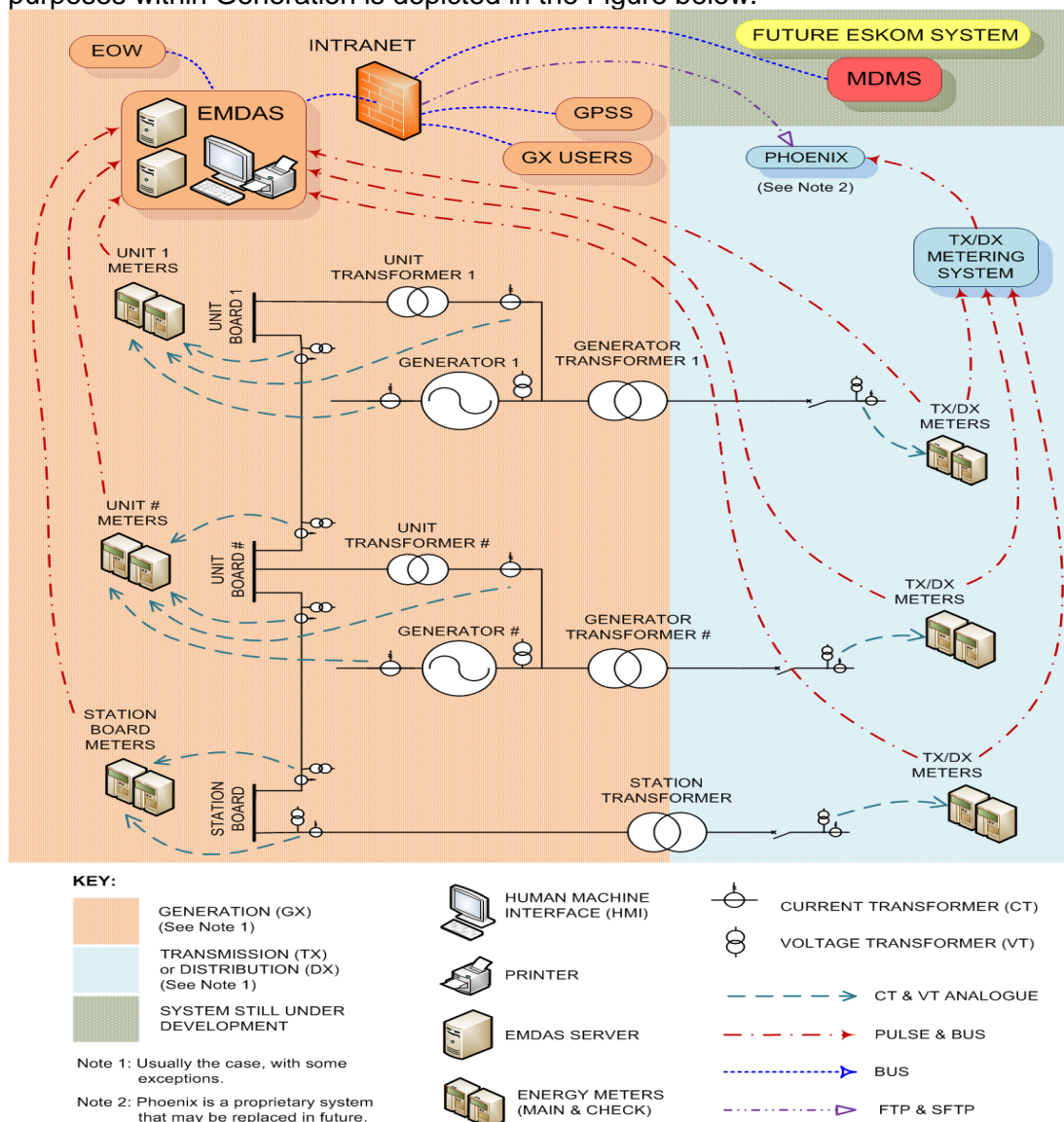


Figure 17: Generation Division Energy Metering Concept

### Controlled Disclosure

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.