

C3.1: EMPLOYER'S WORKS INFORMATION

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THE DESIGN, DEVELOPMENT, PROCUREMENT, INSTALLATION AND COMMISSIONING OF A TRANSMISSION INTERVAL
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1 Description of the works

1.1 Executive overview

Transmission System operator has a number of systems currently deployed for the retrieval and management of tariff metering data, which forms the basis for revenue collection, and statistical metering data to aid business operations such as quantification of losses, load forecasting, generation sent outs etc. The Data Acquisition System (DAS) and Meter Data Management System (MDMS) as currently utilised by the System Operator are broadly classified as follows:

- Automated Meter Reading (AMR) data acquisition system for the retrieval of tariff metering data from large power users including industrial, commercial, utilities, IPP and statistical metering data at various nodes within the Transmission network.
- Tx MDMS which is a central data repository system that provides long term data storage and management of vast quantities of metering data. The data consists primarily of tariff and statistical metering data imported from the AMR system. The MDMS stores all metering data and processes it as required by the various Enterprise applications.

Eskom Transmission has been locked in with the current vendors for the Interval DAS and MDMS for several years. The current DAS has been deployed in Eskom for over 20 years and the custom developed Tx MDMS deployed in Tx in 2005.

- National Treasury have indicated that all contracts more than 10 years need to be reviewed and open enquiries issued to the market to source system(s) that have the lowest cost of ownership with the best business fit-for purpose.
- The legal separation of the NTCSA into a subsidiary of Eskom Holdings has placed a greater focus on the revenue collection, billing and settlements and the management of losses between the NTCSA and its various stakeholders / customers thereby necessitating a more stable and comprehensive Interval meter DAS and MDMS system.

The current Tx MDMS system is running on an older and unstable management platform with functionality that is unable to meet the growing requirements in a diversified energy market.

1.2 *Employer's objectives and purpose of the works*

The definition of the *Employers* requirements for a Transmission specific Interval DAS and MDMS for remote retrieval of metering data, validation of metering data, management and processing of metering data and dissemination of metering data from the following categories of meters:

- Generation metering
- International customer metering
- Independent Power Producer (IPP) metering
- Large Power User (LPU) customer metering
- Statistical Metering

The solution shall cater for a main production system(s) within the NTCSA as well as dedicated disaster recovery infrastructure. The solution shall interface with a multitude of communication interfaces, internally using Eskom Telecoms IP and Bandwidth Management Equipment (BME) infrastructure as well as external third-party GSM communications and satellite vendors. The solution shall seamlessly integrate with existing Enterprise systems. The solution shall cater for the migration of the *Employers* data from the existing systems and allow for the transparent operation of the systems during commissioning and system integration.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
BME	Bandwidth Management Equipment
CPU	Central Processing Unit
DAS	Data Acquisition System
DMZ	Demilitarized Zone
EMDAS	Energy and Metering Data Acquisition System
EMS	Energy Management System
ETS	Energy Trading System
GSM	Global Sim for Mobile Communications
IP	Internet Protocol
LPU	Large Power User
MFA	Multi-Factor Authentication
MDMS	Meter Data Management System
OS	Operating System
OT	Operational Technology
SAT	Site Acceptance Testing
SPU	Small Power User

Terminology

Terminology	Description
<i>Contractor</i>	In the following two documents, the <i>Contractor</i> is referred to as a <i>Supplier</i> : 1. 240-170000884 <i>Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements</i> .
"shall"	Requirements that are defined by the word "shall" must be considered as definite requirements or constraints on the proposal.
system or solution	May be read as Transmission Power System Control and Monitoring (TPSCM) system
Working Day	From 08h00 to 16h00 on any day during the Working Week
Working Week	Monday to Friday, excluding official public holidays of the Republic of South Africa.

2 Management and start up.

2.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	As necessary	MS Teams or as agreed	<i>Employer</i> , stakeholders and <i>Contractor</i>
Monthly contract progress and feedback	Monthly on date and time as agreed	MS Teams or as agreed	<i>Employer</i> , stakeholders and <i>Contractor</i>

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the works. Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

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All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

2.2 Documentation control

All correspondence is to be addressed to the *Project Manager* with a sequential numbering system, as defined below, in the form of ECC templates.

Documentation shall be identified using the code: [Contract Number] [Sender] [Receiver] (where E = *Employer*, C = *Contractor*) yyyy-mm-dd-[index]. Contractual communications will be in the form of properly compiled letters or forms attached to e mails and not as a message in the email itself.

Documentation shall be exchanged freely between the relevant parties except that all correspondence relating to or affecting contract pricing and project schedules shall be routed through the *Project Manager*.

2.3 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure *SHE Acknowledgement Form* and *C1: High Risk Evaluation*.

The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the provision of goods and execution of services. The *Contractor* shall:

- Comply with the *Employer's* lifesaving rules.
- Acknowledge the *Employer's* rules and requirements including the requirements of Annexure B.
- Provide and maintain a current Health and Safety file.
- After the site readiness health and safety file have been approved, the *Contractor* shall undergo the *Employer's* site induction before site access is granted.
- Ensure that there is always valid letter of good standing in the file.
- Ensure that Police clearances are obtained for all their employees on the project.
- Ensure that all the COVID-19 requirements are complied with as per the Health and Safety requirement specification.

Below is the list of standards applicable to this scope of work. The *Employer* provides only for the *Employer's* standards, it is the responsibility of the *Contractor* to source the national and international standards.

Drawing / Document number	Revision	Title
240-62196227		Lifesaving Rules
32-727		Safety, Health, Environmental and Quality policy (SHEQ) policy
Act 102 of 1980		National Key Points Act
ISO 9001		Quality Management Systems – Requirements

Baseline Risk Assessment (BRA) for the project is contained in document identifier PDPMAN-FM-99.

2.4 Environmental constraints and management

The *Contractor* shall comply with the environmental criteria and constraints stated in *TPDMAN-ST-37 Environmental Requirement for Contractors and/or Suppliers*.

2.5 Quality assurance requirements

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The *Contractor* shall control his / her activities and processes in accordance with *QM 58 Supplier Quality Management: Specification*. ISO9001:2015 compliance is a condition and shall be applied.

2.6 Programming constraints

The programming system will be Microsoft Project and Primavera. A comprehensive and fully detailed programme shall indicate all milestones and critical dates. This programme must first be approved by the Project Manager and must be updated monthly or as requested by the Project Manager.

The following dates shall be clearly reflected on the programme:

- Starting and completion dates for all activities as well as relevant key dates for hold or witness points.
- All relevant significant activities shall be shown in order to monitor the progress.

NB: Updated programmes must be available at all meetings reflecting progress to date

2.7 Contractor's management, supervision and key people

The *Contractor* shall submit an organogram showing all key people involved in the contract seven (7) days after contract award. All key personnel must be appointed in writing, must be current for the specific site and area of work and must be kept on file.

2.8 Invoicing and payment

Within one week of receiving a payment certificate in terms of core clause 51.1, the *Contractor* shall provide the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the payment certificate.

The *Contractor* shall address the tax invoice to

Eskom Holdings SOC Limited
P O Box 1091
Johannesburg
2000

and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project Manager*;
- The contract number and title;
- Contractor's VAT registration number;
- The Employer's VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Activity Schedule;
- Previous, present and to date values per payment certificate;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- Any other information as may be required.

An original invoice must be sent to the Accounts Payable Department and a copy to the *Project Manager*.

The *Contractor* must submit a Forecasted Rate of Invoicing (FRI) within 4 weeks of contract award.

Details on how to submit invoices and additional information:

The *Contractor* must ensure that the Eskom order number is clearly indicated on the invoice together with the line number on the order they are billing for.

All electronic invoices must be sent in PDF format only.

Each PDF file should contain one invoice; or one debit note; or one credit note only as Eskom's SAP system does not support more than one PDF being linked into workflow at a time.

The *Contractor's* E-mail may contain more than one PDF file (e.g., 2 invoices on 2 separate PDF files in one e-mail)

All invoices are to be sent in PDF format to the following email addresses:

1. For local invoices: invoiceseskomlocal@eskom.co.za
2. For foreign invoices: Invoicesgrpcapital@eskom.co.za

The *Contractor* can request a parked invoice from the Finance Shared Services (FSS) contact centre which can then be followed up and corrected. The *Contractor* is welcome to forward the details of invoices to the FSS contact centre.

All queries and follow ups on local invoice payments should be made by contacting the FSS contact centre
Tel: 011 800 5060
e-mail: fss@eskom.co.za

FOREIGN INVOICES

The foreign invoice should be sent together with relevant shipping documents and the *Contractor* shall ensure that the commercial invoice has not been used previously and therefore funds are not exhausted. The shipping documentation is as follows:

1. Tax invoice
2. Commercial invoice
3. SARS Release notification
4. SAD 500
5. Custom worksheet
6. Bill of lading.

If the *Contractor* does not furnish the supporting documents, the payment cannot be made, and the *Contractor* will be charged the cost of moving the Forward Exchange Cover (FEC) that Eskom has incurred in managing the risk of currency movement.

Tax Requirement

A PDF file that was created directly from a system meets the definition of original document and is allowed (including saving documents from excel to PDF, word to PDF etc.)

An Invoice that was printed and then scanned to PDF by the Vendor is not acceptable as this is not an original tax invoice by SARS definition but a copy.

The following wording needs to appear on the invoice: "Your invoice is encrypted in order to comply with SARS requirements that invoices, and statements sent electronically are tamperproof."

If there is Contract Price Adjustment (CPA) on the invoice it is recommended that the *Contractor* issue a separate invoice for CPA so that if there are any issues on the CPA the rest of the invoice can be paid while resolving the CPA issues.

Introduction of electronic invoicing does not guarantee payment but will ensure visibility of all invoices and ensure that no invoices get lost. If the goods receipt is not done the invoice will be parked and the system will automatically send an e-mail to the end user to do the goods receipt. This is also tracked by Eskom through the parked invoice report.

The *Contractor* can request a parked invoice report from the Finance Shared Services (FSS) contact center which can then be followed up and corrected. The *Contractor* is welcome to forward the details of invoices corrected to the FSS contact center.

Email addresses for invoice submission:

Transmission Projects Delivery (TPD): invoiceseskomlocal@eskom.co.za

PROCEDURE FOR INVOICE PAYMENT:

- Once work / activity is complete, both parties are to agree
- A payment certificate will be created to certify the work done – both parties to sign
- *Employer's* end user to use payment certificate to do Service Entry and Goods Receipt
- Payment certificate to have amount due, service entry number, goods receipt number and order number
- Copy of the payment certificate is to be issued to the *Contractor*
- *Contractor* to create invoice in terms of the payment certificate
- Invoice to have order number, goods receipt number and service entry number displayed
- *Contractor* to attach copy of signed payment certificate to invoice and send it electronically to invoiceseskomlocal@eskom.co.za
- Procedure for retention payments is the same
- For first retention release a completion certificate is required

2.9 Insurance provided by the *Employer*

Refer to Clause Z13 under Data by *Employer*

2.10 Contract change management

In the event of any changes to the contract in the form of changes to the scope, cost and time, the *Employer's* governance process will be followed. The *Contractor* is not authorised to implement any changes to the contract unless authorised in writing by the *Project Manager*.

2.11 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

The *Contractor* shall keep records of all costs until the final account has been settled.

2.12 Training workshops and technology transfer

The *Contractor* shall comply with the requirements as specified in section 4.6 *Training* in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*.

3 Engineering and the *Contractor's* design

3.1 *Employer's* design

The *Contractor* shall comply with the requirements as specified in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*.

The *Contractor* shall provide the design of the cyber security solution and the specification for the required hardware to meet the Interval Meter Data Acquisition System and Meter Data Management System cyber security requirements.

3.2 Parts of the works which the *Contractor* is to design

The *Contractor* shall design the works to meet the requirements as specified in section 3.1 above.

3.3 Procedure for submission and acceptance of *Contractor's* design

The *Contractor* shall submit the designs to the *Project Manager*. The *Contractor* shall be available to present the designs to the next sitting of the *Employer's* design review committees for acceptance and authorisation. The *Project Manager* will provide the required templates and meeting details.

3.4 Other requirements of the *Contractor's* design

The *Contractor* shall design the *works* to meet the requirements as specified in section 3.1 above.

3.5 Use of *Contractor's* design

No additional requirements

3.6 Design of Equipment

All temporary *works* and the design thereof, if required, shall be the *Contractor's* responsibility, at no additional cost to the *Employer*. The *Project Manager* shall be informed of all temporary *works* and the design thereof, not necessarily for acceptance but as an assurance that the equipment will be able to allow the *Contractor* to provide the *works* efficiently and without delay.

3.7 Equipment required to be included in the *works*

The *Contractor* shall comply with the equipment requirements as specified in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*

3.8 As-built drawings, operating manuals and maintenance schedules

The *Contractor* shall deliver all documentation requested in in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*

4 Procurement

4.1 Plant and Materials

4.1.1 Quality

A service portal shall be available 24/7 for all incidents. The service portal shall have embedded procedures to ensure that the *Contractor* can be reached in a timely manner to resolve the incident. The embedded procedures shall include an escalation process should a higher level of technical support be required from the *Contractor*.

All incidents shall be reported either through the *Project Manager* or the service portal. All incidents shall be logged and tracked in the service portal.

All solutions proposed shall be communicated to the *Project Manager* and the *Supervisor* for implementation.

4.1.2 Plant & Materials provided “free issue” by the *Employer*

Not Applicable

4.1.3 *Contractor's* procurement of Plant and Materials

The *Employer* requires warranties from suppliers to be in favour of the *Employer* and not just to the *Contractor* during the life of the contract. The *Employer* requires the supplier's details from which the warranties are sourced.

4.1.4 Spares and consumables

Not Applicable

4.2 Tests and inspections before delivery

A FAT will be performed on the Systems prior to delivery and installation.

The *Contractor* shall provide the *Employer* with a list of licenses and the associated license keys or serial numbers for all software.

The *Contractor* shall provide the *Employer* with a list of the serial numbers for all equipment.

4.3 Marking Plant and Materials outside the Working Areas

Not applicable.

4.4 *Contractor's* Equipment (including temporary works).

The *Contractor* shall provide all temporary *works* required for the completion of the *works*.

4.5 Cataloguing requirements by the *Contractor*

The *Contractor* shall provide the *Employer* with the required information to enable the *Employer* to catalogue all items.

5 Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 *Employer's Site entry and security control, permits, and Site regulations*

The *Employer's* National Control Centre in Simmerpan and Disaster Recovery Centre are National Key points and as such has strict entrance requirements. The *Contractor* will have to adhere to the security arrangements for the National Control and Disaster Recovery site which include security vetting. Sufficient time should be allowed in the programme. Security Clearance forms and declaration forms need to be filled in by all personnel that will be working on site and submitted to the *Project Manager* within two weeks from the Contract Date. Safety file approval and induction are mandatory.

The *Contractor* shall comply to the National Key Points Act 102 of 1980 and new regulations introduced as part of Critical Infrastructure Protection Act 8 of 2019 as communicated by the *Project Manager*.

5.1.2 *Restrictions to access on Site, roads, walkways and barricades*

The *Contractor* shall ensure that all their employees that will be involved have gone through the Police clearances before the safety file audit.

The *Contractor* shall receive Site Access Permit to the working areas or premises.

The *Contractor* shall submit the construction programme showing the timelines prior to commencement of the works for approval by the *Employer*.

The *Contractor* shall submit the Safety file for the approval to the *Employer*.

The *Employer* will arrange the Induction for the *Contractor* prior commencement of works.

The *Contractor* shall ensure that all the required Personal Protective Equipment (PPE) is available prior any activities to be performed.

5.1.3 *People restrictions on Site; hours of work, conduct and records*

The *Employer* will control the physical access to its facilities and will reserve the right to grant access to the works.

The *Employer's* Working Day is from 8h00 to 16h00 on any day during the Working Week. The Working Week is Monday to Friday, excluding public holidays of the Republic of South Africa. Work outside these times will only be allowed if arranged with the *Employer*. The *Contractor* to have records of weekly manpower numbers and manhours worked without any incidents.

5.1.4 *Health and safety facilities on Site*

The cross reference from Clause 27.4 applies. Refer to in paragraph 2.3 above.

5.1.5 *Environmental controls, fauna & flora, dealing with objects of historical interest*

Taking note that the actual work will be happening inside the building. However, the *Contractor* should take note that Disaster Recovery s site has roaming animals (e.g., Zebras), so all employees are advised not to interact with such animals and should there be any incident (either animal charging employees) such shall be reported to the Safety Officer and the Power Station. In relation to vegetation, the site is disturbed and has no vegetation of conservation value.

5.1.6 *Title to materials from demolition and excavation*

Not applicable

5.1.7 *Cooperating with and obtaining acceptance of Others*

Not applicable

5.1.8 Publicity and progress photographs

No photographs shall be allowed. All other sharing of information shall require permission from the *Project Manager*.

5.1.9 Contractor's Equipment

The *Contractor* keeps daily records of his equipment used on Site and the Working Areas (distinguishing between owned and hired equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

5.1.10 Equipment provided by the Employer

The *Employer* will not provide any equipment required by the *Contractor* to perform the *works*.

5.1.11 Site services and facilities

The *Employer* will provide power, water, ablutions and office space at the National Control Centre), Simmerpan. The *Employer* will provide power, water and ablutions facilities at the Disaster Recovery Site

The *Contractor* shall have attended working at heights training. Refer to section 5.1.20.

The *Contractor* shall provide everything else necessary for providing the *works*.

5.1.12 Facilities provided by the Contractor

The *Contractor* shall supply all plant and materials required for providing the *works*. There are no telephone facilities available on site.

The *Employer* will provide security for the site but will not provide any additional security specific to the *Contractor* providing the *works*.

Upon completion of *works*, and within one month of the date of site handover, the *Contractor* shall completely remove from site all his equipment, storage facility or any other asset belonging to him and leave the site and working areas in a tidy condition to the satisfaction of the *Project Manager*.

Demolition or erection of all temporary structures surfaces etc. shall be first approved by the *Project Manager* prior to the work being carried out.

The *Contractor* shall make arrangements for accommodation and transportation of his/her employees. The *Contractor* shall make his own arrangements to house his employees and transports them to site in a closed vehicle specifically designed for passenger transport (bus or similar) which is in a roadworthy condition. All safety precautions shall be taken into consideration.

5.1.13 Existing premises, inspection of adjoining properties and checking work of Others

Not applicable.

5.1.14 Survey control and setting out of the works

Not applicable.

5.1.15 Excavations and associated water control

Not applicable.

5.1.16 Underground services, other existing services, cable and pipe trenches and covers

5.1.17 Control of noise, dust, water and waste

The *Contractor* shall comply with the Occupational Health and Safety Act 85 of 1993 and National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA).

5.1.18 Sequences of construction or installation

Not applicable

5.1.19 Giving notice of work to be covered up

Not applicable

5.1.20 Hook ups to existing works

All personnel working at heights shall be certified medically fit to work at heights.
The *Contractor* shall have a valid certificate for working at heights and must have been appointed in writing.
The *Contractor* shall ensure that all the FAS (fall arrest system) is inspected prior to use.
The *Contractor* shall ensure the appointed work at heights rescuers have the appropriate rescue kits.

The *Contractor* shall ensure that all the mechanisms and equipment that will be used for working at heights are inspected including all the necessary supporting documents e.g. the use of skyjacks, stepladder, scaffoldings etc.

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works
The *Project Manager* cannot certify Completion until all the work has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

5.2.2 Use of the *works* before Completion has been certified

Not applicable

5.2.3 Materials facilities and samples for tests and inspections

The *Contractor* shall provide facilities and configuration data samples for testing An example of facilities to be provided by the *Contractor* is the virtualised environment for FAT.

The *Employer* will provide the *Contractor* with the facilities, system data samples as. An example of samples is the Eskom meter data samples required for the FAT and SAT

5.2.4 Commissioning

The *Contractor* shall perform commissioning The *Contractor* shall develop a commissioning acceptance procedure for acceptance by the *Employer*.

5.2.5 Start-up procedures required to put the *works* into operation

The *Contractor* shall submit to the *Employer* for approval the start-up procedures required to put the *works* into operation.

5.2.6 Take over procedures

The *Employer* will take over the *works* after successful completion of the *Commercial Operation* and verification of the database migration.

5.2.7 Access given by the *Employer* for correction of Defects

The *Project Manager* arranges for the *Employer* to allow the *Contractor* access to rectify identified defects and to use part of the *works* which has been taken over, if required.

The process and procedures for access to correct the defect will be the same as that for performing the *works*. The safety file needs to be approved prior to access being granted.

5.2.8 Performance tests after Completion

Not applicable.

5.2.9 Training and technology transfer

For training and technology transfer requirements, refer to section 2.12

5.2.10 Operational maintenance after Completion

The *Contractor* shall assist the *Employer* in the maintenance of the *works* until the *Defects Date*.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey and Site clearance

Not applicable.

6.2 Building works

Not applicable.

6.3 Civil engineering and structural works

Not applicable.

6.4 Electrical & mechanical engineering works

Not applicable.

6.5 Process control and IT works

The *Contractor* shall comply to all requirements as specified in in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*

6.6 Other [as required]

None.

7 List of drawings

7.1 Drawings issued by the *Employer*

No drawings will be issued by the *Employer*. All information is provided in in 240-170000884 *Interval Meter Data Acquisition System and Meter Data Management System – Engineering and Functional Requirements*

C3.2 *CONTRACTOR'S* WORKS INFORMATION

The section could be compiled as a separate file.
