Eskom	Specification	Distribution Gauteng Cluster

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1. Introduction

The specification is the provision of specialist engineering design for Distribution Gauteng Cluster. For each of the services required, a short description of the service has been included below, but more detail is provided in **Appendix A: Technical service requirements**. Note that the task order request form and signed task order will confirm the project, service and duration required as the scope provided is an estimate only. Services are to be provided on an as and when required basis.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The objective of this document is to provide the minimum requirement for the professional services contract in the Gauteng Cluster.

2.1.2 Applicability

This document shall apply throughout Gauteng Cluster.

2.1.3 Effective date

The effective date of this document is as per the date of its final sign-off by the Asset Creation Manager.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems

[2] 240-43327398 Engineering Policy

[3] 240-64014170 Wires Business Project Life Cycle Governance Guideline

2.2.2 Informative

[4] 32-1034 Eskom Procurement and Supply Chain Management Procedure

2.3 Definitions

2.3.1 Consultant: means the engineering consulting company and its employees that have been awarded a contract to perform professional services in terms of this specification.

2.3.2 Employer: means Eskom SOC Limited.

2.3.3 Employer's Agent: means an employee of Eskom SOC Limited who has been assigned the responsibility to manage the work assigned to the engineering consulting company for the duration of the work assigned.

2.4 Abbreviations

The following abbreviations are used in this scope:

Abbreviation	Explanation
Dx	Distribution
ECSA	Engineering Council of South Africa
EPCM	Engineering, Procurement and Construction Management
GC	Gauteng Cluster
PLCM	Project Life Cycle Model
PPE	Personal Protective Equipment
SACPCMP	South African Council for Project and Construction Management Professionals
SD&L	Supplier Development and Localization
TOC	Task Order Committee

2.5 Roles and Responsibilities

2.5.1 Network Engineering & Design

The Network Engineering & Design section shall appoint the Consultant to provide professional services as and when required for a specific project, job, or task on the job, through the task order allocation process. Thus, the Network Engineering & Design section shall be responsible for the management of the timelines and the deliverables of the Consultant.

2.5.2 Properties Management

The Properties Management section shall also appoint the Consultant to provide professional services as and when required for a specific project, job, or task on the job, through the task order allocation process. Thus, the Properties Management section shall be responsible for the management of the timelines and the deliverables of the Consultant.

2.5.3 Project Execution

The Consultant shall also be accountable to Project Execution section in terms of the PLCM as the design engineers for the assigned project, job, or task. Thus, the Project Execution section shall remain accountable for the management of the cost, the timelines, and the deliverables of the Consultant for the delivery of the project on time and at cost.

2.5.4 Task Order Committee (TOC)

The TOC shall be consulted and informed of all the task orders allocated and the assurance of fair distribution of work amongst the consultant that would have been awarded the contract.

2.6 Process for Monitoring

The TOC shall monitor the allocation of task orders to consultants and the Network Engineering & Design shall monitor the quality of the deliverables for each task order.

3. Description of the services

The services are as follows:

3.1 Specialist Engineering Design

- Perform engineering design services include the following:
  - Electrification, medium and low voltages overhead and underground network design
  - Control Plant design
  - Sub-transmission lines design (including structural and civil)
  - Sub-transmission substations and switching stations design (including architectural, structural, fire rational and civil)
  - HV cables networks design
  - Real estate and / or building works (including architectural, civil, structural, geotechnical, mechanical, and electrical)
  - Draughting services
  - Civil and structural designs
  - Geotechnical investigations (including dolomitic studies)
  - Municipal approvals
  - Traffic management plan (including route planning and traffic management)
  - Security design for real estate facilities, substations and switching stations, sub-transmission lines and cables, and medium and low voltages overhead and underground networks.
- Compile preliminary design package and detailed design package for the assigned task order.
- Provide technical support to Project Services during the contracting phase of the assigned task order.
- Provide technical support to Project Management during construction of the assigned task order.
- Undertake factory acceptance test, where applicable, for materials procured for the assigned task order.
- Undertake site visits and inspections for the assigned task order and ensure that the constructed asset is in accordance with the approved design, scope of work, standards, and specifications.
- Compile scope change and/or modification for any changes that are required after TEF approval.
- Sign-off on hand-over certificates for the assigned task order.

3.2 Engineering, Procurement, and Construction (EPC) contracts

Where services for Engineering, Procurement, and Construction (EPC) are required by Eskom, an independent process, in line with Eskom's procurement procedure will be applicable.

3.3 Constraints on how the *Consultant* Provides the Services

3.3.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Employer's Agent* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Overall contract progress and feedback to Steering Committee	Quarterly	Eskom Academy of Learning or other venue as advised	*Employer's Agent* and the *Consultant* representatives
Overall contract progress and feedback	Bi-Monthly	Eskom Academy of Learning or other venue as advised	Eskom Network Engineering & Design representatives and the *Consultant* representatives

Attendees shall have the necessary delegated authority to make project related decisions in respect of matters discussed at such meetings.

The Meetings of a specialist nature may be convened as specified elsewhere in this Scope or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *services*. Records of these meetings shall be submitted to the *Employer's Agent* by the person convening the meeting within five days of the meeting.

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.

3.3.2 *Consultant's* key persons

An organogram from the *Consultant* showing key persons and their lines of authority / communication shall be submitted to the *Employer* within 4 (four) weeks of the Contract Date. The *Consultant* shall be required to notify the *Employer* of the contact details, leave and alternative where applicable in respect of each key person. Any changes in this regard shall be notified in writing in advance or within 1 (one) week of occurring and measures taken to avoid negative impacts on the *Consultant's* ability to deliver the services.

3.3.3 Documentation control and retention

3.3.3.1 Identification and communication

Standard forms to be used by the *Consultant* in the administration of the contract, for example early warning and compensation event notifications to be addressed to the *Employer's* Agent.

All formal contractual communications shall be on a letterhead and bear as a minimum the date, subject, reference number, identities of sender and receiver and signature of sender and shall be delivered as attachments in the case of emails and not as a message in the email itself. All formal communications to the *Employer* shall be addressed to the *Employer's* Agent.

Correspondence on a day-to-day basis may be directed to other parties within the *Employer's* organisation but care must be taken not to violate contract conditions and other provisions in terms of the contract.

3.3.3.2 Retention of documents

Eskom retains copies of drawings, specifications, reports and other documents which records the services in the form stated in the Task Order.

3.3.3.3 Records and forecasting of *expenses*

Estimated forecasts of itemised expenses shall be submitted by the *Consultant* at each assessment period for the acceptance of the *Employer* (Requesting Manager) before expenses are incurred. Clear records of expenses shall be maintained by the *Consultant* and submitted on request to the *Employer* for verification.

Only invoices from service providers (e.g. hotel or car hire company) showing actual expenses incurred in the case of T&S expenses shall be accepted for processing by the *Employer.*

3.3.3.4 Records and forecasting of the Time Charge

The *Consultant* shall submit forecasts of time charges for each assessment period and maintain records thereof.

Clear records of hours worked or time sheets in respect of all time charges shall be kept by the *Consultant* and shall indicate the resource utilised, location, duration and times, associated expenses incurred, and a summary of the services rendered which shall be cross-referenced to deliverables rendered. The records of hours shall indicate the Requesting Manager to whom services were delivered. The Requesting Manager shall review all time sheets during Assessment and the *Consultant* shall obtain signed timesheets and assessment documentation from the Requesting

Manager and submit the assessment package to the *Employer's* Contract Management function for processing.

The *Consultant* shall maintain records of all documentation and make available to the *Employer* any or all such documentation on request.

3.3.3.5 Invoicing and payment

The following details shall be shown on or attached to each Invoice to show how the amount due has been assessed:

The *Consultant* shall address the tax invoice to **Eskom Holdings SOC Limited** and include on it the following information:

Name and address of the *Consultant* and the *Employer.*

The contract number and title.

Consultant's VAT registration number.

The *Employer*'s VAT registration number 4740101508.

Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.

Date of the invoice

Task Order number

Description of the services and quantities

Purchase Order number

3.3.3.6 Process to be followed when submitting of invoice:

- The *Consultant* will invoice per milestone completed in arrears; however, the *Consultant* will send pro-forma invoices to the relevant GC representative 3 working days before submitting final Tax invoices to Accounts Payable Services (APS) to allow Goods Receipt (GR's) to be done timeously and avoid invoices being parked in the system. The invoices will be submitted after the following milestones:
  - DRA Approval by the Investment Committee.
  - Design Handover (DHO) received by Project Execution
  - Technical support, as and when, site visits and/or inspections have been conducted during construction in accordance with budgeted number of site visits and/or inspections.
- The process can be amended as required from time to time per mutual agreement between both parties.

3.3.3.7 Inclusions in the programme

As per the task order requirement

3.4 Quality management

3.4.1 System requirements

The *Consultant* shall have a fully documented, implemented and maintained Quality Management System which complies with the requirements of the ISO 9001 or their quality management system shall carry valid certification from an acceptable QMS Certification body. The *Consultant* has to provide the quality plan at tender stage.

Performance evaluation templates will be discussed during contract award by both Eskom and the *Consultant*. Service performance will be measured twice a year by the *Consultant* and provide feedback to Eskom.

Non-conformance report will be issued if the *Consultant* does not meet Eskom requirements. If there are any defects as per technical specification, the non-conformance report will be issued and monitored until closure. Control of non-conforming products or services procedure Control of non-conforming products or services procedure - 240-44175038 will be applied

3.4.2 Information in the quality plan

Clause 40.2 of the NEC contract requires that the *Consultant* provide a quality policy statement and quality plan which complies with requirements stated in the Scope. The quality policy statement and quality plan to be provided at tender stage.

3.5 Environmental Management

The environmental compliance monitoring by Eskom will take place with a two-stage approach and focus mainly on Environmental Management, Procedures and Processes. The two-stage evaluation will be conducted by Eskom as follows:

Stage 1	Environmental Management System Documentation	Objective	Responsibility
1	Submission of Environmental Management System Manual and other necessary documentation	To have access to	the *Consultant*
2	Desktop Evaluation	Conduct desktop evaluation auditing submitted documentation with ISO 14001:2015 Manual	Eskom
3	Submit evaluation audit report with findings and recommendations	Compile audit report to confirm compliance and to highlight gaps and	Eskom

4	Submit non-conformances and evidence of corrective action	Submit corrective action for each non-conformance with accompanying documented evidence of implementation	the *Consultant*
5	Review and acceptance of corrective action	Submit a report accepting the adequacy of corrective action.	Eskom
Stage 2	**Eskom GC Environmental Management to conduct system implementation audit with key the *Consultant* staff determine effectiveness one environmental controls as set out in the documentation.**	**Objective**	**Responsibility**
1	Develop and submit audit plan	the *Consultant* and Eskom to map out details on the scope and logistics of the site audit.	Eskom
2	Conduct site audit as scheduled in audit plan	Audit team from Eskom conduct audit with the *Consultant* representatives at the *Consultant* premises.	Eskom
3	Submit evaluation audit report with findings and recommendations	Compile audit report to confirm compliance and to highlight gaps and	Eskom
4	Submit non-conformances and evidence of corrective action	Submit corrective action for each non-conformance with accompanying documented evidence of implementation	the *Consultant*
5	Review and acceptance of corrective action	Submit a report accepting the adequacy of corrective action.	Eskom
6	Finalise Final Evaluation report and submission	Final evaluation report to be submitted to stakeholders confirming that environmental requirements have been met	Eskom

3.6 The Parties use of material provided by the *Consultant*

3.6.1 *Employer's* purpose for the material

All rights to material belong to *Employer* for purposes stated in the Scope.

3.6.2 Restrictions on the *Consultant*'s use of the material for other work

As per the Task Order

3.6.3 Transfer of rights if Option X9 applies

The *Employer* owns the *Consultants* rights over material prepared for this contract by the *Consultants*. The *Consultant* provides to the *Employer* the documents which transfer these rights to the *Employer.*

3.7 Management of work done by Task Order

No work shall be carried out without a signed Task Order issued by the *Employer*'s *Agent.* The Task Order shall specify the scope of *services*, *deliverables, starting and completion dates* and the cost allocation. The *Consultant* shall deliver *services* within the constraints stipulated on the Task Order and engage the *Employer* as soon as the *Consultant* becomes aware of any risk in this regard. Any work executed outside the parameters stipulated on the Task Order, including cost, shall be for the *Consultant's* account notwithstanding delivery and acceptance of *services* that may be made by the *Employer* or people in the *Employer's* organisation.

The *Consultant* shall include itemised estimated expenses in all proposals in response to Requests for Quotation issued by the *Employer.* All Expenses shall be paid for by the *Consultant* and reimbursed at cost agreed upon as per the quotation and the Task Order. Forecasts of estimated *Expenses* shall be submitted to the *Employer's* Requesting Manager for acceptance at the Assessment meeting. Expenses that are incurred without the *Employer's* prior acceptance in writing shall not be reimbursed by the *Employer*.

3.8 Health and Safety

As part of Eskom's Supplier Management System, it is a requirement for all service providers who wish to undertake work for Eskom to undergo an occupational safety, health and environment (SHE) evaluation process.

The *Consultant* shall respond to the corresponding non-negotiable minimum SHE requirements as stipulated in **Annexure C 4: OHS Tender Evaluation Template (Construction work)** of the NEC contract.

Subsequent to that the *Consultant* shall compile a SHE File in line with Contractor Construction Evaluation Sheet (OHSAS 18001 aligned) which will be submitted to Eskom SHE functionary for acceptance/approval. The end user/project manager/contract custodian must co-sign the approved SHE File.

All findings/observations in the SHE tender evaluation report and SHE file requirements must be addressed with the *Employer* at the negotiation meeting. When the *Consultant* is awarded a contract, an OHS Act section 37(2) agreement shall be concluded and signed between the *Consultant* and the contract custodian/end-user, together with the contractual documents.

The *Consultant* shall at all times comply with the health and safety requirements prescribed by law and the *Employer* as they apply to the *service*s. Failure to comply shall result in the *Employer* suspending the execution of services and removing the *Consultant* from site until compliance is achieved. The *Employer* may cancel a Task Order and/or terminate the contract depending on the situation and risks to people, plant and equipment, reputation and the *Employer's* business of electricity supply.

The *Consultant* shall comply with the health and safety requirements contained on the Task Order. The relevant Site / Project Manager shall require the Consultant to attend SHE Induction training provided by the *Employer.* It is essential that the Consultant is conversant with Eskom safety procedures training prior commencing any work on site.

If the *Consultant* may be required to work on Eskom premises, such as a substation, where health and safety requirements additional to those prescribed by law apply, specify these here or state.

3.8.1 Life Saving Rules

In the interest of promoting a safe and healthy working environment, the Eskom Executive Committee has approved the implementation of life saving rules, to improve safety in the organisation. These rules will also be applicable to all contracting staff.

The business is concerned about the emotional, social as well as economic effect of all these unnecessary incidents, and would like to correct behaviour pro-actively.

These rules are determined beforehand to enable the organisation to clearly communicate the established Life Saving Rules and how to deal with non-compliance to the workforce prior to the implementation of such rules.

Failure by any person or consultant engaged in doing business with Eskom to adhere to these rules, will lead to serious action being taken with serious consequences (including being refused access to site). These actions include termination of service of an individual and even blacklisting of consultants not taking the rules seriously. It is therefore strongly advised that these rules be taken seriously, communicated to all your staff, ensure that they all understand the rules, understand the

consequences of violating a rule and sign a document stating that they understand and acknowledge the implications of these rules.

Eskom Life Saving Rules are:

Rule 1: Open, Isolate, Test, Earth, Bond and/or Insulate before touch (above 1 000 V)

Rule 2: Hook up at heights

Rule 3: Buckle up

Rule 4: Be sober

Rule 5: Ensure that you have a permit to work

3.9 Procurement

3.9.1 BBBEE and preferencing scheme

3.9.2 Other constraints

- Immediate removal due to non-performance – The *Employer* has the right to instruct the *Consultant* to remove any employee due to non-performance based on agreed deliverables as defined on each Task Order. The *Employer* has to provide reasons to the *Consultant* for his instruction to remove an employee. The *Consultant* is required to arrange that, after three days, the employee has nothing further to do with the works.
- 30 days' notice – early termination of the task order

No notice is required at completion of the task order

3.9.3 Limitations on subcontracting

Refer to **Addendum C** regarding SD&L requirements

3.9.4 Working on the Employer's property

3.9.4.1 *Employer*'s entry and security control, permits, and site regulations

The *Employer's* sites are controlled and regulated by law. Persons under the influence of intoxicating substances and alcohol are strictly not permitted to enter the *Employer's* premises. All persons entering or leaving the *Employer's* premises may be subjected to physical security checks including alcohol tests.

In addition to the above there may be other restrictions applicable on sites and *Consultants* shall be required to comply at all times. Temporary Access Permits may be arranged for a limited number of the *Consultant's Key Persons* who require frequent access to the *Employer's* premises for purposes of delivering the *Services* which may include the attendance of regular meetings.

3.9.4.2 People restrictions, hours of work, conduct and records

It is very important that the *Consultant* keeps records of his people working on the *Employer's* property, including those of his Sub-consultants. The *Employer's* Agent shall have access to these records at any time. These records may be needed when assessing compensation events. The restrictions on hours worked shall be specified on the Task Order

3.10 Things provided by the *Employer*

The *Employer* shall provide special software and access to systems, training and guidance on requirements specific to the *Employer* that are not common in the industry to enable the *Consultant* to deliver the services as required by the *Employer*.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Deon-Louis Visagie	Senior Design Engineer
Vusi Cele	Senior Design Engineer
Mandla Ngidi	Design Engineering Manager
Rudi Jacobs	Design Engineering Manager

5. Revisions

Date	Rev.	Compiler	Remarks
February 2023	0	TL Mazibuko	Original document

6. Development Team

The following people were involved in the development of this document:

- Deon-Louis Visagie
- Vusi Cele

Appendix A – Technical service requirements

Technical service requirements: Note that the task order request form and signed task order will confirm the project, service description, experience, minimum qualification and duration.

1. Control Plant Design

The *Consultant's* resources shall be primarily involved in the Design phase, i.e. after project authorisation. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Compiling the project proposal, where control plant engineer is the lead engineer for the project, prior to Stakeholders Input Meeting (SHIM).
- Presenting the Control Plant preliminary design prior to TEF (Technical Evaluation Forum) to the regional CPDF (Control Plant Design Forum).
- Presenting Control Plant preliminary designs to relevant governance body, i.e. TEF, for technical support.
- Preparing the cost estimation on the control plant scope to the relevant power plant engineer for inclusion in the DRA approval.
- Preparing the presentation for the investment committee for the DRA approval, where the control plant engineer is the lead engineer for the project.
- Preparing detailed control plant packages (CDHO), i.e. scope of work, bill of materials, ordering schedules, bill of activities, etc.
- Presenting and getting support of detailed design at relevant governance body, i.e. DRT (Design Review Team).
- Production of detailed control plant design drawings.
- Checking and approving of preliminary and detailed designs.
- Preparing and obtaining approval for the scope change and/or modification on design, where required, during the entire life cycle of the project.
- Facilitating the project review meetings.
- Presenting and obtaining approval for scope modifications, where applicable.
- Provision of project consultation services where applicable, during the entire life cycle of the project.
- Reviewing and updating of as-built drawings.
- Reviewing of checklists and test certificates.
- Providing final sign-off to put the asset into commercial operation.

The *Consultant* shall deliver the following:

- Preliminary design package as per Control Plant asset design specifications, including costing and scope change and/or modification form(s).
- Detail design package as per Control Plant asset design specifications.
- Updated As-Built drawings.

- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

1.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning Proposal, and all other applicable documents.
- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the *Employer's* Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site to familiarise himself (herself) with general project requirements. In the event that latent errors are found on the network diagrams, operating diagrams, single line diagram, route plan, control room layout, substation and switching station drawings, the Consultant shall notify the *Employer*.

1.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version or similar draughting software that produce DGN files
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)
- Cloud facility for file storage, sharing and/or transfer

1.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

1.3.1. The design of the Control Plant shall include, but not limited to, the following disciplines:

- Protection
  - HV Feeder Differential and/or Impedance Protection
  - Transformer Protection
  - Tap Changer Protection
  - Bus-Coupler Protection
  - Buszone Protection
  - MV Cable and/or Rural Feeder Protection
  - MV Busbar Protection
  - Arc Protection
  - Teleprotection
  - Embedded Generation Interconnection
- Metering
  - Statistical Metering
  - Tariff Metering
  - Communication requirements
- Telecontrol
  - RTU Selection
  - IDF Design
  - Protocol Selection
  - IEC 61850 Design
  - Communication requirements
- AC and DC supplies
  - DB and related indoor and outdoor LV reticulation designs
  - DC Drain Load Calculations
  - Battery Sizing
  - Battery Charger Sizing
  - AC/DC Distribution Board selection
  - Lead acid / Nicad Battery selection
  - Auxiliary Supply Source
- Telecoms
  - Telecoms communication medium selection
  - Path loss profile requirement Fibre optic medium selection
- Control Room Layout
  - Panel Layout

- Control Cable Entry
- Emergency evacuation requirements
- Lighting and emergency lighting
- Access

- Security
  - Intrusion alert system
  - Surveillance system
  - Physical deterrent methods

1.3.2. Compilation of Preliminary Design

If included in the accepted quotation, the consultant will be responsible and accountable for the compilation of the preliminary design documents for the control plant portion of electrification, IPP, strengthening, refurbishment and direct customer projects in the context of this contract. Control Plant refers to the disciplines of protection, metering, telecontrol, telecoms, DC and security.

The preliminary design document will consist of the following:

- Scope of work per discipline
- High level summary of costs per discipline.
- Detailed cost breakdown per discipline.
- Detailed bill of material per discipline.
- Ordering schedules and quotations.
- Existing and proposed substation single line diagrams
- Existing and proposed network diagrams
- Existing and proposed control room layout

Eskom will neither check nor approve preliminary design for correctness. The onus lies with the *Consultant* to ensure that Eskom receives preliminary design that is free of errors.

The *Consultant* will be required to undertake site visits for the purpose of information gathering and verification. Sites requiring more than one visit shall be subject to the approval of the *Employer*.

The following shall be provided for by the *Employer*:

- Primary plant high level scope of work and other available information pertaining to the project, in the form of the planning proposal.
- Project schedule and deadline's relating to the project.
- Substation single line diagrams. In instances where substation single line diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the *Consultant* shall notify the *Employer*.

1.3.3. Preparation of Preliminary Design for Technical Approval

On acceptance of the preliminary design document by the *Employer* and if included in the accepted quotation, the *Consultant* will be responsible and accountable for obtaining project approval

- Preparation and presentation of the preliminary scope to the CPDF.
- Preparation of a power point presentation as per the Technical Evaluation Forum templates.
- Presentation of the project at the Technical Evaluation Forum.

The following shall be provided for by the *Employer*:

- Technical Evaluation Forum presentation template for preparation of the project presentations.
- CPDF templates and guide for presentations.

1.3.4. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed control plant design package (CDHO) and presenting it to the DRT for design handover approval, which compromises of the following:

- The scope of work which will include, but not limited to:
  - Transformers schemes
  - Transformers tap change schemes
  - HV and MV feeder protection schemes
  - Buszone schemes
  - Bus-Coupler schemes
  - MV busbar protection schemes
  - AC/DC systems
  - Battery Charger and battery systems
  - Statistical and/or tariff metering schemes
  - Telecontrol designs inclusive of IDF layouts and RTU configuration, where applicable.
  - Telecommunication designs inclusive of fibre optic specifications, path loss profiles where applicable, antenna specification, etc. where applicable.
  - Substation security systems, i.e. physical deterrent, surveillance and intrusion alert systems
- Labelling schedules where applicable
- Finalised scope of work and bill of material

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies

Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

All application design drawings specified above shall be based on standard scheme template.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Substation visits may be required during the detailed design phase for information gathering and verification processes. Substation requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Soft copies, in MicroStation format of standard schemes templates, are to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Hard copies will also be provided upon request
- Approved preliminary design document, where applicable.
- Environmental Management Programme (EMPr), where applicable
- Baseline Risk Assessment and SHE Specification, where applicable

1.3.5. Checking and approval of Final Design Drawings

Prior to the submission of the final design drawing package to Eskom, the *Consultant* will be responsible for the checking of all detailed design drawings for correctness, and the approval of the design by the registered professional engineer.

The *Consultant* will be responsible and accountable to produce a final design drawing package, which compromises of the following:

- The final design drawing package will include, but not limited to:
  - Transformers schemes
  - Transformers tap change schemes
  - HV and MV feeder protection schemes
  - Buszone schemes
  - Bus-Coupler schemes
  - MV busbar protection schemes
  - AC/DC systems
  - Battery Charger and battery systems
  - Statistical and/or tariff metering schemes

- Telecontrol designs inclusive of IDF layouts and RTU configuration, where applicable.
- Telecommunication designs inclusive of fibre optic specifications, path loss profiles where applicable, antenna specification, etc. where applicable.

Eskom will neither check nor approve final design drawings for correctness. The onus lies with the *Consultant* to ensure that Eskom receives final design drawings that are free of errors.

All draughting requirements needed for the production of final design drawings must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

All application design drawings specified above shall be based on standard scheme template.

The *Consultant* will be liable and accountable for the delays and design changes due to design errors identified during the construction and commissioning phases of the project.

The following shall be provided for by the *Employer*:

- Soft copies and drawing numbers, in MicroStation format of standard schemes templates, are to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Hard copies will also be provided upon request
- Approved preliminary design document, where applicable.
- Primary plant equipment manufactures drawings, if available.

1.3.6. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend kick-off meeting immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom’s contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.

- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check protection, metering, telecontrol, telecoms, security and DC panels for correctness against the design specification, sign off such equipment to indicate its acceptability for construction, and submit all revisions to the Drawing Office.
- Check and verify the checklists and test certificates

1.3.7. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

1.3.8. Control Plant Draughting

Control Plant Draughting requirements to be in accordance with, but not limited to the following:

- Eskom Distribution Gauteng Cluster's Standard requirements for creation of Control Plant Drawings
- Eskom Distribution Standard: Parts 7 and 15, and latest revision of 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks.

The following shall be supplied by the *Consultant* where applicable to each task order, but not limited to:

- Distribution Standard Protection Schemes.
- Distribution Standard Measurement (Metering) Schemes.
- Distribution Standard AC/DC Distribution Schemes, including related equipment.
- Distribution Standard Telecontrol RTU schemes, including IDF layouts.
- Distribution Standard Junction Boxes
- Panel Layout and Engraving Diagram (layout of modules)
- Control Room / Switch Room Equipment Arrangement
- Communication requirements

- Security solution standards
- IEC 61850 network drawings
- Final Control Cable BOM
- Final updated “as-built” modified drawings

Final design drawing package must be supplied in the following formats:

- Soft copy format *.dgn on a cloud facility for file storage, sharing and/or transfer.
- Soft copy format *.pdf of each set of drawings.
- Two sets of signed drawings in hard copy format.

2. Electrification, Medium and Low Voltages Overhead and Underground Network Design

The *Consultant's* resources shall be primarily involved in the Design phase of the project. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Production of electrification, medium voltage (1 kV and 33 kV) and low voltage (below 1 000 V) overhead and underground network design documents and applicable drawings.
- Compiling the project proposal prior to Stakeholders Input Meeting (SHIM).
- Preparing the preliminary design and the presentation for technical approval including the cost estimate.
- Presenting the preliminary design to the relevant governance body, i.e. TEF, for technical support.
- Compiling the detailed design including the detailed costing.
- Compiling and submitting the presentation for the investment committee for the DRA approval.
- Developing and obtaining approvals for the scope change and/or modification on design, where required, during the entire life cycle of the project
- Preparing, presenting and obtaining support for draft final design package (DHO) to the relevant governance body, i.e. DRT, for design handover.
- Facilitating the project review meetings.
- Handing over the final design submission to Network Engineering & Design and Project Execution.
- Providing technical support during contracting and construction phase of the assigned project.
- Reviewing the checklists and test certificates.
- Reviewing, updating, and signing off the As-Built drawings at project completion.
- Providing final sign-off to put the asset into commercial operation.

Important Note:

It is important that the *Consultant* takes note of clearances that the overhead line and/or the underground cable is designed for in the design documents. Where the overhead line and/or underground cable crosses or runs in close proximity to Transmission lines, water pipes, railway (active or inactive), and other Distribution lines, the *Consultant* shall be required to demonstrate that adequate measures have been taken to limit the effects of electromagnetic and electrostatic induction.

The Consultant shall deliver the following:

- Preliminary design package, including costing and scope change and/or modification form(s).
- Detail design package.

- Updated As-Built drawings.
- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

2.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning Proposal, and all other applicable documents.
- Township layout plan for the Electrification project.
- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers
- Spanning sheets and route maps

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site. In the event that latent errors are found on the network diagrams, operating diagrams, single line diagrams, route plans, township layout plans, substation and switching station drawings or spanning sheets, the *Consultant* shall notify the *Employer*.

2.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)

- Cloud facility for file storage, sharing and/or transfer
- PLS CADD or similar approved software
- Retic-Master or similar approved software

2.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

2.3.1. The design of the Electrification, Medium and Low Voltages Overhead and Underground Network shall include, but not limited to, the following aspects:

- Electrical Design
  - Conductor selection
  - Insulator selection
  - Insulation coordination
  - MV cable selection
  - MV cable switchgear selection
  - MV line protection equipment selection
  - MV/LV transformer selection
  - MV/LV transformer protection selection
  - LV line protection equipment selection
  - LV cable protection equipment selection
  - LV cable selection
  - LV ABC selection
  - After Diversity Maximum Demand (ADMD) selection
  - Volt-drop and fault level calculations
  - Electromagnetic and electrostatic interferences studies
  - Metering kiosk selection
  - Service cable selection
  - Load Balancing and Metering selection
  - Earthing selection
  - Cable theft detection
- Structural Design
  - Geotechnical investigation and soil nomination, where required
  - MV pole top dressing selection
  - Pole selection
  - MV line anchor selection
  - Foundation selection and specialised foundation designs
  - Special tower/pole design
  - Bridge, water and road crossing for MV cable

- Cable theft mitigation
- Recloser theft mitigation
- Stay theft mitigation
- Transformer theft mitigation

- Environmental considerations
  - Bird flight diverters
  - Anti-perching devices
  - Aircraft warning devices
- Electrification
  - Electrification indicators
  - Electrification design
  - Network diagram

2.3.2. Compilation of Preliminary Design

If included in the accepted quotation, the consultant will be responsible and accountable for the compilation of the preliminary design documents for the electrification, IPP, strengthening, refurbishment and direct customer projects in the context of this contract.

The preliminary design document will consist of the following:

- Scope of work
- High level summary of costs
- Detailed cost breakdown
- Detailed bill of material
- Ordering schedules and quotations.
- Existing and proposed substation single line diagrams
- Existing and proposed network diagrams
- Proposed route plan
- Proposed electrification design
- PLS CADD line profile, where applicable

Eskom will neither check nor approve preliminary design for correctness. The onus lies with the *Consultant* to ensure that Eskom receives preliminary design that is free of errors.

The *Consultant* will be required to undertake site visits for the purpose of information gathering and verification. Sites requiring more than one visit shall be subject to the approval of the *Employer*.

The following shall be provided for by the *Employer*:

- Primary plant high level scope of work and other available information pertaining to the project, in the form of the planning proposal.
- Project schedule and deadline's relating to the project.
- Network diagrams. In instances where network diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.
- Substation single line diagrams. In instances where substation single line diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.

2.3.3. Preparation of Preliminary Design for Technical Approval

On acceptance of the preliminary design document by the *Employer* and if included in the accepted quotation, the *Consultant* will be responsible and accountable for obtaining project approval

- Preparation of a power point presentation as per the Technical Evaluation Forum templates.
- Presentation of the project at the Technical Evaluation Forum.

The following shall be provided for by the *Employer*:

- Technical Evaluation Forum presentation template for preparation of the project presentations.

2.3.4. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed design package (DHO) and presenting it to the DRT for design handover approval, which compromises of the following:

- Design Philosophy
- Scope of work
- Implementation sequence of the events
- Existing and proposed single line diagrams
- Existing and proposed network diagrams
- Spanning plan, where applicable
- Electrification design drawings, where applicable
- Bill of materials and ordering schedules
- Bill of activities
- Sag and tension tables, where applicable
- Labelling schedules

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920

- Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Site visits may be required during the detailed design phase for information gathering and verification processes. Sites requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Drawing numbers to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Approved preliminary design document, where applicable.
- Land Development package
- Baseline Risk Assessment and SHE Specification

2.3.5. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend kick-off meeting immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom's contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.
- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check and verify the checklists and test certificates

2.3.6. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a

signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

2.3.7. Electrification Design Draughting

Electrification design draughting requirements to be in accordance with, but not limited to the following:

- Eskom Distribution Standard: Parts 4 and 22, and latest revision of 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks.

Electrification design drawings must be supplied in the following formats:

- Soft copy format *.dgn on a cloud facility for file storage, sharing and/or transfer.
- Soft copy format *.pdf of each set of drawings.
- Two sets of signed drawings in hard copy format.

3. Sub-Transmission (HV) Lines Design

The *Consultant's* resources shall be primarily involved in the Design phase of the project. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Production of sub-transmission (33 kV to 132 kV) line design documents and applicable drawings.
- Compiling the project proposal prior to Stakeholders Input Meeting (SHIM).
- Preparing the preliminary design and the presentation for technical approval including the cost estimate.
- Presenting the preliminary design to the relevant governance body, i.e. TEF, for technical support.
- Compiling the detailed design including the detailed costing.
- Compiling and submitting the DRA form and the presentation for the investment committee for the DRA approval.
- Developing and obtaining approvals for the scope change and/or modification on design, where required, during the entire life cycle of the project
- Preparing, presenting and obtaining support for draft final design package (DHO) to the relevant governance body, i.e. DRT, for design handover.
- Facilitating the project review meetings.
- Handing over the final design submission to Network Engineering & Design and Project Execution.
- Providing technical support during contracting and construction phase of the assigned project.
- Reviewing the checklists and test certificates.
- Reviewing, updating, and signing off the As-Built drawings at project completion.
- Providing final sign-off to put the asset into commercial operation.

Important Notes:

- The *Consultant* will receive proposed layout drawings. As part of the design process, the *Consultant* shall visit the area to familiarise himself with general land use, access requirements and topology.
- It is important that the *Consultant* notes clearances that the line is designed for in the design documents.
- The *Consultant* is required to visit the proposed line route in attendance of an experienced line construction official and the appointed Surveyor. This intervention is aimed at ensuring that designs are constructible (constructability squad check) and shall take place preferably prior to the TEF meeting.
- In the event that the existing suite of structures does not meet requirement for specific structure loading, the *Consultant* is expected to develop a new set of structures. The *Consultant* may negotiate additional fees for detail design and purchasing of prototype structures, transporting

to testing facility and testing of the newly developed structures, should these activities become necessary.

- Where the line crosses or runs in close proximity to Transmission lines, Distribution lines, water pipes, railway (active or inactive), the *Consultant* shall be required to demonstrate that adequate measures have been taken to limit the effects of electromagnetic and electrostatic induction.
- On request from the *Employer*, the *Consultant* shall make resources available to perform geotechnical investigations on structure positions determined by the *Consultant*. The *Consultant* to provide a report to his Geotechnical Consultant to ensure proper outputs, which will include but not limited to the following documents: i.e.
    - Staking table of all proposed pole and stay positions
    - Templated profile
    - Route Map
    - Structure types to be used at the various pole positions
- The *Consultant* will analyse results of geotechnical surveys and advise or design optimal structure foundations. Therefore, the *Consultant* will liaise directly with the assigned Geotechnical Consultant to ensure that this report is comprehensive and complete. The responsibility rests on the *Consultant* to ensure that requests for geotechnical surveys are forwarded to the *Employer* in good time.
- On request from the *Employer*, the *Consultant* shall make resources available to perform Civil designs where designs for power line structure foundations do not exist. The requirements of these civil designs shall be subjected to the same conditions as specified in this contract.
- Copyright on all drawings and intelligent property rights remains with Eskom. The *Consultant* shall not be withheld from using developed intellectual property in the provision of consulting services to other clients, but this will be subject to Eskom approval.

The Consultant shall deliver the following:

- Preliminary design package, including costing and scope change and/or modification form(s).
- Detail design package.
- Updated As-Built drawings.
- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

3.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of

packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning Proposal, and all other applicable documents.

- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers
- Route maps

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site. In the event that latent errors are found on the network diagrams, operating diagrams, single line diagrams, substation and switching station drawings, the *Consultant* shall notify the *Employer*.

3.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)
- Cloud facility for file storage, sharing and/or transfer
- PLS CADD.

3.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

3.3.1. The design of the Sub-Transmission (HV) Line shall include, but not limited to, the following aspects:

- Electrical Design

- Conductor selection
- Ground/Shield wire selection
- Telecommunication and teleprotection requirements
- Insulator selection
- Insulation coordination
- Line Transposition
- Surge Impedance Loading
- Reactive power compensation
- Volt-drop and fault level calculations
- Electromagnetic and electrostatic interferences studies
- Electrical pipeline co-ordination studies for the influence of power lines and cables onto pipelines, in accordance with 240-66418968.
- Earthing selection

- Structural Design
  - Design Criteria
  - Geotechnical investigation and soil nomination, where required
  - Pole top configuration selection
  - Pole selection
  - Corrosion protection
  - Foundation selection and specialised foundation designs
  - Special tower/pole design
  - Stay wire theft mitigation
  - Tower member theft mitigation
- Environmental considerations
  - Bird flight diverters
  - Anti-perching devices
  - Aircraft warning devices
  - Servitude access
  - Servitude maintenance
  - General routing of the line and land use
  - Wetlands and water courses

3.3.2. Compilation of Preliminary Design

If included in the accepted quotation, the consultant will be responsible and accountable for the compilation of the preliminary design documents for the electrification, IPP, strengthening, refurbishment and direct customer projects in the context of this contract.

The preliminary design document will consist of the following:

- Scope of work
- High level summary of costs

- Detailed cost breakdown
- Detailed bill of material
- Ordering schedules and quotations.
- Existing and proposed substation single line diagrams
- Existing and proposed network diagrams
- Proposed route plan
- PLS CADD line profile, where applicable

Eskom will neither check nor approve preliminary design for correctness. The onus lies with the *Consultant* to ensure that Eskom receives preliminary design that is free of errors.

The *Consultant* will be required to undertake site visits for the purpose of information gathering and verification. Sites requiring more than one visit shall be subject to the approval of the *Employer*.

The following shall be provided for by the *Employer*:

- Primary plant high level scope of work and other available information pertaining to the project, in the form of the planning proposal.
- Project schedule and deadline's relating to the project.
- Network diagrams. In instances where network diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.
- Substation single line diagrams. In instances where substation single line diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.

3.3.3. Preparation of Preliminary Design for Technical Approval

On acceptance of the preliminary design document by the *Employer* and if included in the accepted quotation, the *Consultant* will be responsible and accountable for obtaining project approval

- Preparation of a power point presentation as per the Technical Evaluation Forum templates.
- Presentation of the project at the Technical Evaluation Forum.

The following shall be provided for by the *Employer*:

- Technical Evaluation Forum presentation template for preparation of the project presentations.

3.3.4. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed design package (DHO) and presenting it the DRT for support to handover the design for construction, which compromises of the following:

- Design Philosophy
- Scope of work
- Implementation sequence of the events
- Existing and proposed single line diagrams
- Existing and proposed network diagrams
- Bill of materials and ordering schedules
- Bill of activities
- Staking tables
- Line Construction Handbook
- Labelling schedules

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Site visits may be required during the detailed design phase for information gathering and verification processes. Sites requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Drawing numbers to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Approved preliminary design document, where applicable.
- Land Development package
- Baseline Risk Assessment and SHE Specification

3.3.5. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend pre-tender, squad check, and kick-off meetings immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom's contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.
- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check and verify the checklists and test certificates

3.3.6. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

4. Sub-Transmission (HV) Cables Networks Design

The *Consultant's* resources shall be primarily involved in the Design phase of the project. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Production of sub-transmission (33 kV to 132 kV) cable design documents and applicable drawings.
- Compiling the project proposal prior to Stakeholders Input Meeting (SHIM).
- Preparing the preliminary design and the presentation for technical approval including the cost estimate.
- Presenting the preliminary design to the relevant governance body, i.e. TEF, for technical support.
- Compiling the detailed design including the detailed costing.
- Compiling and submitting the DRA form and the presentation for the investment committee for the DRA approval.
- Developing and obtaining approvals for the scope change and/or modification on design, where required, during the entire life cycle of the project
- Preparing, presenting and obtaining support for draft final design package (DHO) to the relevant governance body, i.e. DRT, for design handover.
- Facilitating the project review meetings.
- Handing over the final design submission to Network Engineering & Design and Project Execution.
- Providing technical support during contracting and construction phase of the assigned project.
- Reviewing the checklists and test certificates.
- Reviewing, updating, and signing off the As-Built drawings at project completion.
- Providing final sign-off to put the asset into commercial operation.

Important Notes:

- It is important that the *Consultant* notes the voltage the HV cable is to be designed for in the design documents.
- Where the cable crosses or runs parallel and in close proximity to Transmission lines, Distribution lines, water pipes, railway (active or inactive), or other live / dead conductors (e.g. Hardwired Telecommunication), the *Consultant* shall be required to demonstrate that adequate measures have been taken to limit the effects of electromagnetic and electrostatic induction in all conductive services (not only Eskom services) and the installation is safe for all.
- On request from the *Employer*, the *Consultant* shall make resources available to perform geotechnical investigations along cable route of which the positions are to be determined by the *Consultant*. The *Consultant* to provide a report to his Geotechnical Consultant to ensure correct outputs are achieved from the required tests which may include, but not limited to:
    - Testing of soil's electrical resistivity.

- Testing of soil's thermal resistivity.
- Testing of soil's properties for stability, excavations, and subsequent compaction.

The *Consultant* shall analyse results of geotechnical surveys and advise and design optimal HV cable systems. Therefore, the *Consultant* shall liaise directly with the assigned Geotechnical Consultant to ensure that this report is comprehensive and complete. The responsibility rests on the *Consultant* to ensure that requests for geotechnical surveys are forwarded to the *Employer* in good time.

The Consultant shall deliver the following:

- Preliminary design package, including costing and scope change and/or modification form(s).
- Detail design package.
- Updated As-Built drawings.
- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

4.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning Proposal, and all other applicable documents.
- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers
- Route maps

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site. In the event that latent errors are found on the network diagrams, operating diagrams,

single line diagrams, substation and switching station drawings, the *Consultant* shall notify the *Employer*.

4.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version
- CDEGS
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)
- Cloud facility for file storage, sharing and/or transfer

4.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

4.3.1. The design of the Sub-Transmission (HV) Cable shall include, but not limited to, the following aspects:

- Electrical Design
  - HV Cable selection
  - Earth Continuity Conductor (ECC) selection
  - Dynamic Cable Rating System (DCRS) and Distributed Temperature Sensing
  - Insulation coordination
  - HV Cable Transposition
  - Earthing and bonding of the HV cable sheath and outer layer
  - Ampacity, Finite Element Modelling (FEM) and losses calculations for the proposed HV cable feeder installation taking into consideration installation conditions, inclusive of all locations, joint, terminations, parallel feeders, depth, under road or other surface installations, ducts, culverts (where applicable), etc. and circulating currents for Normal and Emergency conditions.
  - Calculations and Selection of Sheath Voltage Limiters (SVLs).
  - Transient state and steady state calculations of sheath induced voltages, sheath induced currents, outer layer induced voltages and outer layer induced currents.

- Simulating and checking of Touch Voltages and Step Voltages, from source substation and along HV cable system route up to including the load substation, on above ground level and below ground level equipment.
- Electromagnetic and Electrostatic effects of HV cable systems onto conductors and services in its vicinity, and impact of (live / dead) conductors and services onto the HV cable system.
- Crossings and running parallel to other existing or planned services (Transmission or Distribution cables and lines, national roads, dwellings, etc.).
- Electromagnetic interference (fences, water pipes, Telecommunication, etc.).
- Electrical pipeline co-ordination studies for the influence of power lines and cables onto pipelines, in accordance with 240-66418968.
- Fault current distribution along HV cable route and earthing.
- Lightning flash density.
- Interfacing with existing installations.
- Protection Telecommunication including but not limited to, route selection, installation and maintenance considerations, etc.
- HV cable Circuit and System configuration for normal, road crossing, river crossings and tunnel designs.
- Termination of HV cable systems onto non-Eskom Distribution sites. (e.g. Eskom Transmission or other Customer).
- Termination of HV cable systems onto Gas Insulated Switchgear.
- Oil filled HV cable hydraulic pressure designs and calculations, where required.
- Decommissioning of existing HV cable system, where applicable.

- Civil Design
  - Design Criteria
  - Interpretation of geotechnical investigations.
  - Soil nominations.
  - Check standard foundation design, and upgrade or update foundation designs.
  - Compaction requirements (tools, method of compacting, testing to relevant standards).
  - Construction aids.
  - Measures to eliminate moisture ingress.
  - HV cable tunnel designs, including but not limited to, Ventilation, Fire protection, Security, etc.
  - Road and river crossing designs
  - Maintenance consideration
  - Design and calculations related to the installation of the HV cable.
  - Design, calculate, supply, and install, and provide testing certificates for cable support racking and or bracket(s) and or trays and straps as required to secure and support the HV cable feeder (including bonding leads) during normal and abnormal system conditions. Solution to include clamping configurations, clamps, cable rack support structures, straps, etc.
  - HV cable pulling design, calculations, and method statement. (Entire route length.)

- Design soil erosion and embankment support solution.
- Design road or other surface re-instatement solution.
- Perform geotechnical studies along the route, joint bay locations, intervals of 500m and other specified locations.
- Design shoring and compile safe work procedure as required by the project scope.
- Traffic control studies and Traffic control plan.

- Environmental considerations
  - Servitude access
  - Servitude maintenance
  - General routing of the cable and land use
  - Wetlands and water courses

4.3.2. Compilation of Preliminary Design

If included in the accepted quotation, the consultant will be responsible and accountable for the compilation of the preliminary design documents for the electrification, IPP, strengthening, refurbishment and direct customer projects in the context of this contract.

The preliminary design document will consist of the following:

- Scope of work
- High level summary of costs
- Detailed cost breakdown
- Detailed bill of material
- Ordering schedules and quotations.
- Existing and proposed substation single line diagrams
- Existing and proposed network diagrams
- Proposed route plan
- HV cable earthing and bonding diagrams
- Ampacity, FEM and losses calculations
- CDEGS simulations

Eskom will neither check nor approve preliminary design for correctness. The onus lies with the *Consultant* to ensure that Eskom receives preliminary design that is free of errors.

The *Consultant* will be required to undertake site visits for the purpose of information gathering and verification. Sites requiring more than one visit shall be subject to the approval of the *Employer*.

The following shall be provided for by the *Employer*:

- Primary plant high level scope of work and other available information pertaining to the project, in the form of the planning proposal.
- Project schedule and deadline's relating to the project.
- Network diagrams. In instances where network diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.
- Substation single line diagrams. In instances where substation single line diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.

4.3.3. Preparation of Preliminary Design for Technical Approval

On acceptance of the preliminary design document by the *Employer* and if included in the accepted quotation, the *Consultant* will be responsible and accountable for obtaining project approval

- Preparation of a power point presentation as per the Technical Evaluation Forum templates.
- Presentation of the project at the Technical Evaluation Forum.

The following shall be provided for by the *Employer*:

- Technical Evaluation Forum presentation template for preparation of the project presentations.

4.3.4. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed design package (DHO) and presenting it to the DRT for design handover approval, which compromises of the following:

- Design Philosophy
- Design Criteria
- Scope of work
- Implementation sequence of the events
- Existing and proposed single line diagrams
- Existing and proposed network diagrams
- Bill of materials and ordering schedules
- Bill of activities
- Labelling schedules

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies

Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Site visits may be required during the detailed design phase for information gathering and verification processes. Sites requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Drawing numbers to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Approved preliminary design document, where applicable.
- Land Development package
- Baseline Risk Assessment and SHE Specification

4.3.5. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend pre-tender, squad check, and kick-off meetings immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom's contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.
- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check and verify the checklists and test certificates.

4.3.6. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a

signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

5. Substations and Switching Station Design

The *Consultant's* resources shall be primarily involved in the Design phase of the project. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Production of substation and switching station design documents and applicable drawings.
- Compiling the project proposal prior to Stakeholders Input Meeting (SHIM).
- Preparing the preliminary design and the presentation for technical approval including the cost estimate.
- Presenting the preliminary design to the relevant governance body, i.e. TEF, for technical support.
- Compiling the detailed design including the detailed costing.
- Compiling and submitting the DRA form and the presentation for the investment committee for the DRA approval.
- Developing and obtaining approvals for the scope change and/or modification on design, where required, during the entire life cycle of the project
- Preparing, presenting and obtaining support for draft final design package (DHO) to the relevant governance body, i.e. DRT, for design handover.
- Facilitating the project review meetings.
- Handing over the final design submission to Network Engineering & Design and Project Execution.
- Providing technical support during contracting and construction phase of the assigned project.
- Reviewing the checklists and test certificates.
- Reviewing, updating, and signing off the As-Built drawings at project completion.
- Providing final sign-off to put the asset into commercial operation.

Important Notes:

- It is important that the *Consultant* notes the clearances and phasing of the successful commissioning of the project.
- On request from the *Employer*, the *Consultant* shall make resources available to perform geotechnical investigations along cable route of which the positions are to be determined by the *Consultant*. The *Consultant* to provide a report to his Geotechnical Consultant to ensure correct outputs are achieved from the required tests which may include, but not limited to:
    - Testing of soil's electrical resistivity.
    - Testing of soil's thermal resistivity.
    - Testing of soil's properties for stability, excavations, and subsequent compaction.

The *Consultant* shall analyse results of geotechnical surveys and advise and design optimal HV cable systems. Therefore, the *Consultant* shall liaise directly with the assigned Geotechnical

Consultant to ensure that this report is comprehensive and complete. The responsibility rests on the *Consultant* to ensure that requests for geotechnical surveys are forwarded to the *Employer* in good time.

The Consultant shall deliver the following:

- Preliminary design package, including costing and scope change and/or modification form(s).
- Detail design package.
- Updated As-Built drawings.
- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

5.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning Proposal, and all other applicable documents.
- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers
- Site plan

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site. In the event that latent errors are found on the network diagrams, operating diagrams, single line diagrams, substation and switching station drawings, the *Consultant* shall notify the *Employer*.

5.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version
- CDEGS
- RELUX
- Soil Resistivity Testing equipment
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)
- Cloud facility for file storage, sharing and/or transfer

5.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

5.3.1. The design of the Substation and/or Switching Station shall include, but not limited to, the following aspects:

- General requirements
  - Substation or switching station orientation
  - HV feeders corridor
  - MV feeders corridor
  - Access roads and routes to the site
  - Trucks turning radii when delivering or collecting equipment
  - Multi-tier fence consideration
  - Security risk assessment and mitigation
- Electrical Design
  - Conductor selection
  - Insulator selection
  - Insulation coordination
  - HV equipment selection
  - HV busbar selection
  - Power transformer selection
  - MV switchgear selection
  - MV busbar selection, where applicable
  - Auxiliary supply provision
  - HV yard lighting and security lighting coverage
  - Lightning coverage

  - Earthmat design
  - Portable earth provision
- Civil Design
  - Civil design criteria
  - Interpretation of geotechnical investigations.
  - Soil nominations.
  - Check standard foundation design, and upgrade or update foundation designs.
  - Platform design
  - Oil management and oil drainage system design
  - Storm water management and drainage system design
  - Earthworks considerations
  - Access roads and gates
  - Active and passive fire protection
  - Erosion protection
  - Control cable trenching
  - Power cable trenching
  - Architectural switchroom and control room design
  - Power cable theft mitigation
  - Control cable theft mitigation
- Environmental considerations
  - Wetlands and water courses

5.3.2. Compilation of Preliminary Design

If included in the accepted quotation, the consultant will be responsible and accountable for the compilation of the preliminary design documents for the electrification, IPP, strengthening, refurbishment and direct customer projects in the context of this contract.

The preliminary design document will consist of the following:

- Scope of work
- Design criteria
- High level summary of costs
- Detailed cost breakdown
- Detailed bill of material
- Ordering schedules and quotations.
- Existing and proposed substation single line diagrams
- Existing and proposed network diagrams
- Proposed route plan
- CDEGS simulations
- RELUX design

Eskom will neither check nor approve preliminary design for correctness. The onus lies with the *Consultant* to ensure that Eskom receives preliminary design that is free of errors.

The *Consultant* will be required to undertake site visits for the purpose of information gathering and verification. Sites requiring more than one visit shall be subject to the approval of the *Employer*.

The following shall be provided for by the *Employer*:

- Primary plant high level scope of work and other available information pertaining to the project, in the form of the planning proposal.
- Project schedule and deadline's relating to the project.
- Network diagrams. In instances where network diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.
- Substation single line diagrams. In instances where substation single line diagrams are changed by the *Employer* after version of the diagram has been issued to the *Consultant*, thereby requiring rework by the *Consultant*, the consultant shall notify the *Employer*.

5.3.3. Preparation of Preliminary Design for Technical Approval

On acceptance of the preliminary design document by the *Employer* and if included in the accepted quotation, the *Consultant* will be responsible and accountable for obtaining project approval

- Preparation of a power point presentation as per the Technical Evaluation Forum templates.
- Presentation of the project at the Technical Evaluation Forum.

The following shall be provided for by the *Employer*:

- Technical Evaluation Forum presentation template for preparation of the project presentations.

5.3.4. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed design package (DHO) and presenting it to the DRT for design handover approval, which compromises of the following:

- Design Philosophy
- Design criteria
- Scope of work
- Implementation sequence of the events
- Existing and proposed single line diagrams

- Existing and proposed network diagrams
- Bill of materials and ordering schedules
- Bill of activities
- Labelling schedules

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Site visits may be required during the detailed design phase for information gathering and verification processes. Sites requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Drawing numbers to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.
- Approved preliminary design document, where applicable.
- Land Development package
- Baseline Risk Assessment and SHE Specification

5.3.5. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend pre-tender, squad check, and kick-off meetings immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom’s contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.
- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check and verify the checklists and test certificates

5.3.6. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

6. Geotechnical Investigations, Quantity Surveyor, Fire Detection and Protection, Architectural Design, Civil, Electrical, Structural and Mechanical Engineering Design

The *Consultant's* resources shall be primarily involved in the Design phase of the project. The *Consultant* shall provide the following services on request per task order and their scope of work shall involve:

- Production of architectural design and applicable drawings.
- Production of civil and structural engineering design and applicable drawings.
- Production of mechanical engineering design for HVAC and Fire and applicable drawings.
- Conducting geotechnical investigation and production of geotechnical report and applicable drawings.
- Providing quantity surveyor services including, but not limited to, estimating quantities, valuing completed work, preparing tender and contract documents, etc.
- Compiling the detailed design including the detailed costing.
- Facilitating the project review meetings.
- Handing over the final design submission to Network Engineering & Design, Properties Management and Project Execution.
- Providing technical support during contracting and construction phase of the assigned project.
- Reviewing the checklists and test certificates.
- Reviewing, updating, and signing off the As-Built drawings at project completion.
- Providing final sign-off to put the asset into commercial operation.

Important Notes:

- On request from the *Employer*, the *Consultant* shall make resources available to perform geotechnical investigations at positions to be determined by the *Consultant*. The *Consultant* to provide a report to his Geotechnical Consultant to ensure correct outputs are achieved. The parameters to report on may include, but shall not be limited to:
    - Detailed Desk Study
    - Site Investigation Methods and Requirements
        - Test pits and trenches
        - Other specialised site investigation methods as required by the *Consultant*
    - Laboratory testing of materials.
        - Classification: Soil
        - Classification: Rock
        - Characterisation - State
        - Characterisation - Strength and Compressibility
    - Plans and Drawings

- Finite Element Modelling (FEM)
- Special Considerations such as problem soils / rock shall be investigated and may include the following:
  - Dolomitic terrain
  - Undermined land
  - Landfill/backfilled sites
  - Expansive soils
  - Collapsible soils
  - Highly compressible soils
  - Dispersive soils
- Data analysis, recommendations, and reporting.
  - The geotechnical investigation report shall be presented in a report format in accordance with ***Error! Reference source not found.****, Chapter 5 Reporting.*
- Testing of soil's electrical resistivity.
- Testing of soil's thermal resistivity.

The *Consultant* shall ensure that the geotechnical investigation complies with requirements of *The South African Institution of Civil Engineering (SAICE), The Geotechnical Division of SAICE, Site Investigation Code of Practice*. The *Consultant* shall analyse results of geotechnical investigations, advise and design optimal civil engineering and / or architectural infrastructure. Therefore, the *Consultant* shall liaise directly with the assigned Geotechnical Consultant to ensure that this report is comprehensive complete and in accordance with the requirements. The responsibility rests on the *Consultant* to ensure that requests for geotechnical surveys are forwarded to the *Employer* in good time.

The *Consultant* shall deliver the following:

- Detailed design package, including costing and scope change and/or modification form(s).
- Minutes of project review meetings.
- Final account per project based on actual costs.
- A project is regarded as complete as soon as the negotiated scope of works has been successfully completed as per timelines specified by the *Employer*. The *Consultant* is accountable to ensure that all the activities he is responsible for will be delivered on time as agreed.

6.1. Receivables

The *Employer* shall provide the *Consultant* with the following items:

- All available information that assists in the investigation, scoping, costing and production of packages for the project, in the form of the preliminary project package, i.e. Concept Release Approval (CRA) form, Network Development Plan (NDP) or sections thereof or the Planning

Proposal, and all other applicable documents.

- High level project schedule specifying the start dates, end dates and other important milestones per activity, included in the project package.
- All other work that does not require Eskom specific equipment and software shall be undertaken at the *Consultant's* premises using the *Consultant's* equipment and software.
- List of stakeholders with contact numbers
- Route/Site plan

It is advisable that the documents be handed over to the *Consultant* in a formal meeting (task order handover meeting), in the presence of key project participants, namely, the Senior Design Engineer (Primary and Control Plant) and Project Coordinator. The Project Coordinator shall be responsible for arranging such a meeting. As part of the design process the *Consultant* is expected to visit the project site. In the event that latent errors are found on the route or site plan, the *Consultant* shall notify the *Employer*.

6.2. Design Tools

The *Consultant* is expected to be in possession of or have access to the following design tools:

- Microsoft Office
- MicroStation V8 or latest version
- Soil Resistivity Testing equipment
- Access to soil analysis laboratory as approved by Eskom
- Subscription and access to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do)
- Printing equipment capable of printing A4, A3, A2, A1 and A0 drawings
- Cost estimation tools with provision for Eskom SAP numbers
- Quality control measures (e.g. checklists)
- Cloud facility for file storage, sharing and/or transfer

6.3. Deliverables

All work to be done as per Eskom specifications/standards in MicroStation V8 (or later). The *Consultant* shall subscribe to Eskom's PDE SCOT Documents Site (https://scot.eskom.co.za/UserLogin.do) in order to access latest documents, specifications and drawings. The *Consultant* shall provide the following items or as specified in the task order to the *Employer* on completion of each task order:

6.3.1. The design of the Civil & Structural Engineering, Electrical Engineering, Mechanical Engineering, Architectural, Fire Detection and Protection, Quantity Surveyor, and Geotechnical Investigations shall include, but not limited to, the following aspects:

- Civil & Structural Engineering Design

- Civil design criteria
- Interpretation of geotechnical investigations
- Finite Element Modelling (FEM)
- Soil nominations
- Check standard foundation design, and upgrade or update foundation designs
- Platform design
- Oil management and oil drainage system design
- Storm water management and drainage system design
- Foundation design
- Water and sewer reticulation design
- Earthworks considerations
- Access roads and gates
- Active and passive fire protection
- Erosion protection
- Control cable trenching
- Power cable trenching
- Power cable theft mitigation
- Control cable theft mitigation
- Special tower/pole design
- Structural design
- Establish regulatory authorities' requirements and incorporate into the design.
- Submit necessary design documentation to local authorities for approval

- Electrical Engineering Design
  - Develop concept design to ensure conformance with all regulatory requirements and consents
  - Establish regulatory authorities' requirements and incorporate into the design
  - Establish utilities, services and connections required for the design
  - Prepare preliminary design and related documentation for approval by authorities and client and suitable for elemental costing
  - Provide cost estimates and life cycle costs as required
  - Submit necessary design documentation to local authorities for approval
  - Prepare design development drawings including draft technical details and specifications
  - Incorporate other consultant's designs and requirements into design
  - Prepare of contract documentation for signature
  - Provide working drawings to the quantity surveyor for preparation of procurement documentation.
  - Provide cost estimate to quantity surveyor for incorporation into the construction budget
  - Inspect works for conformity to contract documentation
  - Assist in the resolution of contractual compensation events
  - Clarify details and descriptions during construction as required
  - Inspect the works and issue all necessary practical completion lists, works completion lists and defects lists

  - Obtain statutory certificates.
  - Provide electrical circuit drawings
  - Perform load test for buildings
- Mechanical Engineering Design
  - Heating design
  - Ventilation design
  - Air-Conditioning design
  - Active and passive fire protection
  - Clarify details and descriptions during construction as required
  - Inspect the works and issue practical completion and defects lists
  - Obtain statutory certificates.
- Architectural Design
  - Architectural switchroom and control room design
  - Architectural design for buildings and other facilities
  - Prepare and submit site development plan to local authority for approval where applicable
  - Clarify and confirm project space norms to optimise functional and operational efficiency in terms of scale and relationships of areas
  - Provide sufficient information to the quantity surveyor for elemental estimates of construction costs
  - Ensure compliance with quality assurance procedures and monitor implementation thereof by other consultants and contractors
  - Co-ordinate and monitor rectification of defects
  - Develop as built drawings of buildings
- Quantity Surveyor
  - Estimating quantities, costs and time scales for material and labour
  - Prepare preliminary and elemental or equivalent estimates of construction cost.
  - Prepare detailed estimates of construction cost.
  - Prepare schedules of predicted cash flow
  - Prepare pro-active estimates for proposed compensation events for client decision making
  - Adjudicate and resolve financial compensation events
  - Assist in the resolution of compensation events
  - Establish and maintain a financial control system
  - Prepare valuations for monthly payment certificates.
  - Prepare and conclude final account(s) for the works on a progressive and proactive basis
  - Preparing tender and contract documents
  - Identifying and weighing up commercial risks
  - Valuing completed work
  - Ensuring projects meet legal and quality standards
  - Ensuring that Eskom gets value for their money
  - Advising on the maintenance costs of specific buildings
  - Following building regulations and health and safety

- Geotechnical Investigations
  - Soil nominations
  - Conduct geotechnical investigations
  - Conduct site underground survey
- Fire Detection and Protection
  - Provide detail designs for firefighting and detection.
  - Inspect works for conformity to contract documentation
  - Clarify details and descriptions during construction as required
  - Inspect the works and issue practical completion and defects lists
  - Obtain statutory certificates.
  - Perform conditional assessment to ensure compliance with fire regulation

6.3.2. Compilation of Detailed Design

Upon obtaining technical approval of the preliminary design at the Technical Evaluation Forum and after the DRA approval has been obtained, and if included in the accepted quotation, the *Consultant* will be responsible and accountable to produce a detailed design or investigative report and presenting it to the DRT for design handover approval, which compromises of the following:

- Civil design Philosophy
- Civil design criteria
- Scope of work
- Analysis of soil
- Use of laboratories for detailed studies.
- Soil type nominations consistent with Eskom's soil classification system
- Geotechnical Investigations
- Underground survey report
- Bill of materials and ordering schedules
- Bill of activities or quantities
- Design development drawings
- Construction drawings
- Outline specifications
- Local authority submission drawings
- Approval of drawing and layout design by the municipality
- Cost estimates for the construction of the project.
- Technical evaluation of construction enquiry
- Support during supervision of construction work
- Schedules of predicted cash flow
- Estimates for proposed compensation events.
- Register of Compensation events
- Financial control reports
- Valuations for payment certificates
- Regular projected final cost estimates and final account.
- As Built drawings

All draughting requirements needed for the production of detailed designs must be provided by the *Consultant*. All drawings shall comply with the Eskom standard for drawing practises 240-87658920 - Standard Drawing Practice for CAD Users in the Power Plant and Control Plant Technologies Environment and for Electrification Networks. Eskom Distribution uses the MicroStation V8i CAD package and all soft copies of drawings provided to Eskom must be in MicroStation DGN format.

Eskom will neither check nor approve detailed design package for correctness. The onus lies with the *Consultant* to ensure that Eskom receives detailed design package that is free of errors.

Site visits may be required during the detailed design phase for information gathering and verification processes. Sites requiring more than two visits during the detailed design phase shall be subject to the approval of the *Employer.*

The following shall be provided for by the *Employer*:

- Drawing numbers to be checked and requested from the Gauteng Cluster Drawing Office to ensure that the latest revisions are used.

6.3.3. Project consultation service

Upon acceptance of the detailed design package by the *Employer* and if included in the accepted quotation, the *Consultant* must be available to provide the following services:

- Attend pre-tender, squad check, and kick-off meetings immediately prior to construction commencing.
- Attend stakeholders meeting immediately prior to commissioning commencing.
- Attend any ad hoc meetings that may be required by the Employer.
- Provide a consultation service to Eskom’s contractors and Project Management department at construction and commissioning phases, with the aim of resolving any design related issues that may arise.
- In the event of any identified design problem requiring new revisions of drawings to be issued, the *Consultant* shall produce such revisions. These new revisions shall be checked and approved by their registered professional engineer.
- Check and verify the checklists and test certificates

6.3.4. Pre-Close-out

Upon completion of commissioning, and if included in the accepted quotation, the *Consultant* shall be responsible and accountable for checking of as-built drawings, checklists and test certificates for

completeness and correctness. All drawings are required to be updated on MicroStation, as per the construction mark-ups and then signed off and filed on ProjectWise as As-Builts. A soft copy and a signed hard copy of updated as-built drawings shall be provided to the *Employer*, in MicroStation format, no later than one calendar month after receiving the marked-up drawings from the *Employer*.

On a regular basis (frequency to be determined by the *Employer*), the *Employer* will choose a selection of projects for review. The *Consultant* shall attend the project review meetings when required and present their project progress.

Appendix B – Resource requirement for the Consultant

Professional Services	Minimum Resources and Qualifications
Control Plant Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, or n x N Dip (Electrical) registered as Professional Technicians with ECSA, and n x N Dip (Draughting)
Electrification, Medium and Low Voltages Overhead and Underground Network Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, or n x N Dip (Electrical) registered as Professional Technicians with ECSA, and n x N Dip (Draughting)
Sub-Transmission (HV) Lines Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, or n x N Dip (Electrical) registered as Professional Technicians with ECSA, and n x N Dip (Draughting)
Sub-Transmission (HV) Cables Networks Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, or n x N Dip (Electrical) registered as Professional Technicians with ECSA, and n x N Dip (Draughting)

Professional Services	Minimum Resources and Qualifications
Substations and Switching Station Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, or n x N Dip (Electrical) registered as Professional Technicians with ECSA, and n x N Dip (Draughting)
Geotechnical Investigations	1 x BSc / Postgraduate Diploma (Geology) registered with SACNASP
Quantity Surveyor	1 x BSc / BTech (Quantity Surveyor) registered as PrQS with SACQSP
Architectural Design	1 x MArch (Professional) registered as Professional Architect with SACAP
Fire Detection and Protection	1 x BSc Eng. (Mechanical) with Certificate in Fire Science, Operations, Fire Safety, and Management registered as Professional Engineer with ECSA, and n x BSc Eng. (Mechanical) registered as Candidate Engineers with ECSA, or n x BTech (Mechanical) registered as Professional Technologist with ECSA, and n x N Dip (Draughting)
Mechanical Engineering Design	1 x BSc Eng. (Mechanical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Mechanical) registered as Candidate Engineers with ECSA, or n x BTech (Mechanical) registered as Professional Technologist with ECSA, and n x N Dip (Draughting)
Electrical Engineering Design	1 x BSc Eng. (Electrical) registered as Professional Engineer with ECSA, and n x BSc Eng. (Electrical) registered as Candidate Engineers with ECSA, or n x BTech (Electrical) registered as Professional Technologist with ECSA, and n x N Dip (Draughting)

Professional Services	Minimum Resources and Qualifications
Civil and Structural Engineering Design	1 x BSc Eng. (Civil / Structural) registered as Professional Engineer with ECSA, and n x BSc Eng. (Civil) registered as Candidate Engineers with ECSA, or n x BTech (Civil) registered as Professional Technologist with ECSA, and n x N Dip (Draughting)

Appendix C – SHEQ policies and procedures requirements

1) OHSAS 18001 conformance

2) ISO 14001 conformance

3) EPC 32-245 Waste Management Procedure

4) EPC 32-95 Procedure for the effective Management of Safety, Health and Environmental related Incidents

5) EPC 32-96 Environmental Control Document

6) EPL 32-727 Safety, Health, Environment and Quality Policy

7) DPC 34-2200 Incidents within the Distribution Division

8) EPC 32-259 Environmental Procedure

9) EPC 32-247 Procedure for vegetation clearance and maintenance within overhead powerline servitudes and on Eskom owned land

10) EPL 32-97 Environmental Land Policy

11) EPC 32-248 Environmental Management Programme

12) 240-53413860 Business Management audits procedure

13) 240-53464409 Corrective and Preventative Action Procedure

14) 240-44175038 Control of Non-Conforming Products and Services Procedure

15) 240-83560115 Specification GUIDANCE OF HANDLING BEES

16) 240-83560325 Specification HANDLING AND DISPOSING FLUORESCENT TUBES

17) 240-83559668 Specification HANDLING MEDICAL WASTE

18) 240-83559502 Specification MANAGEMENT OF SILICA GEL

19) 240-83559424 Specification OIL MANAGEMENT

20) 240-83560949 Specification SOLUTION TO IMPROVE THE DATA INTEGRITY AND QUALITY OF DISTRIBUTION ENVIRONMENTAL SCREENING DOCUMENTS

21) 240-83559528 Specification VEGETATION MANAGEMENT

22) 240-73198256 SHE Specification Professional Service Contracts

23) 32-136 Contractor Health and Safety Requirements

24) Occupational Health and Safety Act: Section 37(2) Agreement

25) 32-407: Behaviour Safety Observation Procedure

26) 32-123: Emergency Planning

27) 32-124: Eskom Fire Risk Management

28) 32-93: Vehicle and Driver Safety Management Procedure

29) 32-37: Substance Abuse Procedure

30) 32-418: Working from Heights Procedure

31) 32-36: Smoking Policy

32) 32-345: Eskom Vehicle Safety Specification

Appendix D – SD&L

1. Localisation

Eskom prefers service providers to purchase all their materials, equipment or any other services required within the borders of South Africa. The Local Content to South Africa will be 100% because Eskom do not expect any skills to be imported for these services and the industry is matured enough to possess all the skills required. It will form part subcontracting, skills development, and supplier development.

2. Industrialisation

There is no requirement for industrialisation as all resources are sourced from within South Africa.

3. Skills Development

The *Consultant* will be obligated to train a minimum of 10 persons for the duration of the Contract. The *Consultant* will have to ensure that the skills committed are successfully achieved by the end of the contract period. Skills candidates shall be sourced from previously disadvantage groups in South Africa. The purpose is to provide these candidates with skills and workplace experience in order to increase the opportunity for them to be employable within the industry. The *Consultant* may develop the candidates directly, through their supply network or through the SETA accredited training providers.

The *Consultant* will be required to check capacity to handle number of trainees in house. Failure which the employer will be allowed to use other panel member or external training service provider that have interest and capacity to train then the *Consultant* fund those students in order to satisfy their SD&L requirements.

Skills development candidates should be currently unemployed graduates from FET Colleges and universities and/or matriculants. The composition of the candidates shall be representative of the population demographics of South Africa. The *Consultant* will be provided with the list of skills as per respective discipline to choose from, this will mean this *Consultant* will train candidate with skill type that is relevant to their area of expertise.

3.1 List of proposed skills

Skills Type	Estimated number of candidates to trained
Learnerships	**12%**
Engineers (industry related)	**5%**
Technicians	**3%**

Skills Type	Estimated number of candidates to trained
In-Service training	**5%**
Online Training	**42%**
Bursaries	**33%**

NB: See proposed List of Skills to be developed below (Not limited)

The monitoring and report will provide implementation schedule and supplier data collection templates to ensure that the above obligations to train candidates are achieved successfully through regular monitoring of task order value awarded to the *Consultant*.

4. Job Creation

The *Consultant* shall propose the number of jobs to be created as a direct result of this contract. The *Consultant* should also propose the number of jobs to be retained as a direct result of this contract. The proposals shall be recorded on the implementation schedule at contract award.

5. Supplier Development

5.1 Sub-contracting: The *Consultant* will be required to sub-contract minimum of 30% of their contract value (actual spent) for supplier empowerment purposes (the *Consultant* should be ready to do work and be part of Eskom Engineering panel but targeted only at B&C). This process will also contribute to increasing the players in this industry and help in creating more jobs and competition in the industry, which will result in changing the land scape of South African economy. This will only be applicable to companies that are smaller / medium to the *Consultant* and black owned with 51% black ownership.

5.2 Incubation: The *Consultant* will provide the small firm in with the identified and agreed assistance to help them to be developed to the next level of operation.

- ✓ The consultant will be required to select the Incubate from the approved list that Eskom will provide, and the *Consultant* will be required to draft an incubation plan, implement, and report progress.
- ✓ The *Consultant* will be required to incubate for 30% of their contract value (actual spent).
- ✓ The 30% can be split between incubation and sub-contracting to incubation companies. The 30% can be made up of work subcontracted to these companies as well as costs incurred by the *Consultant* to identify skills shortages, assist in improvement of the skills shortages (e.g training provided by the *Consultant* in quality, then the *Consultant* hours can be booked). The skills transfer can be specific skills (in line with the *Consultant* skills) and generic business management skills. Subcontracting with regard to Incubation is meant for practical training purposes.

- ✓ The 30% will be based on the scaling methodology liked to the duration of the contract but managed year on year as per the *Consultant* implementation plan
- ✓ Incubate companies will be Engineering Panel C 100% EME Black women/youth owned from Panel C Engineering Panel

The *Consultant* will be permitted to use sub-contractors or Incubated companies, which are already on the *Consultant's* books for other contracts, provided these companies:

i) Appear on the official list supplied as part of Gauteng Cluster contract and
ii) Consultant is able to prove unambiguously that the SD&L reporting on other Eskom contract for the Incubated or sub-contractor in question is done ethically (i.e. there is no double-reporting on Eskom's different contracts).

6. Conclusion

The commitment of any of SD&L elements will form part of the NEC contract and shall be monitored throughout the duration of the contract to ensure all the obligations and undertakings are fulfilled.