

GEORGE MUNICIPALITY



CIDB DOCUMENT FOR TENDER NO: ENG018/2024

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV &
BESS FOR A PERIOD OF 36 MONTH

ENQUIRIES:
MR. JB SNYMAN
24 BLAND STREET, MOSSEL BAY
TEL: (044) 691 2074
EMAIL: jb.cvw@cvw-e.com

ISSUED BY:
THE CITY COUNCIL
MUNICIPALITY OF GEORGE
P O BOX 19
GEORGE, 6530

SUMMARY FOR TENDER OPENING PURPOSES

NAME OF BIDDER:.....

CENTRAL SUPPLIER DATABASE NO.: MAAA

TOTAL PRICE (INCLUDING VAT)

R

PREFERENCES CLAIMED FOR:

B-BBEE Status Level of Contributor:

Preference Points Claimed:

Tender Period $\leq$ 36 Month

B-BBEE certificates submitted with the tender document MUST be VALID ORIGINAL B-BBEE CERTIFICATES or VALID CERTIFIED COPIES OF THE B-BBEE CERTIFICATES

TENDER CLOSING AT 12H00 ON FRIDAY, 18th October 2024

For official use.

Signatures of SCM Officials at Tender Opening

1.

2.

BIDDER CONTACT DETAILS

This information shall be used for any correspondence or contact with the bidder.

Please indicate whether you want to receive any correspondence via e-mail or send to your postal address by registered mail.

Name of Bidding Company:		Mark choice of correspondence with X
Postal Address:	 Postal Code:	
E-mail Address:		
Telephone Number:		
Cellular Number:		
Facsimile Number:		

GEORGE MUNICIPALITY

TENDER No. ENG018/2024

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BESS FOR A PERIOD OF 36 MONTH

GENERAL TENDER INFORMATION

TENDER ADVERTISED	: 12 SEPTEMBER 2024
ESTIMATED CIDB CONTRACTOR GRADING DESIGNATION	
FOR ALL PROJECTS	: 3 EB or 3 EP
COMPULSORY SITE VISIT / CLARIFICATION MEETING	: Friday, 27th September 2024 at 11h00
VENUE FOR SITE VISIT /	: Luminance Room, Electrical Department, Brik Road, Industrial Area, George
CLOSING DATE	: 18th October 2024
CLOSING TIME	: 12H00
LOCATION OF TENDER BOX	: Tender Box at the George Municipality, on the First Floor, Directorate: Financial Services, Supply Chain Management Unit, Civic Centre, York Street, George.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV &
BESS FOR A PERIOD OF 36 MONTH

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GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part T. The Tender

The Tender (Part T)

PART T1 Tender Procedures

T1.1 Tender Notice and Invitation to Tender

T1.2 Tender Data

PART T2 Returnable Documents (All documents / schedules are returnable)

T2.1 List of Returnable Schedules Required for Tender Evaluation, and
Returnable Schedules

T2.2 Other documents that will be incorporated into the contract

T2.3 Returnable Schedules that will be incorporated in the contract

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part T1: Tender Procedure**Part T1.1. Tender Notice and Invitation to Tender**

GEORGE MUNICIPALITY / GEORGE MUNISIPALITEIT
TENDER NUMBER ENG018/2024 / NOMMER:ENG018/2024

Tenders are hereby invited for the:

TENDER NO.: ENG018/2024 - TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH

Completed tenders in a sealed envelope, clearly marked:

Tender No. ENG 018/2024, must be placed in the tender box at the George Municipality on the First Floor, Department: Financial Services, Supply Chain Management, York Street, George by no later than **12:00** on Friday, **18 October 2024**. Tenders will be opened on the same day in the Committee Room at 12:05. Late or unmarked tenders will not be considered. No posted tenders or tenders per fax or e-mail will be accepted.

A compulsory clarification meeting will be held in the Luminance Room at George Municipality's Electrical Department, Brick Road, Industrial Area, George at 11:00 on Friday, 27 September 2024. Non-attendance of the compulsory site meeting will disqualify your tender.

Tender documents are available on the George Municipal website for download, free of charge. Alternatively, they can be purchased at a non-refundable fee of **R284.05** each from the Supply Chain Management Unit, First Floor, Civic Centre, York Street, George.

Only Tenderers that meet the following pre-qualification eligibility conditions will be considered.

1. The tenderer must have experience of having successfully completed Design, Engineering, Procurement, Testing and Commissioning and an ongoing Maintenance of grid connected Hybrid Solar systems (PV + BESS) of at least 2 (two) projects, each having an individual minimal capacity of ≥ 50 kWp (PV) and 50 kWh BESS or above in South Africa.
2. The tendering company or joint venture must have the following key staff an ECSA registered Electrical Engineer/Technologist or a Registered Installation Electrician. The tendering company is allowed to sub-contract relevant works to local companies.
3. A minimum CIDB contractor grading designation of 3EB/3EP or higher is required. The Contractor's grading must, however, be in accordance with the total sum awarded to that Contractor.
4. A Tenderer that is registered as an Electrical Contractor with the Department of Labour and which shall remain valid for the duration of the contract.

Tenderers who fail to comply with these conditions will be disqualified.

Tenders will be evaluated and adjudication in terms of the Preferential Procurement Policy Framework Act (Act 5 of 2000) Regulations 2022, the George Municipality's Supply Chain Management Policy as well as the George Municipality's Preferential Procurement Policy, where 80 points will be scored for price and 20 points for B-BBEE status and specific goals.

If you are purchasing the document, please submit proof of payment five (5) days before the clarification meeting, to CVW Consulting Engineer (admin.cvw@cvw-e.com) to reserve a document.

The banking details for the municipal account are shown below:

The tender document will be available for free on the George Municipality website.

Please use the following as reference on payments made to the Municipality: "ENG018/2024 – COMPANY NAME".

Account	PUBLIC SECTOR MANAGED ACCOUNT	Account Number	62869623150
Account Status	Active Account - The account is currently open and transacting		
Branch Code	210114	Branch Name	GEORGE, C.P. 229
Swift Code	FIRNZAJJ	Date Opened	2020-10-01

For more information, contact Mr. JB Snyman at (044) 691 2074 / jb.cvw@cvw-e.com.

The Municipality reserves the right to withdraw any invitation to tender and/or to readvertise or to reject any quotation or to accept a part of it. The Municipality is not bound to accept the lowest or any tender.

A TCS PIN for bidders' tax compliance information must be submitted with the tender document.

It will be required for all successful bidders to register on the Central Supplier Database (CSD).

MR DAWIE ADONIS
ACTING MUNICIPAL MANAGER
GEORGE MUNICIPALITY
GEORGE
6530

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
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Part T1.2. Tender Data (T1.2)

Clause number	The conditions of Tender are the Standard Conditions of Tender as contained in the Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts, August 2019 (See www.cidb.org.za). The Standard Conditions of Tender for Procurements make several references to the Tender Data for details that apply specifically to this Tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.
C.1	General
C.1.1	The Employer is the GEORGE MUNICIPALITY, DIRECTORATE: ELECTROTECHNICAL SERVICES, PO Box 19, George, 6530.
C.1.1.1	The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In the dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly, and transparently, comply with all legal obligations and not engage in anticompetitive practices.
C.1.1.2	The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents, and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate. <i>Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result. 2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.</i>
C.1.1.3	The employer shall not seek, and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.
C.1.2	Tender Documents
	The documents issued by the employer for the purpose of a tender offer are listed in the tender data. The Tender documents issued by the Employer Comprise: <u>Part T: The Tender Data</u> Part T1.1 Tender notice and invitation to tender Part T1.2 Tender data <u>Part T2 Returnable Documents</u> Part T2.1 List of returnable documents

	Part T2.2 Other Documents Required for Tender Evaluation Purposes Part T2.3 Returnable schedules that will be incorporated in the contract Part C: The Contract Part C1: Agreement and contract data Part C1.1 Form of offer and acceptance Part C1.2 Contract and data conditions Part C1.3 Objections and Complainants form Part C1.4 Form of Performance Guarantee Part C2: Pricing data Part C2.1 Pricing instructions Part C2.2 Bill of Quantities Part C3: Scope of Works Part C4: Health and Safety Specification Part C5: Site Information Part C6: Annexures
C.1.3	Interpretation
C.1.3.1	The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.
C.1.3.2	These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender/quote.
C.1.3.3	For the purposes of these conditions of tender, the following definitions apply: a) conflict of interest means any situation in which: i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially; ii) an individual or tenderer is able to exploit a professional or official capacity in some way for their personal or corporate benefit; or iii) Incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee. b) comparative offer means the price after the factors of a non-firm price and all unconditional discounts it can be utilized to have been taken into consideration; c) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; d) Fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels.
C.1.4	Communication and employer's agent
	Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.
C.1.5	Cancellation and Re-Invitation of Tenders
C.1.5.1	An employer may, prior to the award of the tender, cancel a tender if- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation; b) funds are no longer available to cover the total envisaged expenditure; or c) No acceptable tenders are received. d) There is a material irregularity in the tender process.
C.1.5.2	The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised.

C.1.5.3	An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.
C.1.6	Procurement procedures
C.1.6.1	General
	Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.
C.1.6.2	Competitive negotiation procedure
C.1.6.2.1	Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.
C.1.6.2.2	All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified, and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.
C.1.6.2.3	At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.
C.1.6.2.4	The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.
C.2	Tenderer's obligations

C.2.1	Eligibility Only Tenderers that meet the following pre-qualification conditions may respond: 1. The tenderer must have experience of having successfully completed Design, Engineering, Procurement, Testing and Commissioning and an ongoing Maintenance of grid connected Hybrid Solar systems (PV + BESS) of at least 2 (two) projects, each having an individual minimal capacity of ≥ 50 kWp (PV) and 50 kWh BESS or above in South Africa. 2. The tendering company or joint venture must have the following key staff an ECSA registered Electrical Engineer/Technologist or a Registered Installation Electrician. The tendering company is allowed to sub-contract relevant works to local companies. 3. A minimum CIDB contractor grading designation of 3EB/3EP or higher is required. The Contractor's grading must, however, be in accordance with the total sum awarded to that Contractor. 4. A Tenderer that is registered as an Electrical Contractor with the Department of Labour and which shall remain valid for the duration of the contract.
C.2.1.1	Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.
C.2.1.2	Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.
C.2.2	Cost of tendering
C.2.2.1	The Employer will not compensate the Bidder for making a tender submission`
C.2.2.2	Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.
C.2.2.2	Accept that the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspect of the offer satisfy requirements
C.2.3	Check documents
	Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.
C.2.4	Confidentiality and copyright of documents
	Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5	Reference documents
	Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.
C.2.6	Acknowledge addenda
	Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.
C.2.7	Clarification meeting
	Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.
C.2.8	Seek clarification
	Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.
C.2.9	Insurance
	To the extent specified in the annexure Part C6.1 “ <i>Operation and Maintenance</i> ” titled contractor insurance requirements, the Contractor shall at their expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances.
C.2.10	Pricing the tender offer
C.2.10.1	Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.
C.2.10.2	Show VAT payable by the employer separately as an addition to the tendered total of the prices.
C.2.10.3	Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.
C.2.10.4	State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.
C.2.11	Alterations to documents
	Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.
C.2.12	Alternative tender offers

C.2.12.1	Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.
C.2.12.2	Accept that an alternative tender offer must be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.
C.2.13	Submitting a tender offer
C.2.13.1	Submit a tender offer only, to provide the whole of the works, identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
C.2.13.2	Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.
C.2.13.3	Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
C.2.13.4	Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
C.2.13.5	Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
C.2.13.6	Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
C.2.13.7	Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
C.2.13.8	Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.
C.2.14	Information and data to be completed in all respects
	Accept that tender offers, which do not provide all the data or information, requested completely and, in the form, required, may be regarded by the employer as non-responsive.
C.2.15	Closing time
C.2.15.1	Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.
C.2.15.2	Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16	Tender offer validity
C.2.16.1	Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
C.2.16.2	If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.
C.2.17	Clarification of tender offer after submission
	Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted. <i>Note: Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.</i>
C.2.18	Provide other material
C.2.18.1	Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.
C.2.19	Inspections, tests, and analysis
	Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.
C.2.20	Submit securities, bonds and policies
	If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.
C.2.21	Check final draft
	Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.
C.2.22	Return of other tender documents
	If so, instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.
C.2.23	Certificates
	Include in the tender submission or provide the employer with any certificates as stated in the tender data if not it shall be considered non-responsive
C.3	The employer's undertakings

C.3.1	Respond to requests from the tenderer
C.3.1.1	Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.
C.3.1.2	Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence: a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements; b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.
C.3.2	Issue Addenda
	If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until Five (5) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.
C.3.3	Return late tender offers
	Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.
C.3.4	Opening of tender submissions
C.3.4.1	Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBEE status level and Specific Goals; and time for completion for the main tender offer only.
C.3.4.2	Make available the record outlined in C.3.4.1 to all interested persons upon request.
C.3.5	Non-disclosure
	Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.
C.3.6	Grounds for rejection and disqualification
	Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.
C.3.7	Test for responsiveness

C.3.7.1	Determine, after opening and before detailed evaluation, whether each tender offer properly received: a) complies with the requirements of these Conditions of Tender, b) has been properly and fully completed and signed, and c) is responsive to the other requirements of the tender documents.
C.3.7.2	A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would: a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work, b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified. Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.
C.3.8	Arithmetical errors, omissions and discrepancies
C.3.8.1	Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.
C.3.8.2	Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.10 for: a) the gross misplacement of the decimal point in any unit rate; b) omissions made in completing the pricing schedule or bills of quantities; or c) arithmetic errors in: (i) line-item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or (ii) the summation of the prices.
C.3.8.3	Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.
C.3.8.4	Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows: a) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected. b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.
C.3.9	Clarification of a tender offer
	Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.
C.3.10	Evaluation of tender offers

	The activities associated with evaluating tender offers are as follows: a) Open and record tender offers received b) Determine whether or not tender offers are complete c) Determine whether or not tender offers are responsive d) Evaluate tender offers e) Determine if there are any grounds for disqualification f) Determine acceptability of preferred tenderer g) Prepare a tender evaluation report h) Confirm the recommendation contained in the tender evaluation report
C.3.10.1	General
	Bids will be evaluated in terms of their responsiveness to the bid specifications and requirements as well as such additional criteria as set out in this set of tender documents.
C.3.11	Acceptance of tender offer
	Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer: a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement; b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract; c) has the legal capacity to enter into the contract; d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing; e) complies with the legal requirements, if any, stated in the tender data; and f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.
C.3.12	Prepare contract documents
C.3.12.1	If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of: a) Addenda issued during the tender period, b) Inclusion of some of the returnable documents and c) Other revisions agreed between the employer and the successful tenderer.
C.3.12.2	Complete the schedule of deviations attached to the form of offer and acceptance, if any.
C.3.13	Complete adjudicator's contract
	Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.
C.3.14	Registration of the award
	An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the CIDB Register of Projects.
C.3.15	Provide copies of the contracts

	Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.
C.3.16	Provide written reasons for actions taken
	Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

B-BBEE certificates submitted with the tender documents MUST be a VALID ORIGINAL B-BBEE CERTIFICATE or VALID CERTIFIED COPY OF THE B-BBEE CERTIFICATE.

In the case of a Trust, Consortium or Joint Venture, they will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

1.2.1. MBD 1

TAX COMPLIANCE INFORMATION (PART A)

PART A

Tax Compliance Status	TCS Pin:		or	CSD No:	
B-BBEE Status Level Verification Certificate [Tick Applicable Box]	☐ Yes ☐ No			B-BBEE Status Level Sworn Affidavit	☐ Yes ☐ No
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE / SWORN AFFIDAVIT (FORM EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
Are You The Accredited Representative In South Africa For The Goods / Services / Works Offered?	☐ Yes ☐ No [If Yes, Enclose Proof]			Are You A Foreign Based Supplier For The Goods / Services / Works Offered?	☐ Yes ☐ No [If Yes, Answer Part 2]
Signature of Bidder				Date	

TERMS AND CONDITIONS FOR BIDDING (PART B)**PART B**

1. TAX COMPLIANCE REQUIREMENTS		
1.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.	
1.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.	
1.3	APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA .	
1.4	FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B2.	
1.5	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.	
1.6	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.	
1.7	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.	
2. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS [Tick Applicable Box]		
2.1	Is the entity a resident of the Republic of South Africa (RSA)?	YES NO
2.2	Does the entity have a branch in the RSA?	YES NO
2.3	Does the entity have a permanent establishment in the RSA?	YES NO
2.4	Does the entity have any source of income in the RSA?	YES NO
2.5	Is the entity liable in the RSA for any form of taxation?	YES NO
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 1.3 ABOVE.		

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID. NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

Signature of Bidder:

Capacity Under Which This Bid Is Signed:

Date:

1.2.3. MBD 4**DECLARATION OF INTEREST**

1.	No bid will be accepted from persons in the service of the state*.		
2.	Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in the service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.		
3.	In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.		
3.1	Full Name of bidder or his / her representative:		
3.2	Identity number:		
3.3	Position occupied in the Company (director, trustee, shareholder ²):		
3.4	Company Registration Number:		
3.5	Tax Reference Number:		
3.6	VAT Registration Number:		
3.7	The names of all directors / trustees / shareholders / members, their individual identity numbers and state employee numbers (where applicable) must be indicated in paragraph 4 below.		
3.8	Are you presently in the service of the state?*	YES / NO	
3.8.1	If yes, furnish the following particulars: Name of person / director / trustee / shareholder member: Name of state institution at which you or the person connected to the bidder is employed: Position occupied in the state institution: Any other particulars:		
3.9	Have you been in the service of the state for the past twelve months?		YES / NO
3.9.1	If so, furnish particulars.		

3.10 3.10.1	Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? If yes, furnish the following particulars: Name of person: Name of state institution at which you or the person connected to the bidder is employed: Position occupied in the state institution: Any other particulars:	YES / NO
3.11 3.11.1	Are you aware of any relationship (family, friend, other) between the bidder and any person in the service of the state who may be involved with the evaluation and or adjudication of this bid? If yes, furnish the following particulars: Name of person: Name of state institution at which you or the person connected to the bidder is employed: Position occupied in the state institution: Any other particulars:	YES / NO
3.12 3.12.1	Are any of the company's directors, managers, principal shareholders or stakeholders in the service of the state? If yes, furnish the following particulars: Name of person / director / trustee / shareholder / member: Name of state institution at which you or the person connected to the bidder is employed: Position occupied in the state institution: Any other particulars:	YES / NO

3.13	Is any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in the service of the state?	YES / NO	
3.13.1	If yes, furnish the following particulars: Name of person / director / trustee / shareholder / member: Name of state institution at which you or the person connected to the bidder is employed: Position occupied in the state institution: Any other particulars:		
3.14	Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract?	YES / NO	
3.14.1	If yes, furnish particulars: 		
4. Full details of directors / trustees / members / shareholders:			
THE FOLLOWING INFORMATION IS COMPULSORY TO COMPLETE:			
Full Name	Identity Number	Individual Tax Number for each Director	State Employee Number (where applicable)
5.	The contract will be automatically cancelled if there is a conflict of interest which is not disclosed by the bidder.		

Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA)

All parties agree that they will comply with Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA) and process all the information and/or personal data in respect of the goods and/or services being rendered in accordance with the said act and only for the purpose of providing the goods and/or services set out in the agreement to provide such goods and/or services.

The contract between the municipality and the service provider must ensure compliance with the Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA), in that the service provider establishes and maintains security measures to safeguard personal information being processed on behalf of the municipality. The service provider must notify the municipality immediately in an event where there are reasonable grounds to believe personal information has been accessed by an unauthorized person.

The contract with a service provider must ensure confidentiality of personal information processed on behalf of the municipality. A supply contract with a service provider must include standard clauses outlining joint responsibility in terms of the protection of personal information.

.....
Signature

.....
Date

.....
Capacity

.....
Name of Bidder

¹MSCM Regulations: "in the service of the state" means to be -

- (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the National Assembly or the National Council of Provinces;
- (b) a member of the board of directors of any municipal entity;
- (c) an official or any Municipality or municipal entity;
- (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (e) a member of the accounting authority of any national or provincial entity; or
- (f) an employee of Parliament or a provincial legislature.

²"Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercise control over the company.

1.2.4. MBD 5**DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)**

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

1. Are you by law required to prepare annual financial statements for auditing? ***YES / NO**
 - 1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.
.....
2. Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO**
 - 2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services toward any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.
 - 2.2 If yes, provide particulars.
.....
.....
.....
3. Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? ***YES / NO**
 - 3.1 If yes, provide particulars.
.....
.....
4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic? ***YES / NO**
 - 4.1 If yes, furnish particulars.
.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION
FORM IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME
SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

1.2.5. MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

- 1.1** The following preference point systems are applicable to invitations to tender:
- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
 - the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

(delete either a, b, or c - whichever is not applicable to this tender).

- a) The applicable preference point system for this tender is the **90/10** preference point system.
- b) The applicable preference point system for this tender is the **80/20** preference point system.
- c) Either the **90/10 or 80/20** preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price
- (b) BBBEE; and
- (c) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80/90
BBBEE	10/5
SPECIFIC GOALS	10/5
Total points for Price and Specific Goals	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of

this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

- 1.6** The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim regarding preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

$$P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right) \text{ or } P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

$$P_s = 80 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right) \text{ or } P_s = 90 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)$$

Where

- Ps = Points scored for price of tender under consideration
 Pt = Price of tender under consideration
 Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR BBBEE AND SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.1.1 Points awarded for B-BBEE Level of contributor

In terms of the Specific Goals as per the George Municipality Preferential Procurement Policy, preference points must be awarded to a tenderer for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of Points for Preference (80/20)	Number of Points for Preference (90/10)
1	10	5
2	9	4.5
3	7	3
4	6	2.5
5	4	2
6	3	1.5
7	2	1
8	1	0.5
Non-compliant contributor	0	0

Bidder MUST submit a valid BBBEE certificate, failure to attach no points will be awarded for BBBEE points.

4.1.2 Points awarded for Specific Goals

In terms of the Specific Goals as per the George Municipality Preferential Procurement Policy, preference points must be awarded to a Tenderer for Locality in accordance with the table below:

Locality of Tenderer's Office	Number of points (80/20 system)	Number of points (90/10 system)
Within the boundaries of George Municipality	10	5
Within the boundaries of Garden Route District Municipality	6	3
Within the boundaries of the Western Cape	4	2
Outside the boundaries of the Western Cape	2	1

Bidder's MUST submit proof of address (e. g. municipal account, rental/lease agreement, or affidavit) with the tender document. Failure to attach proof will result in no points awarded for Specific Goals.

George Municipality will reserve the right to use any and all available information at its disposal, including conducting site visits and inspections to verify a bidder's claim of having a local STAFFED / MANNED AND OPERATIONAL office within the George Municipal area.

The principle of substance over legal form, as defined in the Standards of Generally Recognized Accounting Practice (GRAP), will be applied in such assessments. (This means that even though a bidder may present a rental agreement, the claim of having a local staffed and operational office will be assessed in its actual substance and not by only accepting the legal documentation.)

The purpose of the locality points is to promote local economic development within the George Municipal area and any bidder attempting to circumvent the substance of this initiative through any means, including by means of fronting, will be reported to the National Treasury for blacklisting on the Central Supplier Database (CSD).

- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,
- then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

5. BID DECLARATION

Tenderers who claim points in respect of BBBEE must complete the following:

B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 4.1 AND 4.1.1

5.1.	Contribution to BBBEE: =(maximum of 5 or 10 points)
------	--

(Points claimed in respect of paragraph 5.1 must be in accordance with the table reflected in paragraph 4.1.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.)

LOCALITY OF TENDERERS OFFICE CLAIMED IN TERMS OF PARAGRAPHS 4.1 AND 4.1.2

5.2.	Contribution to Specific Goals: =(maximum of 5 or 10 points)
------	---

(Points claimed in respect of paragraph 5.2 must be in accordance with the table reflected in paragraph 4.1.2 and must be substantiated by relevant proof of address of a company office.)

DECLARATION WITH REGARD TO COMPANY/FIRM

5.3. Name of company/firm.....

5.4. Company registration number:

5.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

5.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 5.1 and 5.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

IF ANY TENDERER DOES NOT HAVE AN EME CERTIFICATE FROM A RATING AGENCY ACCREDITED BY SANAS FOR BEP (BUILD ENVIRONMENT PROFESSIONAL) / CONTRACTOR / SUPPLIER OR A B-BBEE CERTIFICATE FROM A B-BBEE VERIFICATION PROFESSIONAL REGULATOR APPOINTED BY THE MINISTER OF TRADE AND INDUSTRY, THIS AFFIDAVIT FOR BEP/CONTRACTOR/SUPPLIER WILL BE COMPULSORY TO COMPLETE.

1.2.9. MBD 6.1(A)

B-BBEE EXEMPTED AFFIDAVIT FOR EXEMPTED MICRO ENTERPRISES (ISSUED IN TERMS OF THE AMENDED CONSTRUCTION SECTOR CODE)

(Gazette Vol. 630 No. 41287)

Issued in terms of paragraph 3.6.2.4.1 (B)

I, the undersigned,

Full names and surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner of the following enterprise and am duly authorized to act on its behalf:

Enterprise Name:			
Trading Name (If Applicable):			
Registration Number:			
Physical Address:			
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):			
Nature of Construction Business: <i>Indicate the applicable category with a tick.</i>	BEP (Built Environment Professional)	Contractor	Supplier
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds, and Indians – who are citizens of the Republic of South Africa by birth or descent; or who became citizens of the Republic of South Africa by naturalization before 27 April 1994; or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"		

Definition of “Black Designated Groups”	“Black Designated Groups” means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;”
--	---

3) I hereby declare under Oath that as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,

- The Enterprise is _____ % Black Owned
- The Enterprise is _____ % Black Female Owned
- The Enterprise is _____ % Owned by Black Designated Group (provide Black Designated Group Breakdown below as per the definition in the table above)
 - Black Youth % _____ %
 - Black Disabled % _____ %
 - Black Unemployed % _____ %
 - Black People living in Rural areas % _____ %
 - Black Military Veterans % _____ %

Construction Sector Affidavit

1. Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of _____, the annual Total Revenue was less than the applicable amount confirmed **by ticking the applicable box below.**

BEP	R1.8 million	
Contractor	R3.0 million	
Supplier	R3.0 million	

If the turnover exceeds the applicable amount in the table above then this affidavit is no longer applicable and an EME certificate must be obtained from a rating agency accredited by SANAS or when applicable a B-BBEE Verification Professional Regulator appointed by the Minister of Trade and Industry.

2. Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box below.**

100% Black Owned	Level One (135% B-BBEE procurement recognition level)	
At least 51% Black Owned	Level Two (125% B-BBEE procurement recognition level)	
At least 30% Black Owned	Level Four (100% B-BBEE procurement recognition level)	

Less than 30% Black Owned	Level Five (80% B-BBEE procurement recognition level)	
---------------------------	--	--

3. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.
4. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date: _____

COMMISSIONER OF OATHS
SIGNATURE & STAMP

1.2.12. MBD 9**CERTIFICATE OF INDEPENDENT BID DETERMINATION**

1. This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38(1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - 3.1 take all reasonable steps to prevent such abuse;
 - 3.2 reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - 3.3 cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD9) must be completed and submitted with the bid:

¹ **Includes price quotations, advertised competitive bids, limited bids and proposals.**

² **Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.**

MBD 9**CERTIFICATE OF INDEPENDENT BID DETERMINATION**

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

GEORGE MUNICIPALITY

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:
(Name of Bidder)

6. I have read and I understand the contents of this Certificate;
7. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
8. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
9. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
10. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - 10.1 has been requested to submit a bid in response to this bid invitation;
 - 10.2 could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - 10.3 Provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
11. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
12. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - 12.1 prices;
 - 12.2 geographical area where product or service will be rendered (market allocation);
 - 12.3 methods, factors or formulas used to calculate prices;
 - 12.4 the intention or decision to submit or not to submit, a bid;
 - 12.5 the submission of a bid which does not meet the specifications and conditions of the bid; or bidding with the intention not to win the bid.

13. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
14. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
15. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

³ **Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.**

CERTIFICATE FOR MUNICIPAL SERVICES (COMPULSORY TO COMPLETE)

Information required in terms of the Supply Chain Management Regulations, Regulation 28 (1) (c).

Tender Number: ENG018/2024

Name of the Bidder: _____

DETAILS OF THE BIDDER/S: Owner / Proprietor / Director(s) / Partner(s), etc:

Physical Business address of the Bidder	Municipal Account Number(s)

If there is not enough space for all the names, please attach the additional details to the Tender document.

Name of Director / Member / Partner	Identity Number	Physical residential address of Director / Member / Partner	Municipal Account number(s)

I, _____, the undersigned,
(full name in block letters)

certify that the information furnished on this declaration form is correct and that I/we have no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days.

Signature

THUS DONE AND SIGNED for and on behalf of the Bidder / Contractor

at _____ on the _____ day of _____ 2024

PLEASE NOTE:

MUNICIPAL ACCOUNTS FOR ALL PROPERTIES OWNED BY BIDDER/S MUST BE ATTACHED TO THE TENDER DOCUMENT!

Even if the requested information is not applicable to the Bidder, the table above should be endorsed NOT APPLICABLE with a reason and THIS DECLARATION MUST STILL BE COMPLETED AND SIGNED. In the event of leasing, a lease agreement MUST be attached to the tender document.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR A PERIOD OF
36 MONTH

Part T2- Returnable Documents

Returnable Documents (Part T2)

(ALL Documents and Schedules MUST BE RETURNED for the TENDER to Qualify)

- | | |
|------|--|
| T2.1 | List of Returnable Schedules Required for Tender Evaluation & Returnable Schedules |
| T2.2 | Other documents that will be incorporated into the contract |
| T2.3 | Returnable Schedules that will be incorporated in the contract |

NOTE:

Although the documents under Part T2 is headed "Returnable Documents" in line with the CIDB model, these are not the only documents to be returned together with the Tender. **All** the documents indicated on document T1, must be completed and signed where applicable and submitted as a **complete set of documents**.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR A PERIOD OF
36 MONTH**

Part T2.1. List of Returnable Schedules Required for Tender Evaluation Purposes

Form 2.1.1	General Information
Form 2.1.2	Authority for Signatory
Form 2.1.3	Schedule of Work Carried Out by Tenderer
Form 2.1.4	Proposed Key Personnel
Form 2.1.5	Schedule of Infrastructure and Resources
Form 2.1.6	Schedule of Approach and Methodology
Form 2.1.7	Schedule of Proposed Sub-Contractors
Form 2.1.8	Financial References

2.1.1. General Information

1. Name of tendering entity: _____

2. Contact details

Address : _____

Tel no : (_____) _____

Fax no : (_____) _____

E-mail address : _____

3. Legal entity: Mark with an **X**.

Sole proprietor	
Partnership	
Close corporation	
Company (Pty) Ltd	
Joint venture	

In the case of a Joint venture, provide details on joint venture members:

Joint venture member	Type of entity (as defined above)

4. Income tax reference number: _____ (in the case of a joint venture, provide for all joint venture members)

5. Regional services area where the enterprise is registered: _____ (In the case of a joint venture, provide for all joint venture members)

6. Regional services levy registration number: _____ (In the case of a joint venture, provide for all joint venture members)
7. VAT registration number: _____ (In the case of a joint venture, provide for all joint venture members)
8. Company or closed corporation registration number: _____ (In the case of a joint venture, provide for all joint venture members)
9. Details of proprietor, partners, closed corporation members, or company directors, indicating technical qualifications where applicable (Form on the next page).
10. for joint ventures the following must be attached (**COMPULSORY**):
- Written power of attorney for authorised signatory.
 - **Pro-forma of the joint venture agreement.**
- * If the Joint Venture Agreement is not attached, the tender will not be considered!**

DETAILS OF PROPRIETOR, PARTNERS, CLOSED CORPORATION MEMBERS OR COMPANY DIRECTORS

Name and Identity Number	Relevant qualifications and experience	Years of relevant experience

Name of Tendering Entity:

Signature:

Date:

2.1.2. Authority for Signatory

Details of person responsible for Tender process

Name

Contact number ()

Address of office submitting the
Tender

Telephone no ()

Fax no ()

E-mail address

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy** of the relevant resolution of their members or their board of directors, as the case may be.

"By resolution of the board of directors passed on (date)....."

Mr.

has been duly authorized to sign all documents in connection with the Tender for Contract Numberand any Contract which may arise there from on behalf of

(BLOCK CAPITALS)

SIGNED ON BEHALF OF THE COMPANY

IN HIS CAPACITY AS

DATE

FULL NAMES OF SIGNATORY

AS WITNESSES 1.

2.

2.1.3. Tender Evaluation Process

Stage 1: Eligibility

Only Tenderers that meet the following eligibility conditions may respond:

1. The tenderer must have experience of having successfully completed Design, Engineering, Procurement, Testing and Commissioning and an ongoing Maintenance of grid connected Hybrid Solar systems (PV + BESS) of at least 2 (two) projects, each having an individual minimal capacity of ≥ 50 kWp (PV) and 50 kWh BESS or above in South Africa.
2. The tendering company or joint venture must have the following key staff an ECSA registered Electrical Engineer/Technologist or a Registered Installation Electrician. The tendering company is allowed to sub-contract relevant works to local companies.
3. A minimum CIDB contractor grading designation of 3EB/3EP or higher is required. The Contractor's grading must, however, be in accordance with the total sum awarded to that Contractor.
4. A Tenderer that is registered as an Electrical Contractor with the Department of Labour and which shall remain valid for the duration of the contract.

Eligibility Criterion 1: Company (or JV) Experience

- Please note that this section refers to the Company's and its legacy firms on relevant past experience and are not a duplication of Criterion of key staff and Personnel. Meaning this section takes into consideration that the company as an entity has gained relevant experience in the past in similar or relevant Scope of Works.
- Relevant experience is defined as the accumulation of knowledge or skill that results from direct participation in relevant/similar projects or activities and/or as determined by the George Municipality and/or professional consulting engineer where applicable.

Previous experience

- The Tenderer must provide separate and related contactable Referees. The Referees must each relate to one (1) separate successfully completed project over the last five (5) years.
- The reference projects must be for successfully completed Design, Engineering, Procurement, Testing and Commissioning and an ongoing Maintenance of grid connected Hybrid Solar systems (PV + BESS), each having an individual minimal capacity of ≥ 50 kWp (PV) and 50 kWh BESS or above in South Africa.
- The Tenderer must arrange for the Referee to complete this form, and the completed form must be submitted with the tender document. A Referee form needs to be completed for each project.
- A Certificate of Practical Completion or Certificate of Completion signed by the Employer's Agent must be attached for the project referenced herein.
- A Certificate of Practical Completion, Certificate of Completion or Appointment letter for Maintenance of grid connected PV or Hybrid Solar systems (PV + BESS), must be attached for the project referenced herein.
- In order to eligible for the above, bidders must submit sufficient information as well as documentary proof of information on how long the business have been in existence (operating as a going concern) supported by Company or Business registrations documents and the following:

- Information on how long the business has been in existence (operating as a going concern) supported by Company or Business registration documents.
- Points will only be awarded for relevant & completed experience obtained relevant to the Tender Scope of Works. To be able to gain points the Tenderer must submit proof that the company has obtained the relevant experience for this Tender's Scope of Works & Specifications, and not only parts thereof. If experience is listed, please ensure it is applicable and relevant to the whole of this Tender and not only to parts thereof, otherwise the Bidder will not be awarded the necessary points. Tenders to provide enough experience to score the total points as prescribed **(Attach Completion Certificate)**.
- If no information is provided below and no completion certificates provided, **NO POINTS WILL BE AWARDED**.

Tenderer's Past Experience

The following is a statement of projects successfully completed ≥ 2 by our company over the past 5 years.

Tender No.			
Description:			
Scope of Work:			
Value of Work:		Completion Date:	
Employer:			
Contact Person:		Tel/Mobile No.	
Email:			

Tender No.			
Description:			
Scope of Work:			
Value of Work:		Completion Date:	
Employer:			
Contact Person:		Tel/Mobile No.	
Email:			

Tender No.			
Description:			
Scope of Work:			
Value of Work:		Completion Date:	
Employer:			
Contact Person:		Tel/Mobile No.	
Email:			

REFERENCE FORM 1TO: GEORGE MUNICIPALITY (amatiwane@george.gov.za)

FROM [Referee e-mail address]] _____

SUBJECT: Tender Reference for [Tenderer's Name] _____

Dear Sir/Madam,

We have been listed as a reference by the above contractor for **Tender ENG018/2024: TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR A PERIOD OF 36 MONTHS** for the following project:

Contract Number	Description of Works	Year Completed

We hereby score the Tenderer by marking with an "X" in the table below with regards to their performance in adhering to the scope, time, budget and Quality of the above project/service.

Score	Criteria	Scope	Time	Budget	Quality	Overall Rating
Zero (0) = Very Poor	Extremely unhappy; performance well below the requirements of the project objectives; not prepared to use company again					
40% Poor	Dissatisfied; performance did not meet all the requirements of the project objectives; may use company again, provided there's a vast improvement					
70% Satisfied	Generally satisfied; company complied with most of the requirement's objectives; would use company again					
90% Good	Good Service provided; company complied with all the requirements of the project objectives; received value for money; would use company again					
100% Excellent	Excellent service provided; received more than contracted value, company went beyond requirements of project objectives; would use company again					

Please contact us for any further information

Regards

Signed..... Date.....

Name..... Position.....

Employer Name.....

REFERENCE FORM 2

TO: GEORGE MUNICIPALITY (amatiwane@george.gov.za)

FROM [Referee e-mail address] _____

SUBJECT: Tender Reference for [Tenderer's Name] _____

Dear Sir/Madam,

We have been listed as a reference by the above contractor for **Tender ENG018/2024: TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR A PERIOD OF 36 MONTHS** for the following project:

Contract Number	Description of Works	Year Completed

We hereby score the Tenderer by marking with an "X" in the table below with regards to their performance in adhering to the scope, time, budget and Quality of the above project/service.

Score	Criteria	Scope	Time	Budget	Quality	Overall Rating
Zero (0) = Very Poor	Extremely unhappy; performance well below the requirements of the project objectives; not prepared to use company again					
40% Poor	Dissatisfied; performance did not meet all the requirements of the project objectives; may use company again, provided there's a vast improvement					
70% Satisfied	Generally satisfied; company complied with most of the requirement's objectives; would use company again					
90% Good	Good Service provided; company complied with all the requirements of the project objectives; received value for money; would use company again					
100% Excellent	Excellent service provided; received more than contracted value, company went beyond requirements of project objectives; would use company again					

Please contact us for any further information

Regards

Signed..... Date.....

Name..... Position.....

Employer Name.....

**Attach to this page practical completion certificates for the
OPERATION and MAINTENANCE of PV PLANTS and PV & BESS
and appointment letters for ongoing Operations and
Maintenance of PV + BESS tender.**

Tenderer's Past Experience (with details prescribed above):

Eligibility Criterion 2: Site Staff & Personnel allocated / reserved for this Tender.

- In order to be eligible bidders must complete the attached Curriculum Vitae (CV) of each key personnel to be used/ allocated for this Tender. The staff or personnel listed above must currently be employed by the Bidder company, if not then a letter stating such intent to employ this person, including this person's signature of willingness & acceptance for the intended duration of the project.
- CV experience listed of key staff must be relevant, current and accompanied by certified qualifications and supporting documents. Points can only be allocated once, meaning one-person-one-score, no multiple scoring. Please note the staff allocated to this Tender must be on-site and used for this Tender. If the person is unavailable during time of execution he/she must be replaced with someone of equal or better value and experience and proof as per CV submitted.

NB: Relevant experience is defined as the accumulation of knowledge or skill that results from direct participation in relevant similar events or activities and/or as determined by the **George Municipality** and/or professional consulting engineer where applicable.

Site Staff & Personnel Required:	Name of Staff member
Foreman or Construction Manger & Supervisor Qualifications: ECSA registered Electrical Engineer/Technologist Trade test (Wireman's License) and ORHVS • Must be suitably skilled and have CV verifiable experience as a foreman working on PV Solar installations and maintenance projects. • Must supervise the works full-time on site, the team / the workers and the correct use of all plant/machinery. • Must ensure all Codes & Standards specifications are met and carried out.	
Skilled Artisan (Registered Installation Electrician) Qualifications: Trade test (Red seal) and wireman's license • Must be suitably skilled and have CV verifiable experience working on PV Solar installations and maintenance projects. • Must be able to work on MV and LV networks	

Key Staff Experience (Abridge CV's)

(Complete the abridged CV's below and attach certified qualifications and certificates)

FOREMAN OR CONSTRUCTION MANGER & SUPERVISOR**(Attached original certified copies of qualifications, Wireman's License and NQF Certificate)**

Full Name			
ID Number			
Current Employer			
Current Work Address			
E-mail Address			
Contract Number			
Highest Qualification		Date Obtained (mm/yyyy)	
ECSA Registration No.		Date Obtained (mm/yyyy)	
Wireman's License No.		Date Obtained (mm/yyyy)	
Relevant experience (refer to Scope of Work for relevant category of engineering)			
Employer (Client)	Project Description		Year Completed

Certification: I certify that to the best of my knowledge and belief, the information reflected above correctly describes me, my qualifications and my experience	Signature _____ Date _____
---	-------------------------------

Number of sheets appended by the tenderer to this Schedule..... (if nil, enter NIL).

SKILLED ARTISAN

(Attached original certified copies of qualifications, Trade Test Certificate and NQF Certificate)

Full Name			
ID Number			
Current Employer			
Current Work Address			
E-mail Address			
Contract Number			
Highest Qualification		Date Obtained (mm/yyyy)	
Wireman's License No.		Date Obtained (mm/yyyy)	
Trade test (Red seal)		Date Obtained (mm/yyyy)	
Relevant experience (refer to Scope of Work for relevant category of engineering)			
Employer (Client)	Project Description		Year Completed

Certification:

I certify that to the best of my knowledge and belief, the information reflected above correctly describes me, my qualifications and my experience

Signature _____

Date _____

Number of sheets appended by the tenderer to this Schedule..... (if nil, enter NIL).

2.1.4. Schedule of Infrastructure and Resources**Size of enterprise and current workload:**

What was your turnover in the previous financial year? _____

What is the estimated turnover for your current financial year? _____

List your current contracts and obligations:

Description	Value (R)	Start date	Duration	Expected completed date

Do you have the capacity to supply the goods and services described in this Tender, should the contract be awarded to you? YES / NO

Staffing Profile:

Provide information on the staff that you have available to execute this contract (attach a separate list if the space provided is insufficient)

Permanently employed staff: gender and race	Number of staff
Temporary staff to be employed for the project: gender and race	Number of staff

Name of Tendering Entity: _____

Signature: _____

Date: _____

2.1.5. Schedule of Sub-Contractors

The Bidder shall list below the sub-contractors he/she proposes to employ for part(s) of the work.

If any or all of the sub-contractor/s listed hereunder are not approved subsequent to acceptance of the Tender, it shall in no way invalidate the Tender or the Contract, and the Tendered unit rates for the respective items of work shall remain final and binding even if a sub-contractor/s not listed below is approved by the Employer.

Sub- Contractor's Name	Work Activities to be undertaken by the Sub-contractor	Work Recently Executed by Sub-contractor

2.1.6. Financial References**Financial Statements**

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report for consideration by the Employer.

Details Of Tendering Entity's Bank

I/We hereby authorize the Employer/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO TENDERER 'S HEAD OFFICE
Name of bank	
Branch name	
Branch code	
Street address	
Postal address	
Name of manager	
Telephone number	()
Fax number	()
Account number	

Part T2.2. Other Documents Required for Tender Evaluation Purposes

- | | |
|------------|---|
| Form 2.2.1 | Certificate of Tenderer's Attendance at the Compulsory Information Session / Site Meeting |
| Form 2.2.2 | Written Proof of Tenderers registration at the Construction Industry Development Board (CIDB) |

2.2.1. Certificate Of Tenderer's Attendance At The Compulsory Clarification Meeting

This is to certify that I ,
Representative of (Tenderer)
.....
of (address)
.....
.....
Telephone number
Fax number
attended Clarification Meeting on **Friday, 27 SEPTEMBER 2024 at 11:00** in the company of
(George Municipality / Employer's Representative)

PLEASE NOTE:

Tenderers are requested to submit the minutes received at above-mentioned compulsory information session/meeting with their Tender documents. (Non-submission of this information may lead to rejection of this Tender)

TENDERER 'S REPRESENTATIVE:

GEORGE MUNICIPALITY / EMPLOYER'S REPRESENTATIVE:

2.2.2. Proof Of Registration At The Construction Industry Development Board (CIDB)

The Tenderer is to affix to this page:

- Written proof of Tenderers registration at the CIDB.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

**Part T2.3. Returnable Schedules that will be incorporated in the
Contract**

Form 2.3.1 Record of Addenda to Tender Documents

2.3.1. Record of Addenda to Tender Documents

We confirm that the following communications received from the Employer before the submission of this Tender offer, amending the Tender documents, have been taken into account in this Tender offer:

	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

Signed: **Date:**

Name: **Position:**

SIGNED ON BEHALF OF TENDERER:

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C. The Contract

The Contract (Part C)

Part C1	Agreement and Contract Data
Part C2	Pricing Data
Part C3	Scope of Works

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C1: Agreement and Contract Data

Agreement And Contract Data

- Part C1.1 Form of Offer and Acceptance
- Part C1.2 Contract Data
- Part C1.3 Objections and Complainants Form
- Part C1.4 Pro Forma Performance Guarantee

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

1. Part C1.1. Form of Offer and Acceptance**(AGREEMENT) OFFER**

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

.....

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorised, signing this apart of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Service Provider under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....

..... Rand (in words); R(in figures),

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Service Provider in the Conditions of Contract identified in the Contract Data.

Signature(s) _____

Name(s) _____

Capacity _____

(Name and address of organisation)

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Service Provider the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall form an agreement, between the Employer and the Tenderer upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the contract are contained in

- Part C1 Agreements and Contract Data (which includes this Form of Offer and Acceptance)
- Part C2 Pricing Data
- Part C3 Scope of Work
- Part C4 Health and Safety Specifications
- Part C5 Site Information
- Part C6 Annexures

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 above.

The Tenderer shall within two weeks after receiving a completed copy of this Agreement, contact the Employer's representative (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Signature: _____

Name _____

Capacity **DIRECTOR: ELECTROTECHNICAL ENGINEERING SERVICES**

**GEORGE MUNICIPALITY
CIVIC CENTRE
YORK STREET
GEORGE**

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the Tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR THE TENDERER:

Signature(s)

Name(s)

Capacity

(Name and address of organisation)

FOR THE EMPLOYER:

Signature:

Name

Capacity

DIRECTOR: ELECTROTECHNICAL ENGINEERING SERVICES

**GEORGE MUNICIPALITY
CIVIC CENTRE
YORK STREET
GEORGE**

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

**2. Part C1.2. Contract Data Conditions by the
Employer****C1.2 CONTRACT DATA**

The General Conditions of Contract for Construction Works, Third Edition, 2015 published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this Contract and is obtainable from www.saice.org.za.

The Conditions of Contract are:

- the "General Conditions of Contract"

as they appear in the commercially available publication "*General Conditions of Contract for Construction Works, Third Edition (2015)*", published by the South African Institution of Civil Engineering (SAICE) as the August 2015 print edition, hereinafter referred to as GCC 2015; and

- Specific data as contained in this Contract Data.

Each party to the Contract shall purchase its own copy of the GCC 2015, from a duly authorised commercial vendor or directly from the publisher:

South African Institution of Civil Engineering
Private Bag X200
Halfway House 1685
South Africa
Tel +27 (0)11 805 5947

PART 1: DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this Contract:

Clause	Data
1.1.1.13	The Defects Liability Period is 12 months measured from the date of the Certificate of Completion. (Not Applicable)
1.1.1.14	The time for achieving Practical Completion includes the days referred to under Clause 5.3.2 and the non-working days but excludes the special non-working days (Clauses 5.1.1 and 5.8.1). (Not Applicable)
1.1.1.15	The name of the Employer is George Municipality.
1.1.1.16	The name of the Employer's Agent is CVW Consulting Engineers. Also referred to as the "Engineer" elsewhere in this document.
1.1.1.26	The Pricing Strategy is a Re-measurement Contract.
1.2.1.2	The address of the Employer is: GEORGE MUNICIPALITY Address (physical): 71 York Street, George Address (postal): PO BOX 19, George, 6530 Telephone: 044-803-9247 E-mail: amatiwane@george.gov.za
1.2.1.2	The address of the Employer's Agent is: CVW CONSULTING ENGINEERS Address (physical): 24 Bland Street, Mossel Bay Address (postal): PO BOX 2262, Mossel Bay, 6500 Telephone: 044-691-2074 e-mail: jb.cvw@cvw-e.com
3.2.3	The Employer's Agent shall obtain the specific approval of the Employer before carrying out any of his functions or duties according to the following Clauses of the General Conditions of Contract: None.
5.1.1	The non-working days are Sundays, with the exception of work which must be undertaken during scheduled outages planned for Sundays.
5.8.1	The special non-working days are: The public holidays. The year-end break commencing on about 16 December and ending on about the first Monday of the subsequent year, or the days on which the Contractor grants the majority of his permanent workforce leave.
5.3.1	The documentation required before commencing with the Works are: • Health and Safety Plan (refer to Clause 4.3 of the GCC 2015 conditions). • Initial programme (refer to Clause 5.6). Security (refer to Clause 6.2). • Insurance (refer to Clause 8.6). • Occupational Health and Safety Agreement (refer to Part C1.4 hereof). • Letter of Good Standing from the Compensation Commissioner.
5.3.2	The time to submit the documentation required before commencement of the Works is 14 days.

Clause	Data
5.12.2.2	A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Employer's Agent, all progress on an item or items of work on the critical path of the working programme of the Contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of two (2) working days per month caused by normal rainy weather, for which he will not receive any extension of time. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of two (2) working days. It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained. Abnormal climatic conditions are conditions that occur less frequently than once in ten years.
5.13.1	The penalty for failing to complete a works instruction in the time as confirmed under Item 5.6.1 above is R 3 000.00 excl. VAT per day. The Contractor must pay Delay Liquidated Damages in the amount equal to [0.1% of the Contract Price per day] from the Scheduled Date for Works Completion to the earlier of the Works Completion Date and the date this Contract is terminated up to a limit of [5% of the Contract Price].
	The penalty for failing to complete an emergency works instruction on the time as confirmed under Item 5.6.1 above is R 5 000.00 excl. VAT per instruction/emergency. Emergency repairs as specified in the Bill of Quantities: Labour Component (to address emergencies) - based on hourly rates. Emergency response time: 24 x hours
5.14.1	The requirements for achieving Practical Completion are that the Works must be in a state of readiness, fit for the intended purpose and occupation without danger or undue inconvenience to the Employer.
5.16.3	The latent defects period is five (5) years. (Not Applicable)
6.5.1.2.3	The percentage allowance on the net cost of materials actually used in the completed Works is 10%, unless specifically tendered otherwise in the Pricing Schedules. The percentage allowance on the gross remuneration of the workmen and foremen actually engaged is 10%, unless specifically tendered otherwise in the Pricing Schedules.
6.8.2	Contract Price Adjustment (CPA) will be allowed. Price adjustment shall be increased or decreased by applying a "Contract Price Adjustment Factor" calculated according to the formula and the conditions set out in the Contract Price Adjustment Schedule.
6.8.3	Price adjustments for variations in the costs of special materials are allowed. The price of each special material specified in the Contract Data shall be increased or decreased by the net amount of any variation incurred after the date of tender on the basis set out in the Contract Data, provided that any claim for the adjustment in terms hereof shall be substantiated by the submission acceptable invoices and any other supporting documents that the employer's Agent consider necessary for the purpose, and provided also no further adjustment be permitted price of "special material" after the Due Completion Date unless such material form part of any additional work or variation ordered to be carried out after the date.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%. The percentage advance on Plant not yet supplied to Site is 80%. Documentary evidence of ownership and an indemnity against claims in respect of the plant and or materials shall be provided, and items shall be clearly marked and

Clause	Data
	identified as being the property of the Employer. A Certificate of Ownership of Plant / Materials as per Part C1.5 shall be submitted to the Employer's Agent together with the claim for payment.
6.10.3	Retention of 10% will be withheld on progress payment, up to the limit of retention money which is 5% of the Contract Sum. A guarantee in lieu of retention is not permitted. (Not applicable)
6.11	Failing agreement, between the Contractor and the Employer's Agent, both the Preliminary and General Fixed Charge and Time Related Items shall be adjusted on a pro-rata basis.
8.6.1.1.2	The value of Plant and material supplied by the Employer to be included in the insurance sum is R Nil
8.6.1.3	Liability insurance that covers the Employer as well as the Contractor against respective liability for the death of, or injury to any person, or loss of, or damage to any property (other than property while it is insured in terms of Clause 8.6.1.1) arising from or in the course of the fulfillment of the Contract, from the Commencement Date to the date of the end of the Defects Liability period, if there is one, or otherwise to issue of the Certificate of Completion for a limit of indemnity stated in the Contract Data; Provided that the insurance shall include a cross-liability clause such that the insurance shall apply to the Contractor and to the Employer as separate insured parties.
10.5.3	Amicable settlement in terms of Clause 10.4 shall be contemplated for all disputes prior to referring any dispute to adjudication or arbitration.
10.7.1	The number of Adjudication Board Members to be appointed is one (1). The determination of disputes which are unresolved in terms of Clause 10.4.2 shall be by arbitration.

PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause	Data										
1.1.1.9	The name of the Contractor is										
1.2.1.2	The address of the Contractor is: Address (physical): Address (postal): Telephone: E-mail:										
1.1.1.14	The time for achieving Practical Completion measured from the Contract Commencement Date is (Not Applicable) working weeks.										
6.2.1	The security to be provided by the Contractor shall be one of the following: <table border="1"> <thead> <tr> <th>Type of security</th><th>Contractor</th></tr> </thead> <tbody> <tr> <td>Contractor's (Value Added Tax is excluded from the Contract Sum and the value of the Works for calculating the percentages)</td><td></td></tr> <tr> <td>Cash deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works</td><td>YES</td></tr> <tr> <td>No Performance guarantee of the contract sum plus retention the value of the Works.</td><td>YES</td></tr> <tr> <td>Fixed Performance guarantee of 10% of the Contract Sum for the duration of the contract.</td><td>YES</td></tr> </tbody> </table>	Type of security	Contractor	Contractor's (Value Added Tax is excluded from the Contract Sum and the value of the Works for calculating the percentages)		Cash deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works	YES	No Performance guarantee of the contract sum plus retention the value of the Works.	YES	Fixed Performance guarantee of 10% of the Contract Sum for the duration of the contract.	YES
Type of security	Contractor										
Contractor's (Value Added Tax is excluded from the Contract Sum and the value of the Works for calculating the percentages)											
Cash deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works	YES										
No Performance guarantee of the contract sum plus retention the value of the Works.	YES										
Fixed Performance guarantee of 10% of the Contract Sum for the duration of the contract.	YES										

Date: _____

Signature: _____

Name: _____

Capacity: _____

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

3. Part C1.3. Objections and Complainants Form

(Section 4, item 50 of the George Municipality's Supply Chain Management Policy)

(1) Details of Objector/Complainant

Name: _____

Address: (postal and street): _____

Tel: _____ Fax: _____

Contact person: _____

Reference number of Tender: _____

Other Party's Details (If any)

Name: _____

Address: (postal and street): _____

Tel: _____ Fax: _____

Contact person: _____

Reference number of Tender: _____

Description of Issue[s] in Dispute

List of Documents Attached

Determination Sought in Respect of Objection or Complaint

Form submitted by:

Name: _____

Signature: _____

Position: _____

Date: _____

Place: _____

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

4. Part C1.4: Form of Performance Guarantee

C1.4.1 PRO FORMA PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Third Edition (2015)

GUARANTOR DETAILS AND DEFINITIONS

“Guarantor” means:

Physical Address:

“Employer” means:

“Contractor” means:

“Employer’s Agent” means:

“Works” means:

“Site” means:

“Contract” means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

“Contract Sum” means: The accepted amount inclusive of tax of R.....

Amount in words:

“Guaranteed Sum” means: The maximum aggregate amount of R

Amount in words:.....

Type of Performance Guarantee: (Insert Variable or Fixed) “Expiry Date” means: (Give date) or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

1. VARIABLE PERFORMANCE GUARANTEE

- 1.1 Where a Variable Performance Guarantee has been selected, the Guarantor's liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:
- 1.1.1 From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum: R (Amount in words)
- 1.1.2 From the day following the date of the said interim payment certificate up to and including the Expiry date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, whichever occurs first:
R (Amount in words)
- 1.2 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

2. FIXED PERFORMANCE GUARANTEE

- 2.1. Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2.2. The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the guaranteed Sum, whichever occurs first.
- 2.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

- 3.1 The Guarantor hereby acknowledges that:
- 3.1.1 Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.
- 3.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

- 3.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
- 3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim of Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
- 3.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;
- 3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
- 3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 3.3.1 The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
- 3.3.2 A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
- 3.3.3 The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 3.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime C1.3.3 overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

- 3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 3.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 3.12 Where the Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C.2. Pricing Data

Part C2.1 Pricing Instructions

Part C2.2 Bill of Quantity

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH

Part C2.1. Pricing Instructions**C2.1 PRICING INSTRUCTIONS**

1. The work scheduled below is described in more detail in the specifications and drawings. Where certain items are referred to the GCC or Specification or a certain drawing number for more information, the Tenderer is referred to the complete GCC, Specification and Drawings and it must not be presumed that the references are complete.
2. The prices as tendered in the Bill of Quantities shall be taken as being valid for the full duration of the Tender, unless otherwise stated in Contract Data: Part 1: Clause C.2.10.3 of this Tender Document. Prices will be subject to escalation as per SEIFSA price adjustment schedules. The bidder must provide formula used for the price adjustment.
3. Should **no rate** be tendered, "**Included Elsewhere**" or "**Nil**" must be written in the Amount Column. A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill.

Where an item is priced "**Included Elsewhere**" or "**NIL**" it will be taken that **no remuneration** is payable or will be paid, **regardless of** if the final quantity differs from the quantity measured in the tender document at the time of handing in of the tender. The Client will thus make **no** additional compensation for these items, regardless of the final quantities for that item.

4. No deviation that may be requested by the Tenderer from the above, or from the GCC, Specification, Bill of Quantities, Tender form and conditions, shall be considered, unless clearly indicated in Part 2: Returnable Documents: Schedule 3 of this Tender Document when the Tender Document is submitted.
5. The costs to comply with all the conditions, obligations and liabilities and as described in the GCC and Specifications, shall be assumed as being all inclusive in this Bill of Quantities, except if indicated differently in Part 2: Returnable Documents: Schedule 3 of this Tender Document.
6. The Bill of Quantities must be completed in **BLACK INK** and must not be removed from the bound set of documents.
7. **No** correction fluid may be used.

8. The time of completion, as specified by the Tenderer, must be written into the Quantity Column in accordance with C 1.2: Contract Data: Part 2 of this Tender document.
9. Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each standardised specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardised Specification or Scope of Work, as applicable, shall prevail.

Reference shall be made, inter alia, to the Drawings, Standard Specifications, Project Specifications, General Conditions of Contract and Special Conditions of Contract for more detailed information regarding the extent of the work entailed under each item.

10. The quantities set out in the Bill of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities the Engineer may direct from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.
11. The prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted, as these will be used as basis for assessment of payment for additional works that may have to be carried out.
12. Except where rates only are required, insert all amounts to be included in the total tendered price in the "Amount" column and show the corresponding total tendered price.
13. The unit of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

mm	=	millimetre
m	=	metre
km	=	kilometre
m ²	=	square metre: cable size / cross-sectional area
kV	=	kilo volt
Cu	=	copper
Al	=	aluminium
kW	=	kilowatt
BCC	=	Bare copper conductor

CPA = Contract Price Adjustment (SEIFSA)

$$P = P_0 \left[\left(\left(L \times \frac{EI}{SI} \right) + \left(S \times \frac{EI}{SI} \right) \right) \right]$$

- P – Escalated or New price
- P0 – Base price
- L – Labour percentage
- S – Steel percentage
- EI – Relevant index at the end of the escalation period
- SI – Relevant index at the start of the escalation period

14. For the purpose of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit:	The unit of measurement for each item of work as defined in the specifications.
Quantity:	The number of units of work for each item.
Rate:	The payment per unit measurement at which the Tenderer tenders to do the work.
Amount:	The product of the quantity and the rate tendered for an item.
Total Sum:	An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere, but the quantity of work of which is not measured in any units.

15. This Bill of Quantities forms an integral part of the contract documents.

The validity of the contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment. Work shall be valued at the rates or lump sums tendered, subject only to the provisions of the General Conditions of Contract.

16. Rates and lump sums shall be comprehensive. Full compensation for completing and maintaining, during the maintenance period, all the work shown on the drawings and specified in the specifications, and for all the risks, obligations and responsibilities specified in the General Conditions of Contract, Special Conditions of Contract and specifications shall be considered as provided for collectively in the items of payment given in the Bill of Quantities, except in so far as the quantities given in the Bill of Quantities are only approximate.

17. The stating of quantities of material or amount of work in the Bill of Quantities shall not be regarded as authorization for the Contractor to order material or to execute work. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials for or executing work or making arrangements in this regard.

18. Reference shall be made to Clause 36 of the General Conditions of Contract regarding provisional sums and prime cost sums.
19. All rates and sums of money quoted in the Bill of Quantities shall be in Rands and whole cents. Fractions of a cent shall be discarded.
20. Final quantities will be calculated to the first decimal point (1 digit)

OPERATION AND MAINTENANCE OF PV PLANTS AND BESS FOR A PERIOD OF 36 MONTHS



PRICING INFORMATION

TENDER NO: ENG018/2024

OPERATION AND MAINTENANCE OF PV PLANTS AND BESS FOR A PERIOD OF 36 MONTHS

BIDDER'S NAME:	
THE PRICE: IN RAND (excluding VAT)	
Total from Price Schedule No. 10. Grand Summary TOTALS	
Value Added Tax (VAT) Currently 15%	
TOTAL RAND VALUE: IN RAND (Including VAT)	
TOTAL RAND VALUE IN WORDS (Including VAT)	
DATE :	
SIGNATURE :	
DESIGNATION :	

Item No.	Description	Pricing Instruction	Item Definition
A.1	PART A - PRELIMINARY AND GENERAL		
A.1.1	Fixed Charge Items		
A.1.2	Contractual Requirements		
A.1.3	Inspection arrangements with Supply Authority		
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations		
A.1.5	Risk assessment and planning		
A.1.6	Health and safety plan		
A.1.7	Transport & logistics to site		From bidder's offices to a specific site
A.1.8	Company and Head Office overhead costs		

Item No.	Description	Pricing Instruction	Item Definition
B.1	PART B - INVERTER INSPECTION		
		Pricing shall include all inverters and mentioned items under Part B. NB: Look at the number of inverters per site. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters		
B.1.2	Clean or replace filter pads at air inlet filters		
B.1.3	Clean insect guards at air in lets and outlets		
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water		
B.1.5	Check all power cable connections for looseness		
B.1.6	Check connectors and insulation for looseness		
B.1.7	Cisual check coils for discoloration or deformation		
B.1.8	Check all adhesive warning labels		
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)		
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)		
B.1.11	Visual check all fuses and diconnectors		
B.1.12	Check the torqueing of the bolts		
B.1.13	Check the overvoltage protector		
B.1.14	Check 230V and 24V control and auxiliary voltage		
B.1.15	Function test overtemperature, check safety circuit		
B.1.16	Function test EMO (emergency off), check internal and external EMO switches		
B.1.17	Function test door contacts		
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling		

Item No.	Description	Pricing Instruction	Item Definition
C.1	PART C - STRING MONITORING		
		Pricing shall include all strings and mentioned items under Part C. NB: Look at the number of strings per site. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.		
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.		
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation		
C.1.4	Check attachment of String Monitor if applicable		
C.1.5	Check cover locks		
C.1.6	Check the screw fittings for secure position and sealing		
C.1.7	Check for condensation water		
C.1.8	Check shield connection		
C.1.9	Check ground connection and resistance		
C.1.10	Check pressure adjusting screw for contamination		
C.1.11	Check the adhesive warning labels		
C.1.12	visually check all fuses and fuse tension springs		

Item No.	Description	Pricing Instruction	Item Definition
D.1	PART D - LOW VOLTAGE SWITCH BOARD		
		Pricing shall include all low voltage switch boards and mentioned items under Part D. NB: Look at the number of low voltage switch boards per site. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters		
D.1.2	Check all power cable connections for looseness		
D.1.3	Check all surge arresters		
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation		

Item No.	Description	Pricing Instruction	Item Definition
E.1	PART E - EXTINGUISHER MAINTENANCE		
		Pricing shall include all extinguishers and mentioned items under Part E. NB: Look at the number of extinguishers per site. The quantity is based on yearly inspection schedule for the period of 36 months. 3 inspections to be conducted in 36 months.	
E.1.1	Inspection and maintenance of all extinguishers		
E.1.2	Re-filling or exchange (every 5 years)		

Item No.	Description	Pricing Instruction	Item Definition
F.1	PART F - MODULES		
		Pricing shall include all modules and mentioned items under Part F. NB: Look at the number of modules per site. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning		
F.1.2	Random sample of mechanical fixation.		
F.1.3	Random visual control of the junction box (100% by end of year)		
F.1.4	Thermograph of all modules, connection and junctions		
F.1.5	Cleaning of modules		
F.1.6	Safety harness - staff working on heights training and certification		
F.1.7	Install Safety lines if not installed		
F.1.8	Waterproof associated Roof penetrations properly sealed.		
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.		
F.1.10	Check modules to mounting structure connection.		
F.1.11	Check missing Modules		
F.1.12	Check structural Damage to Module frames.		
F.1.13	Checks damage or mechanical defects to Modules back and front.		
F.1.14	Checks cracks or damage to glass or water ingress		
F.1.15	Check hot-spots or burning under glass.		
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit		
F.1.17	check all string protection secure and functioning		

F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear		
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm		
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc		
F.1.21	Any evidence of PiD on modules including humidity damage and delamination		
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.		
F.1.23	Scrutinizing plant performance data on a remote or web-based application.		
F.1.24	Inspection of Shading of the Modules by nearby objects.		
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064		
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)		
F.1.27	Compare actual versus predicted PVSYS6.0 performance data for yield deviations and performance ratio prediction of plant.		
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production		
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction		
F.1.31	Cold galvanizing for old material	The structural rods that needs galvanising will be identified on site with the contractor, contractor will be paid based on the m² rods to be galvanised.	

Item No.	Description	Pricing Instruction	Item Definition
G.1	PART G - DATA COMMUNICATION		
		Pricing shall include all items under Part G. NB: Look at the single line diagram for better pricing. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
G.1.1	Visual Control of the Status-display		
G.1.2	Check of the Data communication Box – DSL / Satellite		
G.1.3	Check of the DSL / Satellite Modem / Switch		
G.1.4	CheckCAT 5 Cables		

Item No.	Description	Pricing Instruction	Item Definition
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)		
		Pricing shall include all BESS and mentioned items under Part H. NB: Look at the single line diagram for better pricing. The BESS O&M for the next 24months will be under the EPC contractor's duties for the following. > Gwaing WWTP > Civic Centre > Outeniqua WWTP	
H.1.1	Visual Control of the Status-display		
H.1.2	Thermograph of all racks, connection and junctions		
H.1.3	Firmware updates		
H.1.4	Cell balance report		

Item No.	Description	Pricing Instruction	Item Definition
I.1	PART I - LANDSCAPING		
		Pricing shall include all BESS and mentioned items under Part I. The quantity is based on monthly inspection schedule for the period of 36 months. 36 inspections to be conducted in 36 months.	
I.1.1	Grass cutting		
I.1.2	Removal of weeds applying herbicide		
I.1.3	Pruning of bushes / shrubs		Bushes are woody plants with multiple stems that typically grow from the base, rather than a single trunk. They are shorter than trees, usually less than 6 meters in height. Bushes tend to have a dense and bushy appearance with branches that are closer to the ground.
I.1.4	Pruning of trees		Trees are woody plants with a single main trunk that supports branches and leaves. They are usually taller than shrubs and can grow much larger, often reaching heights of several meters. Trees grow upright with a clear trunk and a canopy formed by branches and leaves.
I.1.5	Pruning of climbers		Climbers are plants that have long, flexible stems that need support to grow vertically. They lack the strength to stand upright on their own and instead rely on other structures like trees, walls, or trellises. Climbers use various methods to attach themselves to supports, such as tendrils, hooks, or by twining around objects.
I.1.6	Removal of branches where necessary		Branches are the woody outgrowths from the main trunk or stems of plants. They provide support for leaves and contribute to the overall shape, structure, and function of the plant.
I.1.7	Gathering and removal of garden refuse		
I.1.8	Check sign of erosion or risk of erosion		

Item No.	Description	Pricing Instruction	Item Definition
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS		
		All material forming part of shall be subjected to a mark up.	
J.1.1	Solar PV and BESS Material		
J.1.2	Meteo Control PV system Monitoring		
J.1.3	Contractor's markup as a percentage of PC sum	The bidder shall add a markup to the PC sum of the Solar PV BESS material required.	

Item No.	Description	Pricing Instruction	Item Definition
K.1	PART K - DOCUMENTATION AND REPORTING		
		Pricing shall include all documentation and reporting items under Part k. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	Quartely the bidder shall provide a detailed report containing all items in Part K and also information that is deemed necessary by the bidder.
K.1.1	Inspection and performance reports		
K.1.2	Maintenance logs analysis report		
K.1.3	Contingency planning and repair report		
K.1.4	Power quality study report (V, P, I and all related power quality issue analysis)		

Item No.	Description	Pricing Instruction	Item Definition
L.1	PART L - TESTING		
	PHOTOVOLTAIC METER - PVM-1020	Pricing shall include all testing items under Part L. NB: Look at the single line diagram for better pricing. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
	Category 1 specified in IEC 62446-1 - Photovoltaic systems		
	AC Side		
L.1.1	Test all AC circuit(s) to the requirements of IEC 60364-6		
	DC Side		
L.1.2	Continuity of earthing and/or equipotential bonding conductors, where fitted.		
L.1.3	Polarity test		
L.1.4	Combiner Box test if applicable		
L.1.5	String or HAS open circuit voltage test		
L.1.6	String or HAS open circuit current test (short circuit or operational) DC short-circuit current of the PV module/chain - I _{sc}		
L.1.7	Functional tests		
L.1.8	Insulation resistance of the DC circuits		
L.1.9	DC voltage of an open module/chain PV-Voc		
L.1.10	DC short-circuit current of the PV module/chain - I _{sc}		

Item No.	Description	Pricing Instruction	Item Definition
M.1	PART M - PCS INSPECTION - RUNNING SYSTEM		
		Pricing shall include all PCS items under Part M.1. The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
M.1.1	Thermal scan		
M.1.2	Check whether the LCD display of the machine is in normal operation		
M.1.3	Check whether there is error recorded in history that caused shutdown		
M.1.4	Check whether the data transmission of monitoring device is normal - monitoring web page / APP		
M.1.5	Check whether the fan rotates normally and the air outlet is normal (first check whether the temperature collected by the equipment reaches the fan opening condition, which normally is 60 °C) - visual inspection & Thermal scan		
M.1.6	Check whether the equipment has abnormal smell or sound		
M.1.7	Check emergency stop button(when the system is in standby mode)		

Item No.	Description	Pricing Instruction	Item Definition
M.2	PART M - PCS INSPECTION - SHUTDOWN SYSTEM		
		Pricing shall include all PCS items under Part M.2.	
		The quantity is based on quarterly inspection schedule for the period of 36 months. 12 inspections to be conducted in 36 months.	
M.2.1	Check whether there is water leakage or other foreign matters in the room or container		
M.2.2	Check whether there are rodents and insects such as rats, geckos, cockroaches and ants in the cabinet		
M.2.3	Check whether the power cable connection is loose		
M.2.4	Check whether the communication cable connection is loose		
M.2.5	Check equipment ground connection		
M.2.6	Check whether the external connection of the equipment is damaged		
M.2.7	Check whether there is moisture or condensation inside the cabinet		
M.2.8	Check whether there is obvious dust inside the cabinet		
M.2.9	Check whether the front and rear dust screens has blockage		
M.2.10	Check whether there is obvious damage inside the equipment		
M.2.11	Check whether there is obvious rust inside the cabinet		
M.2.12	Check safety signs		

Item No.	Description	Pricing Instruction	Item Definition
N.1	PART N - LABOUR		
		Labour (only to address emergencies - based on hourly rates)	
N.1.1	General labour		
N.1.2	Electrician		
N.1.3	Supervisor		
N.1.4	Professional Engineer/Technologist		

Item No.	Description	Pricing Instruction	Item Definition
O.1	PART O - TRAVELLING		
		Travelling Costs (only to address emergencies). The bidder shall have offices in George.	
O.1.1	Travel kilometres	The pricing shall be from George Civic Centre to the site of an emergency.	

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
			x
			x
			x
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Tamsui - 1 MWp (1728 panels) with 10x 100 kW inverters -ground mounted structure, Note: 10 x 100 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torqueing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Tamsui - 1 MWp (1728 panels) with 10x 100 kW inverters - ground mounted structure: Note: Inverter 1 - 9 = 10 strings per inverter. Inverter 10 = 8 strings					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

[illegible]

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Tamsui - 1 MWp (1728 panels) with 10x 100 kW inverters - ground mounted structure					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	Tamsui - 1 MWp (1728 panels) with 10x 100 kW inverters - ground mounted structure:					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			X
			X

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	Tamsui - 1 MWp (1728 panels) with 10x 100 kW inverters - ground mounted structure:					
	Note: 1728 x panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	692			
F.1.6	Safety harness - staff working on heights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC	R	50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			
F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.30	Cold galvanizing for old material	m ²	500			

	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) - 1 MWh					
H.1.1	Visual Control of the Status-display	sum	4			
H.1.2	Thermograph of all racks, connection and junctions	each	4			
H.1.3	Firmware updates	each	4			
H.1.4	Cell balance report	each	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Grass cutting	m ²	9946.7			
I.1.2	Removal of weeds applying herbicide	m ²	20			
I.1.3	Pruning of bushes / shrubs	m ²	20			
I.1.4	Pruning of trees	m ²	20			
I.1.5	Pruning of climbers	m ²	20			
I.1.6	Removal of branches where necessary	sum	36			
I.1.7	Gathering and removal of garden refuse	sum	36			
I.1.8	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
X			
X			
X			
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Meteo Control PV system Monitoring	PC	1	R 250 000,00		R 250 000,00
J.1.3	Contractor's markup as a percentage of PC sum of R450 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
X			
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
L.1	PART L - TESTING					
	PHOTOVOLTAIC METER - PVM-1020					
	Category 1 specified in IEC 62446-1 - Photovoltaic systems					
	AC Side					
L.1.1	Test all AC circuit(s) to the requirements of IEC 60364-6	sum	12			
	DC Side					
L.1.2	Continuity of earthing and/or equipotential bonding conductors, where fitted.	sum	12			
L.1.3	Polarity test	sum	12			
L.1.4	Combiner Box test if applicable	sum	12			
L.1.5	String or HAS open circuit voltage test	sum	12			
L.1.6	String or HAS open circuit current test (short circuit or operational) DC short-circuit current of the PV module/chain - I _{sc}	sum	12			
L.1.7	Functional tests	sum	12			
L.1.8	Insulation resistance of the DC circuits	sum	12			
L.1.9	DC voltage of an open module/chain PV-Voc	sum	12			
L.1.10	DC short-circuit current of the PV module/chain - I _{sc}	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART M - PCS INSPECTION - RUNNING SYSTEM					
M.1.1	Thermal scan	sum	4			
M.1.2	Check whether the LCD display of the machine is in normal operation	sum	4			
M.1.3	Check whether there is error recorded in history that caused shutdown	sum	4			
M.1.4	Check whether the data transmission of monitoring device is normal - monitoring web page / APP	sum	4			
M.1.5	Check whether the fan rotates normally and the air outlet is normal (first check whether the temperature collected by the equipment reaches the fan opening condition, which normally is 60 °C) - visual inspection & Thermal scan	sum	4			
M.1.6	Check whether the equipment has abnormal smell or sound	sum	4			
M.1.7	Check emergency stop button(when the system is in standby mode)	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.2	PART M - PCS INSPECTION - SHUTDOWN SYSTEM					
M.2.1	Check whether there is water leakage or other foreign matters in the room or container	sum	4			
M.2.2	Check whether there are rodents and insects such as rats, geckos, cockroaches and ants in the cabinet	sum	4			
M.2.3	Check whether the power cable connection is loose	sum	4			
M.2.4	Check whether the communication cable connection is loose	sum	4			
M.2.5	Check equipment ground connection	sum	4			
M.2.6	Check whether the external connection of the equipment is damaged	sum	4			
M.2.7	Check whether there is moisture or condensation inside the cabinet	sum	4			
M.2.8	Check whether there is obvious dust inside the cabinet	sum	4			
M.2.9	Check whether the front and rear dust screens has blockage	sum	4			
M.2.10	Check whether there is obvious damage inside the equipment	sum	4			
M.2.11	Check whether there is obvious rust inside the cabinet	sum	4			
M.2.12	Check safety signs	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
N.1.1	General labour	hr	20			
N.1.2	Electrician	hr	20			
N.1.3	Supervisor	hr	20			
N.1.4	Professional Engineer/Technologist	hr	20			
Item No.	Description	Unit	Qty	Material	Labour	Total
O.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies).From the Civic centre in York Street to Ossie Urband Road,Tamsui, George, 6529					
O.1.1	Travel kilometres	km	100			

	TAMSUI - 1 MWp WITH 10 X 100 kW INVERTERS - GROUND MOUNTED STRUCTURE					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - PCS INSPECTION	TOTAL				
N	PART N - LABOUR	TOTAL				
O	PART O - TRAVELLING	TOTAL				
	TOTAL					

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
			x
			x
			x
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Civic Centre - 300 kWp (692 panels) with 5 x 50 kW inverters -carport structure, Note: 5 x 50 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torquing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Civic Centre - 300 kWp (692 panels) with 5 x 50 kW inverters -carport structure. Note: Inverter 1 - 4 = 8 strings per inverter. Inverter 5 = 9 strings					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Civic Centre - 300 kWp (692 panels) with 5 x 50 kW inverters -carport structure: Note: 2 x switchboards on site.					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	Civic Centre - 300 kWp (692 panels) with 5 x 50 kW inverters -carport structure					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Monthly	Quarterly	Semester	Yearly
			x
			x

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	Civic Centre - 300 kWp (692 panels) with 5 x 50 kW inverters - carport structure Note: 692 x panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	692			
F.1.6	Safety harness - staff working on heights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC	R	50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			
F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			
F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.30	Cold galvanizing for old material	m ²	500			

	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) - 1 MWh					
H.1.1	Visual Control of the Status-display	sum	4			
H.1.2	Thermograph of all racks, connection and junctions	each	4			
H.1.3	Firmware updates	each	4			
H.1.4	Cell balance report	each	4			

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Pruning of bushes / shrubs	m²	20			
I.1.2	Pruning of trees	m²	20			
I.1.3	Pruning of climbers	m²	20			
I.1.4	Removal of branches where necessary	sum	36			
I.1.5	Gathering and removal of garden refuse	sum	36			
I.1.6	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Meteo Control PV system Monitoring	PC	1	R 250 000,00		R 250 000,00
J.1.3	Contractor's markup as a percentage of PC sum of R450 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING (quarterly basis)					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
L.1	PART L - TESTING					
	PHOTOVOLTAIC METER - PVM-1020					
	Category 1 specified in IEC 62446-1 - Photovoltaic systems					
	AC Side					
L.1.1	Test all AC circuit(s) to the requirements of IEC 60364-6	sum	12			
	DC Side					
L.1.2	Continuity of earthing and/or equipotential bonding conductors, where fitted.	sum	12			
L.1.3	Polarity test	sum	12			
L.1.4	Combiner Box test if applicable	sum	12			
L.1.5	String or HAS open circuit voltage test	sum	12			
L.1.6	String or HAS open circuit current test (short circuit or operational) DC short-circuit current of the PV module/chain - I _{sc}	sum	12			
L.1.7	Functional tests	sum	12			
L.1.8	Insulation resistance of the DC circuits	sum	12			
L.1.9	DC voltage of an open module/chain PV-Voc	sum	12			
L.1.10	DC short-circuit current of the PV module/chain - I _{sc}	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART M - PCS INSPECTION - RUNNING SYSTEM					
M.1.1	Thermal scan	sum	4			
M.1.2	Check whether the LCD display of the machine is in normal operation	sum	4			
M.1.3	Check whether there is error recorded in history that caused shutdown	sum	4			
M.1.4	Check whether the data transmission of monitoring device is normal - monitoring web page / APP	sum	4			
M.1.5	Check whether the fan rotates normally and the air outlet is normal (first check whether the temperature collected by the equipment reaches the fan opening condition, which normally is 60 °C) - visual inspection & Thermal scan	sum	4			
M.1.6	Check whether the equipment has abnormal smell or sound	sum	4			
M.1.7	Check emergency stop button(when the system is in standby mode)	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.2	PART M - PCS INSPECTION - SHUTDOWN SYSTEM					
M.2.1	Check whether there is water leakage or other foreign matters in the room or container	sum	4			
M.2.2	Check whether there are rodents and insects such as rats, geckos, cockroaches and ants in the cabinet	sum	4			
M.2.3	Check whether the power cable connection is loose	sum	4			
M.2.4	Check whether the communication cable connection is loose	sum	4			
M.2.5	Check equipment ground connection	sum	4			
M.2.6	Check whether the external connection of the equipment is damaged	sum	4			
M.2.7	Check whether there is moisture or condensation inside the cabinet	sum	4			
M.2.8	Check whether there is obvious dust inside the cabinet	sum	4			
M.2.9	Check whether the front and rear dust screens has blockage	sum	4			
M.2.10	Check whether there is obvious damage inside the equipment	sum	4			
M.2.11	Check whether there is obvious rust inside the cabinet	sum	4			
M.2.12	Check safety signs	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
N.1.1	General labour	hr	20			
N.1.2	Electrician	hr	20			
N.1.3	Supervisor	hr	20			
N.1.4	Professional Engineer/Technologist	hr	20			

Item No.	Description	Unit	Qty	Material	Labour	Total
O.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies).From the Civic centre in York Street to Civic centre in York Street, George, 6529					
O.1.1	Travel kilometres	km				

	CIVIC CENTRE - 300kWp WITH 5 X 50 kW INVERTERS - CARPORT STRUCTURE					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - PCS INSPECTION	TOTAL				
N	PART N - LABOUR	TOTAL				
O	PART O - TRAVELLING	TOTAL				
	TOTAL					

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
			X
			X
			X
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Outeniqua - 400 kWp (738 panels) with 8 x 50 kW inverters - ground mounted structure Note: 8 x 50 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torqueing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxilary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

[illegible]

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Outeniqua - 400 kWp (738 panels) with 8 x 50 kW inverters - ground mounted structure Note: Inverter 1 = 6 strings . Inverter 2-8 = 5 strings per inverter					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Outeniqua - 400 kWp (738 panels) with 8 x 50 kW inverters - ground mounted structure:					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	Outeniqua - 400 kWp (738 panels) with 8 x 50 kW inverters - ground mounted structure					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			x
			x

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	Outeniqua - 400 kWp (738 panels) with 8 x 50 kW inverters - ground mounted structure Note: 738 panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	738			
F.1.6	Safety harness - staff working on hights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC		R 50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			
F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.30	Cold galvanizing for old material	m ²	500			

	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) - 1 MWh					
H.1.1	Visual Control of the Status-display	sum	4			
H.1.2	Thermograph of all racks, connection and junctions	sum	4			
H.1.3	Firmware updates	sum	4			
H.1.4	Cell balance report	sum	4			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Grass cutting	m²	5000			
I.1.2	Removal of weeds applying herbicide	m²	20			
I.1.3	Pruning of bushes / shrubs	m²	20			
I.1.4	Pruning of trees	m²	20			
I.1.5	Pruning of climbers	m²	20			
I.1.6	Removal of branches where necessary	sum	36			
I.1.7	Gathering and removal of garden refuse	sum	36			
I.1.8	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Meteo Control PV system Monitoring	PC	1	R 250 000,00		R 250 000,00
J.1.3	Contractor's markup as a percentage of PC sum of R450 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING (quarterly basis)					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
L.1	PART L - TESTING					
	PHOTOVOLTAIC METER - PVM-1020					
	Category 1 specified in IEC 62446-1 - Photovoltaic systems					
	AC Side					
L.1.1	Test all AC circuit(s) to the requirements of IEC 60364-6	sum	12			
	DC Side					
L.1.2	Continuity of earthing and/or equipotential bonding conductors, where fitted.	sum	12			
L.1.3	Polarity test	sum	12			
L.1.4	Combiner Box test if applicable	sum	12			
L.1.5	String or HAS open circuit voltage test	sum	12			
L.1.6	String or HAS open circuit current test (short circuit or operational) DC short-circuit current of the PV module/chain - I _{sc}	sum	12			
L.1.7	Functional tests	sum	12			
L.1.8	Insulation resistance of the DC circuits	sum	12			
L.1.9	DC voltage of an open module/chain PV-Voc	sum	12			
L.1.10	DC short-circuit current of the PV module/chain - I _{sc}	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART M - PCS INSPECTION - RUNNING SYSTEM					
M.1.1	Thermal scan	sum	4			
M.1.2	Check whether the LCD display of the machine is in normal operation	sum	4			
M.1.3	Check whether there is error recorded in history that caused shutdown	sum	4			
M.1.4	Check whether the data transmission of monitoring device is normal - monitoring web page / APP	sum	4			
M.1.5	Check whether the fan rotates normally and the air outlet is normal (first check whether the temperature collected by the equipment reaches the fan opening condition, which normally is 60 °C) - visual inspection & Thermal scan	sum	4			
M.1.6	Check whether the equipment has abnormal smell or sound	sum	4			
M.1.7	Check emergency stop button(when the system is in standby mode)	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.2	PART M - PCS INSPECTION - SHUTDOWN SYSTEM					
M.2.1	Check whether there is water leakage or other foreign matters in the room or container	sum	4			
M.2.2	Check whether there are rodents and insects such as rats, geckos, cockroaches and ants in the cabinet	sum	4			
M.2.3	Check whether the power cable connection is loose	sum	4			
M.2.4	Check whether the communication cable connection is loose	sum	4			
M.2.5	Check equipment ground connection	sum	4			
M.2.6	Check whether the external connection of the equipment is damaged	sum	4			
M.2.7	Check whether there is moisture or condensation inside the cabinet	sum	4			
M.2.8	Check whether there is obvious dust inside the cabinet	sum	4			
M.2.9	Check whether the front and rear dust screens has blockage	sum	4			
M.2.10	Check whether there is obvious damage inside the equipment	sum	4			
M.2.11	Check whether there is obvious rust inside the cabinet	sum	4			
M.2.12	Check safety signs	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
N.1.1	General labour	hr	20			
N.1.2	Electrician	hr	20			
N.1.3	Supervisor	hr	20			
N.1.4	Professional Engineer/Technologist	hr	20			

Item No.	Description	Unit	Qty	Material	Labour	Total
O.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies). From the Civic centre in York Street to Outeniqua Waste Water Treatment works, Pacaltsdorp, George ,6534					
O.1.1	Travel kilometres	km	100			

	OUTENIQUA - 400 kWp (738 PANELS) WITH 8 x 50 kW INVERTERS - GROUND MOUNTED STRUCTURE					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - PCS INSPECTION	TOTAL				
N	PART N - LABOUR	TOTAL				
O	PART O - TRAVELLING	TOTAL				

	TOTAL					
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Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
			X
			X
			X
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Gwaing WWTP - 500 kWp (910 panels) with 5 x 100 kW inverters - ground mounted structure Note: 5 x 100 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torqueing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Gwaing WWTP - 500 kWp (910 panels) with 5 x 100 kW inverters - ground mounted structure Note: Inv 1-4 = 10 strings per inverter Inv 5 = 11 strings					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Gwaing WWTP - 500 kWp (910 panels) with 5 x 100 kW inverters - ground mounted structure:					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			X
			X

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	Gwaing WWTP - 500 kWp (910 panels) with 5 x 100 kW inverters - ground mounted structure Note: 910 x panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	910			
F.1.6	Safety harness - staff working on heights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC		R 50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			
F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.30	Cold galvanizing for old material	m ²	500			

	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) - 1 MWh					
H.1.1	Visual Control of the Status-display	sum	4			
H.1.2	Thermograph of all racks, connection and junctions	sum	4			
H.1.3	Firmware updates	sum	4			
H.1.4	Cell balance report	sum	4			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Grass cutting	m ²	7000			
I.1.2	Removal of weeds applying herbicide	m ²	20			
I.1.3	Pruning of bushes / shrubs	m ²	20			
I.1.4	Pruning of trees	m ²	20			
I.1.5	Pruning of climbers	m ²	20			
I.1.6	Removal of branches where necessary	sum	36			
I.1.7	Gathering and removal of garden refuse	sum	36			
I.1.8	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Meteo Control PV system Monitoring	PC	1	R 250 000,00		R 250 000,00
J.1.3	Contractor's markup as a percentage of PC sum of R450 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING (quarterly basis)					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

[illegible]

Item No.	Description	Unit	Qty	Material	Labour	Total
M.2	PART M - PCS INSPECTION - SHUTDOWN SYSTEM					
M.2.1	Check whether there is water leakage or other foreign matters in the room or container	sum	4			
M.2.2	Check whether there are rodents and insects such as rats, geckos, cockroaches and ants in the cabinet	sum	4			
M.2.3	Check whether the power cable connection is loose	sum	4			
M.2.4	Check whether the communication cable connection is loose	sum	4			
M.2.5	Check equipment ground connection	sum	4			
M.2.6	Check whether the external connection of the equipment is damaged	sum	4			
M.2.7	Check whether there is moisture or condensation inside the cabinet	sum	4			
M.2.8	Check whether there is obvious dust inside the cabinet	sum	4			
M.2.9	Check whether the front and rear dust screens has blockage	sum	4			
M.2.10	Check whether there is obvious damage inside the equipment	sum	4			
M.2.11	Check whether there is obvious rust inside the cabinet	sum	4			
M.2.12	Check safety signs	sum	4			

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
N.1.1	General labour	hr	20			
N.1.2	Electrician	hr	20			
N.1.3	Supervisor	hr	20			
N.1.4	Professional Engineer/Technologist	hr	20			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
O.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies). From the Civic centre in York Street to R102 Road, Groeneweide Park, George, 6529					
O.1.1	Travel kilometres	km	100			

	GWAING WWTP - 500 kWp (910 PANELS) WITH 5 x 100 KW INVERTERS - GROUND MOUNTED STRUCTURE					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - PCS INSPECTION	TOTAL				
N	PART N - LABOUR	TOTAL				
O	PART O - TRAVELLING	TOTAL				
	TOTAL					

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
			x
			x
			x
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Tourism Building - 4 kWp (8 panels) with 1 x 8 kW inverters - carport structure Note: 1 x 8 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torqueing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Tourism Building - 4 kWp (8 panels) with 1 x 8 kW inverters - carport structure					
	Note: Inverter 1 = 1 string					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Tourism Building - 4 kWp (8 panels) with 1 x 8 kW inverters - carport structure:					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	Tourism Building - 4 kWp (8 panels) with 1 x 8 kW inverters - carport structure					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			X
			X

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	Tourism Building - 4 kWp (8 panels) with 1 x 8 kW inverters - carport structure Note: 8 x panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	8			
F.1.6	Safety harness - staff working on heights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC		R 50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			
F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.31	Cold galvanizing for old material	m ²	100			

	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) -10 kWh					
H.1.1	Visual Control of the Status-display	sum	12			
H.1.2	Thermograph of all racks, connection and junctions	sum	12			
H.1.3	Firmware updates	sum	12			
H.1.4	Cell balance report	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Pruning of bushes / shrubs	m²	20			
I.1.2	Pruning of trees	m²	20			
I.1.3	Pruning of climbers	m²	20			
I.1.4	Removal of branches where necessary	sum	36			
I.1.5	Gathering and removal of garden refuse	sum	36			
I.1.6	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Contractor's markup as a percentage of PC sum of R200 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING (quarterly basis)					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
M.1.1	General labour	hr	20			
M.1.2	Electrician	hr	20			
M.1.3	Supervisor	hr	20			
M.1.4	Professional Engineer/Technologist	hr	20			

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies). The reference point is 124 York St, George Central, George, 6530					
N.1.1	Travel kilometres	km	100			

	Tourism Building - 4 kWp (8 panels) with 1 x 8 kVA inverters - carport structure					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - LABOUR	TOTAL				
N	PART N - TRAVELLING	TOTAL				
	TOTAL					

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
			x
			x
			x
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	Blanco Motor Vehicle Resistration - 3 kWp (6 panels) with 1 x 5 kW inverters - roof structure Note: 1 x 5 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torqueing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	Blanco Motor Vehicle Resistration - 3 kWp (6 panels) with 1 x 5 kW inverters - roof structure Note: Inverter 1 = 1 string					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	Blanco Motor Vehicle Resistration - 3 kWp (6 panels) with 1 x 5 kW inverters - roof structure: Note: 1 x switchboards on site.					
	Thermal scan - Thermography on AC electrical connections in inverters					
D.1.1		sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	Blanco Motor Vehicle Resistration - 3 kWp (6 panels) with 1 x 5 kW inverters - carport structure					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			X
			X

F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.31	Cold galvanizing for old material	m ²	100			

	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) -10 kWh					
H.1.1	Visual Control of the Status-display	sum	12			
H.1.2	Thermograph of all racks, connection and junctions	sum	12			
H.1.3	Firmware updates	sum	12			
H.1.4	Cell balance report	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Pruning of bushes / shrubs	m²	20			
I.1.2	Pruning of trees	m²	20			
I.1.3	Pruning of climbers	m²	20			
I.1.4	Removal of branches where necessary	sum	36			
I.1.5	Gathering and removal of garden refuse	sum	36			
I.1.6	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Contractor's markup as a percentage of PC sum of R200 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
x			
x			
x			
x			
x			

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART M - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
M.1.1	General labour	hr	100			
M.1.2	Electrician	hr	100			
M.1.3	Supervisor	hr	100			
M.1.4	Professional Engineer/Technologist	hr	100			
Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART N - TRAVELLING					
	Travelling Costs (only to address emergencies).From the Civic centre in York Street to 29 John Kretzen St, Blanco, George, 6529					
N.1.1	Travel kilometres	km	100			

	Blanco Motor Vehicle Resistration - 3 kWp (6 panels) with 1 x 5 kW inverters - carport structure					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - LABOUR	TOTAL				
N	PART N - TRAVELLING	TOTAL				
	TOTAL					

Item No.	Description	Unit	Qty	Material	Labour	Total
A.1	PART A - PRELIMINARY AND GENERAL					
A.1.1	Fixed Charge Items	Sum	36			
A.1.2	Contractual Requirements	Sum	36			
A.1.3	Inspection arrangements with Supply Authority	Sum	36			
A.1.4	General safety obligations: Compliance with the Occupational Health and Safety Act Regulations	Sum	3			
A.1.5	Risk assessment and planning	Sum	3			
A.1.6	Health and safety plan	Sum	3			
A.1.7	Transport & logistics to site	km	100			
A.1.8	Company and Head Office overhead costs	Sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
			X
			X
			X
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
B.1	PART B - INVERTER INSPECTION					
	ElectroTech - 20 kWp (40 panels) with 3 x 8 kW inverters - roof structure Note: 3 x 8 kW inverters					
B.1.1	Thermal scan - Thermography on DC electrical connections in inverters	sum	12			
B.1.2	Clean or replace filter pads at air inlet filters	sum	12			
B.1.3	Clean insect guards at air in lets and outlets	sum	12			
B.1.4	Check and clean switch cabinet interior, ventilation ducts and EVR resistor for dust, contamination, moisture and water	sum	12			
B.1.5	Check all power cable connections for looseness	sum	12			
B.1.6	Check connectors and insulation for looseness	sum	12			
B.1.7	Cisual check coils for discoloration or deformation	sum	12			
B.1.8	Check all adhesive warning labels	sum	12			
B.1.9	Function test of cooling fans (cabinet, heat sink, internal, diode, heating)	sum	12			
B.1.10	Function test of protection equipment (residual current circuit breaker, line circuit breaker, circuit breaker, motor overload switch)	sum	12			
B.1.11	Visual check all fuses and diconnectors	sum	12			
B.1.12	Check the torquing of the bolts	sum	12			
B.1.13	Check the overvoltage protector	sum	12			
B.1.14	Check 230V and 24V control and auxiliary voltage	sum	12			
B.1.15	Function test overtemperature, check safety circuit	sum	12			
B.1.16	Function test EMO (emergency off), check internal and external EMO switches	sum	12			
B.1.17	Function test door contacts	sum	12			
B.1.18	Function test insulation monitoring / ABB high performance circuit breaker / GFD / soft grounding, check signaling	sum	12			

[illegible]

Item No.	Description	Unit	Qty	Material	Labour	Total
C.1	PART C - STRING MONITORING					
	ElectroTech - 20 kWp (40 panels) with 3 x 8 kW inverters - roof structure Note: Inverter 1- 3 = 1 string per inverter					
C.1.1	Check all power cable for looseness, check the connectors and insulation for discoloration or degradation.	sum	12			
C.1.2	Check string cable connections for looseness, check the insulation, terminals on assembly and on busbar for discoloration or degradation.	sum	12			
C.1.3	Check all cable connections on DC main switch for looseness. Check for discoloration and degradation	sum	12			
C.1.4	Check attachment of String Monitor if applicable	sum	12			
C.1.5	Check cover locks	sum	12			
C.1.6	Check the screw fittings for secure position and sealing	sum	12			
C.1.7	Check for condensation water	sum	12			
C.1.8	Check shield connection	sum	12			
C.1.9	Check ground connection and resistance	sum	12			
C.1.10	Check pressure adjusting screw for contamination	sum	12			
C.1.11	Check the adhesive warning labels	sum	12			
C.1.12	visually check all fuses and fuse tension springs	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
D.1	PART D - LOW VOLTAGE SWITCH BOARD					
	ElectroTech - 20 kWp (40 panels) with 3 x 8 kW inverters - roof structure:					
D.1.1	Thermal scan - Thermography on AC electrical connections in inverters	sum	12			
D.1.2	Check all power cable connections for looseness	sum	12			
D.1.3	Check all surge arresters	sum	12			
D.1.4	Check all Circuit Breaker : Check for discoloration and degradation	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
E.1	PART E - EXTINGUISHER MAINTENANCE					
	ElectroTech - 20 kWp (40 panels) with 3 x 8 kW inverters - roof structure					
E.1.1	Inspection and maintenance of all extinguishers	sum	3			
E.1.2	Re-filling or exchange (every 5 years)	sum	3			

Monthly	Quarterly	Semester	Yearly
			x
			x

Item No.	Description	Unit	Qty	Material	Labour	Total
F.1	PART F - MODULES					
	ElectroTech - 20 kWp (40 panels) with 3 x 8 kW inverters - roof structure Note: 40 x panels / modules					
F.1.1	Visual control of damage, Aluminum frame, roughened surface aspect, cells discoloration, overvoltage and lightning	sum	12			
F.1.2	Random sample of mechanical fixation.	sum	12			
F.1.3	Random visual control of the junction box (100% by end of year)	sum	12			
F.1.4	Thermograph of all modules, connection and junctions	sum	12			
F.1.5	Cleaning of modules	each	40			
F.1.6	Safety harness - staff working on hights training and certification	sum	1			
F.1.7	Install Safety lines if not installed	sum	2	PC		R 50 000,00
F.1.8	Waterproof associated Roof penetrations properly sealed.	sum	12			
F.1.9	Check corrosion on the mounting structure and between the roof and the mounting structure.	sum	12			
F.1.10	Check modules to mounting structure connection.	sum	12			
F.1.11	Check missing Modules	sum	12			
F.1.12	Check structural Damage to Module frames.	sum	12			
F.1.13	Checks damage or mechanical defects to Modules back and front.	sum	12			
F.1.14	Checks cracks or damage to glass or water ingress	sum	12			
F.1.15	Check hot-spots or burning under glass.	sum	12			
F.1.16	Check all enclosures and external Distribution boards for wear and tear and integrity including IP rated unit	sum	12			
F.1.17	check all string protection secure and functioning	sum	12			
F.1.18	Inspect cable ducts and boxes and pathways for insect infestation, material ingress and obstructions and clean and clear	sum	12			
F.1.19	Check the surrounding environment for contaminants and foreign objects and plants or pollution around solar farm	sum	12			
F.1.20	Check and report and record any unsafe areas of operation on PV plant or metal surfaces etc	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

F.1.21	Any evidence of PiD on modules including humidity damage and delamination	sum	12			
F.1.22	Removal of Bird droppings, dust and any foreign substances accumulated on the Modules.	sum	12			
F.1.23	Scrutinizing plant performance data on a remote or web-based application.	sum	12			
F.1.24	Inspection of Shading of the Modules by nearby objects.	sum	12			
F.1.25	Inspect and replace any warning signs or DECALS iaw OHSE or SANS 10142 or NR064	sum	12			
F.1.26	Prepare a report from maintenance in accordance with IEC62446 signed by PrEng(ECSA)	sum	12			
F.1.27	Compare actual versus predicted PVSYS6.0 performance date for yield deviations and performance ratio prediction of plant.	sum	12			
F.1.28	Extract SANS14000-type energy report from inverter portal sites for service and energy performance report per site including kwh annual yield, specific production	sum	12			
F.1.29	Provide estimated/actual GHG emission levels reduction including CO2 reduction	sum	12			
F.1.31	Cold galvanizing for old material	m ²	100			

	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
G.1	PART G - DATA COMMUNICATION					
G.1.1	Visual Control of the Status-display	sum	12			
G.1.2	Check of the Data communication Box – DSL / Satellite	sum	12			
G.1.3	Check of the DSL / Satellite Modem / Switch	sum	12			
G.1.4	CheckCAT 5 Cables	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
H.1	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS) - 60 kWh					
H.1.1	Visual Control of the Status-display	sum	12			
H.1.2	Thermograph of all racks, connection and junctions	sum	12			
H.1.3	Firmware updates	sum	12			
H.1.4	Cell balance report	sum	12			

Monthly	Quarterly	Semester	Yearly
	x		
	x		
	x		
	x		

Item No.	Description	Unit	Qty	Material	Labour	Total
I.1	PART I - LANDSCAPING					
I.1.1	Pruning of bushes / shrubs	m²	20			
I.1.2	Pruning of trees	m²	20			
I.1.3	Pruning of climbers	m²	20			
I.1.4	Removal of branches where necessary	sum	36			
I.1.5	Gathering and removal of garden refuse	sum	36			
I.1.6	Check sign of erosion or risk of erosion	sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
X			
X			
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
J.1	PART J - PROJECT SPECIFIC MATERIAL ITEMS					
	All material forming part of J.1 shall be subjected to a mark up.					
J.1.1	Solar PV and BESS Material	PC	1	R 200 000,00		R 200 000,00
J.1.2	Contractor's markup as a percentage of PC sum of R200 000.00	%	1			R -

Monthly	Quarterly	Semester	Yearly

Item No.	Description	Unit	Qty	Material	Labour	Total
K.1	PART K - DOCUMENTATION AND REPORTING (quarterly basis)					
K.1.1	Inspection	sum	36			
K.1.2	Monthly performance reports	sum	36			
K.1.3	Maintenance logs analysis report	sum	36			
K.1.4	Contingency planning and repair report	sum	36			
K.1.5	Power quality study report (V, P, I and all related power quality issue analysis)	sum	36			

Monthly	Quarterly	Semester	Yearly
X			
X			
X			
X			
X			

Item No.	Description	Unit	Qty	Material	Labour	Total
L.1	PART L - TESTING					
	PHOTOVOLTAIC METER - PVM-1020					
	Category 1 specified in IEC 62446-1 - Photovoltaic systems					
	AC Side					
L.1.1	Test all AC circuit(s) to the requirements of IEC 60364-6	sum	12			
	DC Side					
L.1.2	Continuity of earthing and/or equipotential bonding conductors, where fitted.	sum	12			
L.1.3	Polarity test	sum	12			
L.1.4	Combiner Box test if applicable	sum	12			
L.1.5	String or HAS open circuit voltage test	sum	12			
L.1.6	String or HAS open circuit current test (short circuit or operational) DC short-circuit current of the PV module/chain - I _{sc}	sum	12			
L.1.7	Functional tests	sum	12			
L.1.8	Insulation resistance of the DC circuits	sum	12			
L.1.9	DC voltage of an open module/chain PV-Voc	sum	12			
L.1.10	DC short-circuit current of the PV module/chain - I _{sc}	sum	12			

Monthly	Quarterly	Semester	Yearly
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		

Item No.	Description	Unit	Qty	Material	Labour	Total
M.1	PART N - LABOUR					
	Labour Component (to address emergencies) - based on hourly rates					
M.1.1	General labour	hr	20			
M.1.2	Electrician	hr	20			
M.1.3	Supervisor	hr	20			
M.1.4	Professional Engineer/Technologist	hr	20			

Item No.	Description	Unit	Qty	Material	Labour	Total
N.1	PART O - TRAVELLING					
	Travelling Costs (only to address emergencies).From the Civic centre in York Street 16 Brick Road, Industria, George, 6529					
N.1.1	Travel kilometres	km	100			

	ELECTROTECH - 20 kWp (40 PANELS) WITH 3 x 8 kW INVERTERS - ROOF STRUCTURE					
	Tender Summary					
A	PART A - PRILIMINARY AND GENERAL	TOTAL				
B	PART B - INVERTER INSPECTION	TOTAL				
C	PART C - STRING MONITORING	TOTAL				
D	PART D - LOW VOLTAGE SWITCH BOARD	TOTAL				
E	PART E - FIRE EXTINGUISHER	TOTAL				
F	PART F - MODULES	TOTAL				
G	PART G - DATA COMMUNICATION	TOTAL				
H	PART H - BATTERY ENERGY STORAGE SYSTEM (BESS)	TOTAL				
I	PART I - LANDSCAPING	TOTAL				
J	PART J - PROJECT SPECIFIC MATERIAL ITEMS	TOTAL				
K	PART K - DOCUMENTATION	TOTAL				
L	PART L - TESTING	TOTAL				
M	PART M - LABOUR	TOTAL				
N	PART N - TRAVELLING	TOTAL				
	TOTAL					

GEORGE MUNICIPALITY:	TENDER: ENG018/2024 OPERATION AND MAINTENANCE OF PV PLANTS AND BESS FOR A PERIOD OF 36 MONTH
BIDDER'S NAME:	

OPERATION AND MAINTENANCE OF PV PLANTS AND BESS FOR A PERIOD OF 36 MONTH		
SUMMARY		
DESCRIPTION		TOTAL
Tamsui - 1 MWp Civic Centre - 300 kWp Outeniqua - 400 kWp Gwaing - 500 kWp Electro-Tech - 20 kWp Tourism Building - 4 kWp Blanco Motor Vehicle Registration - 3 kWp		
SUB-TOTAL 1		
15%VAT		
TOTAL		

GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C3 Scope of Works

Part C 3 Scope of Works (SOW)

The contractor shall adhere to the outlined specific tasks and responsibilities involved in the maintaining and operating of the solar plants across George municipality areas. The following are aspects and consideration for O&M of PV plants:

3.1. General Scope

3.1.1. Routine Maintenance

The routine maintenance process shall ensure that the Photovoltaic system performs optimally, ensure longevity operation of the system and the safety of the facilities. The guidelines the routine maintenance process of the PV plant

- The contractor shall perform regular inspections of the entire PV plant.
- Clean solar panels to ensure optimal efficiency and energy production.
- Check and tighten electrical connections.
- Inspect and maintain tracking system if applicable.
- Lubricate moving parts if applicable.
- Monitor and maintain vegetation control around the solar array.

3.1.2. Preventive Maintenance

- Implement a preventive maintenance schedule for key components.

- Replace aging equipment and components as per manufacturer recommendations.
- Conduct thermographic inspections to identify potential issues.

3.1.3. Performance Monitoring Meteo Control Photovoltaic monitoring

- The contractor shall utilize a comprehensive monitoring system to track the performance of individual solar panels and the entire plant. The VCOM (Virtual Control Room) for PV monitoring
- The contractor shall analyze historical performance to identify trends and areas for improvement.
- The contractor must be able to monitor the plant's performance remotely.
- The monitoring system must be able to issue emergency notices in the form of short message services (SMS) and e-mails for prompt response by the contractor.

3.1.4. Corrective Maintenance

- The contractor shall respond promptly to system failure and faults.
- The contractor shall diagnose and rectify electrical, mechanical, or other issues affecting the plant's performance.
- They shall implement measures to minimize electrical losses.

3.1.5. Electrical System Maintenance

- The contractor shall inspect, maintain, and troubleshoot inverters, transformers, and switchgears.
- Test and calibrate protective devices.
- They shall implement measures to minimize electrical losses.

3.1.6. Reporting and documentation

- The contractor shall provide regular maintenance reports detailing activities performed, daily, weekly, and monthly.
- The contractor shall include performance analysis, issues identified, and actions taken.
- Maintain a comprehensive logbook for all O&M activities.

- Documentation system configurations, changes, and upgrades

3.1.7. Cleaning procedures

- They regularly clean solar panels using approved methods and equipment.
- They shall implement a schedule for cleaning on environmental conditions.
- They document cleaning activities in the maintenance log.

3.1.8. Security measures (Not Applicable)

- The contractor shall implement security protocols to protect the PV plants from theft or vandalism.
- Monitor the site through surveillance system to ensure plant safety throughout the maintenance period.

3.1.9. Environmental Compliance

Environmental compliance for the disposal of PV panels is crucial to ensure that the end-of life management of solar panels is done responsibly, minimizing environmental impact, and adhering to regulations.

- The contractor shall ensure compliance with George Municipality environmental regulations.
- They shall manage and dispose of hazardous materials in accordance with applicable laws.
- The following key considerations for the environmental compliant disposal of PV panels shall be.

3.2. Photovoltaic (PV) Panels-DC system

One of the major activities required is the Inspection of photovoltaic panels which is a crucial part of the operation and maintenance to ensure optimal performance and longevity of the panel. The contractor is required to perform proper maintenance of PV panel to ensure that daily energy yield is achieved. Here is the general process for conducting PV Panel inspections conducted by the contractor:

3.2.1. Visual Inspection

- Overall Condition: Examine the overall condition of the PV panels. The contractor shall look for physical damages, cracks, delamination, and discoloration on the glass surface.
- Check for any corrosion or damage to the frames and mounting structure and ensure panels are securely mounted.

3.2.2. Electrical Inspection

- All connections shall be inspected, the wiring and any sign of wear, corrosion, or loose connection. Ensure that all electrical connections are tight and secure.
- Check all junction boxes for any signs of damage or overheating. Verify that the reverse bias diodes are functioning properly.

3.2.3. Module Surface Inspection

- Examine the surface for dirt and debris; clean the panels regularly if necessary to ensure energy yield.
- Inspect any bird droppings which can affect efficiency and cause damage over time.

3.2.4. Performance and Monitoring Meteo Control Photovoltaic monitoring

- The contractor shall utilize a comprehensive monitoring system to track the performance of individual solar panels and the entire plant. The VCOM (Virtual Control Room) for PV monitoring
- The contractor shall analyze historical performance to identify trends and areas for improvement.
- The contractor must be able to monitor the plant's performance remotely.
- The monitoring system must be able to issue emergency notices in the form of short message services (SMS) and e-mails for prompt response by the contractor.

3.2.5. Hotspot

- The contractor shall utilize existing tools, such as Infrared thermography to identify hotspot on the PV panels.

- The contractor shall identify issues such as faulty cells or bypass diodes caused by hotspots and address the problem promptly.

3.2.6. IV Curve testing

- Time to time, the contractor shall perform IV curve testing on selected panels to assess their electrical characteristics.
- The deviation from the expected curves may indicate issues, the contractor shall report and the panels and respond promptly.

3.2.7. Structural Integrity

- The contractor shall inspect the support structure foundation for evidence of erosion from bad conditions.
- Module mounting assembly and cable conduits and any other structures built for the solar PV panels shall be regularly checked for mechanical integrity and signs of aging.

3.2.8. Grounding and Lightening Protection

- The contractor shall inspect and test where possible the grounding and protection system of the PV plant integrity in order and functioning as it should.
- The first level of grounding system is the initial and crucial protection of the system which redirects energy from the lightening into the ground away from the panels; the contractor SHALL inspect the integrity of this system.

3.2.9. Other issues

Other common unscheduled maintenance requirements include but not limited to the following:

- Replacing blown fuses
- Repairing lightening damages
- Tightening cables connection that have loosened due to wind and other severe weather conditions.
- Repairing equipment damaged by intruders or module damage during cleaning.

3.3. Inverter O&M

Inverters are key components that convert direct current (DC) generated by solar panels into alternating current (AC). The operation and maintenance of inverters is a critical aspect for ensuring the efficient performance and longevity of a photovoltaic plant. The contractor shall ensure the following activities for the inverters in the PV plant during the operation:

3.3.1. Regular Inspection

- The contractor shall conduct daily visual inspection of inverters to identify any signs of physical damage, corrosion, or loose connection.
- The contractor shall check for poor ventilation around the inverter to prevent overheating.

3.3.2. Electrical Connections

- The contractor shall inspect and tighten all electrical connections, including DC and AC terminals.
- The inspector shall verify that the cables are properly secured and undamaged.

3.3.3. Cooling Systems

- The contractor shall check the functioning of cooling systems, such as fans or liquid cooling systems, to maintain optimal operating temperatures.
- The contractor shall clean dust and debris from cooling vents.

3.3.4. Monitoring system integration

- The contractor shall be able to interpret real-time integrated system data that monitors the operation of the inverters for tracking the performance of the inverters.
- The contractor shall be able to respond to abnormal conditions, such as overvoltage or current etc.

3.3.5. Software and Firmware Updates

- The contractor shall regularly update inverter software and firmware to benefit from performance improvements and security enhancement.
- The updates shall be compatible with the overall PV plant control system.

3.3.6. Performance Analysis

- The contractor shall be able to analyze inverter performance data to identify trend and potential issues.
- Monitoring inverter performance efficiency, power factor, and any deviation from expected performance.

3.3.7. Load Testing

The contractor shall periodically conduct load testing to verify that inverters can handle their rated capacity.

- Simulate the grid failure to ensure seamless transition to backup or island mode where necessary.
- The contractor shall base on deviations of the measured I-V curve from an ideal current and voltage characteristic curve or the observation of deviations of the I-V curve from previous measurements performed under similar ambient conditions, problems within the PV array can be detected and investigated in more detail.

3.4. AC system

The AC systems are capable of exporting surplus power into the distribution grid. A grid-connected PV system is designed to automatically shut down if it detects anomalies in grid parameters such as voltage, frequency, rate of change of frequency, etc. The operation and maintenance of the AC system for a photovoltaic plant are essential to ensure efficient and reliable conversion of solar energy. Here are the key O&M strategies related to AC system of the PV plant:

3.4.1. Inverter Maintenance

- **Regular Inspection-** The contractor shall conduct routine visual inspections of inverters for signs of damage, loose connections or abnormal operating conditions.
- **Thermal imaging-** The contractor shall make of use the thermal imaging to identify hotspots in inverters that may indicate issues with electrical components.

3.4.2. Monitoring and control

- **Performance and monitoring** system shall continuously track the performance of inverters. The system shall monitors key parameters such as AC output voltage, AC output current, power output, and efficiency.
- **Remote Monitoring-** The contractor shall use utilize monitoring system to detect and address issues without the need for on-site visit.

3.4.3. Power quality Management

- **Harmonic Analysis** - The contractor shall periodically conduct harmonic analysis to ensure that the AC power generated by the PV plant complies with power quality standards.
- **Power Factor correction-** The contractor shall regularly take power factor correction measurement to optimize power quality and avoid penalties from utilities.

3.4.5. Inverter efficiency optimization

- **Regular check** –The contractor shall ensure that the inverters are operating at optimal efficiency levels. Regularly check clean cooling systems, air filters, and ventilation to prevent overheating.
- **Firmware Updates-** they shall keep inverter firmware up to date to benefit from the performance improvements and bug fixes.

3.4.6. Voltage Regulation

- **Voltage Monitoring-** The contractor shall monitor AC Output voltage levels to ensure they are within the acceptable range. They shall implement corrective measures if voltage deviations are observed.
- **Voltage Regulation Devices-** They consider the use of voltage regulation devices to maintain stable voltage levels.

3.4.7. Maintenance of AC Components

- **Transformers and Switchgear-** Regularly inspect and maintain transformer and switchgear associated with the AC system. The contractor shall address any issues promptly to prevent disruptions.
- **Circuit breakers-** The contractor shall test and maintain circuit breakers where necessary to ensure proper operation and protection of the AC system.

3.4.8. Grid Interaction Management

- **Grid connection monitoring** – The contractor is expected to monitor the interaction of the PV plant with the grid during the operation to ensure compliance with grid codes and regulation.
- **Anti-Islanding Protection**- Where possible, the contractor shall implement and regularly assess anti-islanding protection to ensure a safe disconnection from the grid during outages.

3.4.9. Load Management

- **Load balancing**- Part of O&M is to monitor and manage load distribution across different phases to avoid imbalance and optimize overall system efficiency.
- **Demand response**- The contractor shall implement routine strategies to respond to demand response by adjusting the PV plant's output based on the grid conditions and demand patterns.

3.4.10. Predictive Maintenance

- **Condition Monitoring** – The contractor is expected to implement condition monitoring techniques, such as vibration analysis and thermography, to detect early signs of equipment degradation.
- **Predictive analytics**- The contractor shall utilizes predictive analytics based on historical data to anticipate potential failure and schedule maintenance proactively.

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TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C4. Health and Safety Specification



Project Health and Safety Specification
In terms of OHS ACT 85 Of 1993 & and Construction
Regulations 2014

Project Name: TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR A PERIOD OF 36 MONTH

For: George Municipality – Electrotechnical Engineering Services

Project Directory

Project Client

Name: George Municipality- Electrotechnical Services
Brick Road
George Industria
George
6536

Contact Details:
(T) 044 874 3917

OHS

Name: XASK Consulting (Pty) Ltd

Contact Details:
(C) 078 546 3529 / 067 847 4367
(E) xavier.redcliffe@xaks.co.za

Project Details

Provisional Start Date:	2025
Provisional Completion Date:	2028
Proposed Contract Duration:	36 Months
Proposed Project Value:	TBC
Notification of Construction Work:	Yes
Required Safety Personnel:	HSO
Prepared by:	Xavier Redcliffe
Date Prepared:	16 September 2024

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GEORGE MUNICIPALITY**DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES****TENDER NUMBER: ENG018/2024**

TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH

Part C5. Site Information**1. GENERAL**

The O&M of PV plants and BESS shall be at the listed site locations in the table below but it is not limited to the List.

Project Name	Location
Civic Centre PV Plant (future BESS)	71 York St, Dormehls Drift, George, 6529, South Africa
Outeniqua P V Plant (future BESS)	Outeniqua Waste Treatment works, Pacaltsdorp, George ,6534
Gwaing PV Plant (future BESS)	R102 Road, Groeneweide Park, George, 6529
Electro-Tech Building (BESS)	16 Brick Road, Industria, George, 6529
Tourism Building (BESS)	124 York St, George Central, George, 6530
Blanco Motor Vehicle Registration (BESS)	29 John Kretzen St, Blanco, George, 6529
Tamsui, George Industria (future BESS)	Ossie Urban Road, Industria, 6529

1.1. Site Coordinates and direction

These sites are located in different areas; clear coordinate shall be obtained by the contractor during site visits.

2. SECURITY**2.1. Site Security**

The facilities have access control and a security guard stationed at the entrance to the facility. The contractor accepts responsibility for the site and installed equipment until work is complete.

2.2. Site Access

There is a single access point to all the sites, which will be used by the contractor and George Municipal staff throughout the contract period. The Municipal Staff's normal working hours are weekdays between 7:30 – 17:00.

3. Contractor Site Information**Site Facilities**

- Water supply – a water supply point will be provided (tap) and it shall be the contractor's responsibility to get the water from the supply point to where he wants to use it.

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TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR
A PERIOD OF 36 MONTH

Part C6. Annexure

Part C6.1. Annexure A: Operation and Maintenance Technical Specification

Part C6.2. Annexure B: Operation and Maintenance Agreement

Part C6.3. Annexure C: Drawings



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**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS FOR
A PERIOD OF 36 MONTH**

Part C6.1: Operation and Maintenance of Solar PV Plants and BESS Technical Specification

Introduction

As result of load shedding, penetration of renewable technologies mainly, photovoltaic (**PV**) and battery energy storage system (**BESS**) on small and large scale have been on the rapid increase to mitigate the crisis and meet energy demand. Although rapid deployment can be attributed to several factors, in South Africa, municipalities, commercial consumers, and residential consumers have been the driver.

Although Solar PV plants are designed to operate for a minimum of 25 years to benefit optimally out of the system, proper operation and maintenance (**O&M**) strategy have to be designed.

The total lifetime energy production of Solar PV plant is the estimated amount of energy in kilowatt hours (**kWh**) expected over 25 years. The total life cycle cost comprises the capital cost and the total cost of operations, maintenance and insurance for the 25 year period.

In order for solar PV plant to be sustainable in terms of profits, the revenue from energy sales (R/kWh) is required to be higher than the levelized cost of electricity (**LCOE**) value. The unit for LCOE is (R/kWh) as shown in Equation 1.

Although the capital cost of a solar PV plant is high, it's O&M cost is relatively low compared to traditional forms of power generation. A basic representation of the **LCOE** for a power plant is shown below:

$$LCOE = \frac{\text{Total Life Cycle Cost (R)}}{\text{Total Life Time Energy Production (kWh)}} \quad (1)$$

This O&M technical specification for PV plant outlines detailed requirements and procedures for the ongoing management, upkeep, and performance optimization of the solar plant facilities across the municipality.

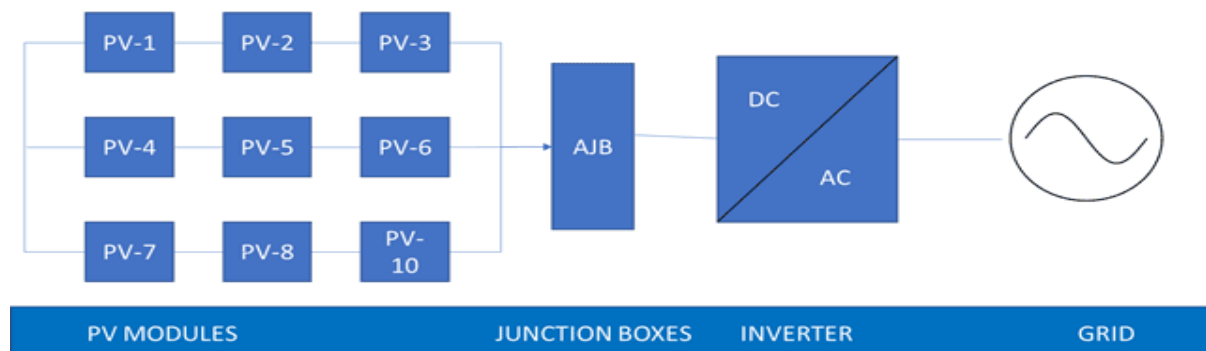


FIGURE 1: TYPICAL LAYOUT OF THE SOLAR PLANT

This report serves as a comprehensive guide for ensuring the efficient and reliable operation of the PV plant over its lifecycle. The contractor is expected to carry out the O&M of the PV plants from the solar modules, through arrays junction boxes (**AJB**), to the inverter system and the AC grid system. Figure 1 above shows a typical asset infrastructure model of the PV plant layout.

O&M is integral to the long-term success of a PV plant, ensuring optimal energy production, maximizing the return on investment, and contributing to the sustainability of the solar energy infrastructure. Effective O&M strategies are crucial for the long-term performance, reliability, and profitability of a solar Photovoltaic plant. Figure 2 shows typical O&M strategy to consider when operating PV plants.

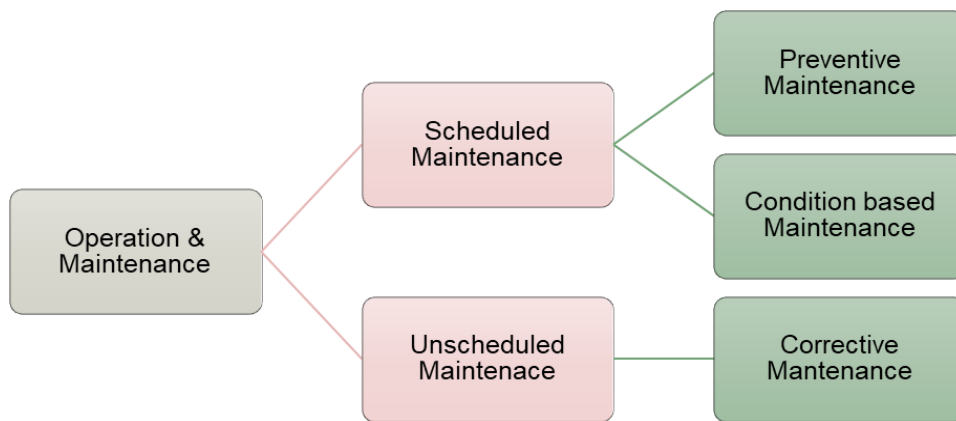


FIGURE 2: OPERATION AND MAINTENANCE STRATEGY

Table 2 below shows summarized best practices for O&M strategies when operating Solar PV plants for small and large scale.

TABLE 1: SUMMARY OF PV PLANT O&M BEST PRACTICES

• Regular Inspections	• Spare Parts Inventory
• Cleaning	• Performance Ratio Monitoring
• Monitoring System	• Contractual agreement
• Preventive Maintenance	• Security measure
• Inverter Maintenance	• Warranty Management
• Vegetation management	• Environmental & Safety Compliance
• Data Analysis	• Life Cycle Assessment
• Weather events and natural disaster	• Regular training

Background

George Municipality owns and operates several Small-Scale Embedded Generator (SSEG) plants located across the municipality demarcation. This document serves as the O&M technical specification for the plants outlining procedures, responsibilities, and standards for ensuring the long-term performance and sustainability of the PV facilities. Table 2 below indicates the list of the existing and future SSEG plants within GM.

TABLE 2: LIST OF SSEG IN GEORGE MUNICIPALITY

Project Name	Location	Capacity (kW)	Date Commissioned	No. of Inverters	No. of Strings per Inverter	Number of PV Modules	PV & BESS Size (kWh)
Civic Centre PV Plant	71 York St, Dormehls Drift, George, 6529, South Africa	300	23-Sep	5	Inv 1-4 = 8 strings/inv Inv 5 = 9 strings	692	Future
Outeniqua P V Plant	Outeniqua Waste Treatment works, Pacaltsdorp, George ,6534	400	23-Oct	8	Inv 1 = 6 strings Inv 2-8 = 5 strings/inv	738	Future
Gwaing PV Plant	R102 Road, Groeneweide Park, George, 6529	500	Date	5	Inv 1-4 = 10 strings/inv Inv 5 = 11 strings	910	Future
ElectroTech Building	16 Brick Road, Industria, George, 6529	20	23-Nov	3	Inv 1-3 = 1 string/inv	40	60
Tourism Building	124 York St, George Central, George, 6530	4	23-Jul	1	Inv 1 = 1 string	8	10
Blanco Motor Vehicle Registration	29 John Kretzen St, Blanco, George, 6529	3	23-Jul	1	Inv 1 = 1 string	6	10
Tamsui	Ossie Urban road, Industria, 6529	1000	Date	10	Inv 1-9 = 10 strings/inv Inv 10 = 8 strings	1728	Future

The commencement of O&M in all plants will come to effect at different periods of the 36 months tender. There are plants that are currently under an existing maintenance contract. Table 3 below indicates the starting period of O&M for each plant within GM.

TABLE 3: START OF OPERATION AND MAINTENANCE FOR EACH PLANT

Project Name	Location	Capacity (kW)	Start of O&M period	Number of PV Modules	PV & BESS Size (kWh)
Civic Centre PV Plant	71 York St, Dormehls Drift, George, 6529, South Africa	300	After tender award	692	Future
Outeniqua PV Plant	Outeniqua Waste Treatment works, Pacaltsdorp, George ,6534	400	01 Sep 2025	738	Future
Gwaing PV Plant	R102 Road, Groeneweide Park, George, 6529	500	25 Mar 2026	910	Future
Electro-Tech Building	16 Brick Road, Industria, George, 6529	20	22 Jan 2026	40	60
Tourism Building	124 York St, George Central, George, 6530	4	01 Aug 2025	8	10
Blanco Motor Vehicle Registration	29 John Kretzen St, Blanco, George, 6529	3	01 Aug 2025	6	10
Tamsui	Ossie Urban road, Industria, 6529	1000	30 Apr 2026	1728	Future

Objectives

The primary objective of the technical specification is to demonstrate the O&M challenges which need to be understood in order to develop and implement a successful O&M strategy for solar PV and BESS plants. The secondary objective of the technical specification is to establish what the current best practices are for solar PV BESS O&M that can be implemented in George Municipality.

Purpose of O&M Specification

The purpose of this O&M specification is to establish comprehensive framework for the ongoing operation and maintenance, preventative maintenance, performance monitoring, corrective maintenance, cleaning procedures, and documentation requirements. Each aspect of the plant’s O&M shall be detailed to provide clarity on the responsibilities and the tasks to be undertaken.

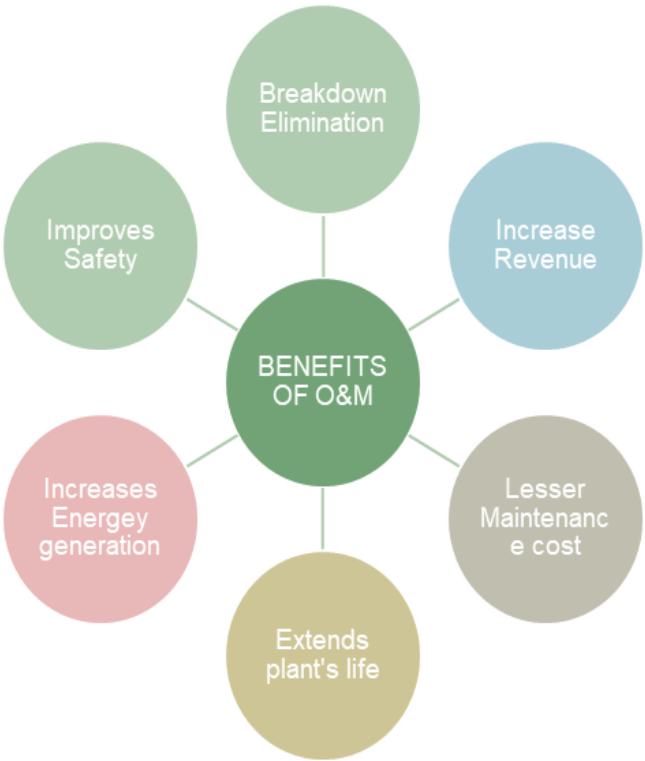


FIGURE 3: AIM OF O&M PLAN

Scope of Work (SOW)

The contractor shall adhere to the outlined specific tasks and responsibilities involved in the maintaining and operating of the solar plants across George municipality areas. The following are aspects and consideration for O&M of PV & BESS plants:

General Scope

Routine Maintenance

The routine maintenance process shall ensure that the Photovoltaic system performs optimally, ensure longevity operation of the system and the safety of the facilities.

The guidelines the routine maintenance process of the PV plant

- The contractor shall perform regular inspections of the entire PV plant.
- Clean solar panels to ensure optimal efficiency and energy production.
- Check and tighten electrical connections.
- Inspect and maintain tracking system if applicable.
- Lubricate moving parts if applicable.
- Monitor and maintain vegetation control around the solar array.

Preventive Maintenance

- Implement a preventive maintenance schedule for key components.
- Replace aging equipment and components as per manufacturer recommendations.
- Conduct thermographic inspections to identify potential issues.

Performance Monitoring – Meteo Control Photovoltaic monitoring solution

- The contractor shall utilize a comprehensive monitoring system to track the performance of individual solar panels and the entire plant. The VCOM (Virtual Control Room) for PV monitoring
- The contractor shall analyze historical performance to identify trends and areas for improvement.
- The contractor must be able to monitor the plant's performance remotely.
- The monitoring system must be able to issue emergency notices in the form of short message services (SMS) and e-mails for prompt response by the contractor.

Corrective Maintenance

- The contractor shall respond promptly to system failure and faults.
- The contractor shall diagnose and rectify electrical, mechanical, or other issues affecting the plant's performance.
- They shall implement measures to minimize electrical losses.

Electrical System Maintenance

- The contractor shall inspect, maintain, and troubleshoot inverters, transformers, and switchgears.
- Test and calibrate protective devices.
- The contractor shall implement measures to minimize electrical losses.

Reporting and documentation

- The contractor shall provide regular maintenance reports detailing activities performed, daily, weekly, and monthly.
- The contractor shall include performance analysis, issues identified, and actions taken.
- Maintain a comprehensive logbook for all O&M activities.
- Documentation system configurations, changes, and upgrades.

Cleaning procedures

- The contractor shall regularly clean solar panels using approved methods and equipment.
- The contractor shall implement a schedule for cleaning on environmental conditions.
- The contractor shall document cleaning activities in the maintenance log.

Security measures

- The contractor shall implement security protocols to protect the PV plants from theft or vandalism when deemed necessary.

Environmental Compliance

Environmental compliance for the disposal of PV panels is crucial to ensure that the end-of life management of solar panels is done responsibly, minimizing environmental impact, and adhering to regulations.

- The contractor shall ensure compliance with George Municipality environmental regulations.
- They shall manage and dispose of hazardous materials in accordance with applicable laws.

Photovoltaic (PV) Panels-DC system

One of the major activities required is the inspection of photovoltaic panels which is a crucial part of the operation and maintenance to ensure optimal performance and longevity of the panel. The contractor is required to perform proper maintenance of PV panel to ensure that daily energy yield is achieved. Here is the general process for conducting PV Panel inspections carried out by the contractor:

Visual Inspection

- Overall Condition: Examine the overall condition of the PV panels. The contractor shall look for physical damages, cracks, delamination, and discoloration on the glass surface.
- Check for any corrosion or damage to the frames and mounting structure and ensure panels are securely mounted

Electrical Inspection

- All connections shall be inspected, the wiring and any sign of wear, corrosion or loose connection. Ensure that all electrical connections are tight and secure.
- In all junction boxes check for any signs of damage or overheating. Verify that the reverse bias diodes are functioning properly.

Module Surface Inspection

- Examine the surface for dirt and debris; clean the panels regularly if necessary to ensure energy yield.
- Inspect any bird droppings which can affect efficiency and cause damage over time.

Performance and Monitoring - Meteo Control Photovoltaic monitoring

- The contractor shall utilize a comprehensive monitoring system to track the performance of individual solar panels and the entire plant. The VCOM (Virtual Control Room) for PV monitoring
- The contractor shall analyze historical performance to identify trends and areas for improvement.
- The contractor must be able to monitor the plant's performance remotely.
- The monitoring system must be able to issue emergency notices in the form of short message services (SMS) and e-mails for prompt response by the contractor.

Hotspot

- The contractor shall utilize tools, such as Infrared thermography to identify hotspot on the PV panels.
- The contractor shall identify issues such as faulty cells or bypass diodes caused by hotspots and address the problem promptly.

IV Curve testing

- Time to time, the contractor shall perform IV curve testing on selected panels to assess their electrical characteristics.
- The deviation from the expected curves may indicate issues, the contractor shall report and the panels and respond promptly.

Structural Integrity

- The contractor shall inspect the support structure foundation for evidence of erosion from bad conditions.
- Module mounting assembly and cable conduits and any other structures built for the solar PV panels shall be regularly checked for mechanical integrity and signs of aging.

Grounding and Lightning Protection

- The contractor shall inspect and test where possible the grounding and protection system of the PV plant integrity in order and functioning as it should.
- The first level of grounding system is the initial and crucial protection of the system which redirects energy from the lightning into the ground away from the panels; the contractor SHALL inspect the integrity of this system.

Other issues

Other common unscheduled maintenance requirements include but not limited to the following:

- Replacing blown fuses
- Repairing lightning damages
- Tightening cables connection that have loosened due to wind and other bad weather conditions
- Repairing equipment damaged by intruders or module damage during cleaning

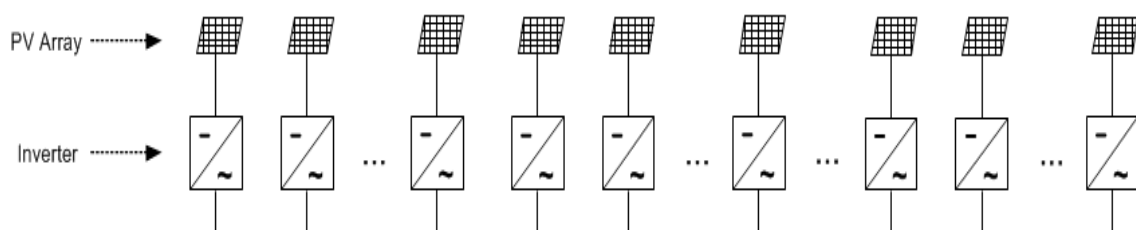


FIGURE 4: TYPICAL DC SYSTEM COMPONENT TO INVERTER DC INPUT

Inverter O&M

Inverters are key components that convert direct current (DC) generated by solar panels into alternating current (AC). The operation and maintenance of inverters is a critical aspect for ensuring the efficient performance and longevity of a photovoltaic plant. The contractor shall ensure the following activities for the inverters in the PV plant during the operation:

Regular Inspection

- The contractor shall conduct daily visual inspection of inverters to identify any signs of physical damage, corrosion, or loose connection.

- The contractor shall check for poor ventilation around the inverter to prevent overheating.

Electrical Connections

- The contractor shall inspect and tighten all electrical connections, including DC and AC terminals.
- The contractor shall verify that the cables are properly secured and undamaged.

Cooling Systems

- The contractor shall check the functioning of cooling systems, such as fans or liquid cooling systems, to maintain optimal operating temperatures.
- The contractor shall clean dust and debris from cooling vents.

Monitoring system integration

- The contractor shall be able to interpret real-time integrated system data that monitors the operation of the inverters for tracking the performance of the inverters.
- The contractor shall be able to respond to abnormal conditions, such as overvoltage or current etc.

Software and Firmware Updates

- The contractor shall regularly update inverter software and firmware to benefit from performance improvements and security enhancement.
- The updates shall be compatible with the overall PV plant control system.

Performance Analysis

- The contractor shall be able to analyze inverter performance data to identify trend and potential issues.
- Monitoring inverter performance efficiency, power factor, and any deviation from expected performance.

Load Testing

The contractor shall periodically conduct load testing to verify that inverters can handle their rated capacity.

- Simulate the grid failure to ensure seamless transition to backup or island mode where necessary.
- The contractor shall base on deviations of the measured I-V curve from an ideal current and voltage characteristic curve or the observation of deviations of the I-V curve from previous measurements performed under similar ambient conditions, problems within the PV array can be detected and investigated in more detail.

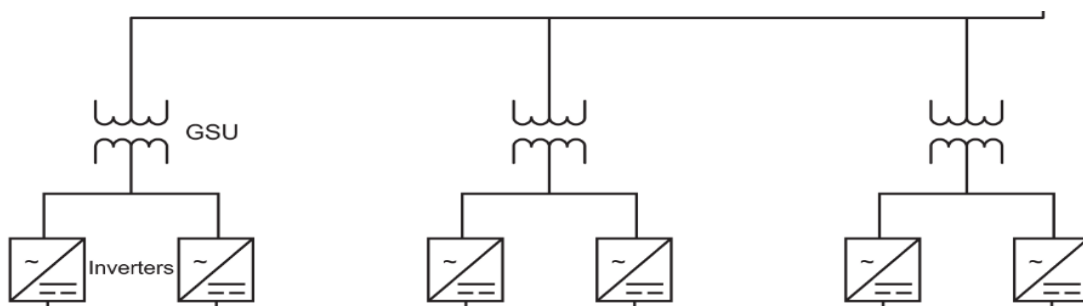


FIGURE 5: INVERTER SYSTEM IN PV SOLAR PLANT

AC system

The AC systems are capable of exporting surplus power into the distribution grid. A grid-connected PV system is designed to automatically shut down if it detects anomalies in grid parameters such as voltage, frequency, rate of change of frequency, etc. The operation and maintenance of the AC system for a photovoltaic plant are essential to ensure efficient and reliable conversion of solar energy. Here are the key O&M strategies related to AC system of the PV plant:

Inverter Maintenance

- **Regular Inspection-** The contractor shall conduct routine visual inspections of inverters for signs of damage, loose connections or abnormal operating conditions
- **Thermal imaging-** The contractor shall make of use the thermal imaging to identify hotspots in inverters that may indicate issues with electrical components.

Monitoring and control

- **Performance and monitoring** system shall continuously track the performance of inverters. The system shall monitors key parameters such as AC output voltage, AC output current, power output, and efficiency.
- **Remote Monitoring-** The contractor shall use utilize monitoring system to detect and address issues without the need for on-site visit.
- The monitoring system must be able to issue emergency notices in the form of short message services (SMS) and e-mails for prompt response by the contractor.

Power quality Management

- **Harmonic Analysis** - The contractor shall periodically conduct harmonic analysis to ensure that the AC power generated by the PV plant complies with power quality standards.
- **Power Factor correction-** The contractor shall regularly take power factor correction measurement to optimize power quality and avoid penalties from utilities.

Inverter efficiency optimization

- **Regular check** –The contractor shall ensure that the inverters are operating at optimal efficiency levels. Regularly check clean cooling systems, air filters, and ventilation to prevent overheating.
- **Firmware Updates-** The contractor shall keep inverter firmware up to date to benefit from the performance improvements and bug fixes.

Voltage Regulation

- **Voltage Monitoring-** The contractor shall monitor AC Output voltage levels to ensure they are within the acceptable range. They shall implement corrective measures if voltage deviations are observed.

- **Voltage Regulation Devices-** They consider the use of voltage regulation devices to maintain stable voltage levels.

Maintenance of AC Components

- **Transformers and Switchgear-** Regularly inspect and maintain transformer and switchgear associated with the AC system. The contractor shall address any issues promptly to prevent disruptions.
- **Circuit breakers-** The contractor shall test and maintain circuit breakers where necessary to ensure proper operation and protection of the AC system.

Grid Interaction Management

- **Grid connection monitoring** – The contractor shall monitor the interaction of the PV plant with the grid during the operation to ensure compliance with grid codes and regulations.
- **Anti-Islanding Protection-** Where possible, the contractor shall implement and regularly test anti-islanding protection to ensure a safe disconnection from the grid during outages.

Load management

- **Load balancing-** Part of O&M is to monitor and manage load distribution across different phases to avoid imbalance and optimize overall system efficiency.
- **Demand response-** The contractor shall implement routine strategies to respond to demand response by adjusting the PV plant's output based on the grid conditions and demand patterns.

Predictive Maintenance

- **Condition Monitoring** – The contractor is expected to implement condition monitoring techniques, such as vibration analysis and thermography, to detect early signs of equipment degradation.
- **Predictive analytics-** The contractor shall utilize predictive analytics based on historical data to anticipate potential failure and schedule maintenance proactively.

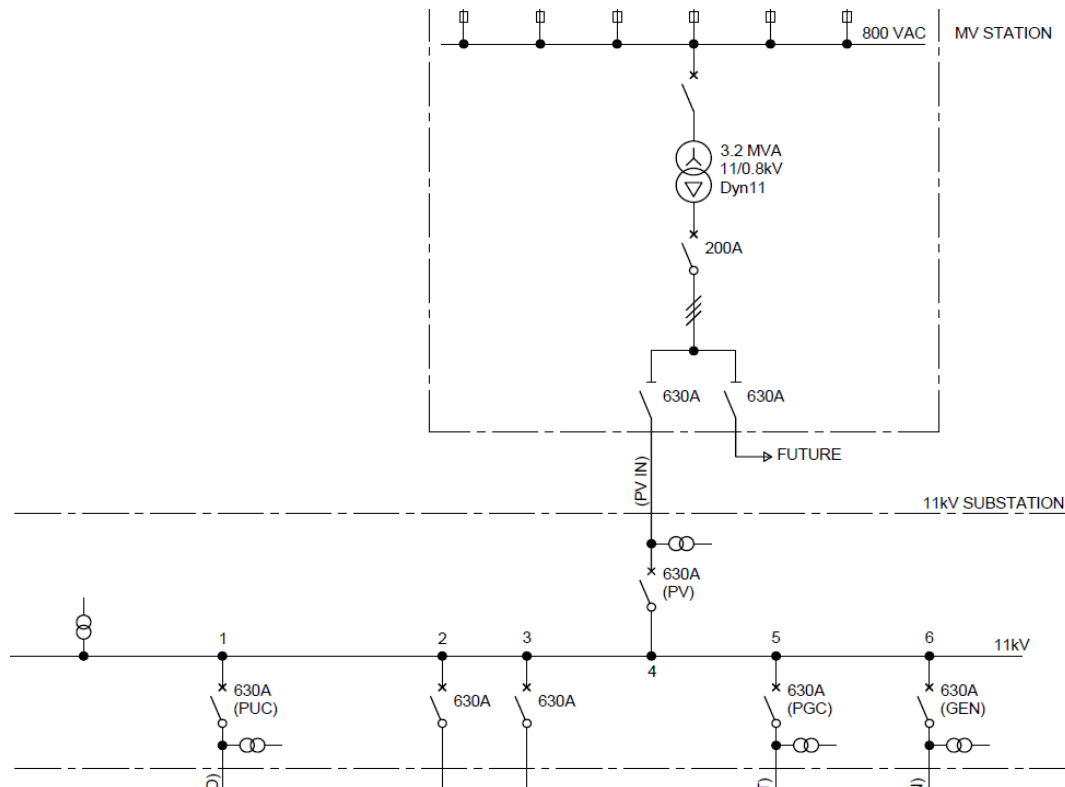


FIGURE 6: TYPICAL AC SYSTEM IN THE PV PLANT COMPONENTS

Bill of Quantities

The operation and maintenance of solar plants shall involve all plant material listing, i.e. materials, labor, services required to ensure the proper functioning and the upkeep of the installed solar plant. The guide to determine the BOQ for O&M of solar plant is as follow:

Scope definition

Clear scope of O&M activities for the solar plant was detailed in the previous sections. See the scope for extended required activities.

O&M Activities

The scope identifies and lists all O&M activities required to maintain the performance and the integrity of the solar plant including PV & BESS. The following is a list of summary but not limited to the list:

- Routine inspections and preventative maintenance
- Corrective maintenance and repairs
- Cleaning of PV Modules, mounting structures, and other components
- Performance monitoring and data analysis

- Vegetation management
- Security measures
- Reporting and document

Asset Inventory

Through inventory of all plant assets and equipment within the solar plant is required to be done. This include but not limited to, PV modules, string combiner units, inverters, mounting structures, transformers where applicable, cables, monitoring system, protection system, fire detection system etc.

Material and equipment requirement

The list of all materials and equipment needed for O&M activities shall include the following but not limited:

- Consumables such as cleaning agents, lubricants, and protective coatings
- Spare parts for critical components like inverters, transformers and cables
- Tools and equipment for maintenance tasks
- Safety gear and personal protective equipment (PPE)

Labour requirements

The contractor shall provide the labor requirements for each O&M activities Including but not limited to:

- Skilled technician with track record in PV maintenance, trouble shooting and repairs
- Cleaning crews that understand trained to regularly clean PV module
- Supervisors and managers for oversight and daily coordination of the plant

Documentation and reporting

The cost associated with documentation and reporting for O&M activities such as maintenance logs, inspection reports, performance metrics etc., shall be included in the provision.

Review and approval

All BOQ shall undergo review to ensure completeness, accuracy, alignment with project requirement and approval from relevant stakeholders, such as project managers, client before finalizing the BOQ.

Update and Maintenance

The BOQ shall be regularly reviewed and updated to reflect changes in O&M requirements, equipment upgrades and industry best practices.

Safety Rules and Safety precaution

- **General Safety Precautions**

The contract shall be responsible for ensuring the health and safety of all workers and people and the solar PV plant including the security. The contractor must have all their personnel trained in full compliance with respective legal and professional requirements. The following safety dangers are likely to exist in most solar plants and are considered hazards and identifying risks is critical:

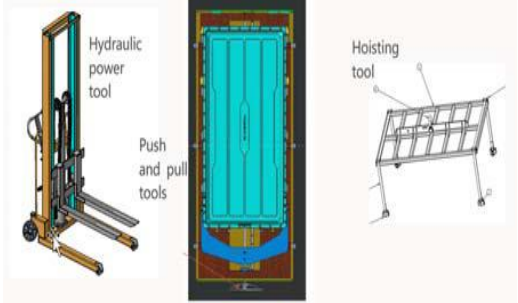
- **Slips, trips, and falls-** The contractor shall constantly check the terrain, obstacles and equipment's installed to prevent trips and fall
- **Collisions-** For small sites like George PV plants, this could be negligible, but all personnel in the plants are expected to exercise extra safety to avoid collision on site.
- **Medical problems-** All personnel engaged in working at PV plants shall pass a medical test and declare any pre-existing medical problems.
- **Strains and sprains-** lifting heavy equipment often in awkward spaces or uneven ground can increase the risks of simple strains or longer term joint injuries; all laborer workers shall exercise extra care.
- **Electrocution-** Operational Solar plant whether energized or not present a significant risk of electrocution to personnel. All employees engaged in the electrical work must have undergone specific training on how to operate PV plant to avoid arc- flash incidents or electrocution.
- **Fire-** All personnel working in the solar PV plants must be fully equipped with what do to avoid the risks of fire and what to in the event a fire happens.

Tools and PPE

Performing maintenance work should have all the necessary tools and instruments to work with power devices according to table below:

Proper PPE according to Local Regulation	
Clip on ammeter Make sure the measure range is fulfill with the device rated current`	
Phase Rotation Indicator or equivalent	
Multi-meter 1500VDC	

Insulated Screwdrivers	
Socket spanners set	
Torque Wrench ~15Nm to 40Nm ~5Nm to 10Nm	
Thermal Imager(Optional)	

Power analyser (PQ meter)	
Oscilloscope(Optional)	
Battery Lifting tool	

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

**Part C6.2: Operation and Maintenance
Agreement for PV & BESS plants**

Table of Clauses

Definition and Interpretation

In this Agreement and for the purposes of this Appendix the following capitalized words and expressions shall have the following meanings and cognate expressions shall have the corresponding meanings:

“Additional Services”	Means any additional works or services which are requested as such by the Employer under Clause 5 or are expressly identified as being Additional Services in this Agreement;
“Annual Fee”	Means the fee payable by the Employer to the Contractor for the provision of Annual Fee Services
“Approval”	Means any permission, permit, approval, consent, license, authorization, registration, grant, exemption, acknowledgement or agreement to be obtained from any competent authority by either Party under any Law to enable either Party to perform its obligations in accordance with the provisions of this Agreement;
“Availability”	Means a 95% availability of the PV & BESS and 99.5% PV (where PV is future plan) with integrated system.
“PV & BESS”	Means a Operation and Maintenance (O&M)s supplied under the Contract including without limitation the batteries, Battery Management Systems, Energy Management System, Protection Control Systems, controller(s), Battery switchgear and transformer(s);
“PV & BESS Operation and Maintenance Scope of Work”	Means the PV & BESS Operation and Maintenance Scope of Work
Commencement Date	means the date of Operational Acceptance in the Contract;

“Corrective Maintenance”	Means maintenance carried out after fault recognition and intended to put an item into a state in which it can perform a required function. Also known as breakdown maintenance.
“Desired Condition”	Means for the PV & BESS and PV (to be added in future) the same being in a good and proper working order and available for and capable of operation;
“Good Industry Practice”	Means the practices, methods, acts, techniques and standards in accordance with best international practice which are prudent and in accordance with applicable and generally accepted good practice for Contractors on battery storage projects exercising that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced Contractor engaged and experienced in the supply, operation and maintenance of O&M Plant of similar size, nature and complexity as the O&M Plant in similar physical conditions and environment under similar obligations to those set out in this Agreement;
“O&M Manuals”	Means the operation and maintenance manuals, the PV & BESS associated equipment and site security system maintenance standard and other relevant reference documents (including warranty service manual) relevant to the PV & BESS a, associated equipment and site security system provided to the Employer under the Contract;
Other Services	Means Preventative and Corrective Maintenance on an as when required basis , Procurement of Spare Parts and Training carried out by the Contractor in accordance with the provisions of this Agreement
Other Services Fees	Means fees payable by the Employer for Other Services provided by the Contractor

“ O&M Plant”	Means all equipment that needs to be maintained and/or operated as set out in BESS and PV Operations and Maintenance Scope of Work.
O&M Price	Means prices for operations and maintenance contained in Price Schedule
“Preventative Maintenance”	Means maintenance carried out at predetermined intervals or according to prescribed criteria and intended to reduce the probability of failure or the degradation of the functioning of an item;
“Programme of Preventative Maintenance”	Means the programme for the provision of Preventative Maintenance to be provided and updated by the Contractor
“SCADA”	Means the supervisory control and data acquisition system;
“Services”	Means the scope of work as set out in BESS and PV Operations and Maintenance Scope of Work
“Spare Parts”	Means the spare components provided or to be provided by the Contractor for incorporation into the O&M Plant but which are not incorporated at the time of supply;
“Term”	Means the period commencing upon Commencement Date and ending five (5) years from such date unless: (i) this Agreement is terminated by either Party in accordance with the terms of this Agreement, or (ii) the Parties agree to extend the Term

2. Contractor's Obligations

2.1. General Obligations

- 2.1.1. During the Term of the Agreement, the Contractor shall perform the Operation and Maintenance services as described in George PV & BESS specification document (PV & BESS Operation and Maintenance Scope of Work) (hereafter the “Services”), in accordance with Annexure 1 and in accordance with the other conditions relating to prescribed related to the operational performance under Section - VII (Employer's Requirement) of the Bid Document.

- 2.1.2. The Services shall be executed:
- i) In accordance with all applicable laws and Permits;
 - ii) In accordance with Good Industry Practice;
 - iii) In accordance with the O&M Manuals;
 - iv) In good and workmanlike manner, using good quality materials, plant, goods and equipment fit for the purpose for which they are intended;
 - v) In accordance with the requirements of approved PV & BESS O&M standards
 - vi) In compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Appendix B to the GCC; and
 - vii) In compliance with the Employers Environment and Social policies and procedures as well as the World Bank Group Environmental and Social Framework (ESF).
- 2.1.3. The Contractor shall be deemed to have allowed correct and sufficient O&M Price to cover all its obligations under the Agreement and Contract and shall be deemed to have allowed the necessary resources to enable it to perform the Services in accordance with requirements of the Agreement and Contract to the standards and in the manner required. The Contractor's failure to acquaint itself with or assess any applicable condition shall neither relieve it from the responsibility for performing its obligations under the Agreement and Contract nor entitle the Contractor to any additional costs or any other relief.
- 2.1.4. The Contractor's failure to acquaint itself with or assess any applicable condition shall neither relieve it from the responsibility of for performing its obligations under the Agreement nor entitle the Contractor to any additional costs or any other relief.
- 2.1.5. The Employer and its advisors and shareholder, the Bank and Regulatory Bodies shall have the right to conduct audits, on Services rendered by the Contractor and compliance by the Contractor with applicable laws, health, safety and Environment requirements and all other relevant requirements. The Contractor shall provide the aforementioned entities with all necessary access and documents required for the purpose of the audits. Such audits shall be conduct as and when it is deemed necessary.
- 2.1.6. For Services performed on a continuous basis, the O&M Annual Fees and Other Services Fees shall be deemed to be all-inclusive and the Contractor shall obtain all required Government Approvals and bear any costs related thereto (including any shift or

permitted overtime working, allowances, wage orders, night shift differentials, etc.). **(NOT APPLICABLE)**

- 2.1.7. The Contractor shall ensure availability of such components, consumable, Spare Parts, and Contractor's Equipment as may be necessary for the performance of the Services. The Contractor shall ensure that such Contractor's Equipment does not interfere with the operational or structural integrity of the O&M Plant.
- 2.1.8. The Contractor shall make available to the Employer the O&M Manuals and shall also provide the Employer with updates and revisions to the O&M Manuals to the extent that such updates and revisions are necessary and applicable to the performance of the Services. The Contractor shall provide the Employer with a latest version of update available of all the updated O&M Manuals at the end of the Term or early termination of the Agreement for any reason.
- 2.1.9. The Contractor shall ensure that any warranties or guarantees provided under the Contract and this Agreement are not invalidated or adversely affected by any act or omission of the Contractor during the period of such warranties or guarantees.
- 2.1.10. The Contractor shall provide monthly reports from the SCADA system. Notwithstanding the aforesaid the Employer may as and when required request collect the data generated by the SCADA system in respect of the O&M Plant from the Contractor. **(NOT APPLICABLE)**
- 2.1.11. Prior to the end of the Term or termination of the Agreement, the Contractor shall at no additional cost install an additionally extended terminal from the SCADA system remotely and at the Site to enable the Employer to continue to access data relating to the O&M Plant for the life of the O&M Plant. **(NOT APPLICABLE)**
- 2.1.12. The Contractor shall notify and communicate to the Employer about any condition which may cause any malfunction or failure in the O&M Plant in accordance with requirements of the PV & BESS Operation and Maintenance Scope of Work.
- 2.1.13. The Contractor shall be responsible and hereby accepts the risk of the transport of all components, consumables, and Contractor's Equipment and other things required for the performance of its obligations under this Agreement. Without prejudice to the generality of the foregoing the Contractor shall:

- i) be responsible for packing, loading, transporting, receiving, and unloading, storing and protecting all components, consumables, Contractor's Equipment and other things required to perform its obligations under this Agreement; and
- ii) provide all necessary signs or directions which may be required to transport all components, consumables, Contractor's Equipment and other things required to carry out its obligations under this Agreement to the Site and obtain all necessary permissions which may be required from relevant authorities or third party landowners for the use of the access roads to the boundary of the Site.

2.1.14. The Contractor shall handle all imported components, consumables and Contractor's Equipment at the point(s) of import and shall handle any formalities for customs clearance provided that if applicable laws or regulations require any application or act to be made by or in the name of the Employer, the Employer shall take all necessary steps to comply with applicable laws or regulations.

2.1.15. Risk of loss with respect to any components and consumables and other items provided by the Contractor and incorporated or to be incorporated into any part of the O&M Plant pursuant to this Agreement shall pass to the Employer at the end of the Term or early termination of the Agreement for any reason.

2.1.16. At the end of the Term or in the event of early termination of this Agreement for any reason the Contractor shall comply with the end of contract requirements as set out in General Conditions of Contract.

2.2. Service Obligations

The Contractor shall provide the Services as set out in and in accordance with the requirements in PV & BESS Operations and Maintenance Scope of Work and the O&M Manuals. The Services provided by the Contractor shall include but not be limited to the following:

2.2.1. Preventative Maintenance

2.2.1.1. During the Term and as and when required the Contractor shall carry out the Preventative Maintenance in accordance with the terms of this Agreement, the PV & BESS Operation and Maintenance Scope of Work, the O&M Manuals and as may otherwise be required in order to maintain the O&M Plant in the Desired Condition but shall not include Corrective Maintenance.

- 2.2.1.2. The Contractor shall provide to the Employer one month (1) prior to the commencement of the Term a Programme for the provision of the Preventative Maintenance in accordance with this Agreement on a yearly basis approved by the Employer in the format agreed by the Parties.
- 2.2.1.3. The Contractor shall update the Programme of Preventative Maintenance on an annual basis or when instructed by the Employer to do so. The Contractor shall issue each updated Programme of Preventative Maintenance to the Employer on the anniversary of the Commencement Date or within 10 (ten) Business Days of being instructed to do so. This updated Programme of Preventative Maintenance shall be subject to the Employer's approval.
- 2.2.1.4. The Contractor shall use reasonable endeavors (but without being required to prejudice its other obligations under this Agreement) to program and carry out the Preventative Maintenance on such dates and at such times as will maximize availability and energy output of the O&M Plant and consistent with the Employer's requirements including using reasonable endeavors to avoid any shutdown of the PV & BESS when the Eskom power system is constrained.
- 2.2.1.5. If the Contractor fails to carry out the Preventative Maintenance in accordance with the requirements of this Agreement the Employer may give written notice to the Contractor requiring the Contractor to carry out the Preventative Maintenance. If the Contractor fails to carry out the Preventative Maintenance in accordance with this Agreement within 20 (twenty) days of the Employer's written notice then the Employer shall be entitled to retain a third party to carry out such Preventative Maintenance and to recover any costs incurred by the Employer from the Contractor. Any Preventative Maintenance carried out by a third party shall be at the Contractor's risk (and shall not invalidate any warranty, guarantee or obligation under this Agreement or the Contract) provided that such Preventative Maintenance is carried out to the standards required by this Agreement. The Contractor will co-operate with the Employer, facilitates and permit the use of all required information, materials and other matter (including Contractor's documents and all other drawings, CAD materials, technical data, software, models, plans, designs, programs, diagrams, evaluations, details, specifications, schedules, reports, calculations, manuals or other documents or recorded information (electronic or otherwise) which have been or are at any time prepared by or on behalf of the Contractor under this Agreement or otherwise for and/or in connection with the Services) and generally does all things reasonably required by the Employer to achieve this end.

2.2.2. Corrective Maintenance

2.2.2.1. As and when required the Contractor shall carry out any Corrective Maintenance in accordance with this Contract, the PV & BESS Operation and Maintenance Scope of Work and the O&M Manuals shall be used in carrying out of all works and services required to effect any repair which may be required to the O&M Plant.

2.2.2.2. Any Corrective Maintenance which is required as a result of the Contractor's failure to comply with its obligations under this Contract or an act of negligence or omission by the Contractor shall be for the Contractor's own cost. Nothing in this Contract shall limit the Contractor's obligations or liability to correct defects (as defined in the Contract) and for the avoidance of doubt the Contractor shall not be entitled to any payment under this Agreement for the correction of defects pursuant to the Contract.

2.2.2.3. As soon as either Party is aware of additional Corrective Maintenance, they shall give immediate notice to the other Party.

2.2.2.4. Where the Corrective Maintenance is required, the Contractor shall immediately proceed to carry out the Corrective Maintenance in order to effect any repair to the O&M Plant and to return the O&M Plant to the Desired Condition. The Contractor shall proceed diligently with such Contractor Cost Corrective Maintenance and shall complete the same as soon as reasonably practicable for the performance of the O&M Plant.

2.2.2.5. Without prejudice to the Contractor's obligations Clause 2.2.2.4 within five (5) Business Days of the Contractor becoming aware of a requirement for Contractor Cost Corrective Maintenance the Contractor shall provide to the Employer the information referred to in Clause 2.2.2.6 a – g below.

2.2.2.6. Where the Corrective Maintenance required is the Employer Cost Corrective Maintenance the Contractor shall provide the Employer within five (5) Business Days of the Contractor becoming aware of the need for such the Employer Cost Corrective Maintenance provide to the Employer a proposal which shall include:

- (a) Details of the Corrective Maintenance required including a prognosis of the cause of the event giving rise to the need for the Corrective Maintenance;
- (b) A method statement setting out the Contractor's proposal for carrying out the Corrective Maintenance;
- (c) A proposed cost together with a detailed breakdown thereof for the carrying out of the Corrective Maintenance; which shall be calculated in accordance with

- (d) A programme for the carrying out of the Corrective Maintenance which shall be prepared on the basis of the Contractor carrying out and completing the Corrective Maintenance as soon as reasonably practicable and in accordance with Good Industry Practice;
- (e) Any protective or mitigation measures which the Contractor would recommend pending completion of the Corrective Maintenance;
- (f) Details of any anticipated O&M Plant down time on a per day basis;
- (g) Any other relevant information requested by the Employer acting reasonably ("a Proposal").

2.2.2.7. In the event of a dispute between the Parties as to whether any Corrective Maintenance required is Contractor Cost Corrective Maintenance or the Employer Cost Corrective Maintenance such dispute shall be resolved in accordance with the provisions of this Agreement. Notwithstanding the existence of such dispute the Employer may instruct the Contractor to proceed with the Corrective Maintenance pending resolution of such dispute.

2.2.2.8. Within five (5) days of receipt of the Contractor's Proposal the Employer shall either:

- (a) confirm to the Contractor whether it wishes the Contractor to carry out the Employer Cost Corrective Maintenance in accordance with the Proposal in which case the Contractor shall carry out such Corrective Maintenance in accordance with this Agreement and within the time stated in the Proposal, and the Employer shall pay the Contractor in accordance with Clause 23; or
- (b) respond in writing with comments in respect of the Contractor's Proposal in which case the Contractor shall re-issue the Proposal having considered and had due regard for the Employer's comments and the provisions of this Clause 2.2.2.8. Shall re-apply; or
- (c) Confirm to the Contractor that it does not wish the Contractor to carry out the Employer Cost Corrective Maintenance.

2.2.2.9. For the avoidance of doubt any failure by the Employer to respond to a Proposal shall constitute a rejection and not an acceptance of the Proposal.

2.2.2.10. Notwithstanding Clauses 2.2.2.6 to 2.2.2.8 the Employer may at any time instruct the Contractor to proceed with any Employer Cost Corrective Maintenance notwithstanding that a cost and/or time for completion of such Corrective Maintenance may not have been agreed in which case the Contractor shall carry out and complete such Corrective Maintenance within a reasonable time and shall be entitled to the cost of carrying out such the Employer Cost Corrective Maintenance, which shall be valued in accordance with Clause 23.

2.2.2.11. If the Contractor fails to carry out the Corrective Maintenance in accordance with the requirements of this Agreement the Employer may give written notice to the Contractor requiring the Contractor to carry out the Corrective Maintenance. If the Contractor fails to carry out the Corrective Maintenance in accordance with this Agreement within twenty (20) days of the Employer's written notice then the Employer shall be entitled to retain a third party to carry out such Corrective Maintenance and to recover the additional costs incurred by the Employer from the Contractor. Any Corrective Maintenance carried out by a third party pursuant to this Clause 2.2.3.11. Shall be at the Contractor's risk (and shall not invalidate any warranty, guarantee or obligation under this Agreement or the Contract) provided that such Corrective Maintenance is carried out to the standards required by this Agreement. The Contractor will co-operate with the Employer and facilitates and permits the use of all required information, materials and other matter (including Contractor's documents and all other drawings, CAD materials, technical data, software, models, plans, designs, programs, diagrams, evaluations, details, specifications, schedules, reports, calculations, manuals or other documents or recorded information (electronic or otherwise) which have been or are at any time prepared by or on behalf of the Contractor under this Agreement or otherwise for and/or in connection with the Services) and generally does all things reasonably required by the Employer to achieve this end.

3. Functional Guarantees/ Warranties

3.1. Technical and Functional Performance Guarantee

3.1.1. The Contractor shall be responsible for meeting the performance guarantee of the O&M Plant as described in the Agreement.

3.1.2. In case of failure to meet the functional guarantees as described in Annexure 2, the Contractor shall be liable to pay applicable Liquidated damages as described in the Contract (Section X – Contract Forms, Appendix 8 – Functional Guarantees) and represented in Annexure-2 of this Agreement.

3.2. General Repair Warranty

3.2.1. All repairs and replacements performed by the Contractor pursuant to the Agreement, shall cover a two year warranty for defects in materials and workmanship.

3.2.2. The Contractor shall disassemble, transport, repair or replace and reinstall any defective equipment parts and/or re-perform any defective work covered by this warranty, at no cost or expense to the Employer.

3.2.3. In the event that the Contractor replaces parts that failed during the final year of the Term in accordance with its obligations under the Agreement, the Contractor hereby warrants to Employer that the replacement parts installed in the O&M Plant during such period shall not fail due to a defect for one (1) year following the date of installation of such

replacement parts; provided that in no event shall any such warranty extend beyond earlier of;

- i) The period that is one (1) year following the expiration of the Term or
- ii) The date of any termination of the Agreement for reasons other than attributable to Contractor. During such period, if the Agreement is not in effect for any reason other than being terminated by Employer for cause, Contractor's obligation will be limited to supplying all needed parts on to the Site delivered basis. For the avoidance of doubt, this clause may survive the termination or expiry (as the case may be) of the Agreement for a period of one (1) year.

3.2.4. Any acceptance by Employer in terms of this Agreement shall in no way relieve the Contractor of his obligations under the Agreement.

3.3. Guarantee of compliance in relation to Curtailment Plans (acoustic or other curtailment plans)

The Contractor shall comply with all curtailment plans linked to acoustic requirement, load management or Applicable Law and Curtailment Plans provided by the Employer in accordance with Performance Standards and Technical Specifications. If either the Contractor or the Employer detects a variation with respect to the Curtailment Plans or in noise emission the Contractor will, at its own expense, characterize the problem, isolate the source of the problem and propose solutions to solve the problem to the Employer (at the Employer's expenses in all cases other than cases where it's ascertained that the deviation was caused by a non-respect of the obligations under the Agreement).

3.4. Grid Connection and balance of electricity commitments

- 3.4.1. The Contractor acknowledges that to allow the Employer to inject the energy generated by the O&M Plant to the Grid and the Contractor must comply with the requirements prescribed by applicable law, Good PV & BESS Industry Practices, Performance Standards and for Operation and Maintenance (O&M) s grid connection code is specified in terms of the Electricity Regulation Act (Act 4 of 2006), as amended. The Operation and Maintenance (O&M) shall, for the duration of its generation license issued by National Energy Regulator of South Africa (NERSA), comply with the provisions of the South African Grid Code (SAGC) and all other applicable codes, rules and regulations approved by NERSA. Failure to comply with such requirements may cause the Employer to either: (i) not be able to inject the energy; and/or (ii) be subject to penalties payable to the Grid operator NERSA.

The Contractor undertakes to diligently comply with the requirements referred to in the BESF Code and balance of electricity commitments, as prescribed under the Grid documents as provided by or on behalf of the Employer from time to time (or of which the

Contractor otherwise becomes aware), and/or with the reasonable requests of the Employer associated with the compliance therewith.

4. Performance Standards

4.1. Contractor shall perform its obligations under the Agreement in compliance with the Agreement and following (collectively, the "Performance Standards") as from time to time in force:

- 4.1.1. The applicable laws, and the requirements from the Grid Operator/NERSA;
- 4.1.2. The Permits and all the related documents;
- 4.1.3. No. 85 of 1993 Occupational Health and Safety Act (OHSA)
- 4.1.4. The terms of the Agreement;
- 4.1.5. The functional Guarantee;
- 4.1.6. The O&M manuals including the manufacturers recommendations;
- 4.1.7. Employer's health and safety manuals and procedures and EMP;
- 4.1.8. The Site Regulations;
- 4.1.9. Environmental Social management plan as attached in the bidding document, provided by the Employer, as updated from time to time through the Employer's written notice to the Contractor;
- 4.1.10. Operation and Maintenances (O&M) Industry Practice;
- 4.1.11. Any relevant and reasonable instructions issued by the Employer, relevant to the scope of the Agreement, to the Contractor at least 15 days before the implementation of such instructions without any cost to the Contractor.
- 4.1.12. The terms of Contractor insurances directly relating to the Project] and
- 4.1.13. Comply with all operation and maintenance obligations as set out under this Agreement or do anything which results in a breach of the Employer's obligations under this Agreement.
- 4.1.14. The Contractor shall comply with the Employer's Environmental and Social Policies and Procedures as well as the World Bank Group Environmental and Social Framework during the execution of the Agreement to the extent that their activities are covered in these documents.

4.2. Notwithstanding any other provision in the Agreement, the Contractor shall have no responsibility or obligation:

- (a) save and to the extent that the Contractor is required to do so pursuant to the provisions of Additional Services, to ensure that the O&M Plant complies with the requirements of Applicable Law and Permits, if and to the extent that the same are introduced or amended following the Commencement Date; or
- (b) save and to the extent that the Contractor is required to do so pursuant to the provision of Additional Services to ensure that the O&M Plant (as a whole or in

part) complies with any noise or acoustic emissions requirements under applicable laws, if and to the extent that the same are introduced or amend following the Commencement Date.

- 4.3. The Contractor shall not do or omit to do anything in the performance or discharge of its obligations or the exercise of its rights under the Agreement or in breach of the contract, which would cause any breach of any of the terms of the other Contract be in breach of the Performance Standards, it shall, on demand of the Employer, indemnify the Employer against any direct losses arising from a breach of this Clause by the Contractor, always subject to the aggregate liability cap of the Contractor (except as otherwise agreed herein).
- 4.4. If the Contractor is aware of a conflict between any of the above requirements, it shall inform the Employer accordingly and the Parties shall discuss and agree upon the manner in which such conflict shall be resolved failing which the dispute resolution provisions shall apply.

5. Additional Services

- 5.1. Employer may, with respect to the O&M Plant, request that the Contractor to perform work, provide services, or supply other equipment or parts, not included within Services for the successful operation of the O&M Plant during the Term. Any such requested service or supply that the Parties mutually agree to in writing shall, subject to any specific terms and conditions agreed with respect to such service or supply, be an "Additional Service".

6. Service Personnel

- 6.1. The Contractor shall provide the Services and any Additional Services to be performed on Site using a sufficient number of suitably skilled, qualified and experienced (including any licensing, certifications or training required by applicable laws or the local Transmission/Distribution system operator) and adequately equipped and properly trained Personnel and/or Subcontractors, all appropriately skilled and experienced in their respective trades or occupations as may be reasonably necessary to fulfill its obligations hereunder in relation to the Services and Additional Services.
- 6.2. The Employer may request the Contractor to remove (or cause to be removed) any Person or Subcontractor employed on the operation of the O&M Plant, including the Contractor's Representative if applicable, who:
- i) Engages in material or persistent misconduct or lack of reasonable care.
 - ii) Carries out duties incompetently or negligently.
 - iii) Fails materially to conform with any provisions of the Contract.

- iv) Engages in conduct which is prejudicial to safety, health or the protection of the environment or in violation of any related Performance Standards or applicable laws.
 - v) Engages in conduct which might reasonably result in a breach of any provision of the contract and threaten public health, safety or security.
- 6.3. The Employer shall give notice to the Contractor of the same giving reasons and request the Contractor to replace such Personnel with a suitable candidate. The Contractor shall then as soon as reasonably possible but no later than seven (7) days upon receiving such notice from the Employer look into the facts and claims of the case in all sincerity and deploy the required actions.
- 6.4. Contractor shall have full supervision and control over its Personnel at the Site and shall maintain appropriate order and discipline among such personnel and shall cause any Subcontractor to maintain similar standards with respect to such Subcontractor's personnel at the Site.
- 6.5. The Contractor shall be responsible for all matters relating to labor relations, working conditions, training, employee benefits, employee drug testing in accordance with the Contractor's standard drug testing policy, safety programs and related matters pertaining to its employees and other Personnel engaged by the Contractor. The Contractor shall at all times have full supervision and control over its employees and other personnel engaged by it and shall at all times maintain appropriate order and discipline amongst its Personnel and shall cause any Subcontractor (or any subcontractor appointed by such Subcontractor) to maintain similar standards with respect to such Subcontractor's (or any subcontractor appointed by such Subcontractor) employees and Personnel.
- 6.6. The Contractor shall furnish the Contractor's Personnel with such Contractor's Equipment as is necessary to perform the Services in accordance with this Agreement. The Contractor shall supply the Employer with the relevant training records of the Contractor's Personnel engaged or to be engaged in the performance of the Services to verify their ability to fulfill the tasks comprised in the Services. The Contractor shall supply the Employer with the curricula vitae of the Contractor's Personnel engaged or to be engaged in the performance of the Services which contain the experience of the Contractor's Personnel on similar projects. The Employer shall on reasonable grounds have the right to reject any of the Contractor's Personnel.

7. Health and Safety Precautions

- 7.1. During the performance of the Services, the Contractor shall:
- 7.2. Comply with the health and safety standards and any health and safety procedures established by the Contractor and same shall be approved by the Employer after the Commencement Date.

- 7.3. Take all precautions required by applicable laws or Site Regulations, or otherwise according to the Performance Standards, for the health and safety of the Contractor, its affiliates and Subcontractors in the performance of the Services and any other Persons with temporary or perpetual access to the Site; provided that the foregoing shall not limit the Employer's responsibility as per the Occupational Health and Safety Act 85 of 1993 (OHSA), the National Environmental Management Act 107 of 1998 (NEMA), Eskom's Health and Safety Standards, specifications and Procedures related to the Site.
- 7.4. The Employer may modify, or issue new or alternative Site Health and Safety Rules and/or the Employer Policies and Procedures from time to time. Any such change shall be communicated in writing to the Contractor.
- 7.5. The Contractor shall notify the Employer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Employer may reasonably require.

8. Consumables, Spare Parts, Tools and Contractor's Equipment

8.1. Consumables and Tools

During the Term the Contractor shall supply, at no additional cost to the Employer, consumables and Tools to the extent required for the performance of the Services. All consumables provided by the Contractor in the performance of its Services, shall be compatible with the applicable requirements of the O&M Manuals and applicable laws.

8.2. Equipment and Spare Parts

Contractor shall supply, at no additional cost to the Employer, equipment and Spare Parts to the extent required for its performance of the Services and to maintain its obligations thereunder. The Contractor has the right to use renovated Equipment and Spare Parts. At the start of the Term the Contractor shall provide the Employer with an inventory. At the end of the Term or upon termination of the Agreement for any reason, the Contractor will replenish the inventory to the levels indicated at the start of the Term.

If the Contractor intends to use any refurbished Major Components, it will seek prior written approval from the Employer. Contractor's right to procure and use renovated / refurbished Spare Parts is subject to:

- i) Standards of good workmanship and Good PV & BESS Industry Practice;
- ii) Compliance with the applicable requirements of the Reference Documents;
- iii) The Spare Part(s) are of the type being replaced or of another type insofar as same does not invalidate any applicable Type Certification of the Equipment;
- iv) The same warranty as equivalent new parts in terms of scope, nature and duration;
- v) Being renovated in conformity with the original equipment manufacturer's standards, and (v) being listed in the monthly maintenance report when used (track record of the Part). However, the Contractor shall immediately reinstate and order new items in order to replace the refurbished items provided for emergency purposes such renovated/refurbished parts will be allowed by Employer only for any long lead items and also considering uninterrupted generation from the Project. However, the Contractor shall immediately reinstate and order new items in order to replace the refurbished items provided for emergency purposes.

8.3. Inspection of Replaced Parts

The Contractor shall give to the Employer seven (7) days' written notice when the Replaced Part is being transported to the Site. Contractor shall permit Employer to inspect, at Employer's sole cost and expense, any part which is removed and replaced by a Spare Part (such Part, a "Replaced Part"); provided however, any such inspection:

- (i) Must not include physical alteration or disassembly of such Replaced Part; and
- (ii) Must not result in any material increased costs to Contractor or delay Contractor in the performance of its obligations under the or any Contract with, or warranty from, its Subcontractors, unless Employer agrees to cover such material increased cost.

8.4. Prices of Consumables, Spare Parts and Contractor's Equipment

Subject to VAT, other taxes & import duties, the O&M Price payable to Contractor under the Agreement shall include (in addition to other components included in such Price) the costs of any and all items required in connection with the performance of the Services including but not limited to parts, equipment, consumables, Spare Parts and the Contractor's Equipment.

8.5. Risk of Loss or Damage to Consumables, Spare Parts and Contractor's Equipment

Contractor shall:

- (i) Be responsible at its own cost for the safe transportation and delivery to Site and adequate storage; of all consumables, Spare Parts, and Contractor's Equipment, in each case, required for carrying out of the Services.
- (ii) Bear the risk of loss and damage to all such consumables and Spare Parts during transportation to the Site and, thereafter up to the end of the Term. and
- (iii) At all material times bear all risk in any and all Contractor's Equipment, Spare Parts on or off the Site and whether remaining separate or temporarily attached to the O&M Plant.

8.6. Title to the Contractor's Equipment

- 8.6.1. Contractor shall retain title to any and all Contractor's Equipment on or off the Site and whether remaining separate or temporarily attached to the O&M Plant until transfer of Title occurs.
- 8.6.2. The Contractor shall ensure availability of such components, consumable, Spare Parts, and Contractor's Equipment as may be necessary for the performance of the Services.
- 8.6.3. The Contractor shall ensure that such Contractor's Equipment does not interfere with the operational or structural integrity of the O&M Plant.

9. Communication and Reporting

During the Term, the Contractor shall exchange information and reports on daily, weekly, monthly, quarterly and at an annual basis:

9.1. Monthly Reports

The Contractor shall provide the Employer with the Monthly Performance Report by no later than the fifth (5th) day from the end of each month.

9.2. Emergency Notices

Upon obtaining actual knowledge thereof, the Contractor shall promptly notify the Employer verbally (with written notice to follow within twenty four (24) hours of any emergency or other hazardous condition or occurrence that the Contractor reasonable believes could cause an immediate threat to the safe operation of the O&M Plant and/or the safety of Persons.

If, by reason of an emergency arising in the course of, as a result of or otherwise in connection with and during the performance of the Services, any protective or remedial work is necessary as a matter of urgency to prevent damage to the O&M Plant, the Contractor must immediately perform that work, provided that, the Contractor shall have no obligation to perform such portions of the protective or remedial work which would be in violation with the Performance Standards, be a material breach of the contract or would cause a threat to the safety of Persons or property or would otherwise not be reasonably practicable or possible; and provided further, that the Contractor shall have no obligation to retrofit or upgrade the O&M Plant except if otherwise agreed.

Without prejudicing the liability attributable to the Contractor for failure to comply with the provisions of the paragraph above, it is clarified that if the Contractor does not perform the protective or remedial works referred to above immediately, the Employer may appoint a Replacement Contractor to perform such works. If the work (or parts thereof) which were performed or caused to be performed by the Employer is work which the Contractor was liable to do at its own expense under the Agreement, the costs incurred by the Employer as a result of appointing a Replacement Contractor shall be (substantiated to the Contractor on an open book basis and be) considered due and payable to the Employer and set off shall apply.

9.3. Meetings

A representative of each of Contractor and Employer (the "Representatives") shall meet (either at the Site or alternatively at such other location as may be agreed between the Parties) at weekly, monthly or quarterly intervals or such other period as is agreed especially for the purposes set forth below:

- i) To discuss projected dates for performance of the Services and the Additional Services in the following: daily, weekly, monthly or quarterly;
- ii) To discuss, the calculated Availability for the past Month under [Functional Guarantees]; and
- iii) To review the Services and Additional Services performed in the past month.

9.4. Visitors Log Book

The Contractor shall maintain a log book for the O&M Plant to record the identity and activity of all visitors to Site. The Contractor shall cause that all personnel and representatives of each Party or any third parties visiting the Site shall be required to record their identity, the date, time and purpose of any visit to site, the nature of any work

performed thereon and such other details for which log books may reasonably be used. It is clarified that the Contractor shall not permit unauthorised third party access to the Site unless such third parties have been authorised by the Employer, are required to inspect or access the Site in accordance with Applicable Law or for performance of Services. Copies of these logs shall be provided to the Employer within ten (10) Business Days following its written request. Contractor shall create a digital back up of such logs at least every month.

9.5. Annual Calendaring of Preventative and Corrective Maintenance Services

At the latest two (2) months from Commencement Date, and two (2) months prior the beginning of each year during the Term thereafter, the Contractor shall send to the Employer a maintenance plan with projected dates and times which the Contractor shall perform the Preventative and Corrective Maintenance Services on the O&M Plant, with the parties using reasonable efforts to minimize any O&M Plant downtime during Operational periods of the "Maintenance Services Calendar". Such Preventative and Corrective

Maintenance Services Calendar may be postponed by the Employer for 5 business days; provided, that the Preventative and Corrective Maintenance Services Calendar shall be developed in accordance with the Operating Manual and the terms of the Agreement. The dates and times in the Preventative and Corrective Maintenance Services Calendar may be amended thereafter by mutual agreement of the Parties failing which the dispute resolution provisions in the Contract will apply. For clarity, the Preventative and Corrective Maintenance Service Calendar shall include a maintenance plan established in accordance with the Operating and Maintenance Manual.

9.6. Status Reviews

As reasonably required, or requested by the Employer, the Representatives shall meet to discuss and review

- (i) The information contained in the Monthly Performance Reports,
- (ii) The Availability,
- (iii) Any technical issues which may have arisen with respect to the performance, availability or maintenance and servicing of the O&M Plant,
- (iv) Maintenance Services and Repair Services performed during the preceding calendar month / maintenance period,
- (v) Any and all failures by a O&M Plant, and

- (vi) Maintenance Services to occur during the next calendar month / maintenance period.

10. Contractor's Permits

Prior to the time in which such Permits are required in order to perform the relevant Services and/or Additional Services, as applicable the Contractor shall obtain and maintain, as applicable, throughout the Term of the Agreement all Permits (the "Contractor Permits") required by the Applicable Law, Good PV & BESS Industry Practices, Performance Standards and Technical Specifications which should be issued in the name of Contractor or are otherwise attributable or necessary to the provision of the Services and/or Additional Services, other than such Permits as are required to be obtained by Employer pursuant to Employer Permits.

The Contractor's designated employees shall be authorised in terms of Wires Operating Authorisation Standard, 240-70413865: Power Delivery Operating Training Standard, 240-70413681: Portfolio of Evidence for Authorisation, Eskom's Operating Regulations for High Voltage Systems (ORHVS) as well as Eskom Low Voltage Regulations. 240-7041386534: during the term of this Agreement.

The Contractor shall be responsible for obtaining and maintaining the Permits, which may be required in order for the Contractor to lawfully perform the Services in accordance with this Agreement and for complying with and discharging any conditions of such Permits. The Contractor shall indemnify the Employer against all losses incurred as a result of a failure by the Contractor to comply with its obligations under this Agreement.

All necessary Training and Permits needed for operation and maintenance of the Plant shall be transferred to the Employer at the end of Term or early termination of this Agreement for any reason.

11. Contractor's Managers and Project Manager

On or prior to the commencement of the Term, the Contractor shall designate a duly qualified and experienced person to manage and administer the Contractor's activities, to act as its O&M manager and coordinator of the Agreement on the Contractor's behalf (the "Contractor's Manager"), and shall provide notice thereof to the Project Manager, The Contractor's Manager shall not have authority to amend or modify the Agreement or accept any commitment which would have an effect on the Agreement. In case the

Contract Manager is on leave with prior intimation to the Project Manager, the Contract Manager with equivalent competence shall be provided for the Site by the Contractor.

For the avoidance of doubt the Project Manager functions including but not limited to those recorded in GCC 17 shall mutatis mutandis apply to the Agreement.

12. Cooperation with Other Subcontractors

The Contractor acknowledges and agrees that the Employer or Other Subcontractors of the Employer including the Employers designated personnel for the PV & BESS and PV, may be present at the Site and agrees, at no cost or expense to the Employer, to reasonably cooperate with such Other Subcontractors to allow the performance of its and their respective obligations to occur concurrently.

The Employer shall inform the Other Subcontractors of the clear demarcation of the Contractor's scope of work so as to ensure non-interference in such work and operations by the Employer's Other Subcontractors.

13. Reserved Rights

13.1. O&M Plant

To the extent the Contractor believes, in its reasonable discretion, that it is necessary to enhance the overall performance or safety of the O&M Plant, Contractor may propose to the Employer changes and improvements to the O&M Plant (including the software included with respect thereto) and implement such changes or improvements proposed after obtaining the prior written consent of the Employer; provided that such changes and/or improvements shall not;

- (i) Be in conflict with the Performance Standards;
- (ii) Adversely impact the technical performance of the O&M Plant or the safety of the O&M Plant;
- (iii) Adversely impact the Availability
- (iv) Increase the cost of operating the O&M Plant;
- (v) (v) Place the Employer in breach of the technical requirements as set out by the South African Grid Code (SAGC) regulations.
- (vi) Impair or vitiate any obligations of the Contractor under the Agreement;
- (vii) Adversely affect any other Contract ; or
- (viii) Result in non-compliance with the type test certificates.

- 13.2. Such changes and improvements are carried out at no cost to the Employer and in accordance with this clause

14. Certain Notifications by Contractor

- 14.1. Contractor shall, upon obtaining actual knowledge thereof, promptly give the Employer notice of:
- i) Any events or facts or observations that the Contractor believes could be reasonably likely:
 - (a) To have an effect on the operations of any of the O&M Plant or the performance of the Employer's obligations under the Agreement; or
 - (b) to cause an immediate threat to the safe operations of the O&M Plant (or any Plant therein) and/or the safety of Persons; provided that, in the case of this clause, the Contractor shall provide immediate verbal notice of such event, fact or observation to the Employer with notice to follow within three (3) Business Days);
 - ii) Any actual or proposed event that the Contractor believes would be reasonably likely to have an effect on the operation of any of the Plant or the performance of either Party's obligations under the Agreement.
 - iv) Any (a) violation of applicable laws, or Permit, by the Contractor's agents, officers, directors, employees, representatives and Subcontractors, Employer or any Other Subcontractor; or (b) any notices of Liens (or claims of Liens) or investigations by Governmental Authorities related to the O&M Plant.
 - v) Any actual or contemplated Change in Laws that the Contractor believes would be reasonably likely to have an adverse effect on the operation of any of the O&M Plant or the performance of either Party's obligations under the Agreement.
- 14.2. If the Contractor does not comply with its obligations under Certain Notifications by Contractor, the Contractor shall indemnify the Employer for any loss the Employer may suffer.

15. Assignment and Subcontracting

- 15.1. The Contractor shall not sublet transfer or assign the Agreement or any part thereof without the prior written permission of the Employer. The Contractor shall not subcontract any of the Services except upon the Employer's advance written approval of the subcontracting of such works. Such approval shall refer to the specific identity of the Subcontractor and to the scope and terms of the subcontract. In any event, the Contractor shall not subcontract all, or materially all of the Operation and Maintenance Services or the ultimate supervision of the performance of such services.

- 15.2. The Contractor agrees and acknowledges that any review by, approval of or failure to approve, or rejection by the Employer as to any Subcontractor shall not relieve the Contractor of any of its obligations under the Agreement, and the Contractor shall be liable hereunder to the same extent as if any such Subcontract had not been entered into. The Contractor shall at all times ensure and cause the Subcontractors not to commit any act or omission which could release, void, impair or waive any guarantee or warranty on the O&M Plant or any part thereof.
- 15.3. The Contractor shall supervise and direct the work of all Subcontractors and shall be fully responsible for the performance of the Subcontractors, the methods, techniques, sequences and procedures of the Subcontractors. Coordinating the work of the Subcontractors and the acts and omissions of all Subcontractors and their employees, directors, officers, advisors, agents and representatives, and those of their subcontractors ("Subcontractors' Parties")
- 15.4. With regard to any Subcontract and Subcontractor's Parties, in particular, the Contractor shall ensure that all wages, labour, health and safety and social related obligations are duly performed and timely discharged in accordance with applicable laws.
- 15.5. It is agreed that if the responsibility of any such payments is transferred to the Employer pursuant to Applicable Law, the Employer shall have the right to adjust all such payments against the dues to the Contractor under the Agreement or otherwise recover the same from the Contractor under any the Agreement and Contract.
- 15.6. It shall be at the Contractor's sole responsibility to ensure the payments and discharge of all its obligations with regard to the Subcontracts and shall indemnify the Employer for any losses in relation to the Subcontracts or to Subcontractor's Parties.

16. INSPECTION AND TESTING

- 16.1. The Contractor must provide the Employer, and any other contractor or contractors employed by the Employer and their respective nominees, or other inspectors where required under the Applicable Law, the Permits, the finance documents and/or the Grid documents (collectively hereinafter referred to as the "Project Parties"), with access at any time to any place where the Services are being performed in order to inspect the progress and the manner of the Services.

- 16.2. The Project Parties and their respective nominees will have the right to examine and have access to documents relating to the Services.
- 16.3. The Contractor must carry out all tests and/or inspections of the O&M Plant or Spare Parts in a lawful, professional, timely, safe and environmentally responsible manner as may be necessary to ensure the safe, reliable, efficient, and optimal operation of the O&M Plant and in accordance with the Performance Standards, applicable laws and PV & BESS Industry Practice. All these tests and inspections are to be carried out at the Contractor's cost, as part of O&M Services.
- 16.4. The Project Parties and their respective nominees are entitled to attend any test and/or inspection.
- 16.5. Whenever the Contractor is ready to carry out any test and/or inspection, the Contractor must give at least ten (10) days' advance notice to the Employer of such test and/or inspection and of the place and time. The Contractor shall make its best efforts to obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Project Parties to attend the test and/or inspection.
- 16.6. The Contractor must provide the Employer with a report of the results of such test and/or inspection within five (5) days after the completion of that test or inspection in question.
- 16.7. If the Employer and/or any of the Project Parties fail to attend the test and/or inspection, or if it is agreed between the Parties that the Employer and/or any of the Project Parties will not attend, then the Contractor may proceed with the test and/or inspection in the absence of the Employer's and/or any of the Project Parties' inspector and provide the Employer with a report in the approved form of the results.
- 16.8. If any Spare Parts or the O&M Plant fails to pass any test and/or inspection, the Contractor must either rectify or replace those Spare Parts or repair the O&M Plant and promptly repeat the test and/or inspection upon giving notice.
- 16.9. The Contractor agrees that neither the performance of a test and/or inspection of Spare Parts or the O&M Plant, nor the attendance by the Employer's and/or neither any of the Parties' inspectors nor the issue of any test report will release the Contractor from any of its obligations under the Agreement.
- 16.10. Inspections during the Term and at the End of the Term:

During the Term, the O&M Plant may be submitted to a general inspection performed by a contractor selected by Employer:

- 16.10.1. Inspection during the Term
- 16.10.2. From time to time during the Term, but not more than once every year (being specified that any additional tests and inspections instructed by the Employer under this Agreement will be for the Employer's account unless the tests or inspections were necessary as a result of the failure of the Contractor to fulfill its obligations under the Agreement).
- 16.10.3. End of Agreement inspection: six (6) to twelve (12) months before the end of the Term, at the convenience of the Employer.
- 16.10.4. Subject to the Employer's reasonable advance notice as to the date of such inspection, the Contractor is required to attend and assist the Employer and the designated inspector in performing such tests, without additional cost.
- 16.10.5. The final report shall be sent to the Contractor by the Employer and if any defect or damage found, same shall be rectified/replaced.
- 16.10.6. Without relieving the Contractor from its obligations and without limiting the Employer's ability to reasonably pursue the reliefs available to it, if applicable:
 - i) The Contractor shall, promptly following receipt of the report, submit to the Employer (a) a recovery plan to remedy all breaches, defects and malfunctions detected in the report for which the Contractor is liable and shall perform such remedial actions without delay and/or mutually agreed action period, and (b) provide detailed measures to be put in place to prevent such defaults from recurring.
 - ii) If the Contractor fails to timely complete all remedial actions before the end of the Term, the Employer shall be entitled, at Contractor's cost and risk, to employ a replacement contractor to perform the works.

16.11. Employer Site Visit

- 16.11.1. If the Employer decides to visit the O&M Plant, Contractor shall provide personnel on the Site for mutual inspection with no additional cost to the Employer. If the Contractor is reasonably unable to attend such visit for unexpected reasons and/or safety reasons, the Contractor shall

immediately inform the Employer. The Contractor shall reschedule a new visit within the next seven (7) days. Rescheduling of the visits thereof shall not occur more than once per year. The Employer shall adhere to the Health, Safety and Environment (HSE) practices of the Contractor.

16.11.2. If, upon request of the Employer made in accordance with the Employers Site Visit, the Contractor does not provide dedicated personnel for such visits, subject to the aforementioned rescheduling allowance, any downtime of O&M Plant to perform the inspections thereof shall be considered as unavailable for the purpose of Availability calculation described in [(however never exceeding eight (8) hours per given visit)]. Notwithstanding the foregoing, the Employer may request that the Contractor provide personnel on the Site for additional inspections as an Additional Service.

16.11.3. If, upon request for inspection of the O&M Plant by Employer made in accordance with Inspection and Testing, the Contractor provides access to O&M Plant for inspection and the Employer does not carry out such inspection, then any downtime of O&M Plant to perform the inspections thereof shall be considered as available for the purpose of Availability calculation described in

17. Hazardous Substances and Hazardous Site Conditions

17.1. The Contractor shall not, nor shall it permit any other Person to bring any hazardous substances on the Site, other than hazardous substances to be used by Contractor or any Subcontractor in a manner that:

- i) Violate any applicable laws, or permits; and
- ii) is inconsistent in quantity and with PV & BESS and PV Industry Practices for operating and maintaining PV & BESS and PV energy conversion plants, such as motor fuels, solvents and lubricants (collectively, "Permissible Materials").

17.2. Contractor shall bear all responsibility and liability for:

- i) Any hazardous substances that are not Permissible Materials belonging to the Contractor or present on site; or
- ii) The handling of, or failure to handle, Permissible Materials in violation of applicable laws or otherwise in any manner that constitutes negligence or willful misconduct by Contractor or any Subcontractor.

- 17.3. The Contractor shall use hazardous substances in performance of the Services in accordance with the Performance Standards, applicable laws and PV & BESS and PV Industry Practices and shall not:
- i) Utilize, or permit or cause any Subcontractor to utilize, on the Site such hazardous substances as are prohibited under Applicable Law; or
 - ii) Import or use at the Site such hazardous substances as are prohibited under Applicable Law.
- 17.4. Contractor shall maintain a regularly updated log of all material safety data sheets (MSDS) for all hazardous substances used in connection with performance of the Services at or near the Site, which shall be available for the Employer to review upon reasonable request.
- 17.5. The Contractor shall maintain an accurate record and a current inventory of all hazardous substances used in performance of the Services at or near the Site, which record shall identify quantities, location of storage, use and final disposition of such hazardous substances.
- 17.6. Contractor shall arrange at its cost for the disposal, transportation, reporting and certification (including provision of waste disposal vouchers and other certificates as required by applicable law or Permits) of hazardous substances, including waste disposal vouchers, brought onto and released at the Site by the Contractor or its Sub Contractors, which are expected to include but not be limited to used oil, grease and ethylene glycol, to the extent required by applicable laws, in each case, by licensed, insured, competent and professional Contractors in a safe manner and in accordance with applicable laws. The Contractor shall be solely liable for any response, removal, investigation, clean-up or other remedial action required by any laws related to any Contractor.
- 17.7. In the event the Contractor encounters any hazardous substance or other hazardous conditions at the Site that are inconsistent with the Performance Standard or would reasonably be expected to impact the performance of the Contractor's obligations hereunder, the Contractor shall promptly report the condition to the Employer. In such event, the Contractor shall stop work and remove or take other actions necessary to remedy the hazards associated with any hazardous substances such that the Contractor can resume work.
- 17.8. In addition the Contractor shall clear away from the Site all used materials, debris, rubbish, refuse or waste generated as a result of the performance of the Services

- 17.9. The Contractor shall indemnify and hold harmless the Employer against any fine, penalty or third-party claims incurred as a result of non-compliance by the Contractor with the terms of the Agreement, applicable laws, PV & BESS and PV Industry Practice and more specifically, with its obligations under hazardous Substances and hazardous Site conditions.

18. Employer's Obligations

During the Term, Employer shall perform the following obligations:

18.1. Access

18.1.1. On and from the Commencement Date, Employer shall provide the Contractor (and its Subcontractors) access to the O&M Plant for the purpose of enabling Contractor to fulfil its obligations under the Agreement.

- 18.1.2. The Employer shall give to the Contractor and the Contractor's Personnel access to the Site to enable the Contractor and the Contractor's Personnel to carry out the Services at any time from the Commencement Date until the end of the Term or early termination of the Agreement for any reason. Such access shall include the provision by the Employer of:

- i) Such keys or access codes as may be required by the Contractor to gain unhindered access to the Site and/or the O&M Plant (as the case may be);
- ii) Access to the access roads to and on the Site.

Notwithstanding anything else contained in the Agreement all access to the Site and O&M Plant is subject to the applicable site safety, security and environmental requirements and Applicable Law (and the Contractor should comply with the same). The Employer will have the right to limit access or expel any Person off the Site.

18.2. Employer's Permits

The Contractor on behalf of the Employer shall obtain and maintain all Permits and any Permits required by Applicable Law to be obtained in the name of the Employer in order to (i) perform the Employer's obligations under the Agreement and (ii) enable the Contractor to lawfully access the Site at the point of entry to the Site and the O&M Plant.

19. Site Regulations

The Employer shall (directly or through a Subcontractor, advisor or agent) provide the Site Regulations and revisions thereof from time to time and shall require the Contractor

and its respective agents and employees to, (i) comply with the Site Regulations; and (ii) take all necessary precautions (as required by Applicable Law or otherwise) for the health and safety of all Persons (including Contractor's Personnel) at the Site.

20. Certain Notifications by Employer

- 20.1. The Employer shall, upon obtaining actual knowledge thereof, promptly give the Contractor, as soon as practicable, notice of:
- 20.2. Any events or facts or observations that the Employer believes has determined that would:
- i) Have an effect on the operation of any of the O&M Plant or the performance of the Contractor's obligations under the Agreement; or
 - ii) to cause an immediate threat to the safe operation of the O&M Plant therein and/or the safety of Persons; provided that, in the case of this current Sub-Clause, the Employer shall provide as soon as possible verbal notice of such event, fact or observation to the other;
- 20.3. any (a) violation of applicable laws, including environmental laws or the terms of any Permit, by the Contractor or any Other Subcontractor or (ii) any notices of Liens (or claims of Liens) or investigations by Governmental Authorities related to the O&M Plant.
- 20.4. Failure to furnish notice pursuant to Certain Notifications by the Employer shall not affect the Contractor's obligations to perform its obligations.

21. Employer's Ownership of Energy, Equipment, Spares and Project Benefits

- 21.1. The Contractor acknowledges that ownership of the energy or any benefits arising out of the operation of the Plant remains at all times, and in all circumstances with the Employer and the Contractor has no legal or equitable title to or interest in the energy or other benefit.
- 21.2. The ownership of any item (not including energy or benefits arising out of the operation of the O&M Plant) supplied by the Contractor as part of the Services and Additional Services shall be transferred to the Employer as soon as the Employer pays for the item.
- 21.3. The Contractor agrees that any benefits, including any carbon credits, renewable energy certificates or similar royalty or credit that may arise as a result of having the Facilities belong to the Employer and the Contractor shall provide all reasonable assistance requested by the Employer in order to obtain such rights and benefits.

22. Price and Payment

- 22.1. Annual Fee and Other Services Fee

- 22.2. During the Term the Employer shall pay the Contractor the Annual Fee quarterly in arrears for the duration of the Term for the performance of certain services, ("the Annual Fee Services").
- 22.3. During the Term and on an as when required basis the Contractor shall carry out Preventative Maintenance, Corrective Maintenance, Procurement of Spare Parts and Training ("Other Services"). The Employer shall, subject to the provisions of this Clause 23, pay the Contractor quarterly in arrears for Other Services ("Other Services Fee").
- 22.4. Any sum due for Other Services shall be paid in arrears on a quarterly basis with the instalment of the Annual Fee payable for that quarter.
- 22.5. The Annual Fee and the Other Services Fee shall be inclusive of all costs to the Contractor in connection with the performance of its obligations under this Agreement in respect of the Annual Fee Services and the Other Service Fee, including without limitation, the cost of labour, components, Contractor's Equipment, consumables, transport, fuel, accommodation and subsistence costs.
- 22.6. The Annual Fee and the Other Services Fees shall be subject to adjustment for inflation on an annual basis with the first adjustment being eighteen (18) months after the Commencement Date and subsequent adjustments for each eighteen (18) month period thereafter.

23. Update of Date of SCADA, EMS & BMS Software

The Contractor shall update as and when required, at no additional cost to the Employer the SCADA, EMS and BMS software, as required for the ongoing adequate operation of the O&M Plant.

24. Title and Risk of Loss

- 24.1. Title with respect to any components and consumables and other items provided by the Contractor and incorporated or to be incorporated into any part of the O&M Plant pursuant to this Agreement shall upon the incorporation thereof into the applicable part of the O&M Plant pass to the Employer free and clear of any security provided that title to any Spare Parts delivered by the Contractor as an Additional Service shall pass to the Employer on the date such Additional Services are paid for in full.

- 24.2. Risk of loss with respect to any components and consumables and other items provided by the Contractor and incorporated or to be incorporated into any part of the O&M Plant pursuant to this Agreement shall pass to the Employer at the end of the Term or on termination of this Agreement for any reason.

25. Insurance

- 25.1. The Employer shall at its expense take out and maintain in effect during the performance of the Agreement the following insurances.

TABLE 3: EMPLOYER INSURANCE

Insurance against	Minimum amount of cover or minimum limit of indemnity
Assets All Risk	As per the insurance policy document.
Project insurance	As per the insurance policy document.
General and Public Liability	As per the insurance policy document.
Environmental Liability	As per the insurance policy document.
Transport (Marine)	As per the insurance policy document.
Motor Fleet and Mobile Plant	As per the insurance policy document.
Terrorism	As per the insurance policy document.
Cyber Liability	As per the insurance policy document.
Directors and Officers Liability	As per the insurance policy document
SASRIA	As per the insurance policy document

- 25.2. The Contractor shall promptly investigate all accidents, damage or destruction, diagnosis, assessment of any potential consequential effects, estimating cost of repair, arranging for any remedial action required, making of any claims under the insurance policies and co-operating with and making reports required by the Employer or insurers.

- 25.3. The Contractor shall be liable for the applicable deductible, if any

- 25.4. The Contractor provides insurances stated in the Insurance Table. The insurances provide cover for events which are at the Contractor's risk from the starting date until the end of the service period or a termination certificate has been issued.

TABLE 4: CONTRACTOR INSURANCES

Insurance against	Minimum amount of cover or minimum limit of indemnity
Liability of the <i>Contractor</i> for damages arising from any negligent act, error or omission committed or alleged to have been committed by the <i>Contractor</i> in connection with the Services.	As the <i>Contractor's</i> deems it fit
Loss of or damage caused by the <i>Contractor</i> to the <i>Employer's</i> property	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy Deductible where covered by the <i>Employer's</i> insurance.
Loss of or damage to Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy Deductible where covered by the <i>Employer's</i> insurance.
Loss of or damage to Equipment	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy Deductible where covered by the <i>Employer's</i> insurance.
The <i>Contractor's</i> liability for loss of or damage to property (except the <i>Employer's</i> property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising from or in connection with the <i>Contractor's</i> Providing the Service	Loss of or damage to property The replacement cost Bodily injury to or death of a person The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

25.5. A copy of the Employer arranged insurance policies are attached in Schedule 9.

The Contractor shall ensure that under the aforementioned insurance policies, each of the insured has the ability to claim thereunder for a minimum period of three (3) months from the date of expiry of the insurance policies for any claims that arose prior to the expiry date.

The Employer shall be named as co-insured under all insurance policies taken out by the Contractor, except for the Third-Party Liability and Workers' Compensation Insurances, and the Contractor's Subcontractors shall be named as co-insureds under all insurance policies taken out by the Contractor, except for the Cargo, Workers' Compensation.

All insurers' rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Agreement shall be waived under such policies.

25.6. General Insurance Requirements

25.6.1. The Contractor shall provide copies of the corresponding insurance certificates mentioned above to the Employer.

25.6.2. If the Contractor fails to effect or maintain any insurance policy required hereunder or fails to produce copy of the corresponding insurance certificates, the Employer may (but as no obligation), without prejudice to any other right or remedy available to it under the Agreement, procure the insurance for the relevant coverage and/or pay the premiums due. Such payments shall be recoverable and deducted from the payments to be made to the Contractor by the Employer under the Agreement. In the event that the Contractor does not pay the premium, then the Employer may pay the premium, however in such case the obligations of Contractor to undertake the coverage shall continue as envisaged, irrespective of premium being paid by Employer. The premium if paid by the Employer shall be recovered from the Annual Fees payable by the Employer to the Contractor.

25.6.3. The Contractor shall comply with the conditions stipulated in each of the insurance policies to be affected under the Agreement and shall not make any alteration to the terms of any policy subscribed by it so it deviates from the requirements herein.

25.6.4. The Contractor must promptly notify to the Employer any notification received from an insurance company regarding any actual alteration to one of their policies.

25.6.5. On occurrence of any loss covered by an insurance policy contemplated under Insurance, the Contractor shall, as soon as reasonably possible, notify to insurance companies for the policy subscribed by it. The Contractor shall also

take any appropriate measure to mitigate the effects to the loss to the maximum extent possible. The Contractor shall assist any assessment mandated by the insurance companies.

25.6.6. The required coverages referred to and set forth in this Article 26 (Insurance) shall in no way affect or limit the Contractor's liability with respect to its obligations under the Agreement

Annexure 1

Solar Photovoltaic and PV & BESS Operation and Maintenance Scope of Work

During the Term of the Agreement, the Contractor shall perform the services in accordance with the Operation and Maintenance services as described in document titled PV & BESS Operation and Maintenance Scope of Work reference "George PV & BESS specification Final Rev.

Annexure 2

Functional Guarantees

1. General

1.1. The following functional guarantees are being contracted for:

- 1.1.1. Capacity warranty, where the contractor shall guarantee that the generation plant is able to deliver the minimum Power and Energy capacities.
- 1.1.2. Availability warranty, where the contractor shall guarantee that the generation plant is able to meet the minimum Availability as required / contracted.
- 1.1.3. Efficiency warranty, where the contractor shall guarantee that the generation plant able to meet the tendered efficiencies.
- 1.1.4. Functional guarantee tests shall be conducted annually to confirm compliance to contractual requirements and institute corrective actions where applicable.

2. Energy capacity

- 2.1. An energy capacity test shall be performed at the time of site handover, in accordance with procedure mentioned below and is intended to be used to determine the dispatchable energy capacity of the PV & BESS at the time of site handover of Operation.
- 2.2. PV & BESS energy capacity shall be measured as follows:
 - 2.2.1. The PV & BESS shall be discharged and charged at rated power between the lower and upper SOC1) limit (as recommended by the OEM for current application).

- 2.2.2. Power during charge and discharge shall be recorded at regular intervals of time documented by the OEM to provide a statistically valid resolution.
- 2.2.3. The associated energy input (E_{in}); including all PV & BESS functional, parasitic and auxiliary consumption and energy output (E_{out}) of the PV & BESS shall be calculated from the recorded power.
- 2.2.4. The above process may be repeated multiple times, with a minimum rest period between charging and discharging, if so recommended, so as to record data for a specified no. of cycles (n).
- 2.2.5. The reference performance test value for stored energy shall be calculated as the mean of the values of E_{out} and E_{in} as measured for discharge and charge respectively.
- 2.2.6. The procedure shall be repeated (3 cycles) with power levels at 100% of rated power and documented.

Note 1): SOC recorded, shall be as reported by the Battery Management System.

- 2.3. The PV & BESS shall meet the minimum energy and power capacities as contracted.

3. PV & BESS capacity availability

- 3.1. The Contractor shall maintain all PV & BESS equipment to ensure annual Availability not less than 95%.
- 3.2. Availability includes the availability of Batteries, Battery Management System (BMS), Power Conversion System (PCS), Energy Management System (EMS) as well as the power evacuation system for PV & BESS up to interface with the system of power utility. i.e. 11 kV outdoor miniature substations
- 3.3. Availability is the percentage of hours that the PV & BESS is available during the year. The availability guarantee shall begin upon Operational Acceptance till the end of O&M period.
- 3.4. PV & BESS annual equipment availability shall be calculated as follows:

$$A = 1 - \left(\frac{\sum T_{acc}}{8760} \right) \times 100 \quad (1)$$

Where:

A: Equipment availability [%]

T_{acc} : Accountable PV & BESS outage duration [h]

- 3.5. Accountable PV & BESS outage duration is the elapsed time of accountable PV & BESS outages from the instant the PV & BESS experiences reduced capacity or is out of service to the instant it is returned to service or full capacity. If the PV & BESS experiences reduced capacity but is determined by the Employer to be available for service even if the Employer elects not to immediately return the equipment to full capacity, such time will be discounted from the outage duration.
- 3.6. Liquidated Damages for shortfall in equipment availability shall be charged if the actual equipment availability is less than the contracted equipment Availability.
- 3.7. If the annual equipment availability for PV & BESS is less than 95% during any year, then Contractor shall compensate the Employer an amount calculated as per the following formula.

$$COM = \left(\frac{95-A}{1000} \right) \times BAR \times C \times 8760 \quad (2)$$

Where:

COM: Capacity Availability Penalty. Compensation payable to the Employer [R]

A: Annual PV & BESS equipment Availability [%]

C: Power capacity of the facility [MW]

$$BAR = \left(\frac{\text{Annualised Capex} + \text{Fixed Opex}}{C \times 0.95 \times 8760} \right) \quad (3)$$

Where:

Annualised Capex: Annualised Capital Outlay

Fixed Opex: Annual fixed O&M is defined by the Operating and Maintenance costs deemed not related to utilization, which will escalate as per the contracted escalation.

Where the Annualised Capital Outlay is defined by the Initial Costs of the Project (from the bid), annualized by the following formula:

$$\text{Annualised Capex} = \text{Initial Costs} \times r \times \left(\frac{1}{1-(1+r)^{-20}} \right) \quad (4)$$

With r defined as the discount rate.

4. PV & BESS equipment efficiency

- 4.1. The Contractor's monthly Reports shall contain at a minimum the following information in order to determine if the Functional Guarantees are met:
- 4.1.1. Available Energy Capacity (MWh) Discharged/Charged against a minimum of:

- 0.4 MWh PV & BESS for Outeniqua WWTP
- 0.5 MWh PV & BESS for Gwaing WWTP
- 0.3 MWh PV & BESS for Civic Centre Building
- 1 MWh PV & BESS for Tamsui
- 0.02 MWh PV & BESS for Electro-Tech Building
- 0.004 MWh PV & BESS for Tourism Building
- 0.003 MWh PV & BESS for Blanco Motor Vehicle Registration

4.1.2. Power Capacity for the installation (kW) against a minimum of:

- 0.4 MWh PV & BESS for Outeniqua WWTP
- 0.5 MWh PV & BESS for Gwaing WWTP
- 0.3 MWh PV & BESS for Civic Centre Building
- 1 MWh PV & BESS for Tamsui
- 0.02 MWh PV & BESS for Electro-Tech Building
- 0.004 MWh PV & BESS for Tourism Building
- 0.003 MWh PV & BESS for Blanco Motor Vehicle Registration

4.1.3. Report on energy used for charging against the maximum allowed values based on the following formula:

$$E_c = \left(\frac{E_o}{h} \right) \quad (5)$$

Where:

E_c : Maximum charging energy per cycle [MWh]

E_o : Rated Output energy [MWh]

h : Rated efficiency

1. Uptime or Availability against a minimum of 95% as defined below.

4.2. Failure to meet the above Functional Guarantees will result in the Penalty formulas below being applied to the Contractor.

4.3. The penalties to be levied monthly for non-adherence to the functional guarantees of the facilities during the Term of the Agreement of the O&M Plant shall be calculated as follows:

$$E_c = \text{Max} \left(E_c - \frac{E_o}{h} (E_o + (ES_n - ES_o)), 0 \right) \times BCR \quad (6)$$

Where:

E_P : Monthly Energy Shortfall Penalty [R]

E_c : Total charging energy in the month [MWh]

E_o : Total discharge (output) energy in the month [MWh]

ES_n : Energy Stored (in MWh available discharge) at the end of the month

ES_o : Energy Stored (in MWh available discharge) at the start of the month

BCR: Base Charging Rate (as escalated annually) [R/MWh]

5. Guarantee on Performance and Availability for Solar Photovoltaic

- 5.1. Refer to Section 5.5.3 (*Liquidated Damages for PV & BESS and Solar Photovoltaic*) in Appendix 8
Refer to (*Functional Guarantees*) of this document and Appendix D

6. Recovery of Compensation

The above compensations shall be deducted from price of comprehensive O&M Agreement. During the free O&M period if any, compensation shall be paid by the contractor, else it will be deducted from the O&M performance Security.

28. Appendix D

D.1. Metrics for Progress Reports- Environmental and Social (ES)

Metrics for regular reporting:

- A. Environmental incidents or non-compliances with contract requirements, including contamination, pollution or damage to ground or water supplies;
- B. Health and safety incidents, accidents, injuries that require treatment and all fatalities;
- C. Interactions with regulators: identify agency, dates, subjects, outcomes (report the negative if none);
- D. Status of all permits and agreements:
 - (i) Work permits: number required, number received, actions taken for those not received;
 - (ii) Status of permits and consents:
 - List areas/facilities with permits required (quarries, asphalt & batch plants), dates of application, dates issued (actions to follow up if not issued), dates submitted to resident engineer (or equivalent), status of area (waiting for permits, working, abandoned without reclamation, decommissioning plan being implemented, etc.);
 - list areas with landowner agreements required (borrow and spoil areas, camp sites), dates of agreements, dates submitted to resident engineer (or equivalent);
 - identify major activities undertaken in each area in the reporting period and highlights of environmental and social protection (land clearing,

- boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation);
 - For quarries: status of relocation and compensation (completed, or details of activities and current status in the reporting period).
- E. health and safety supervision:
- (i) Safety officer: number days worked, number of full inspections & partial inspections, reports to construction/project management;
 - (ii) Number of workers, work hours, metric of PPE use (percentage of workers with full personal protection equipment (PPE), partial, etc.), worker violations observed (by type of violation, PPE or otherwise), warnings given,
- F. Health services: provider of health services, information and/or training, location of clinic, number of non-safety disease or illness treatments and diagnoses (no names to be provided);
- G. Gender (for expats and locals separately): number of female workers, percentage of workforce, gender issues raised and dealt with (cross-reference grievances or other sections as needed);
- H. Environmental mitigations and issues (what has been done):
- (i) dust: number of working bowsters, number of waterings/day, number of complaints, warnings given by environmentalist, actions taken to resolve; highlights of quarry dust control (covers, sprays, operational status); % of rock/ spoil lorries with covers, actions taken for uncovered vehicles;
 - (ii) erosion control: controls implemented by location, status of water crossings, environmentalist inspections and results, actions taken to resolve issues, emergency repairs needed to control erosion/sedimentation;
 - (iii) quarries, borrow areas, spoil areas, asphalt plants, batch plants: identify major activities undertaken in the reporting period at each, and highlights of environmental and social protection: land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation;

- (iv) Blasting: number of blasts (and locations), status of implementation of blasting plan (including notices, evacuations, etc.), incidents of off-site damage or complaints (cross-reference other sections as needed);
- (v) Spill clean-ups, if any: material spilled, location, amount, actions taken, material disposal (report all spills that result in water or soil contamination);
- (vi) Waste management: types and quantities generated and managed, including amount taken offsite (and by whom) or reused/recycled/disposed on-site;
- (vii) Details of tree plantings and other mitigations required undertaken in the reporting period;
- (viii) Details of water and swamp protection mitigations required undertaken in the reporting period.

I. compliance:

- (i) compliance status for conditions of all relevant consents/permits, for the Work, including quarries, etc.): statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance;
- (ii) Compliance status of C-ESMP/ESIP requirements: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- (iii) Compliance status of Health and Safety Management Plan re: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- (iv) Other unresolved issues from previous reporting periods related to environmental and social: continued violations, continued failure of equipment, continued lack of vehicle covers, spills not dealt with, continued compensation or blasting issues, etc. Cross-reference other sections as needed.

- (v) Contractor incident management data will be verified on a continuous basis (based on the risk) in accordance with client requirements (240-94140379 Occupational Health & Safety Data Verification and Assurance). Monthly internal verifications to be conducted and quarterly letter of assurances to be submitted to Employer SHEQ Department

J. Training:

- (i) Number of new workers, number receiving induction training, dates of induction training;
- (ii) Number and dates of toolbox talks, number of workers receiving Occupational Health and Safety (OHS), environmental and social training;
- (iii) Number and date of SEA prevention and SH sensitization and/or training events, including number of workers receiving training on Code of Conduct for Contractor's and Subcontractor's Personnel (in the reporting period and in the past), etc.
- (iii) Community liaison person(s): days worked (hours community center open), number of people met, highlights of activities (issues raised, etc.), reports to environmental and/or social specialist /construction/site management.

- k. Grievances: list new grievances (e.g. number of allegations of SEA and SH) received in the reporting period and number of unresolved past grievances by date received, complainant's age and sex, how received, to whom referred to for action, resolution and date (if completed), data resolution reported to complainant, any required follow-up (Cross-reference other sections as needed):

- (i) Worker grievances;
- (ii) Community grievances

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL ENGINEERING SERVICES

TENDER NUMBER: ENG018/2024

**TENDER FOR OPERATION AND MAINTENANCE OF PV PLANTS AND PV & BESS
FOR A PERIOD OF 36 MONTH**

Part C6.3: Drawings