

GEORGE AIRPORT

TENDER NO.:

**MAINTENANCE AND REPAIRS OF SOLAR PLANT AT
(GEORGE AIRPORT) FOR A PERIOD OF 5 YEARS**

MAINTENANCE AND REPAIRS OF SOLAR PLANT AT (GEORGE AIRPORT) FOR A PERIOD OF 5 YEARS

A contract between Airports Company South Africa SOC Limited
Reg. No 1993/004149/30 VAT no 4930138393

and _____

Re.No. _____ VAT no _____

Contract Number
GRJ _____ / 2026

Contents

The Contract

Part C1: Agreement and Contract Data

- C1.1 | Form of Offer and Acceptance
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Part C2: Pricing data

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- C2.2 | Price List (including the Activity Schedule)

Part C3: Service information

- C3 | Service Information

Part C4: Site information

- C4 | Site Information

Acceptance

By signing this part of this form of offer and acceptance, the employer identified below accepts the contractor’s offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the contractor’s offer shall form an agreement between the employer and the contractor 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 agreement)
 - Part C2: Pricing data and Price List
 - Part C3: Service information.
 - Part C4: Site information
- and schedules, drawings and documents or parts thereof where so indicated.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the Tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The contractor shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the employer’s agent (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.

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.

for the Employer

Signature Date

Name Capacity

Name and address of organisation

Airports Company South Africa SOC Limited,
George Airport
Old Mossel Bay Road
George
6530

Name of witness Signature

Date

Schedule of Deviations

1 Subject

Details

.....
.....
.....

2 Subject

Details

.....
.....
.....

3 Subject

Details

.....
.....
.....

By the duly authorised representatives signing this agreement, the employer and the contractor agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification, or changes to the terms of the offer agreed by the Tenderer and the employer during this process of offer and acceptance.

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 Employer

For the Contractor

Signature (s)

.....

Name (s)

.....

Capacity

Name and Address

Airports Company
South Africa SOC
Limited,
George Airport
Old Mossel Bay Road
George
6530

Name & Signature of
witness

*(Insert name and
address of organization)*

*(Insert name and address
of organization)*

Date

C1.2 Contract Data

Precedence in interpretation of the contract:

In the event of any ambiguity, inconsistency or conflict between the General Conditions of Contract, Special Conditions, Pricing Data, Service information, or other, the order of precedence shall be as follows:

Firstly, the Service information (C3) and Annexes thereto shall prevail.

Secondly the Contract Data (C1.2) and Conditions of Contract.

Thirdly the General Conditions of Contract.

Fourthly the Pricing data.

Lastly any schedules, drawings and other documents included with this agreement.

List of abbreviations

Abbreviations	Abbreviations/Terms Definition
AC	Alternating Current: Voltage / Current with an alternating polarity, assumed to be sinusoidal at 50 Hz in South Africa, as produced by the utility
DC	Direct Current: Voltage / Current with a constant polarity as produced by a battery of solar panel
Inverter	Electronic device converting DC current into AC
kA	Kilo Amps: Typically used to indicate the amount of current that will flow during a short circuit fault
kV	Kilo Volts: A measure of voltage
kVA	Kilo Volt Amps: A measure of apparent power
kWp	The kW rating of the total number of PV modules installed. The maximum power output from the facility will be about 80% of this value
kW	Kilo Watts: Measure of real power
MW	Mega Watts
kWh	Measure of Energy equivalent of 3600k Joules
kWac	AC power output after conversion from DC to AC
Meteonorm Data	A data set of the available solar radiation at a particular geographical location across a calendar year
Maximum Demand	The highest power delivered by a utility over a 15minute interval. This defines the capacity charge the utility bills the client
MPPT	Maximum Power Point Tracking: The inverter varies the voltage presented to the solar panel to ensure maximum power transfer for the prevailing conditions at the time
MVA	Mega Volt Amps
POC	Point of Connection: The point that designates that change of responsibility between the consumer and utility with regards to the electrical power system
PV	Photovoltaic. Solar generation converting photons to electrons via a semiconductor
PVSyst	A software application used to estimate the performance of a solar plant
SLD	Single Line Diagram: An drawing describing the electrical system/network at a facility
SCADA	Supervisory Control and Data Acquisition system. Software that gathers data for equipment and presents it graphically to an operator
UPS	Uninterrupted Power Supply
BOQ	Bill of Quantities
ACSA	Airport Company South Africa

Standards and Specifications

The table below lists industry standards applicable in providing the Works. It is the Contractor's responsibility to ensure that they are in possession of the latest revision of these documents
List of Regulatory Approvals, Requirements and Normative References - Grid Code Compliance

Standard/Code	Description
Act 4 of 2006	Electricity Regulation Act,
Act, 2006	Electricity Regulation Amendment Act, 2006
Act, No. 73 of 1989	Department of Environmental Affairs & Tourism in terms of Environment Conservation Act
Act, No. 107 of 1998	National Environmental Management Act, (as amended)
No. 26 of 1956	Explosives Act, as amended
Act, No. 85 of 1993	Occupational Health & Safety Act, as amended
Act 5 of 2008	Compulsory Specifications Act
	South African Distribution Code (all parts)
	South African Grid Code (all parts)
IEC 60068-2-1	Environmental Testing – Part 1 Cold
IEC 60068-2-2	Environmental Testing – Part 2 Dry Heat
IEC 60068-2-30	Environmental Testing – Part 30 Damp heat, cyclic (12h + 12h cycle)
IEC 60255-3	Electrical relays Part 3: Single input energizing quantity measuring relays with dependent and independent time
IEC 60255-6	Electrical relays Part 6: Measuring relays and protection equipment
IEC 60255-21	Electrical relays Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment (all sections)
IEC 60255-22	Electrical relays Part 22: Electrical disturbance tests for measuring relays and protection equipment (all sections)
IEC 61727	Photovoltaic (PV) systems - Characteristics of the utility interface

IEC 62271-100	High voltage alternating current circuit breakers
IEC 62116	Test procedure of islanding prevention measures for utility- interconnected photovoltaic inverters
IEEE 1547	IEEE Standard for interconnecting distributed resources with electrical power systems
IEEE 1547.1	IEEE Standard conformance test procedures for equipment interconnecting distributed resources with electric power systems
NRS 029	Current transformers for rated ac. voltages from 3,6kV up to and including 420kV
NRS 030	Electricity distribution – Inductive voltage transformers for rated ac. voltages from 3.6kV up to and including 145kV for indoor and outdoor applications
NRS 031	Alternating current Disconnectors and earthing switches (above 1000V)
NRS 037-1	Telecontrol Protocol for stand-alone remote terminal units NRS 048-2: Electricity Supply – Quality of Supply Part 2: Voltage characteristics, compatibility levels, limits and assessment methods NRS 048-4: Electricity Supply – Quality of Supply Part 4 : Application guidelines for utilities
NRS 048-7	Electricity Supply – Quality of Supply Part 7: Application practices for end-users
NRS 054	Rationalized User Specification – Power Transformers
NRS 057 (SANS 474)	Code of Practice for Electricity Metering
NRS 097-1	Code of Practice for the interconnection of embedded generation to electricity distribution networks: Part 1 MV and HV
NRS 097-2	Grid interconnection of embedded generation: Part 2 Small scale embedded generation
SANS 1019	Standard voltages, currents, and insulation levels for electricity supply
SANS IEC 60529	Degrees of protection provided by enclosures (IP Code)
SANS IEC 61000-4	Electromagnetic compatibility (EMC): Test and measurement techniques (all sections)
PV Modules	
IEC 61215 Ed.2	Crystalline silicon terrestrial photovoltaic (PV) module - Design qualification and type approval
IEC 61646 Ed.2	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval
IEC 61730-1 Ed.1.2	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
IEC 61730 -2 Ed.1.0	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing
IEC 61701 Ed. 2	Salt mist corrosion testing of photovoltaic (PV) modules
IEC 62716 Ed. 1	Photovoltaic (PV) modules - Ammonia corrosion testing.
IEC 60891:1987	Procedures for temperature and irradiance corrections to measured I-V characteristics of crystalline silicon photovoltaic devices, Amendment 1 (1992).
IEC 60904-1:1987	Photovoltaic devices – Part 1: Measurements of photovoltaic current voltage characteristics.
IEC 60904-2:1989	Photovoltaic devices – Part 2: Requirements for reference solar cells.
IEC 60904-6:1994	Photovoltaic devices – Part 6: Requirements for reference solar modules.
IEC 60904-7:1998	Photovoltaic devices – Part 7: Computation of spectral mismatch error introduced in the testing of a photovoltaic device.
IEC 60904-9:1995	Photovoltaic devices – Part 9: Solar simulator performance requirements.
IEC 60904-10:1998	Photovoltaic devices – Part 10: Methods of linearity measurements.
IEC 61853	Performance testing and energy rating of terrestrial photovoltaic (PV) modules
IEC 60068-2-78:2001	Environmental testing – Part 2-78: Tests – Test Cab: Damp heat steady state.
IEC 60068-2-21:1999	Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices

IEC 61727 Ed.2	Photovoltaic (PV) systems - Characteristics of the utility interface
IEC 62103	Electronic equipment for use in power installations
Electrical Cabling	
	Requirements for cables for use in photovoltaic systems 2Pfg1169" by TÜV
SANS 1507 Part 1	General - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 2	Wiring Cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 3	PVC Distribution cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 4	XLPE Distribution cables – Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3300 V)
SANS 1507 Part 5	Halogen-free Distribution Cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 6	Service cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 10198:2004 Parts 1-14	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1 to 14
SANS 1213	Mechanical Cable Glands
NRS 074-1/2	Low Voltage cables systems
Earthing, Lightning & Surge Protection	
IEC 60364-4-41	Low-voltage plants installation. Part 4-41 - Protection for safety – protection against shock
SANS 10313	Protection against lightning
Inverters	
IEC 62093 Ed. 1.0	Balance-of-system components for photovoltaic systems - Design qualification natural environments
IEC 62109-1 Ed 1.0	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 62109-2 Ed 2.0	Safety of power converters for use in photovoltaic power systems - Part 2: Requirements for inverters
IEC 62116 Ed 2.0	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures.
IEC 60730-1 Ed.5	Automatic electrical controls - Part 1: General requirements.
NRS 097-2-1 Ed.1	Grid Interconnection of Embedded Generation Part 2: Small-scale embedded generation.
IEC 61683	Photovoltaic systems - Power conditioners - Procedure for measuring efficiency
IEC 61000 - 6 / 3	Electromagnetic compatibility (EMC)
IEC 61000-6-3/4	EMC Emission
IEC 61000-6-1/2	EMC Immunity
Plant Coding and Labelling	
ISO 10007:2003	Guidelines for configuration management
VGB-R 171e VGB	Guideline - Provision of Technical Documentation (Technical Plant Data, Documents) for Power Plants, 2nd Edition 2010
Fire Safety Standards	
SANS 10400-T:2011	South African National Standard Part T: Fire Protection
SANS 10139	Fire detection and alarm systems for buildings - System design, installation and servicing
	International Fire Code 2012

Inspection, Testing and Commissioning

IEC 62446	Grid connected photovoltaic systems – Minimum requirements for System documentation, commissioning tests & Inspections
IEC 60364 – 6 Ed. 1	Low Voltage Electrical installations,
IEC 62337	Commissioning of Electrical, Instrumentation and Control systems
IEC 62381	Factory acceptance test (FAT), site acceptance test (SAT), and site integration test (SIT)
IEC 62382	Electrical and Instrumentation loop check activities
IEC 62337	Commissioning of electrical, instrumentation & control systems
IEC 61724	Photovoltaic system performance monitoring - Guidelines for measurement, data exchange and analysis

Electrical Cabling

	Requirements for cables for use in photovoltaic systems 2Pfg1169" by TÜV
SANS 1507 Part 1	General - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 2	Wiring Cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 3	PVC Distribution cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 4	XLPE Distribution cables – Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3300 V)
SANS 1507 Part 5	Halogen-free Distribution Cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 1507 Part 6	Service cables - Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
SANS 10198:2004 Parts 1-14	The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1 to 14
SANS 1213	Mechanical Cable Glands
NRS 074-1/2	Low Voltage cables systems

Earthing, Lightning & Surge Protection

IEC 60364-4-41	Low-voltage plants installation. Part 4-41 - Protection for safety – protection against shock
SANS 10313	Protection against lightning
SANS 62305	Earthing and Lightning Protection
SANS 10292:2001	Earthing of low-voltage (LV) distribution systems
SANS 1063:1998	Earth rods and coupling
SANS 10199	The design and installation of earth electrodes
IEEE 80	Earthing
IEEE 665:1995	Guide for Generating Station Grounding
SANS 61312-3:2006/IEC TS 61312-3:2000	Protection against lightning electromagnetic impulse Part 3: Requirements of surge protective devices (SPDs)
SANS 62305-1 to 4 /IEC 62305-1 to 4	Protection against lightning - Parts 1 to 4
SANS 10313:2008	Protection against lightning - Physical damage to structures and life hazard
SANS 10200:1985	
NRS 039	Surge arresters for use in distribution systems
IEC 61009	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's)
SANS 61024	Protection of structures against lightning

General Conditions of Contract

The General Conditions of Contract comprise the NEC3 Term Service Contract, April 2013, published by the NEC, and the following “Particular Conditions”, which include amendments and additions to such General Conditions.

The following Particular Conditions amplify the General Conditions of Contract and highlight areas in that document that require specific attention.

Wherein in the contract it is stated no contract data is required accordingly the *conditions of contract* remain unaltered as per NEC3 Term Service Contract, April 2013.

C1.2a - Data provided by the *Employer*.

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option: dispute resolution Option: and secondary Options:	<p>A: Priced contract with price list</p> <p>W1: Dispute resolution procedure</p> <p>X17 Low service damages</p> <p>X18: Limitation of Liability (as amended in Option Z)</p> <p>X19 Task Order</p> <p>X20 Key Performance Indicators</p> <p>Z: Additional conditions of contract</p>
	of the NEC3 Term Service Contract (April 2013)	
10.1	The <i>Employer</i> is:	Airports Company South Africa SOC Limited Reg. No 1993/004149/30 VAT no 4930138393
	Address	George Airport Old Mossel Bay Road George 6530
	Tel No.	+27 44 876 9310
10.1	The <i>Service Manager</i> is:	Marclen Stallenberg
	Address	George Airport Old Mossel Bay Road George 6530
	Tel No.	+27 44 876 9310
	e-mail	Marclen.Stallenberg@airports.co.za
11.2(1)	The <i>Accepted Plan</i> is	Section C3 of this document, including Annexes thereto as submitted by the <i>Contractor</i> and accepted by the <i>Service Manager</i>

11.2(2)	The <i>Affected Property</i> is	Solar Plant at George Airport – also refer to the Schedule of Equipment, detailed in Annexure A of C3
11.2(13)	The <i>service</i> is	The maintenance and repairs of the Solar Plant , as more fully set out in section C3 <i>Service Information</i> .
11.2(14)	The following matters will be included in the Risk Register	<p>Access to site – compliance to AVSEC procedures and policies</p> <p>Delay in supply of material and or equipment</p> <p>Working on moving machinery</p> <p>Non-compliance to applicable method statements, company policies and procedures</p> <p>Maintenance activities negatively impacting normal airport operations.</p> <p>Non-compliance to service standards for automated weather observation systems where applicable - ASME B20.1-2021.</p> <p>Also refer to site HIRA which outlines the general hazards.</p>
11.2(15)	The <i>Service Information</i> is in	the section titled <i>Service Information</i> included as section C3 of this document.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	5 working days
21.1	The period within which the Contractor provides the Contractor's Plan	21 calendar days from Contract Date
2	The Contractor's main responsibilities	detailed in Part C3 (Service Information)
3	Time	
30.1	The <i>starting date</i> is	Date of Contract Signing by both parties
30.2	The <i>Service Period</i> is	60 months from the <i>starting date</i> ,
4	Testing and Defects	No data is required for this section of the <i>conditions of contract</i>
5	Payment	
50.1	The <i>assessment interval</i> is on the	on the 15 th day of each successive month
51.1	The <i>currency of this contract</i> is the	South African Rand (ZAR)
51.2	The period within which payments are made is	30 days

6	Compensation events	No data is required for this section of the <i>conditions of contract</i> .						
7	Title	No data is required for this section of the <i>conditions of contract</i> .						
8	Risks and insurance	Refer to Part C1.4						
83.1	The <i>Employer</i> provides these insurances from the Insurance Table	<p>(i) Insurance against loss of or damage to the <i>services</i>, Plant and Materials comprising Contract Works Insurance, SASRIA Special Risks Insurance and Marine & Air Cargo insurance; and</p> <p>(ii) Insurance (Public Liability Insurance) against liability for loss or damage to property (except the <i>services</i>, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with the contract.</p> <p>Note: The terms and other matters applicable to these insurances provided by the Employer (and to insurances generally) are detailed in the insurance schedule attached as section C1.4 to the <i>contract</i> (“the Insurance Schedule”).</p>						
83.1	The <i>Contractor</i> provides these additional insurances	The terms and other matters applicable to this insurance provided by the Employer are likewise detailed in section C1.4 to the <i>contract</i> .						
83.2	The minimum amounts of cover or minimum limits of indemnity required for the insurance table	Refer to section C1.4.						
9	Termination	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.						
10	Data for main Option clause							
A	Priced contract with price list	refer to section C2.1 and C2.2.						
11	Data for Option W1							
W1.1	The <i>Adjudicator</i> is	The person appointed jointly by the parties from the list of adjudicators contained below						
	<table border="1"> <thead> <tr> <th>Name</th> <th>Location</th> <th>Contact details (phone & e mail)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Name	Location	Contact details (phone & e mail)				
Name	Location	Contact details (phone & e mail)						

Adv. Ghandi Badela	Gauteng	+27 11 282 3700 ghandi@badela.co.za
Mr. Errol Tate Pr. Eng.	Durban	+27 11 262 4001 Errol.tate@mweb.co.za
Adv. Saleem Ebrahim	Gauteng	+27 11 535-1800 salimebrahim@mweb.co.za
Mr. Sebe Msutwana Pr. Eng.	Gauteng	+27 11 442 8555 sebe@civilprojects.co.za
Mr. Sam Amod	Gauteng	sam@samamod.com
Adv. Sias Ryneke SC	Gauteng	083 653 2281 reyneke@duma.nokwe.co.za
Mr. Emeka Ogbugo (Quantity Surveyor)	Pretoria	+27 12 349 2027 emeka@gosiame.co.za

W1.2(3) The *Adjudicator nominating body* is: **The current Chairman of Johannesburg Advocate’s Bar Council**

W1.4(2) The *tribunal* is: **Arbitration**

W1.4(5) The *arbitration procedure* is **The arbitration procedure is set out in The Rules for the Conduct of Arbitrations 2013 Edition, 7th Edition, published by The Association of Arbitrators, (Southern Africa)**

The place where arbitration is to be held is **Johannesburg, South Africa.**

The person or organization who will choose an arbitrator **The Arbitrator is the person selected by the Parties as and when a dispute arises in terms of the relevant Z Clause, from the Panel of Arbitrators provided under the relevant Z clause if the arbitration procedure does not state who selects an arbitrator. The Arbitrator nominating body is the Chairman of the Johannesburg Advocates Bar Council.**

Option A The Contractor prepares forecasts of the final total of the Prices for the whole of the *Services* at intervals no longer than 4 weeks.

12 Data for secondary Option

X17 Low service damages

If the Contractor produces substandard work the Employer can:

Insist the Contractor corrects the Defects to provide the quality specified in the service information.

Recover the cost of having it corrected by other people if the Contractor fails to correct the Defect within the specified time or

Accept the Defect and a quotation from the Contractor for reduced Prices in return for a change to the service information.

Refer to table in the Service Level Agreement in Annexure B as part of C3 - For low service damages information

X18 Limitation of liability

X18.1 The *Contractor's* liability to the *Employer* for indirect or consequential loss is limited to: **Nil - Neither Party is liable to the other for any consequential or indirect loss, including but not limited to loss of profit, loss of income or loss of revenue**

X18.2 For any one event, the *Contractor's* liability to the *Employer* for loss of or damage to the *Employer's* property is limited to: **Total of the losses incurred and/or repairs to the damages caused**

X18.3 The *Contractor's* total liability to the *Employer* for defects due to his design which are not listed on the Defects Certificate is limited to: **Total of the losses incurred and/or repairs to the damages caused**

X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	The <i>Contractor's</i> total direct liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than the excluded matters, is limited to the total of the losses incurred and/or repairs to the damages caused and applies in contract, tort or delict and otherwise to the extent allowed under the law of the contract. The excluded matters are amounts payable by the Contractor as stated in this contract for: <ul style="list-style-type: none"> - Loss of or damage to the <i>Employer's</i> property, - Defects liability, - Insurance liability to the extent of the Contractor's risks - death of or injury to a person. infringement of an intellectual property right
X19	Task Order	The task order is work within the <i>Service</i> which the <i>Service Manager</i> may instruct the <i>Contractor</i> to carry out within a state period.
X20	Key Performance Indicators	Refer to table in the Service Level Agreement in Annexure B as part of C3 - for Key Performance Indicators

Z(A): The Additional conditions of contract are: Z1-Z19

Amendments to the Core Clauses	
Z1	Interpretation of the law
Z1.1	Add to core clause 12.3: Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the <i>Service Manager</i> , the <i>Supervisor</i> , or the <i>Adjudicator</i> does not constitute a waiver of rights and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.
Z2	Providing the Service:
Z2.1	Delete core clause 20.1 and replace with the following: The <i>Contractor</i> provides the Service in accordance with the Service Information and warrants that the results of the Service, when complete, shall be fit for their intended purpose.
Z5	Termination
Z5.1	Add the following to core clause 91.1, at the second main bullet, fifth sub-bullet point, after the words "assets or": "business rescue proceedings are initiated, or steps are taken to initiate business rescue proceedings".
Amendment to the Secondary Option Clauses	
Z7	Limitation of liability:

	Insert the following new clause as Option X18.6:
Z7.1	The <i>Employer's</i> liability to the <i>Contractor</i> for the <i>Contractor's</i> indirect or consequential loss is limited to R0.00
Z7.2	Notwithstanding any other clause in this contract, any proceeds received from any insurances or any proceeds which would have been received from any insurances but for the conduct of the <i>Contractor</i> shall be excluded from the calculation of the limitations of liability listed in the contract
	Additional Z Clauses
Z8	Cession, delegation, and assignment
Z8.1	The <i>Contractor</i> shall not cede, delegate, or assign any of its rights or obligations to any person without the written consent of the <i>Employer</i> , which consent shall not be unreasonably withheld. This clause shall be binding on the liquidator/business rescue practitioner /trustee (whether provisional or not) of the <i>Contractor</i>
Z8.2	The <i>Employer</i> may cede and delegate its rights and obligations under this contract to any person or entity
Z9	Joint and several liability
Z9.1	If the <i>Contractor</i> constitutes a joint venture, consortium, or other unincorporated grouping of two or more persons, these persons are deemed to be jointly and severally liable to the <i>Employer</i> for the performance of the Contract.
Z9.2	The <i>Contractor</i> shall, within 1 week of the Contract Date, notify the <i>Service Manager</i> and the <i>Employer</i> of the key person who has the authority to bind the <i>Contractor</i> on their behalf.
Z9.3	The <i>Contractor</i> does not materially alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without prior written consent of the <i>Employer</i> .
Z10	Ethics
Z10.1	The <i>Contractor</i> undertakes:
Z10.1.1	not to give any offer, payment, consideration, or benefit of any kind, which constitutes or could be construed as an illegal or corrupt practice, either directly or indirectly, as an inducement or reward for the award or in execution of this contract;
Z10.1.2	to comply with all laws, regulations or policies relating to the prevention and combating of bribery, corruption, and money laundering to which it or the <i>Employer</i> is subject, including but not limited to the Prevention and Combating of Corrupt Activities Act, 12 of 2004.
Z10.2	The <i>Contractor's</i> breach of this clause constitutes grounds for terminating the <i>Contractor's</i> obligation to Provide the Works or taking any other action as appropriate against the <i>Contractor</i> (including civil or criminal action). However, lawful inducements and rewards shall not constitute grounds for termination.
Z10.3	If the <i>Contractor</i> is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices, including but not limited to the making of offers (directly or indirectly), payments, gifts, gratuity, commission or benefits of any kind, which are in any way whatsoever in connection with the contract with the <i>Employer</i> , the <i>Employer</i> shall be entitled to terminate the contract in accordance with the procedures stated in core clause 92.2. the amount due on termination is A1.

Z11 Confidentiality

- Z11.1** All information obtained in terms of this contract or arising from the implementation of this contract shall be treated as confidential by the *Contractor* and shall not be used or divulged or published to any person not being a party to this contract, without the prior written consent of the *Service Manager* or the *Employer*, which consent shall not be unreasonably withheld.
- Z11.2** If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until otherwise notified by the *Service Manager*.
- Z11.3** This undertaking shall not apply to –
- Z11.3.1** Information disclosed to the employees of the *Contractor* for the purposes of the implementation of this agreement. The *Contractor* undertakes to procure that its employees are aware of the confidential nature of the information so disclosed and that they comply with the provisions of this clause;
- Z11.3.2** Information which the *Contractor* is required by law to disclose, provided that the *Contractor* notifies the *Employer* prior to disclosure to enable the *Employer* to take the appropriate action to protect such information. The *Contractor* may disclose such information only to the extent required by law and shall use reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed;
- Z11.3.3** Information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time);
- Z11.4** The taking of images (whether photographs, video footage or otherwise) of the *works* or any portion thereof, while Providing the Works and after Completion, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*
- Z11.5** The *Contractor* ensures that all his Subcontractors abide by the undertakings in this clause.

Z12 Employer's Step-in rights

- Z12.1** If the *Contractor* defaults by failing to comply with his obligations and fails to remedy such default within 2 weeks of the notification of the default by the *Service Manager*, the *Employer*, without prejudice to his other rights, powers, and remedies under the contract, may remedy the default either himself or procure a third party (including any subcontractor or supplier of the *Contractor*) to do so on his behalf. The reasonable costs of such remedial works shall be borne by the *Contractor*
- Z12.2** The *Contractor* co-operates with the *Employer* and facilitates and permits the use of all required information, materials and other matter (including but not limited to documents and all other drawings, CAD materials, data, software, models, plans, designs, programs, diagrams, evaluations, materials, 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 the contract or otherwise for and/or in connection with the *works*) and generally does all things required by the *Service Manager* to achieve this end.

Z13 Liens and Encumbrances

Z13.1 The *Contractor* keeps the Equipment used to Provide the Services free of all liens and other encumbrances at all times. The *Contractor*, vis-a-vis the *Employer*, waives all and any liens which he may from time to time have, or become entitled to over such Equipment and any part thereof and procures that his Subcontractors similarly, vis-a-vis the *Employer*, waive all liens they may have or become entitled to over such Equipment from time to time

Z14 Intellectual Property

Z14.1 Intellectual Property (“IP”) rights means all rights in and to any patent, design, copyright, trademark, trade name, trade secret or other intellectual or industrial property right relating to the Works.

Z14.2 IP rights remain vested in the originator and shall not be used for any reason whatsoever other than carrying out the works.

Z14.3 The *Contractor* gives the *Employer* an irrevocable, transferrable, non-exclusive, royalty free licence to use and copy all IP related to the works for the purposes of constructing, repairing, demolishing, operating, and maintaining the works

Z14.4 The written approval of the *Contractor* is to be obtained before the *Contractor's* IP made available to any third party which approval will not be unreasonably withheld or delayed. Prior to making any *Contractor's* IP available to any third party the *Employer* shall obtain a written confidentiality undertaking from any such third party on terms no less onerous than the terms the *Employer* would use to protect its IP

Z14.5 The *Contractor* shall indemnify and hold the *Employer* harmless against and from any claim alleging an infringement of IP rights (“**the claim**”), which arises out of or in relation to:

Z14.5.1 the *Contractor's* design, manufacture, construction, or execution of the Works

Z14.5.2 the use of the *Contractor's* Equipment, or

Z14.5.3 the proper use of the Works.

Z14.6 The *Employer* shall, at the request and cost of the *Contractor*, assist in contesting the claim and the *Contractor* may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it.

Z15 Dispute resolution:

Z15.1 Appointment of the Adjudicator

An *Adjudicator* is appointed when a dispute arises, from the Panel of Adjudicators below. The referring party nominates an Adjudicator, which nomination is either accepted or rejected by the other party. In the instance of a rejection of the nominated *Adjudicator*, the referring Party refers the appointment deadlock to the Chairman of the Johannesburg Bar Council, who appoints an *Adjudicator* listed in the Panel of Adjudicators below.

The Parties appoint the *Adjudicator* under the NEC3 Adjudicator's Contract, April 2013

Panel of Adjudicators

Name	Location	Contact details (phone & e mail)
Adv. Ghandi Badela	Gauteng	+27 11 282 3700 ghandi@badela.co.za
Mr. Errol Tate Pr. Eng.	Durban	+27 11 262 4001 Errol.tate@mweb.co.za
Adv. Saleem Ebrahim	Gauteng	+27 11 535-1800 salimebrahim@mweb.co.za
Mr. Sebe Msutwana Pr. Eng.	Gauteng	+27 11 442 8555 sebe@civilprojects.co.za
Mr. Sam Amod	Gauteng	sam@samamod.com
Adv. Sias Ryneke SC	Gauteng	083 653 2281 reyneke@duma.nokwe.co.za
Mr. Emeka Ogbugo (Quantity Surveyor)	Pretoria	+27 12 349 2027 emeka@gosiame.co.za

Z15.2 Appointment of the Arbitrator

An *Arbitrator* is appointed when a dispute arises from the Panel of Arbitrators below. The referring party nominates an Arbitrator, which nomination is either accepted or rejected by the other party. In the instance of a rejection of the nominated *Arbitrator*, the referring Party refers the appointment deadlock to the Chairman of the Johannesburg Bar Council, who appoints an *Arbitrator* listed in the Panel of Arbitrators below

Panel of Arbitrators

Name	Location	Contact details (phone & e mail)
Adv. Ghandi Badela	Gauteng	+27 11 282 3700 ghandi@badela.co.za
Mr. Errol Tate Pr. Eng.	Durban	+27 11 262 4001 Errol.tate@mweb.co.za
Adv. Saleem Ebrahim	Gauteng	+27 11 535-1800 salimebrahim@mweb.co.za
Mr. Sebe Msutwana Pr. Eng.	Gauteng	+27 11 442 8555 sebe@civilprojects.co.za
Mr. Sam Amod	Gauteng	sam@samamod.com
Adv. Sias Ryneke SC	Gauteng	083 653 2281 reyneke@duma.nokwe.co.za
Mr. Emeka Ogbugo (Quantity Surveyor)	Pretoria	+27 12 349 2027 emeka@gosiame.co.za

Z16 Notification of a compensation event

- Z16.1** Delete "eight weeks" in clause 61.3 and replace with "four weeks". Delete the words "unless the event arises from the Service Manager or the Supervisor giving an instruction, issuing a certificate, changing an earlier decision, or correcting an assumption."

Z17 **BBBEE and Tax Clearance Certificates**

Z17.1 The *Contractor* shall be expected to annually present a compliant BEE Certificate and a Tax Clearance Certificate. Failure to do adhere to these requirements shall be considered a material breach of the conditions of this Contract, the sanction for which may be a cancellation of this Contract.

Z18 **Communication**

Z18.1 **Add a new Core Clause** 14.5 and 14.6 to read as follows:
The *Service Manager* requires the written consent of the Employer if an action will result in a change to the design, scope, and Service information that is 5% or more

Z18.2 The *Service Manager* requires the written consent of the Employer if an action will result in the Completion Date being extended by more than 30 days.

Z19 **Delegation**

As stipulated by Section 37(2) of the Occupational Health and Safety Act No. 85 of 1993 as amended the *Contractor* agrees to the following:

Z19.1 As part of this contract the *Contractor* acknowledge that it (mandatory) is an employer in its own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended and agree to ensure that all work being performed, or Equipment, Plant and Materials being used, are in accordance with the provisions of the said Act, and in particular with regard to the Construction Regulations.

C1.2 b - DATA PROVIDED BY THE CONTRACTOR

Part Two – Data provided by the Contractor.

The conditions of contract are the NEC3 Term Service Contract (TSC), April 2013

Each item of data given below is cross-referenced to the clause in the NEC3 Term Service Contract (TSC) to which it mainly applies.

Clause	Statement	Data
10.1	The Contractor is (Name): Address: Telephone No Email Address:	
	Represented by (Full Name): Title: Address: Telephone: Email Address:	
	The <i>direct fee percentage</i> is:	100%
	The <i>subcontracted fee percentage</i> is:	0%
11.2	The <i>working areas</i> are	refer to C3 'Service Information'
24.1	The <i>Contractor's key persons</i> are:	CV's to be appended to resource proposal and Tender Schedule
1.	Name: Job: Responsibility: Artisan	

Qualifications:

Experience:

11.2 The plan identified in the Contract **In Section C3, the Service Information**
Data is

Option A The *price list* is **In Section C2.2 of the Pricing Data of this contract**

Option A The tendered total of the Prices is R _____ (excluding VAT)
(in words)

(excluding VAT)

PART C1: AGREEMENTS AND CONTRACT DATA

C1.3: ACSA INSURANCE CLAUSES

Insurance Schedule

Summary of Terms and other Matters Applicable to Employer-Provided Insurance

- The successful bidder must source the following insurance cover, which is the deductible in the ACSA insurance cover:
- Aviation liability insurance cover for an indemnity limit not less than R300 000 (three hundred thousand rands).
- Submit proof of insurance to ACSA before the work starts, and annually for the duration of the project.

C2.1 Pricing Instructions

The intended pricing strategy to be followed in this tender is according to the Price List (including the activity schedule).

1. The Contract Data, Service information, drawings and any other documents relevant to this tender must be read in conjunction with the Activity Schedule.
2. The contractor must plan the work in this contract as a set of activities. These should be the same activities as he shows on his programme.
3. This schedule covers the items that will be measurable. A lump sum price for each activity shall be entered and no other items will be measured. Costs not covered by the items may be included in the most appropriate items listed. The Contractor has the liberty to insert items, quantities, and rates of his own choosing in the said schedule as a separate line item.
4. The pricing schedule as completed by the Contractor shall be **VAT exclusive** prices and shall cover, "inter alia" all general risks, liabilities, obligations, profit, expenses, costs, bonuses, all allowances such as shift and standby allowances, sick-leave, other leave, brackets, fixings, incidentals, consumables etc. that will be required to successfully complete this contract as set forth or as implied in the documents on which this Contract is based.
5. The contractor is to take note that payment is made for each activity only when it is complete. "Complete" as it is used in this schedule means the complete system or unit as specified in the document.
6. Unless a separate rate for the supply and for the installation of any item is specifically called for, the supply and installation costs of any item shall be fully included in the price.
7. The description of each item shall, unless otherwise stated herein, be held to include making, conveying, and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates, plant, temporary works, return of packaging, establishment charges, profit and all other obligations arising out of the contractual conditions.
8. The quantities and rates included for day work shall form part of the tender price, but Contractors shall note that this item must be regarded as provisional and will only be payable to the Contractor when a written order to this effect has been issued.
9. "Foreign" shall mean the CIF (Cost, Insurance and Freight) value.
10. No alterations to the original text shall be allowed. If any alterations are made, it shall be ignored, and the original wording will apply.
11. Variations in the scope and extent of the work shall be allowed to meet the Engineer's requirements and shall be measured and priced at the rates entered in the Activity Schedule, where appropriate, and shall form an addition to or deduction from the total of the Accepted Contract Amount. Any items or variations for which rates have not been included in the Activity Schedule shall be agreed and priced as non-scheduled items.
12. All provisional sums and contingency amounts shall be expended as directed by the Engineer and any balance remaining shall be deducted from the contract sum.
13. All items described as "provisional" shall be measured as executed and paid for according to prices in the Activity Schedule and any amounts not spent shall be deducted from the contract price. No work for which "provisional" items are provided shall, be commenced without written instructions from the Engineer.
14. No commitment to expending any portion of the contingency amounts and/or provisional sums are made or implied by the Employer.
15. The Contractor shall not be entitled to any claim in instances where provisional sums are partially or in total removed from the contract.

16. The main cost drivers for this contract are required labour resources and required service levels and not the quantity of equipment.
17. If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tenderer enters the amount in the Price column only; the Unit, Quantity and Rate columns being left blank.
18. If the *Contractor* is to be paid an amount for the item of work which is the rate for the work multiplied by the quantity completed, the tenderer enters the rate which is then multiplied by the expected quantity to produce the Price, which is also entered.
19. If there is insufficient space in the Price List which follows, state in which document the Price List is contained.

C2.2 Price List

The following Activity Schedule is provided “as-is” for the benefit of the Tenderer. ACSA cannot guarantee that it is complete in all respects. The Tenderer is responsible for providing an Activity Schedule which is accurate, complete and in accordance with their proposal. Also, refer to C3 (Service information) for activities that need to be priced. Only items listed in this Activity Schedule may be billed to the Employer.

Activity Schedule

*By Tools, equipment and consumables is also meant cleaning materials, fasteners, lubricants, chemicals, electronic devices, etc. that are required to do any corrective or preventive maintenance, and measurements (multi-meters, etc.). The *Contractor* must submit a list of tools that will be used on this contract at the start of the contract. This tools list must be inspected and verified by ACSA monthly prior to payment.

Part 1 - Activity Schedule

*By Tools, equipment and consumables is also meant cleaning materials, fasteners, lubricants, chemicals, electronic devices, etc. that are required to do any corrective or preventive maintenance, and measurements (multi-meters, etc.).

No	Item/ Service Description	Unit	Unit Price	Qty	Total Price
1	Preventative Maintenance of Solar Plant <ul style="list-style-type: none"> Please refer to C3 for defined minimum maintenance as defined in the <i>Employers</i> scope; bidders are required to submit a method statement to advise the <i>Employer</i> where <i>Employer</i> requirements are not compliant to applicable <i>regulations</i>. 	Quarterly		4	
2	Cleaning of Solar Plant <ul style="list-style-type: none"> Please refer to C3 for defined minimum maintenance as defined in the <i>Employers</i> scope; bidders are required to submit a statement method to advise the <i>Employer</i> where <i>Employer</i> requirements are not compliant to applicable <i>regulations</i> 	6 Monthly		2	
3	Provisional amount for Permits Only proven costs to be invoiced	Yearly	R20 000	1	R20 000
4	Provisional sum: Specialized, repairs, spares, etc. This line item makes provision for specialized activities, repairs and spares, using the information defined in	Yearly	R200 000	1	R200 000

	<p>Part 6 below - which is mandatory for completion by the bidder.</p> <p>The rates should be market-related at time of tender and only actuals will be invoiced for.</p> <p>Note: Provision for a total monetary value of R200 000 is made – which will be claimed for – using the information in Part 6.</p>				
5	<p>Meteocontrol Annual Subscription Payment</p> <p>The Contractor is required to make the yearly Meteocontrol Subscription Payment and submit the proof of payment to the Employer for reimbursement.</p> <ul style="list-style-type: none"> Please refer to C3 for detailed scope 	Yearly	R20 000	1	R20 000
	Sub-Total A (per year)				

Once off Corrective Maintenance

No	Item/ Service Description	Unit	Unit Price	Qty	Total Price
1	<p>Replacement of faulty inverters</p> <ul style="list-style-type: none"> Please refer to C3 for detailed scope 	EA	R	2	
2	<p>Replacement of faulty panels</p> <ul style="list-style-type: none"> Please refer to C3 for detailed scope 	EA	R	10	
3	<p>Upgrading of SCADA system</p> <ul style="list-style-type: none"> Please refer to C3 for detailed scope 	EA	R	1	
4	Provisional Sum for SAQA Accredited Training	EA	R100 000	1	R100 000
	Sub-Total B (once off)				

Labour rates and Mark-up

Any work not included under part 1 shall be deemed additional work or non-scheduled items and will be charged at the following rates:

Labour

Service information

Item	Description	Normal hours (R/hour)	After hours (R/hour)	After hours Sunday/public holiday (R/hour)
1	Technician/Artisan	R	R	R
2	Technician Assistant / Artisan Assistant	R	R	R
3	Specialist Fault-finding (on request)	R		

All rates to exclude vat. Subject to agreement between the Employer and the Contractor, the number of staff allocated to the contract may be increased/decreased to cater for special needs that may arise from time to time. Labour rates shall include all personnel insurance, holidays with pay, incentive bonuses. No labour shall be charged for travel or travelling. Labour time shall be calculated for the time spent on site.

Part 2 – After-hours Call-outs

Description	Rate	Qty/year	Total/ year
Call-out fee: Includes first hour on site and travelling fee (George Airport)	R	12	R
Technician after hours (normal hours rate)	R	96 hrs	R
Technician after hours (after hours rate)	R	48hrs	R
Technician assistant (normal hours rate)	R	96hrs	R
Technician assistant (after hours rate)	R	48 hrs	R
Labour Sub-Total C (per year)		R	

Callouts rate must include all required travelling and the **first hour on site**.

Part 3: Mark-up (third party procured items/services)

Cost	Mark-up
R 0.00 – R 9, 999.99	10%
R 10, 000.00 – R 49, 999.99	7%
Greater than R 50, 000.00	5%

Cost shall be net cost (excluding VAT) of parts delivered to site with all discounts deducted.

Contract value

Below is the guide that must be used in estimating the contract value. This amount must be reported as the Contract Value in the corresponding schedules. Tenderers are reminded that this amount is for illustrative purposes only and that ACSA will not be under any obligation to expend the full or any portion of this amount. Monthly contract expenditure will be strictly calculated according to the Activity Schedule as provided above.

Part 4: Solar Plant Maintenance - twelve-months maintenance expenditure

Description	Total (excluding VAT)
Preventative maintenance Sub-Total A	R
Labour cost Sub-Total C	R
12-months estimated contract value (Sub –Total C)	R

Part 5: Expenditure over 5-year contract including CPI yearly price adjustments (As per Statistic SA)

Description	Total (excluding VAT)
Sub-total C: year 1	R
Sub-total D: year 2 (year 1 plus CPI escalation*)	R
Sub-total E: year 3 (year 2 plus CPI escalation*)	R
Sub-total F: year 4 (year 3 plus CPI escalation*)	R
Sub-total G: year 5 (year 4 plus CPI escalation*)	R
Add Once off Corrective Maintenance Sub-Total B	R
*5-years estimated contract value Sub-Total H	R

***this amount to be carried over to Form of Offer and Acceptance.**

Contract values will be increased/decreased according to the current indices stipulated in Statistic SA – Consumer Price Indices- all income groups. **6% escalation should be used for illustrative purposes.**

BOQ Spares; Specialized activities, Spares, other unforeseen;

Below is the table to be used when claiming against the provisional sum allocated in line item 6 of Part 1 (Sub-total A).

Part 6

ITEM	UNIT	UNIT PRICE
PV modules 255Wp	EA	
PV Inverter (SMA 25kWp)	EA	
Cable ties (300mm) - 100 pack	EA	
Earth Cable (16mm ²)	EA	
Solar panel cleaning chemical	EA	
MC4 connectors (female)	EA	
MC4 connectors (male)	EA	
LV-50 A ABB MCB's (FDS)	EA	
DC cable 1x6mm	EA	
Equipotential bonding tape	EA	
Irradiation sensor	EA	
Module temperature sensor	EA	
Module temperature sensor	EA	

C3 Service information

DESCRIPTION OF THE WORKS

Employer's objectives

The objective is to maintain the serviceability of the Solar Plant at George Airport in a sustainable manner at the lowest operating and maintenance costs while ensuring compliance to general safety and aviation-related legislation.

The scope entails maintenance and repairs of the Solar Plant at George Airport. In brief, maintenance involves servicing, repairs, replacement, cleaning and system performance tests.

Servicing - performing routine preventive maintenance as prescribed by the original equipment manufacturer (OEM) specifications and ACSA's planned maintenance activities routes.

Repairs – responding to breakdowns, callouts and restoring the equipment to a safe working condition.

Replacement – changing of faulty components or obsolete components with an upgraded part or modification.

System Performance Test – Testing the system's performance as per the original equipment manufacturer's (OEM) specification.

Extent of the works

The *contractor* will be fully responsible for meeting all requirements in this document regarding the Works.

For each piece of equipment, all work will be carried out to standards as required by the Original Equipment Manufacturer (OEM) as well as any applicable governing law and/or regulations. Where OEM standards differ from those required by this document the more stringent requirement shall apply. The Contractor will be fully responsible for obtaining (and keeping up to date with) said requirements.

The *contractor* will be responsible for providing staff which are sufficiently skilled and qualified for successful execution of the work. The Contractor shall comply with the Minimum Staffing Schedule always – as stipulated in the Annexes. This may be amended by mutual arrangement between ACSA and the Contractor from time to time.

Commissioning

The *contractor* shall always remain responsible for ensuring that the compliment and maintenance regime is sufficient to maintain the service levels and system performance indicators as stipulated in the Annexes. Should the Contractor not be able to maintain adequate system performance indicators due to constraints caused by the Employer, it shall be timeously reported, in writing, to the Contract Manager. Refer to the Annexes for the required system performance indicators.

The *contractor* will ensure that his/her staff compliment is of a sufficient quantity to allow for uninterrupted supply of labour in the event of his/her staff taking sick leave, paid leave and will allow for all staff related eventualities.

The *contractor* shall continuously ensure that all staff is suitable, able and competent for the duties required of them. The Contractor shall continuously ensure that all staff is knowledgeable and trustworthy to perform maintenance activities/procedures for the Works. The Contractor shall further

ensure that any staff member reasonably suspected of partaking in criminal activities is immediately removed from site and his permit returned to and/or cancelled at the ACSA Permit Office.

All work shall be performed within the required Response Times – as stipulated in the Annexes. Any breakdown impacting on operations shall be attended-to until restored to good reliable condition. No breakdown may be left unattended or incomplete for the next day or shift. All repair work shall carry a defect free guaranteed for a period of 3 months after completion of work.

All work shall be charged according to the Activity Schedule. However, no labour shall be charged for any non-scheduled work, repair work or other work when carried out by a scheduled maintenance shift.

All spares will be charged according to the Activity Schedule. The Contractor shall ensure that replacement parts are effectively managed and disposed off in a safe manner.

The *contractor* will be responsible for holding all tools and/or special equipment that might be required for the execution of the works, either on site or on their premises to comply with the Response Time requirements of this contract. Any exclusion to the above should be clearly communicated in the returnable schedules when submitting the tender.

The *contractor* shall ensure that, unless a special arrangement is made with the Service Manager, all senior staff members and maintenance support staff is always immediately reachable via cell phone.

The *contractor* shall ensure that all maintenance staff are issued with uniforms that will comply with a minimum requirement as agreed with the Service Manager from time to time. Current airport requirements are safety shoes, work suit and a uniquely numbered reflective jacket (for easy identification via CCTV).

Location of the works

The Works are located at George Airport.

Training and technology transfer

The Contractor shall provide training to Employer's Personnel and O&M staff before commencement of any Inspection, Test and Commissioning activities. Trainings shall be based, both, on classroom and on-site during testing and commissioning.

The Contractor shall be responsible for providing all trainings material and the training material shall include minimum followings but not limited to:

- Plant description and design including single line diagram
- Inspection method
- Safety during inspection and commissioning
- Introduction to test types and measurement methods
- Test evaluation procedures and test result interpretation
- Trouble shooting procedures
- A checklist of what to do in case of system failure
- Emergency shutdown/isolation procedures
- SAQA accredited certificates for all trained personnel or a SAIPVA Green Card (8 Maintenance Personnel)

PROCUREMENT

Preferential procurement procedures Requirements

The *contractor* will respect OEM warranties to ACSA always when procuring spare parts, products, or 3rd party services. It will be the *contractor's* sole responsibility to ensure that OEM warranty requirements are adhered to always.

Where *contractor* use or quote on spare parts of a lower quality than recommended by the OEM, or parts not recommended by the OEM, this shall be clearly indicated to the Service Manager on the quotation. This also implies that the *contractor* must build relationships with the various key OEM's.

The *contractor* must adhere to all airport requirements regarding fire, health and safety when procuring replacement parts.

No casual labour (i.e., "off the street" labour) may be employed by the Contractor unless pre-arranged with ACSA. Whenever this is required, the *contractor* shall come to a suitable arrangement with ACSA regarding sourcing and screening of such individuals.

Subcontracting

No part of this Contract may be subcontracted unless with written approval from ACSA. ACSA shall be under no obligation to grant such approval. Should any part of this Contract be subcontracted, the *contractor* will be responsible for all Works (or failure to affect the Works) as if it was done so by the Contractor.

MANAGEMENT

Management of the works Particular / generic specifications

All work shall conform to all relevant SANS standards, OHS ACT regulations and all other legislation that might be relevant to this Contract and the execution thereof.

All work shall be carried out in accordance with prevailing industry norms and best practice and will always comply with OEM requirements.

Planning and programming

All maintenance work shall be scheduled, and a roster presented to the Service Manager at the end of the preceding month. Work shall be scheduled in a manner as not to interfere with any normal airport operations.

Normal airport operational hours shall be:

Mon - Thu - 06H30 – 19H00.

Friday - 06H30 – 20H00.

Saturday - 08H30 – 15H00.

Sunday - 08H30 – 19H30.

Normal working Hours shall be 07H00-18H00

As a **minimum** requirement, the *contractor* shall roster **scheduled** preventative maintenance activities.

Maintenance teams will attend to scheduled preventative maintenance, non-scheduled maintenance, and breakdown maintenance. The *contractor* must ensure that no scheduled maintenance work is carried over to the following week.

All Preventative Maintenance shall be scheduled, at least, to the requirements of the annexures (The *contractor* must ensure that sufficient allowances for all these items are made with his/her pricing in the Activity Schedule.)

Methods and procedures

The *contractor* must accept and respect the fact that the Airport is continuously undergoing construction and improvement and that a variety of stakeholders are involved in ACSA's business. Therefore, within reason and with prior arrangement with the *contractor*, ACSA might require the following from time to time:

- Assisting with emergency repairs
- Assisting with airport operations Re-scheduling of work to accommodate other contractors.
- Allowing access and aiding OEM suppliers to correct defects on equipment and/or systems.
- Pointing out services to consultants or other contractors
- Providing access to other contractors
- Attending co-ordination and planning meetings
- Removing rubble and/or equipment from site relating to this contract
- Training of ACSA operators and/or technicians
- Providing of system data and/or statistics to ACSA
- Recommending improvements on maintenance procedures
- Recommending improvements on operational procedures
- Co-operating with ACSA Security relating to security issues.

The ACSA Service Manager may instruct operational and works procedures to the Contractor as might be required from time to time. The *contractor* will instruct his/her staff accordingly and implement measures to ensure that these procedures are strictly adhered to.

Quality plans and control

All work must be executed in accordance with prevailing industry norms and standards relating to quality. In this regard, the *contractor* will be expected to draft quality plans for the Service Manager

from time to time. Emphasis must be on improving system reliability and on ensuring that rostered maintenance work is indeed performed as and when required.

Environment

The *contractor* will keep noise and dust levels to a minimum. At no time, shall his/her work result in nuisance, interference, or danger to the public or any other person working at the Airport.

At no time, shall the Contractor:

- allow any pollutive or toxic substance to be released into the air or storm water systems.
- interfere with, or put at risk, the functionality of any system or service.
- cause a fire or safety hazard.

Format of communications

Work instructions, daily check sheets, monthly maintenance reports, breakdown reports, exception reports, etc. will all be in a format as agreed with the Service Manager.

Key personnel

A schedule of key personnel to this Contract (as per the Schedules) will be provided to the *Service Manager* at commencement of this Contract. This will, as a minimum, include all persons from technician level to management level. For the full duration of this Contract, none of these persons will be replaced by a person of lesser ability or qualification. All on-site staff leaves shall be reported and agreed with the *Service Manager*.

Also refer to the Service Level Agreement in the Annexure B for additional information.

Management meetings

The *contractor* will be expected to attend meetings relating to maintenance, operations, contract management and other issues that may arise from time to time. As far as is practicable, the *contractor* will make all required persons available for these meetings. The *contractor* shall not submit claims for payment for staff attending any of these.

The meeting shall be site specific. The medium in which the meetings will be conducted will be discussed with the site-specific Site Manager on contract commencement.

Electronic payments

The Contractor should arrange with ACSA's finance department for making all payments electronically.

Daily records

The *contractor* shall keep accurate daily records of staff attendance, maintenance work, safety inspections and exception reports. Records shall be available for scrutiny by the *Service Manager* at any time. All records shall be in a format as agreed with the Service Manager.

Monthly reports

When invoicing, the *contractor* shall ensure that all required reports for the corresponding month are attached to the monthly invoice. All reports would have undergone a approval process and have a Employer signature – prior to submission as part of the invoice towards payment. This will include monthly reports on:

Service information

1. system availability (averaged per week)
2. maintenance work (including % of scheduled maintenance work completed, against the approved plan for the services)
3. changes to the original approved maintenance plan
4. Asset register up to date including equipment data.
5. Outstanding maintenance issues
6. Ancillary information:
 - Inventory management
 - Incidents and accidents
 - Toolbox / safety talks
 - Proof of attendance
 - etcetera

The *contractor* shall keep copies of all reports and records for at least 5 years. All reports shall be in a format as agreed with the *Service Manager* from time to time.

Permits

The *contractor* shall not be compensated for costs relating to ACSA required permits, or for labour/time spent in obtaining it. An allowance must be made in the Activity Schedule in this regard.

The *contractor* must ensure that he/she is, always familiar with ACSA’s safety and security requirements relating to permits for no work to be delayed as a result thereof. This will include the application process for permits.

Note that (within reason) the Contractor will have no claim against ACSA if a permit request is refused.

The following table is not all inclusive, but is provided for illustration purposes:

Permit	Required by/for	Department
AVOP – Airside Vehicle Operator permit	All drivers of vehicles on airside	ACSA Safety
Airside Vehicle Permit	All vehicles that enter airside	ACSA Safety
Basement Parking permit	All vehicles allowed to enter the delivery basement	ACSA Parking
Personal permit	All persons employed on the airport	ACSA Security
Cell phone permit	All persons taking cell phones to airside	ACSA Security
Lap top permit	All persons taking lap top computers to airside	ACSA Security
Camera permit	All persons taking cameras or camera equipment to airside	ACSA Security
Hot Works Permit	All welding and/metal cutting work	ACSA Safety

Proof of having attended the airside induction training course is required for all personal permit applications. Persons applying for an AVOP must provide proof of having attended an AVOP course. Fees are levied for these courses. Fees are further levied for all permit renewals and refresher courses - where applicable.

Proof of compliance with the law

The Service Manager may at any time request from the *contractor* reasonable proof that the Contractor is following a law or regulation.

Insurance provided by the employer.

Refer to General Conditions of Contract

Health and safety

Health and safety requirements and procedures

The Service Manager shall be entitled to fine the *contractor* an amount of R2000.00 for each non-conformance to Health and Safety matters. This shall not transfer any of the Contractor's responsibilities in this regard to the Employer by any means.

The *contractor* shall be fully responsible for compliance to the Occupational Health and Safety Act for all persons, equipment and installations relating to this Contract. The Contractor is expected to sign the undertaking in this regard as attached in the annexes.

It shall be the *contractor's* responsibility to ensure that all relevant labour and safety legislation is adhered to in rostering staff.

All persons on company premises shall obey all health and safety rules, procedures, and practices. NO SMOKING signs and the prohibition of the carrying of smoking materials in designated areas shall always be obeyed. A copy of the Safety Rules booklet is available on request from the ACSA Safety Department.

All the applicable requirements of the Occupational Health and Safety Act (1993) and Regulations and any amendments thereto, shall be met. Where the OHS, Act prescribes certification of competency of persons performing certain tasks, proof of such certification shall be provided to the Service Manager.

The *contractor's* Workmen's Compensation fees must be up to date. A copy of the Contractor's WCA registration shall be produced on request.

The following areas in the company are declared as "HOT WORKS PERMIT" areas:

All airside areas

All basement areas

All areas accessible to the public

All enclosed areas

The terminal building.

Any process in the above-mentioned areas involving open flames, sparks, or heat shall be authorised by the issue of a permit to work - obtainable from the ACSA Safety department. Any work done under the protection of a permit to work shall be in strict compliance with every prescription regarding the permit.

Safety equipment shall be used where applicable (e.g., safety, goggles, boots, harness, etc.) The Contractor, at his/her own expense shall provide such equipment, for his/her employees. The Contractor shall apply the necessary discipline and control to ensure compliance by his workers.

All *contractor's* must ensure that his/her employees are familiar with the existing emergency procedures and must co-operate in any drills or exercises, which might be held. Emergency / fire equipment and extinguishers shall not be obstructed at any time.

No person shall perform an unsafe / unhygienic act or operation whilst on Company premises.

No unsafe/dangerous equipment or tools may be brought onto or used on Company premises. The Company reserves the right to inspect all equipment/tools at any time and to prevent/prohibit their use, without any penalty to the Company and without affecting the terms of the Contract in any way.

The Company reserves the right to act in any way to ensure the safety/security of any persons, equipment or goods on its premises and will not be liable for any costs or loss evoked by the action. This includes the right to search all vehicles and persons entering, leaving or on the premises and to inspect any parcel, package, handbag and pockets. Persons who are not willing to permit such searches may not bring any such items or vehicles onto the premises.

The Contractor shall maintain good housekeeping standards in the area where he is working for the duration of the contract.

At no time, must the *contractor* interfere with, or put at risk, the functionality of any Sprinklers and/or fire prevention system. Care must also be taken to prevent fire hazards.

The *contractor* is required to issue all staff with standard uniforms. This shall as a minimum include safety shoes, overalls (clearly marked with Contractor's company logo) and numbered reflective jackets (as per Airport requirements). All costs relating to uniforms shall be for the Contractor's account.

Cell phones and two-way radios

Use of cell phones on airside is **not** permitted unless the user is in possession of an appropriate Airport permit for the device. Cell phone permit issuing authority lies with the ACSA Security department.

The *contractor* will **not** be allowed to use two-way radios at the Airport unless these radios are of the type, model and frequency range as approved by the ACSA IT department.

Protection of the public

The *contractor* shall take special care in order not to harm or endanger the public in any way. Work shall be sufficiently hoarded and guarded to safeguard children and the public from injury relating to machinery, work or other.

Barricades and lighting

Where hoarding, barricades or lighting is required in the execution of the Works, the *contractor* shall provide same at his/her own expense. Hoarding, barricades, and lighting shall comply with industry accepted norms and standards and may not be used for purposes of advertising or any other purpose than safeguarding the Works.

OEM manuals

The *Contractor* shall provide O&M Manuals and Record Drawings in hard copy and electronically for any items supplied to the *Employer* during the execution of this *Contract*. The *Contractor* shall provide O&M Manuals, Record Drawings and all other information necessary to enable the healthy, safe and efficient operation of the Solar Power Plant. The *Contractor* shall electronically scan any manufacturer's literature not already in electronic format. The *Contractor* shall modify and update operating details to reflect the agreed commissioning results.

Drawings

The creation, issuing and control of all Engineering Drawings will be in accordance to the latest revision of the *Employer's* standard

Layout and Typography

Ensure that every document complies with the following font specifications:

- Font Colour: Black
- Main Headings Font Type: Arial, Bold, Capital Letters
- Main Heading Font Size: 12pt
- Sub Headings Font Type: Arial, Bold, Title Case
- Sub Headings Font Size: 11pt
- Body Font Type: Arial, Sentence Case i.e., only the first letter of the first word is a capital letter.
- Body Text Font size: 11pt
- Line Spacing: 1.5 line spacing
- Margins: standard
- Alignment: full justification to be used
- Paragraphing: one line skip between paragraphs
- Pagination: centred page numbers (about 0.5 inches from bottom)
- Indentations: standard tab for all paragraphs (about 0.4 to 0.5 inches)

Documents for providing the Works

All Documentation shall be composed in accordance with International Standard IEC 62446, Grid connected photovoltaic systems – Minimum requirements for system documentation, commissioning tests and inspection.

All documents supplied by the Contractor shall be subject to ACSA's approval. The language of all documentation shall be in English. Metric/SI units shall be used throughout the Contractors' Documentation. The Contractor shall include the Employer's drawing number in the drawing title block.

- In cases where modifications or additions are required on Site, a Field Engineering Query will be submitted by the Contractor. The Project Manager will issue the required instruction and documentation. The Contractor will neatly mark up, on the latest edition and revision of such documentation as may be impacted, all field changes undertaken in the course of the construction and these mark-ups will be submitted as part of "As Built" documentation at the final hand over.

ANNEXES to C3 (Service information)

Title	Annex number
Schedule of Equipment	Annex A
Service Level Agreement	Annex B
OHS Act Appointment by Contractor	Annex C
Environmental Terms and Conditions	Annex D
Schedule of Tools and Special Equipment	Annex E
Contractor's Plan / Contractor start-up proposal	Annex F
Resource proposal	Annex G
Suggested Maintenance Programme	Annex H
Health and Safety Requirement	Annex I

Annexure A
Schedule of equipment

Solar Modules (3000 Modules) Canadian Solar

Solar– Polycrystalline Solar panel – 255Wp. The Manufacturing of the 255Wp panels currently installed on site have be discontinued. An alternative solution must be adopted.

Model	TSM-250PC/PA05
Cell Type	156 x 156 Multi Crystalline Silicon, 60pcs
Rated Power	255Wp
Tolerance	0 to +3%
Rated Voltage	31.7V
Rated Current	8.52A
Open Circuit Voltage	38.8V
Short Circuit Current	9.09A
Operating temp.	-40 to +85 deg. Celcius
Certification	IEC 61215, IEC 61730, Safety Class II @ 1000V, CE
Length	1 650mm
Width	992mm
Depth	40mm
Weight	19.0kg

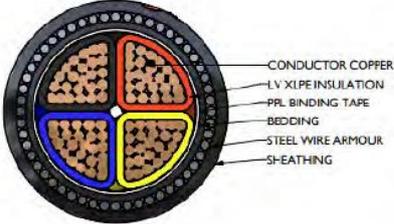


Inverters (30 Inverters) SMA STP 25000TL

Model	SMA TRIPOWE 25000TL
Maximum PV Generator input Power	25 550kW
Number of MPPT	2
MPP Voltage range	390-800 V
Maximum DC Voltage	1000
Maximum DC Current	(33.0A/33A)
Rated Output Power	25KW
Maximum apparent output power	25KVA
Nominal mains Voltage	400V
Maximum AC current (A)	36,2A
Mains Nominal frequency/range	50Hz / 60Hz (45 - 67 Hz)
Maximum Efficiency	98%
Operating Ambient Temp	-25 to +60 deg. Celcius
Dimensions (L X W X D)	665 X 690 X 265



Wiring and accessories



Solar cables 6-10mm2

MC 4 Connectors



Lighting protection

DEHN AC and DC SPD or similar (if necessary)



CABLE LISTING OF INSTALLED CABLES		
	DESCRIPTION	QUANTITY
1	70mm ² x 3 AL Table 17 PILC 6.35/11kV	300m
2	185mm ² x 4 AL Cable	202m

SMA Cluster Control



Panel Back view



Panel front view



The PV modules are mounted on the Schletter FS Duo System with the consisting of the following components:

- FG pile driven foundation posts;
- Steel head (mounted to the pile driven foundation);
- Girders (connected to the head);
- Purlin fastening plates;
- Fasteners (various);
- Purlins; and
- Module clamps (end and middle).

All steel structural components are galvanized.

FIELD DISTRIBUTION BOARD

The field distribution are polyethylene double door ground mounted boxes. A 3-phase low voltage bus-bar with cable connection to the step-up transformer low voltage bus-bar is installed on the one side of the box. 50A T/P ABB Low Voltage (LV) 3 phase Circuit breakers are mounted behind the second door connecting the inverters to the field distribution Box.

LV/MV SUB-STATION AND RING MAIN UNIT (RMU)

- A metal enclosed 1000 KVA, 400 V / 11 kV TMC Cast Resin Transformer step-up transformer with a 11 kV Medium Voltage SCHNEIDER RINGMASTER Circuit Breaker (RMU) installation.
- The LV bus-bar is equipped with a main transformer circuit breaker that isolates the LV bus-bar from the transformer and 200A fuses connected to the field distribution boards. LV metering is installed on the LV bus-bar using 2000/5 class 0,5 metering CT's.
- The RMU is tied in the existing 11 kV busbar via a 11kV PV Incoming Circuit Breaker at the main Airport Substation. For general and specific technical information on the TMC Cast Resin Transformer and SCHNEIDER RINGMASTER RMU

ANNEX B

SERVICE LEVEL AGREEMENT- George Airport Specific

Operational hours

Normal airport operational hours shall be as detailed below for the year but will be confirmed/amended by the Service Manager from time to time. The *contractor* must allow for sufficient after-hours work for scheduled work not to interfere with airport operations.

Normal airport operational hours shall be.

- Mon to Thu 06H30 – 19H00.
- Fri 06H30 – 20H00,
- Sat 07H30 – 15H00.
- Sun 07H30 – 19H30

Normal Working Hours shall be 07H00 – 18H00 (Mon to Sun)

Minimum Staffing Schedule

The *contractor* shall continuously ensure that all staff is suitable, able and competent for the duties required of them. Staff must have electrical experience related to the scope of work. The *contractor* shall continuously ensure that all staff is knowledgeable on all equipment relating to Solar Plant Maintenance.

Detail requirements regarding staff

The *contractor* shall continuously ensure that all staff is suitable, able, and competent for the duties required of them. Staff must have mechanical experience. The *contractor* shall continuously ensure that all staff is knowledgeable on all equipment relating to Solar Plant Maintenance.

For all staff and senior personnel dedicated to this contract, the following must be submitted in detail:

- Full Names**
- Proof of qualifications and work experience on maintaining similar equipment system.**

Minimum qualifications and experience of staff:

Technician

- At least Technician with NQF level 6 Diploma or equivalent in Electrical Engineering
- (or OEM qualification related to the scope of this contract)
- The ability to conduct investigations and supervise/ manage a maintenance team
- The ability to prepare comprehensive reports, sign off all maintenance records and verify that the systems are safe and fit for use on monthly basis
- At least 5 years working experience in Solar plant maintenance
- Representative for the Contractor regarding: attendance of scheduled meetings with Site Manager / Employer's stakeholders, contract management, preparing and submission of monthly reports/incident reports to the Site Manager.

Electrician/ Artisan

- At least a SAQA Accredited Trade Test

Service information

- SAPVIA Green Card
- Must be in permanent employ of the company
- The ability to prepare comprehensive reports, sign off all maintenance records and verify that the systems are safe and fit for use on monthly basis
- At least 3 years working experience in Solar plant maintenance

Technician’s assistant

- Must be in permanent employ of the company
- Properly trained in category of work that he is required to perform
- Properly trained and have experience working Solar plant maintenance.

The Contractor must maintain the following minimum staff available when required and should price accordingly:

Skill	Quantity	Frequency
Technician/Artisan	1	Planned and Unplanned Maintenance
Technician’s Assistant	1	Planned and Unplanned Maintenance

The *contractor* must have additional resources available to attend to lengthy breakdowns or breakdowns of a specialised nature.

It shall be the *contractor’s* responsibility to ensure that all relevant labour and safety legislation is adhered to in rostering staff.

The *contractor* shall schedule staff to complete the preventative maintenance schedule accordingly. The Tenderer must ensure that sufficient allowance for all these items is made for in his/her pricing in the Activity Schedule.

Response Times

Description	Benchmark
Availability	Notwithstanding the closure time required for breakdowns requiring spare part(s) or a second level of response. <ul style="list-style-type: none"> • Solar Plant availability shall be kept at or above, as per the CMMS definition (99.5%) overall per month.
Response time	All breakdowns shall be responded to within: <ul style="list-style-type: none"> • 4 hours from the time the Contractor is notified of the breakdown - during normal working hours • 24 hours from the time Contractor is notified of the breakdown – after normal working hours
Closure Duration	All breakdowns shall be resolved within: <ul style="list-style-type: none"> • 2 hours from the time the Contractor arrives on site – during normal working hours • 4 hours from the time the time Contractor arrives on site -after normal working hours
% of planned maintenance completed per month	100% of all planned maintenance shall be completed as per the defined frequency

Total breakdowns requiring a second level of response (the intervention of a Specialist or higher expertise)	<ul style="list-style-type: none"> All breakdowns requiring a second level of response shall be resolved within 24 hours (subject to the lead time of required spares) and shall be limited to a total of 3 occurrences per month.
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Human resources

The following minimum standards shall apply to resourcing:

1. For all callouts: Considering current airport access control infrastructure and security arrangements and considering the physical layout of the Airport, the *Contractor* shall ensure enough and effective positioning of staff to meet or exceed the Service Level Agreement.
2. The rostered maintenance staff compliment shall be sufficient to perform all required preventative maintenance for each frequency.
3. During operational hours, the *Contractor* shall respond in accordance with the S.L.A to successfully attend to breakdowns.
4. During operational hours, the *Contractor* shall have at least one senior person who will respond to the call outs who:
 - a) Is suitably qualified and experienced to resolve breakdowns and system stoppages.
 - b) Is suitably qualified and experienced to work on the *Affected Property*
 - c) Can successfully interact with OEM personnel.
 - d) Is of a level of seniority to successfully direct and manage *Contractor* staff and possible sub-contractors during system breakdowns and can successfully interact with airport operational staff and airport management.

Staff qualifications

It will always remain the *Contractor's* responsibility to ensure that staff is suitably qualified and experienced for the duties expected of them. Further all applicable legislative requirements must be adhered to in rostering staff.

The *Employer* reserves the right to verify all personnel employed under this contract. Furthermore, ACSA reserves the right to order that personnel that are not adequately qualified or suited for this contract are removed from the site.

The *Contractor* must comply and respond to the following:

*Compliance to benchmarks will be calculated on a weekly average except on repairs that will be calculated on a monthly average. The total operational hours for the respective week/month shall be used as a guide. The only exceptions will be stoppages due to mains electricity supply failures and/or where the *Employer* has refused system repairs and/or adequate access to the site.

Detail on how calls will be dispatched will be discussed on site with the *Service Manager* .

*Availability will be calculated on a monthly average. This will include all stoppages, even if such stoppages are not under the *Contractor's* control. The only exceptions will be stoppages due to mains electricity supply failures and/or where the *Employer* has refused system repairs and/or adequate

access to the site. The total operational hours for the respective week/month shall be used as a measure for calculating availability. All other benchmarks above will be calculated on a weekly average. Reports will be provided by the ACSA Computerised Maintenance Management System (CMMS). The *Contractor* is required to verify the CMMS availability figures monthly for a specific month by no later than the 5th of the new month.

Airport Operational Hours			
	Start	Stop	Hours
Monday	00H00	24H00	24
Tuesday	00H00	24H00	24
Wednesday	00H00	24H00	24
Thursday	00H00	24H00	24
Friday	00H00	24H00	24
Saturday	00H00	24H00	24
Sunday	00H00	24H00	24
Total			168
Total operational hours per week			168
Total operational hours per month			672

Defect-free liability period

Defect-free liability period – corrective or breakdown maintenance	The defect-free period will be no less than 90 days.
Defect-free liability period – project work	The defect-free period will be no less than 12 months.

Key Performance Indicators (X20) & Low service damages (X17)

The amounts listed in the table below will not be subjected to any future contract escalation and exclude VAT. Low performance damages will be applied as per NEC 3 -TSC using the following table. Low service damages are limited to a maximum of **25% of the calculated cost/month**.

KPI & Low Service Damage table

KPI	Low service damage Description	Amount
Reliability engineering specifications is the minimum acceptable targets to achieve	Where a repair cannot be completed the same day due to the unavailability of a spare part.	R 2 500.00 (Unless the unavailability of the spare part was agreed to by the <i>Service Manager</i> or his/her duly authorised representative).
	Leaving a breakdown unattended or incomplete for another day or shift Not meeting call response and closure time SLA.	R 2 000.00 (Unless the delay in repair was agreed to by the <i>Service Manager</i> or his/her duly authorised representative or unless the required spares are not available to complete the work)
Adherence to industry, regulatory and legislative requirements for: maintenance, quality of work, troubleshooting, performance optimization and asset integrity. Regulatory and legislative compliance activities must be performed by competent individuals as specified in the “act”	Non-adherence to agreed industry requirements, all applicable regulatory- and legislative requirements. For example: a Safety infringement - leaving moving machinery exposed; or a non-competent individual performs regulatory and legislative activities; etcetera.	R 5 000.00 per Non-compliance or infringement.
Availability of all infrastructure under the <i>service</i> of this contract shall be maintained at a minimum of 95% overall per month. The <i>Contractor</i> shall refer to the schedule of equipment in Annexure A and report on the monthly availability of each equipment group. The <i>Contractor's</i> availability reports shall be aligned with the availability reports produced by the CMMS of the <i>Employer</i> .	Availability not meeting requirements. <ul style="list-style-type: none"> • Availability = >99.5% = price + 0% • Availability = >95% to < 99.5% = price – 0.5% • Availability = >90% to 95% = price – 1% • Availability = >88% to 90% = price – 1.5% • Availability = <88% = price – 2% • Availability = <85% = price – 5% 	The % will use the monthly service cost (per equipment group in C2 Part 1, Subtotal A) – in determining the amounts in question: <ul style="list-style-type: none"> • Availability = >99.5% = price + 0% • Availability = >95% to 99.5% = price – 0.5% • Availability = >90% to 95% = price – 1% • Availability = >88% to 90% = price – 1.5% • Availability = <88% = price – 2% • Availability = <85% = price – 5% Mitigation for below target availability can be achieved if the contractor submits a detailed root

		cause analysis report with recommendations and repair cost estimates - to the Service Manager and the repair delays includes additional procurement processes and spare delivery lead times.
<p>Issue of monthly reports outlining:</p> <ul style="list-style-type: none"> • Inspections performed to specified asset • Preventative maintenance to specified asset. • Materials and labour used per asset. • Down-time recorded and mean-time-to-repair and asset availability. • Technical root causes analysis for all failures (corrective maintenance) • Inventory on-hand and cost • Materials/components scrapped 	Monthly reporting not issued timeously at specified quality = R500	Monthly reporting not issued timeously at specified quality = R500
Monthly report that confirms review and suitability of safety file, risks and treatment, and work-method	Monthly reporting not issued timeously at specified quality = R500	Monthly reporting not issued timeously at specified quality = R500
The Contractor shall at all times maintain the minimum qualification and experience of staff as detailed in this Service Level Agreement	Failure to comply to qualification and experience when inspection performance is performed.	R500 per resource
The Contractor shall ensure Cleanliness and housekeeping during the <i>Service</i>	<ul style="list-style-type: none"> • Identification / notification of cleanliness and housekeeping non-compliance. • Corrective action not rectified within 3 hours of notification. 	<ul style="list-style-type: none"> • R500 per identification / notification. • R1 000 per corrective action not rectified.
The Contractor must attend scheduled contractual meetings (i.e. Risk Reduction meeting; etcetera). The duly authorised personnel listed in the contract must attend contractual meeting accordingly.	Non-attendance of meetings	R1 000 per occurrence
<p>Defect free liability period – corrective or breakdown maintenance.</p> <ul style="list-style-type: none"> • The defect free period will be no less than 90 days. 	Non-compliance to defect free liability period	R1 000 per occurrence

Continuous Improvement Program

It is hereby required that the *Contractor* ensures that a continuous improvement program is in place. For example, the criteria below may be used but not only limited to the items mentioned below.

1. An improvement in the availability of systems
2. An improvement on the minimization of spares holding (for example by increasing Mean Time to Failure of components)
3. Etc.

As mentioned above this list is not comprehensive and it is only used for illustrative purposes. Upon implementation of the contract the Employer and the Contractor shall agree targets for the continuous improvement program.

It is important to note that continuous improvement will only apply to those items that meet minimum benchmarks. Continuous improvement initiatives shall be reviewed every quarter or when deemed necessary by the *Employer* or the *Contractor*.

MAINTENANCE RECORD SHEETS

When maintenance is performed, record sheets must be completed and signed off by both the Technician/Electrician and an **ACSA representative**. Quarterly progress reports should be submitted timeously by no later than the 2nd week post the completion of the works. Reference must be made of all completed PM's and WO's.

These record sheets must be stored for the duration of the contract and should be available for inspection at any time. **The lack of complete history files will result in immediate cancellation of the contract.**

All record sheets, job cards, history reports etc. will stay the property of ACSA and should be available on request. At the end of the contract period a complete set of documentation must be handed over to ACSA.

The contractor shall further provide copies of these record sheets to the ACSA contract manager by the fifth day of every quarter. **No invoice will be paid out if record sheets are not handed in.**

Quarterly reports

When invoicing, the Contractor shall ensure that all required reports for the corresponding service or repair are attached to their invoices. This will include information on:

- System availability (averaged per week)
- Maintenance work (including % of scheduled maintenance work completed)
- Maintenance plan for the next quarter
- Asset register up to date including equipment data
- Outstanding maintenance issues
- Findings from the previous service
- Recommended improvement opportunities

The contractor shall keep copies of all reports and records for at least five (5) years. All reports shall be in a format as agreed with the Service Manager from time to time.

Failure Reports

After every incidence or failure which warrants a call out, the contractor shall provide the Employer with a comprehensive equipment failure report. The report should at a minimum describe the incidence, the root cause resulting with the failure, the intervention undertaken to return the solar plant and associated control infrastructure to service, and all future actions that need to be undertaken to return the unit to a healthy state/condition

**OCCUPATIONAL HEALTH AND SAFETY AGREEMENT
IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH & SAFETY ACT (ACT 85 OF 1993) &
CONSTRUCTION REGULATION 5.1(k)**

OBJECTIVES

To assist Airport Company South Africa (ACSA) to comply with the requirements of:

1. The Occupational Health & Safety (Act 85 of 1993) and its regulations and
2. The Compensation for Occupational Injuries & Diseases Act (Act 130 of 1993) also known as the (COID Act).

To this end an Agreement must be concluded before any contractor/ subcontracted work may commence

The parties to this Agreement are:

Name of Organization: AIRPORTS COMPANY SOUTH AFRICA SOC Limited
Physical Address: George Airport Old Mossel Bay Road George 6530

Hereinafter referred to as "Client"

Name of organisation:
Physical Address:

Hereinafter referred to as "the Mandatary/ Principal Contractor"

MANDATORY'S MAIN SCOPE OF WORK

To be completed by Contractor

GENERAL INFORMATION FORMING PART OF THIS AGREEMENT

1. The Occupational Health & Safety Act comprises of SECTION 1-50 and all un-repealed REGULATIONS promulgated in terms of the former Machinery and Occupational Safety Act No.6 of 1983 as amended as well as other REGULATIONS which may be promulgated in terms of the Act and other relevant Acts pertaining to the job in hand.
2. "Mandatory" is defined as including as agent, a principal contractor or a contractor for work, but WITHOUT DEROGATING FROM HIS/HER STATUS IN HIS/HER RIGHT AS AN EMPLOYER or user of the plant.
3. Section 37 of the Occupational Health & Safety Act potentially punishes Employers (PRINCIPAL CONTRACTOR) for unlawful acts or omissions of Mandatories (CONTRACTORS) save where a Written Agreement between the parties has been concluded containing arrangements and procedures to ensure compliance with the said Act BY THE MANDATARY.
4. All documents attached or refer to in the above Agreement form an integral part of the Agreement.
5. To perform in terms of this agreement Mandatories must be familiar and conversant with the relevant provisions of the Occupational Health & Safety Act 85 of 1993 (OHS Act) and applicable Regulations.
6. Mandatories who utilize the services of their own Mandatories (contractors) must conclude a similar Written Agreement with them.
7. Be advised that this Agreement places the onus on the Mandatory to contact the CLIENT in the event of inability to perform as per this Agreement.
8. This Agreement shall be binding for all work the Mandatory undertakes for the client.
9. All documentation as per the Safety checklist including a copy of the written Construction Manager appointment in terms of construction regulation 8, must be submitted 7 days before work commences.

THE UNDERTAKING

The Mandatory undertakes to comply with:

INSURANCE

1. The Mandatory warrants that all their employees and/or their contractor's employees if any are covered in terms of the COID Act, which shall remain in force whilst any such employees are present on the Client's premises. A letter is required prior commencing any work on site confirming that the principal contractor or contractor is in good standing with the Compensation Fund or Licensed Insurer.
2. The Mandatory warrants that they are in possession of the following insurance cover, which cover shall remain in force whilst they and /or their employees are present on the Client's premises, or which shall remain in force for that duration of their contractual relationship with the Client, whichever period is the longest.
 - Public Liability Insurance Cover as required by the Subcontract Agreement.
 - Any other Insurance cover that will adequately makes provision for any possible losses

and/or claims arising from their and /or their Subcontractors and/or their respective employee's acts and/or omissions on the Client's premises.

COMPLIANCE WITH THE OCCUPATIONAL HEALTH & SAFETY ACT 85 OF 1993

The Mandatary undertakes to ensure that they and/or their subcontractors if any and/or their respective employees will always comply with the following conditions:

1. All work performed by the Mandatary on the Client's premises must be performed under the close supervision of the Mandatary's employees who are to be trained to understand the hazards associated with any work that the Mandatary performs on the Client's premises.
2. The Mandatary shall be assigned the responsibility in terms of Section 16(1) of the OHS Act 85 of 1993, if the Mandatary assigns any duty in terms of Section 16(2), a copy of such written assignment shall immediately be forwarded to the Client.
3. The Mandatary shall ensure that he/she familiarise himself/herself with the requirements of the OHS Act 85 of 1993 and that s/he and his/her employees and any of his subcontractors comply with the requirements.
4. The Mandatary shall ensure that a baseline risk assessment is performed by a competent person before commencement of any work in the Client's premises. A baseline risk assessment document will include identification of hazards and risk, analysis and evaluation of the risks and hazards identified, a documented plan and safe work procedures to mitigate, reduce or control the risks identified, and a monitoring and review plan of the risks and hazards.
5. The Mandatary shall appoint competent persons who shall be trained on any Occupational Health & Safety aspect pertaining to them or to the work that is to be performed.
6. The Mandatary shall ensure that discipline regarding Occupational Health & Safety shall be strictly enforced.
7. Any personal protective equipment required shall be issued by the Mandatary to his/her employees and shall be worn at all times.
8. Written safe working practices/procedures and precautionary measures shall be made available and enforced and all employees shall be made conversant with the contents of these practises.
9. No unsafe equipment/machinery and/or articles shall be used by the Mandatary or contractor on the Client's premises.
10. All incidents/accidents referred to in OHS Act shall be reported by the Mandatary to the Provincial Director: Department of Labour as well as to the Client.
11. No user shall be made by the Mandatary and/or their employees and or their subcontractors of any of the Client's machinery/article/substance/plant/personal protective equipment without prior written approval.
12. The Mandatary shall ensure that work for which the issuing of permit is required shall not be performed prior to the obtaining of a duty completed approved permit.
13. The Mandatary shall ensure that no alcohol or any other intoxicating substance shall be allowed on the Client's premises. Anyone suspected to be under the influence of alcohol or any other intoxicating substance shall not be allowed on the premises. Anyone found on the premises suspected to be under the influence of alcohol or any other intoxicating substance shall be escorted off the said premises immediately.

14. Full participation by the Mandatary shall be given to the employees of the Client if and when they inquire into Occupational Health & Safety.

FURTHER UNDERTAKING

1. Only a duly authorised representative appointed in terms of Section 16.2 of the OHS Act is eligible to sign this agreement on behalf of the Mandatary. The signing power of this representative must be designated in writing by the Chief Executive Officer of the Mandatary. A copy of this letter must be made available to the Client.
2. The Mandatary confirms that he has been informed that he must report to the Client's management, in writing anything he/she deems to be unhealthy and /or unsafe. He has versed his employees in this regard.
3. The Mandatary warrants that he/she shall not endanger the health & safety of the Client's employees and other persons in any way whilst performing work on the Client's premises.
4. The Mandatary understands that no work may commence on the Client's premises until this procedure is duly completed, signed and received by the Client.
5. Non-compliance with any of the above clauses may lead to an immediate cancellation of the contract.

ACCEPTANCE BY MANDATARY

In terms of section 37(2) of the Occupational Health & Safety Act 85 of 1993 and section 5.1(k) of the Construction Regulations 2014,

I, (**Identity Number:**), a duly authorised 16.2 Appointee acting for and on behalf of undertake to ensure that the requirements and the provision of the OHS Act 85 of 1993 and its regulations are complied with.

Mandatory – WCA/ Federated Employers Mutual No.....

Expiry date

SIGNATURE ON BEHALF OF MANDATARY
(Warrant his authority to sign)

DATE _____

SIGNATURE ON BEHALF OF THE CLIENT
AIRPORT COMPANY SOUTH AFRICA

DATE _____

ANNEX D

**ACSA SERVICE & MAINTENANCE CONTRACTORS
ENVIRONMENTAL TERMS AND CONDITIONS TO COMMENCE WORK - EMS 048**

The following Environmental Terms and Conditions shall be strictly adhered to by all contractors when conducting works for ACSA. ACSA shall audit contractor activities, products, and services on an ad hoc basis to ensure compliance to these environmental conditions. Any pollution clean-up costs shall be borne by the contractor.

ISSUE	REQUIREMENT
Environmental Policy	ACSA's Environmental Policy shall be communicated, comprehended and implemented by all ACSA appointed contractor staff.
Storm water, Soil and Groundwater Pollution	<ul style="list-style-type: none"> • No solid or liquid material may be permitted to contaminate or potentially contaminate storm water, soil or groundwater resources. • Any pollution that risks contamination of these resources must be cleaned-up immediately. Spills must be reported to ACSA immediately. Contractors shall supply their own suitable clean-up materials where required. • Washing, maintenance and refuelling of equipment shall only be allowed in designated service areas on ACSA property. It is the contractor's responsibility to determine the location of these areas. • No leaking equipment or vehicles shall be permitted on the airport.
Air Pollution	<ul style="list-style-type: none"> • Dust: Dust resulting from work activities that could cause a nuisance to employees, or the public shall be kept to a minimum. • Odours and emissions: All practical measures shall be taken to reduce unpleasant odours and emissions generated from work related activities. • Fires: No open fires shall be permitted on site.
Noise Pollution	<ul style="list-style-type: none"> • All reasonable measures shall be taken to minimize noise generated on site due to work operations. • The Contractor shall comply with the applicable regulations regarding noise.
Waste Management	<ul style="list-style-type: none"> • Waste shall be separated as general or hazardous waste. • General and hazardous waste shall be disposed of appropriately at a permitted landfill site should recycling or re-use of waste is not feasible. • Under no circumstances shall solid or liquid waste be dumped, buried, or burnt. • Contractors shall maintain a tidy, litter free environment always in their work area. • Contractors must keep on file:

	<ol style="list-style-type: none"> 1. The name of the contracting waste company 2. Waste disposal site used. 3. Monthly reports on quantities – separated into general, hazardous, and recycled. 4. Maintained file of all Waste Manifest Documents and Certificates of Safe Disposal 5. Copy of waste permit for disposal site <p>This information must be available during audits and inspections.</p>
Handling & Storage of Hazardous Chemical Substances (HCS)	<ul style="list-style-type: none"> • All HCS shall be clearly labelled, stored and handled in accordance to Materials Safety Data Sheets. • Materials Safety Data Sheets shall be stored with all HCS. • All spillages of HCS must be cleaned up immediately and disposed of as hazardous waste. (HCS spillages must be reported to ACSA immediately). • All contractors shall be adequately informed with regards to the handling and storage of hazardous substances. • Contractors shall comply with all relevant national, regional and local legislation regarding the transport, storage, use and disposal of hazardous substances.
Water and Energy Consumption	ACSA promotes the conservation of water and energy resources. The contractor shall identify and manage those work activities that may result in water and energy wastage.
Training & Awareness	The conditions outlined in this permit shall be communicated to all contractors and their employees prior to commencing works at the airport.

Penalties

Penalties shall be imposed by ACSA on Contractors who are found to be infringing these requirements and/or legislation. The Contractor shall be advised in writing of the nature of the infringement and the amount of the penalty. The Contractor shall take the necessary steps (e.g., training/remediation) to prevent a recurrence of the infringement and shall advise ACSA accordingly.

The Contractor is also advised that the imposition of penalties does not replace any legal proceedings, the Council, authorities, landowners and/or members of the public may institute against the Contractor.

Penalties shall be between R200 and R20 000, depending upon the severity of the infringement. The decision on how much to impose will be made by ACSA's Airport Environmental Management Representative in consultation with the Airport Manager or his/her designate and will be final. In addition to the penalty, the Contractor shall be required to make good any damage caused due to the infringement at his/her own expense.

I, of agree to the above conditions and acknowledge ACSA's right to impose penalties should I or any of my employees or sub-contractors fail to comply with these conditions.

Signed: _____ on this date: _____ (dd/mm/yyyy)

at:

ANNEX E

TOOLS AND SPECIAL EQUIPMENT

The Contractor shall have **all** Tools and Special Equipment, necessary for the execution of the works, either on site or readily available at his/her premises. The principle that applies to Tools and Special Equipment is that downtime must be kept to an absolute minimum. Any **exclusion** to the above should be listed with the lead-time required to deliver same to site.

Number	Item description	Lead time
1		
2		
3		
4		
5		
6		
7		

CONTRACTOR'S PLAN / CONTRACTOR START-UP PROPOSAL

The *Contractor* shall include a detailed Contractor's Plan / startup proposal (including a program of the activities / events) within 21 days after both parties have signed the contract (contract data).

ANNEX G

RESOURCE PROPOSAL

The *Contractor* shall include a detailed resource proposal (including an organogram for on-site personnel) at the bidding stage. This shall, as a minimum, include the quantity of staff (regarding level of skill and formal training of each) and how/where they will be deployed and utilised under this contract. This must also include a proposed shift roster and deployment schedule.

SUGGESTED MAINTENANCE PROGRAMME

The Contractor shall include a suggested maintenance programme that must attempt to cover all requirements under this contract – as a minimum.

Contractor is to ensure that the proposed maintenance programme agrees with the OEM maintenance recommendations.

As a minimum and where applicable, the Contractor must perform the following:

All Preventive Maintenance shall be scheduled, at least, to the requirements of the following table. The contractor shall ensure that all maintenance is done in accordance to the OEM requirements.

Maintenance Schedule for Solar Plant (Quarterly)

- Mounting Structure – Quality assurance, integrity, earthing.
 - Verification of mounting structure integrity (bolt and nut checks) against OEM recommendation and design installation settings. Make a conspicuous mark on each nut/bolt after each verification
 - Verification of Mounting structure earthing integrity.
 - Lightning and protection system integrity check.

- PV modules
 - Quality Assurance and inspections based on manufacturers technical data and installation manuals.
 - Inspect PV modules for defects that can appear in the form of burn marks, discolouration, delamination or broken glass
 - Check modules for excessive soiling from dirt buildup or animal droppings and clean if required
 -

- Energy Meter
 - Visual inspection for integrity check.
 - Cleaning of meter.
 - Check labelling and identification.

- Monitoring system
 - Network cable and termination visual inspections.
 - Irradiance sensor cleaning and re-alignment.
 - Module and ambient temperature sensor checks.
 - Data logger installation status.
 - Data logger operation status (generation reports, events and errors).
 - Data logger internet connectivity tests to portal.

- Inverters - Inverter manufacturer quality tests meeting South Africa grid code standards (NRS-097).- Technical data and installation manuals
Access to inverter interface in order to confirm string measurements.

Inverter fan/ventilation cleaning,
Inverter cleaning to remove bird droppings.
Inverter switchgear and fuse assessment.
Checking of Surge Protection Devices (SPDs) state.
Check gasket seal
Clean filters
Look for discolouration from excessive heat buildup

- Junction box test - String Voltage and Current tests.
 - Earthing tests.
 - Ground fault tests.
 - Insulation resistance tests.
- Lightning and Protection - Testing of overall plants resistance at specific points (PV DB, main DB, ducting and casing). Mainly Continuity tests and surge protection devices.
 - Visual inspection of earth cable integrity.
 - DC type II SPD integrity.
 - Continuity tests to verify resistance $< 5\Omega$.
 - Visual inspection of earth bonding.

Electrical Kiosk and Switchgear

Physical integrity check.
Visual inspection of electrical protection.
Visual inspection of SPD and fuses status.
Visual inspection and test of cable terminations for tightening.
Visual inspection of the Labelling and identification.

- Distribution and enclosures
 - Earthing tests. Reference to installation Earthing resistance test
 - Earth loop impedance tests.
 - Cable termination on busbars and isolators.
 - Voltage measurements at isolation points.
- AC and DC cable – Visual inspection of installation.
 - Cable termination on busbars and isolators.
 - AC and Dc cable earthing.
 - Ducting/cable tray.
- PV Substation
 - Oil Leaks – Check the transformer cooling fin and transformer body for oil leaks / oil sweating
 - Rubber seals – Inspect rubber seals around doors and footplate to ensure dust and vermin are kept out of the mini-sub enclosure
 - Check cable insulation – Electrical cable insulation can be damaged by rats / mice . Check all the cabling insulation to and from the mini-sub for damaged insulation.
 - Dust – Clean dust collected inside the mini-sub on a regular basis
 - Rust – Check for rust on the metal enclosure and repair if necessary
 - Plant growth in and around the structure – Clear any plant close to or inside the mini-sub
 - RMU CB trip counts – Keep a register of RMU CB trip counter.

- Grass Cutting and vegetation management
 - Contractor is required to perform grass cutting and vegetation management as per D060 005M ACSA Vegetation Management procedure where applicable.
 - The use of electrical or petrol driven tools and equipment should be avoided to limit the risk of damage to the PV Modules.
 - Cut entire premises of the PV Plant
 - Weed control around MV infrastructure using herbicide
 - Report on the management and control of dust/leaves/debris within close proximity of Solar panels

- Cold commissioning test – Done prior to commissioning the PV plant (before switch-ON)
 - Involves resistance tests, visual inspection of colour codes etc.
- Final commissioning – Switching on Inverters
 - Earth leakage tests on MCCBs
 - Loop impedance tests.

Cleaning Schedule for Solar Panels (6 Monthly)

- Contractor is required to use a applicable High pressure rotary brush cleaning system that will not damage the panels.
- Cylindrical bristle brush to be used on PV modules
- Hydrophobic/Antistatic chemical application per cleaning frequency. Contractor to ensure that chemical used are compatible (refer to OEM data sheet) with the type of panels on site.
- The Contractor is required to have his own power on site
- The Contractor is required to have his own water tanks to be used (Water point for refill available on Site)
- Contractor is required to check temperature of cover glass of the panels to avoid breaking glass when it meets cool water.
- PV Modules should be cleaned in moderate temperature conditions (between 10 °C and 20 °C) which will normally coincide with early mornings or late afternoons
- Take baseline production reading of the system before and after cleaning and compare production values. Issue a report detailing observations on production values

Once off Corrective Maintenance

Replacing of inverters

The Employer has identified 2 faulty inverters; the Contractor is required to replace the inverters with the same or similar inverters. The faulty inverters will be removed and refurbished in order to be used as spares. Pricing should include the removal, refurbishment and delivery of the faulty inverters after

repairs. All works to be carried out as per regulations required. Contractors will be required to submit drawings and OEM specification of any supplied inverters.

Replacing of solar modules

The Employer has identified 10 faulty solar modules; the Contractor is required to replace the modules with the same or similar modules. All works to be carried out as per regulations required. Contractors will be required to submit drawings and OEM specification of any supplied panels.

Upgrade of SCADA system

The solar plant monitoring is currently connected to the Meteocontrol servers. The cost of this service is EUR 850 per year, the Contractor is required to price for the yearly subscription payment for this service.

The Contractor will also extend the current PV plant monitoring, using the existing fibre optic between the PV plant and the main ACSA George sub-station, to include the bulk metering point. Moreover, upgrade the Meteocontrol to monitor municipal power circuit breaker open/close position as well as the backup generator open/close position. This conversion should include the following:

- Installing CT's on the main incoming (municipal) feeder
- Replacing the SMA cluster controller with a Meteocontrol data logger at PV plant control box
- Installing a Meteocontrol data logger at the main substation
- Wiring of all CB open/close position and metering data to Janitza
- Install fiber patch panels and converters on both sides of the fiber cable
- Interfacing of SCDA system with the TV screen at the terminal building for continuous monitoring
- Provide Training to ACSA employees on how to use SCADA System

C4 Site Information

The Solar Plant is located on the landside of George airport with the following details:

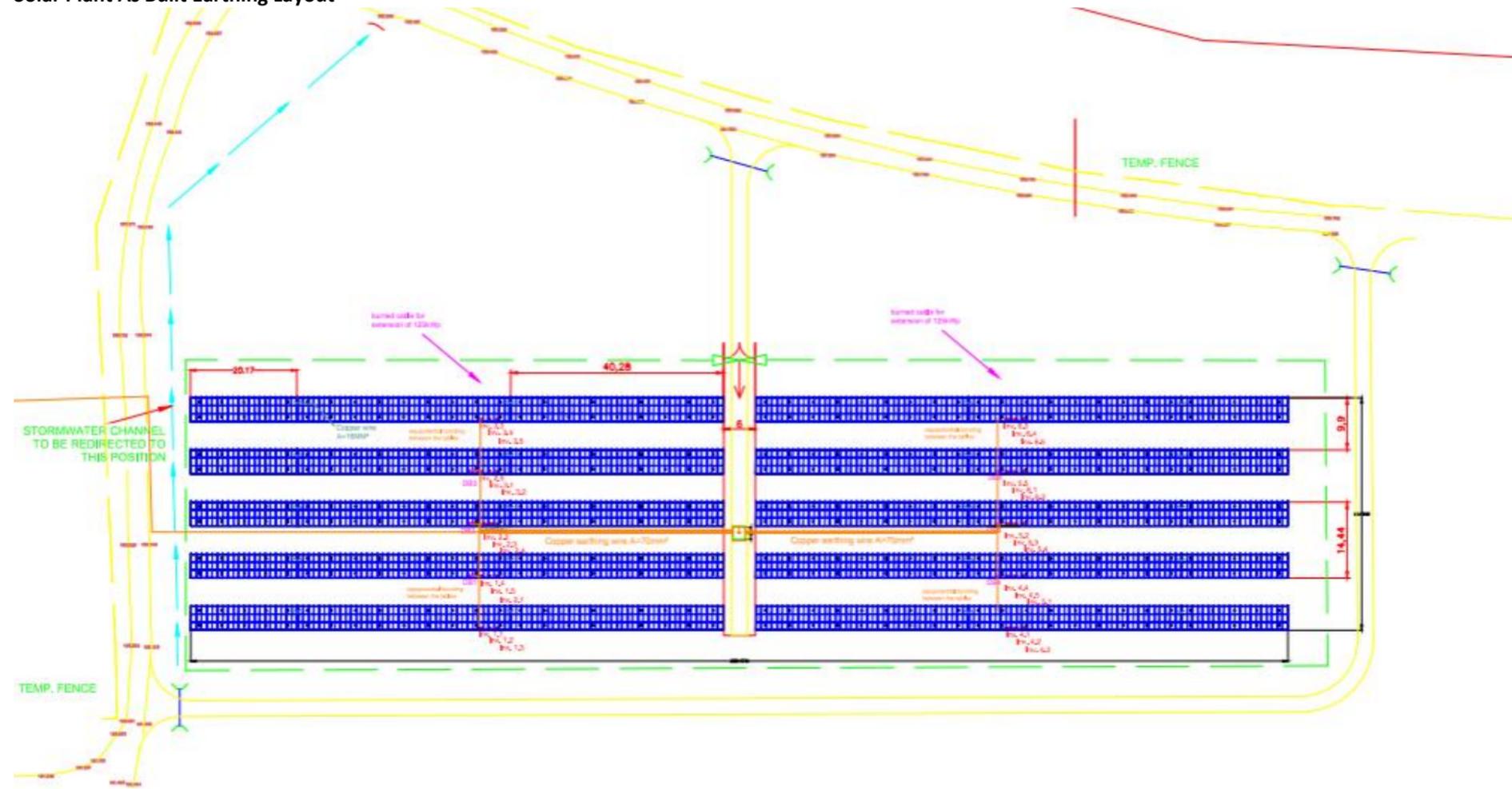
Name	Shape Type	Number of Points	Area (Sq. Meters)	Perimeter / Length (Meters)	Centroid/Mid-Point (Degrees Minutes Seconds)	Bounding Box Maximum (Degrees Minutes Seconds)	Bounding Box Minimum (Degrees Minutes Seconds)
Solar Plant	Polygon	35	26 933	698	-34°00'06.5862", 022°23'12.0765"	-34°00'03.5859", 022°23'17.0167"	-34°00'08.6366", 022°23'07.7793"

This includes all infrastructure which was procured and commissioned as part of the Solar Plant project installation Tender GG369/2014

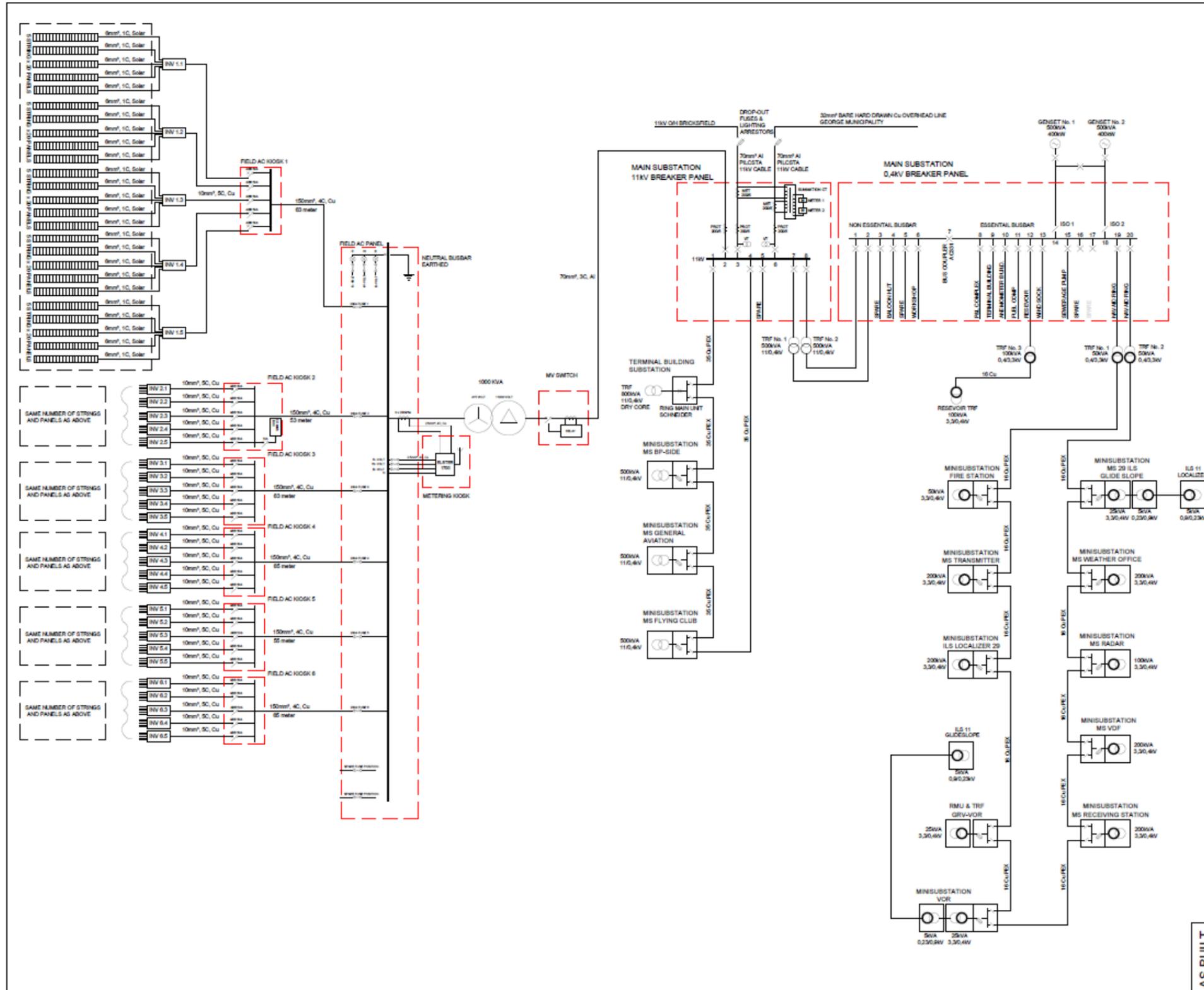


Solar Plant 11KV Integrated Schematic Diagram

Solar Plant As Built Earthing Layout



Solar Plant 11KV Integrated Schematic Diagram



HEALTH AND SAFETY REQUIREMENTS**Overview of Requirements FOR the HEALTH AND SAFETY FILE**

This is an example of the documents that need to be in the Health and Safety file, provided at tender stage to prospective Bidders, to give the Bidders an understanding of what should be contained in the file.

The final list will be provided by the SHE Department at the commencement of the contract.

The Health and Safety file and the adherence thereto on site, shall be audited regular basis. Should the *Contractor* be found in contravention of Health and Safety requirements, laws, regulation; the works shall be stopped until such a time as the *Contractor* is complaint. Delays and costs incurred because of the *Contractor's* non-conformance shall be for the *Contractor's* account. Penalties may be levied against the *Contractor*, as explained in the Contract Performance section of this document.

SHE FILE REVIEW FORM

Contractor Name: _____ Contract Number: _____

Scope of Work: _____ Project Manager: _____

Area where work is to be performed: _____ Airport: _____

No.	Document requested	Status received (Yes/ No/N/A)	Compliance Status/ Comments
1.	Mandatory OHS appointments		
	16(1), 16(2) & 8(2)		
	SHE Representative		
	First Aider(s)		
	Fire Marshall		
	Supervisors		
	Lifting supervisor		
	Scaffold inspector		
2.	Scope of work		

3.	Risk assessments		
4.	Equipment and tools list		
5.	Safe working procedures		
6.	Toolbox talks		
7.	ACSA Safety, Health and Environmental Induction		
8.	Signed Section 37(2) Agreement		
9.	Valid Letter of Good Standing		
10	Method Statement		
11	Project Specific SHE Plan		
12	Fall protection and rescue plan where applicable		
13	Lifting plan where applicable		
14	Valid Medicals fitness certificates as per Annexure 3 of the CR 2014 regulations		
15	ID copies of the employees on-site		
16	Pre-populated WCL2 form		
17	Emergency Plan and Contact details for emergencies		
18	Proof of competencies		
19	Notification of construction work or Construction Permit if applicable.		
20	Signed Environmental Terms and Conditions to Commence Work – EMS 048 attached		
21	Register of sub-contractors and activities to be undertaken		
22	Select relevant high-risk activity to be performed <ul style="list-style-type: none"> • Work at Heights • Hot Work • Work on Electricity • Work in Confined Space • Excavation • Work on machinery • Other 		

Approval Status

SHE File approved:

Yes

No

Date approved:

General comments

Details of SHE File reviewer

Full name and Surname: _____

Signature : _____

Designation: _____