ANNEXURES

ANNEXURE A: ANNEXURE SUITE FOR SOLAR PHOTOVOLTAIC PLANT

ANNEXURE B: ENVIRONMENTAL MANAGEMENT PLAN

ANNEXURE C: PREVIOUS CONTRACTOR'S STORM WATER REPORT

ANNEXURE D: REFERENCE DESIGN DRAWINGS

ANNEXURE E: SOLAR PHOTOVOLTAIC PLANT PROJECT BRIEFS

ANNEXURE F: SOLAR FARM SPECIFICATION

ANNEXURE G: ACSA PERIMETER FENCE SPECIFICATION

ANNEXURE A

ANNEXURE SUITE FOR SOLAR PHOTOVOLTAIC PLANT

Site	Min Size (MWp)	Roof Space
CTIA	**2,5**	Parkade 1 Parkade 2 Oval Office Park
KSIA	**2**	Shaded & long stay parking Car Rentals
ORTIA	**5**	Terminals A Terminal B Landside carports Freight Cargo Long length concrete roofs Long length IBR roofs Merged Klip-lock roofs Merged IBR roof Medium length concrete roofs Swissport cargo warehouse Perishable cargo warehouse

ANNEXURE B

ENVIRONMENTAL MANAGEMENT PLAN - 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	• 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	• 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	• 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	• 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 not be 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: 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 This information must be available during audits and inspections.
Handling & Storage of Hazardous Chemical Substances (HCS)	• 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, land owners 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: .....

ANNEXURE C (NOT APPLICABLE)

STORM WATER REPORT

ANNEXURE D

REFERENCE DESIGN DRAWINGS – Site layout and single line diagrams

Site layout and SLDs already distributed

ANNEXURE E

SOLAR PHOTOVOLTAIC PLANT PROJECT BRIEFs

The scope of work is split into 3 segments as follows:

- Segment 1 – Basic Engineering, confirm business case feasibility, detailed engineering and construction plan. This work package will then be presented to enable Segment 2
- Segment 2 – Procurement; Construction and Delivery Management (supply, install, integration, commission, handover)
- Segment 3 – Operate, Maintain and Realize beneficial operation at targeted O&M costs through an asset management program

Segment 1: Engineering

Determine the maximum capacity that can be generated from the space provided (rooftops)

Develop and implement security measures to prevent theft and/or vandalism of the solar installations

Determine the best operating philosophy option between synchronizing the solar plant with the grid through ACSA network and directly supplying from the solar panels and normal supply as back-up.

Design the plant with approved drawings for the best option and provide ACSA with report thereof. The report should include all the relevant design drawings, design reports, assumptions register, design margins.

Determine the bearing strength of the existing roof/ slab at all the identified areas and ensure through suitable modification that it can accommodate the solar over the lifecycle of the asset

Ensure compliance with bylaws EIA (check applicability)

Feasibility study (in compliance with ECSA std)

Assessment of the Airport Precinct for suitable areas to use for Solar installations.

Quantify the amount of Energy that can potentially be generated at the best-case irradiance scenario.

Glint and Glare assessment with recommendations options available to reduce any glint and glare issues identified if any.

Detailed Engineering

Determine the life cycle cost (installation, operation and maintenance costs) of each plant.

Segment 2: Procurement and Construction Management

Supply, install and commission roof top mounted, non-distributed photovoltaic plant.

Knowledge transfer to EDM ACSA personnel

Segment 3: Operation and Maintenance

5-year contract to operate and maintain the plants.

Power generation and monitoring software license (to be an ACSA asset)

Specify maintenance regime aligned to best practice while OEM spec will be specified during tender process

The consultant shall provide ACSA with concept drawings with the proposal. The drawings must indicate the proposed location of the PV array(s) and access points along with a single-line electrical diagram showing inverters, transformers, meters, and interconnection locations. All drawings shall be submitted with dimensions shown in English units.

The proposal shall include major equipment information, proposed installation/interconnection information, applicable incentive information, and performance characteristics of the system. Assess the identified location for the solar PV inverter equipment and its related components and environmental control systems that will meet the following criteria:

- Ease of maintenance and monitoring
- Efficient operation
- Structural assessment
- Glint and glare
- Compatibility with existing facilities

At a minimum, the proposed solution shall include:

- Equipment Information:
- System description
- Layout of installation
- Selection of key equipment and layout of equipment
- Performance of equipment components, and subsystems
- Specifications for equipment procurement and installation
- All engineering associated with structural and mounting details
- Controls, monitors, and instrumentation
- Operation and maintenance service plan

Installation Interconnection Information:

- Solar electric array orientation (degrees)
- Solar electric module tilt (degrees)
- Electrical grid interconnection requirements
- Integration of solar PV system with other power sources
- System type and mode of operation (utility interactive)

Performance Characteristics

- Shading calculation documentation
- Total system output
- Estimated kWh/month per array (shown over a 12-month period)
- Warranties and guarantees

Applicable Incentives

- Identify all applicable incentives including carbon tax

Interconnection Agreement

- Provide confirmation that the PV systems will be designed to comply with applicable UTILITY interconnection requirements.

Cost

- Total bid price of project must be presented in a TCO (total cost of ownership) fashion including operation and maintenance.

ANNEXURE F

SOLAR FARM SPECIFICATION

Requirement	Technical Specification
1. Minimum System Design output	ORTIA ≥ 5 MW CTIA ≥ 2.5 MWp KSIA ≥ 2 MWp This is based on the available rooftop spaces and should be maximised by each design depending on the module size used.
2. Modules	Type: Mono-crystalline Efficiency: Minimum 22% Certifications: IEC 61215, IEC 61730 Warranty: Minimum 25 years performance warranty Output power – min 400Wp per module Operating temperature IP Rating – IP67 (high ingress protection) Annual Degradation - <0.5% Optimised tilt angle and spacing to minimise shading
3. Inverters	Type: String inverters, Hybrid / Grid Tied type that shall enable energy storage on phase 2 of this program later in the years. Efficiency: ≥ 98% Certifications: IEC 62109 Warranty: Minimum 10 years Energy Storage capabilities MPPT (maximum power point tracker to optimise energy harvested from the panels)
4. Mounting Structures	Type - Roof mounting systems Material - Galvanized steel. Wind Load Resistance - Designed to withstand local wind speeds as per SANS standards
5. Monitoring and Control	Monitoring System: Real-time monitoring for performance, fault detection, and energy yield Data System: Integrated with the airport's energy management system/ BMS Communication Protocols: Ethernet / Wifi
6. Performance Metrics	Expected Energy Yield - Calculated using solar irradiance data for the location Capacity Factor - min 15% Performance Ratio - > 80%
7. Integration with Existing Infrastructure	Grid Connection - Compliance with utility interconnection requirements Energy Storage - Provisions for future energy storage integration and compatibility Backup Power - Ensuring system does not compromise existing airport power stability
8. Regulatory and Compliance Requirements	• Registration and Licensing - Projects exceeding 1 MW must be registered with NERSA. The cost for this registration to be provisioned for on the tender offer. • Grid Connection - Compliance with local bylaws requirements
9. Economic and Financial Considerations	IRR > ACSA WACC Positive NPV Payback < estimated useful life

ANNEXURE G (NOT APPLICABLE)

ACSA PERIMETER FENCE SPECIFICATION