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Glossary

Acronym	Description
ACSA	Airports Company South Africa
IT	Information Technology
ES	Enterprise Security
TSS	Technical Services and Solutions
IAM	Infrastructure Asset Management
SP	Service Provider
SOW	Scope of Work / Statement of Work
PV	Photovoltaics
BOQ	Bill of Quantities
CCTV	Close-Circuit Television
ACS	Access Control System
DS	Detection System
OPL	One-point Licence
WC	Wire Centre
ISS	Integrated Security Systems
ICAO	International Civil Aviation Organization
NKP	National Key Point
SACAA	South African Civil Aviation Authority

1 PURPOSE OF THIS MEMO

1.1 Purpose

The purpose of this document is to provide security measures for EL Solar Farm in line with SACAA, ICAO and NKP legislative requirements.

1.2 Objective

The objective of this document is to ensure that all security measures installed are as per ACSA IT/ES standards and in line with ES security technology strategy i.e ISS.

1.3 Background

TSS and IAM is in a process of installing PV Modules at EL Airport to convert sunlight into electricity energy. These assets need to be protected against acts of sabotage and unlawful acts. Provision needs to be made for cable routes from wire centre to the point of installation to the camera. Therefore IT/ES is to implement the best possible security measures for that area.

2 SCOPE OF WORKS

Below is a detailed SOW, Proposed Security Measures and BOQ;

Table 1: SOW, Security Measures and BOQ

Measure	Quantity	Comments
ACS	2	Access Gate to the solar farm shall be access controlled. Access control can be by means of physical durable lock. Control of ACS keys shall follow PE Security Key Control or management Procedure.
DS	SP shall assess the area and determine camera (Thermal	The detection system shall be for the entire area perimeter fence.



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	<p>Cameras) positions and also qualify number of cameras needed for complete coverage, and detection. Detection around solar farm perimeter shall be complete meaning there must not be any dead spot or blind spot without detection. The SP shall also determine the height of the pole to enable effective camera view to maximize detection, NOTE: Height of the camera pole shall not exceed 6 meters - airside legal height. SP shall determine the camera field of view i.e. view angle and distance coverage.</p>	<p>Detection shall be by means video analytics, which shall detect all unauthorized entry and intrusions to the solar plant. There shall be no blind-spot or dead-spot into the secured side.</p> <p>Analytics shall be used with thermal cameras for visual and detection.</p>
CCTV	<p>SP shall assess the area and determine camera (Thermal Cameras) positions and qualify number of cameras needed for complete coverage. SP shall determine the camera field of view i.e. view angle and distance coverage and ensure that blind spots and dead zones are eliminated. Subsequently SP shall also determine height of the camera for maximum coverage.</p>	
	Optical Camera	<p>All access gates to the solar farm shall be equipped with Optical camera located at the entrance gate which shall be used to identify people entering and leaving the site. The SP shall also determine</p>



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		the height of the pole to enable effective camera view, NOTE: Height of the camera poles shall not exceed 6 meters - airside legal height.
	PTZ x 1	There shall be PTZ cameras that shall be used by control room for surveillance. NOTE: Height of the camera pole shall not exceed 6 meters - airside legal height
System Configuration	1X Server	SP shall enrol all the camera into ACSA VMS (Dvtel/ Flier version 8). SP shall also configure all the video analytics around the perimeter for intrusion detection.
Control Room	2 X Workstation	SP shall setup the client station and configure the alarms user interface.
Training/ Control room operators	10 X Operators	SP shall provide operator training on how to acknowledge and manage alarms and SP shall provide an OPL training manual for operators.
Training/ First line Maintenance Engineer (train the trainer)	2 X Engineers	SP shall provide training for first line maintenance and system setup.

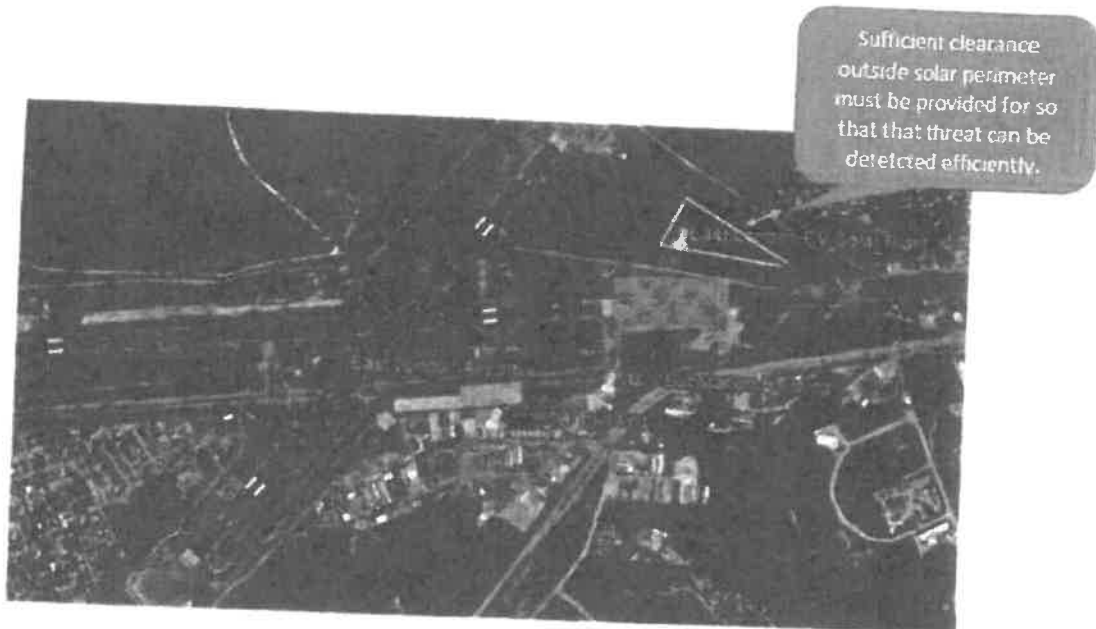


Figure 1: Propose layout at EL Solar Farm

In scope

The following are in scope:

- **Supply, installation and commissioning of security measures as stipulated in the above table.**
- **12-month Guarantee and Warranty on the entire installation and all Equipment;**
- **Architectural documents;**
- **End User Training;**
- **Handover documents.**

1.2 Camera Specifications

Table 2: Camera Specification

Item	Specifications
2.1 Thermal Bullet Camera Specifications	
1.	Uncooled long range/image sensor/focal lens;
2.	IP (network cameras), 10/100 Mbps;
3.	Power Source – POE+ / Input Voltage 24Vdc
4.	IP67 or above (outdoor)
5.	High resolution (Athermalized, focus-free). Streaming Resolution - D1: 720x576, 4CIF: 704x576, Native: 640x512, Q-Native: 320x256, CIF: 352x288, QCIF: 176x144
6.	Thermal Frame rates - NTSC: 30 Hz PAL: 25 Hz
7.	Brightness, Contrast, Sharpness, Grey Shade Compression, Gamma, Smart Screen Balance, AGC Types: Histogram, Histogram HC, Histogram Blend, Linea
8.	Analytics Features (must support external analytics) - Region Entrance/Intrusion Detection, Crossover/Fence Trespassing; Auto/Manual Depth Setup, Human and Vehicle Rules, Hand-off target to PTZ racking, Tampering
9.	Analytics Management - Web-based configuration and management. Masking of analytic detection areas, adjustable sensitivity, automatic responses, remote I/O control
10.	Must support - 32GB SD Card (not supplied)
11.	Alarm Features - 1x Dry Contact in; 1x Relay Out (rated load 0.025A@ 5VDC)
12.	Video compression - Two independent channels of H.264 (Restricted VBR and CBR, 10kbps-4Mbps, MPEG4, and MJPEG)
13.	Thermal Frame Rates - NTSC: 30 Hz PAL: 25 Hz
14.	IP67 or above (outdoor);
15.	Ultra-High Definition; and
16.	Three-year Camera – Warranty/ Ten years Sensor guarantee
17.	Infrared (IR) day and night cameras;
18.	5 Mp / Focal lens;
19.	IP (network cameras), 10/100 Mbps;
20.	IP67 or above (outdoor);
21.	High resolution/Focus (Athermalized, focus-free);

22.	Ultra-High Definition;
23.	Three (3) year camera warrantee;
24.	Video compression H.264 (Restricted VBR and 10kbps-4Mbps, MPEG4, and MJPEG
25.	Camera shall be supplied as received from OEM. No software and hardware customization shall be accepted.

2.2 Bullet IP camera Specifications

1.	2MP, Wide Angle
2.	Durability: IP66 or above
3.	Signal: NTSC / 1920 x 1080
4.	Power Consumption: POE / 12 Vdc / 24Vac
5.	Network Protocols: IPv4 / IPv6, HTTP, HTTPS, SSL, TCP / IP, UDP
6.	Image Frame Rates: 30fps
7.	Image Type: MJPEG, H.264
8.	Operating Temperature: 0 – 50 degrees
9.	Camera shall be supplied as received from OEM. No software and hardware customization shall be accepted

2.3 PTZ Camera Specifications

1.	2 Megapixel progressive scan Exmor CMOS
2.	Max 30fps @ 1080P resolution
3.	Powerful optical zoom (Visible & Thermal)
4.	Various of lens optional
5.	Uncooled thermal sensor technology
6.	Support ROI, Motion Detection, Color Palettes
7.	Intelligent alarm output
8.	Max 40°/s pan speed, 360° endless pan rotation
9.	Up to 256 presets, 5 auto scan, 8 tour, 5 pattern
10.	Long-range effective distance
11.	H.264 & MJPEG dual-stream encoding
12.	IP66

13.	AC24V/DC24V
14.	Camera shall be supplied as received from OEM. No software and hardware customization shall be accepted
2.4 Application Storage	
	The service provider is requested to do an assessment to determine if there would be an additional storage or servers to cater for these additional cameras.

Note:

- Camera should be compatible with FLIR Video Management Software without any customization.

2.5 Out of scope

The provision as well as maintenance of the following is out of scope:

- IT network infrastructure (switches, routers, LAN, Fibre and including cabling);
- SLA's and Maintenance Contracts will be put in place as part of an extension to the current maintenance contracts (if applicable). Maintenance Plan to commence on Practical Completion.
- Wire Centre;
- Wire Centre equipment;
- Electrical Power

3 Approval

PREPARED BY:



Signature

Name:

Itumeleng Gasekwe

Designation:

Electronic Engineer

Date:

01/08/2019

SUPPORTED BY:



Signature

Name:

Brenda Fortein


Designation:

Acting Assistant Manager Security Services: EL Airport

Date:

01/08/2019

SUPPORTED BY:



Signature

Name:

Moemedi Thwane

Designation:

Technology Specialist: Enterprise Security

Date:

05/08/2019

Approved BY:



Signature

Name:

Jacob Shabela

Designation:

Senior Manager: Airports Systems

Date:

05/08/2019