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Title	<b>Radio Communications Specifications</b> – <i>Supply, Installation Commissioning and Maintenance of VHF/UHF Radio Equipment for Necsa Group Security Services</i>

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## Abbreviations

CAS	Central Alarm Station
SAS	Secondary Alarm Station
SSD	Security Services Department
OEM	Original Equipment Manufacturer
EG	Example
SIT	Site Inspection Test
SAT	Site Acceptance Test
SHEQ	Safety, Health, Environment and Quality
VHF	Very High Frequencies
UHF	Ultra-High Frequencies
SABS	South African Bureau of Standards
OHSA	Occupational Health and Safety ACT
BOQ	Bill of Quantities
L	Length
Q	Quantity
STD	Standard
NEA	Nuclear Energy Act
NECSA	Nuclear Energy Cooperation of South Africa
ICASA	Independent Communications Authority of South Africa
NKP	National Key Point
STD	Standard

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## 1. Introduction


Necsa is a state owned company and its mandate under the Nuclear Energy Act (NEA) includes undertaking and promoting research and development in the field of nuclear energy and radiation sciences and technology and, subject to the Safeguards Agreement, to make these generally available. **In line with section 29 of NEA, the act provides that the installations, sites, premises and land belonging to or under the control of Necsa are restricted areas.** Therefore, Necsa may make any arrangements it considers reasonably necessary for the proper protection of the site.

## 2. Background

NECSA Group is in the process of procuring Radio Communication system. The currently Necsa security services and emergency services radio communications system communicates through separate channels and repeaters through centralized Necsa high site tower.

## 3. Purpose

The purpose of this document is to upgrade and align the Necsa radio communication system with international radio communication standards and norms pertaining to National Key Points (NKP) facilities. The document further ensures that the contractor commit to works specified herein for the upgrade of the radio communication system at Necsa site. These works shall include the supply, installation, commissioning and testing as per Necsa requirements, manufacturer's guidelines, statutory requirements (e.g. OHSA/SABS 0142) and best practises. This specification stipulates all the requirements that the contractor shall meet in order to provide a fit for purpose turnkey solution. This shall include the specification of equipment to be supplied, installation practices and adherence to the design, system commissioning and Site Acceptance Test (SAT).

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#### 4. Current Infrastructure

Necsa has radio network comprising of various types of antennas supporting structures such as towers and masts. There is also obsolete analogue UHF radio stations, repeaters, base stations, mobile radios that are installed in security vehicles and portable hand held radios. The security system base station is located at the CAS and is used to communicate with security officers hand held radios and vehicles mobile radios. Currently Necsa has analogue / digital multiplexer located at the Necsa high site towers. Where more clarification is sought by the contractor in terms of the existing infrastructure, the contractor shall notify the Security Project Manager or Senior Technical Officer. The contractor shall not be permitted to upgrade any software or hardware out of this scope on the current infrastructure without written permission from the Senior Technical Officer.

#### 5. Technical Requirements

##### 5.1 Base Stations, Antennas, Repeater and Hand held Radios


Necsa requires a service provider to:

- Supply, install and configure a digital two-way radio communications system in the VHF/UHF bands. Necsa will provide the required ICASA licenses and frequencies.
- Maintenance plan should include a full inspection every 6 months

#### 6. Requirements

The contractor shall, before undertaking any site works, adhere to the following:

Description	
<b>Radio dealers licence</b>	Contractor shall provide ICASA radio dealers licence. Supplier shall be disqualified if these compulsory returnable tender documents are not received.

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Description	
<b>OEM Accreditation</b>	Contractor shall provide channel partner distributors letter from OEM. Supplier shall be disqualified if these compulsory returnable tender documents are not received.
<b>SHEQ Induction</b>	All contractor staff that shall be performing on site works shall be SHEQ inducted. This shall be arranged with the project manager prior to the start of the project
<b>Work Permit</b>	The contractor shall be granted a work permit by the facility manager prior to the commencement of daily works
<b>Safety File</b>	The contractor shall have a safety file approved by the Necsa SHEQ representative. In addition the contractor shall have a safety officer.
<b>INS 0800</b>	The INS 0800 process shall be initiated and completed by the Necsa representative.
<b>Company Screening</b>	A positive company screening is required in order to perform any works. The security vetting office shall be furnished with all director/company owner identity documents and any other particulars they would require in order to do a company screening.
<b>Individual screening</b>	The contractor shall undergo Necsa security. Failure to obtain positive security clearance the personnel shall not be permitted to work at Necsa site.

## 7. Additional Requirements

The Contractor shall include in a quote, the training of the relevant Necsa personnel on the new radio system

The contractor shall provide the following:

- Training for Necsa technical personnel on operation, troubleshooting, system set up and maintenance.

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- The handover document shall be one bound copy (hard copy) and one soft copy and shall compose of the as built one line drawings and camera position.

## 8. Scope Exclusions


The contractor shall not be responsible for any electrical works. Necsa shall provide all power isolators.

## 9. Warranty Period

The contractor shall provide a three-year warranty period on all supplied and installed equipment and devices. In addition, all workmanship provided for by the contractor shall be for one-year warranty. Any equipment that is found to be faulty or defective and not because of human error or any act of God shall be swapped out within two business days.

## 10. Material Specifications and Bill of Quantity

	Item Description	Quantity	Unit of Measurement
1	Digital repeaters including all accessories and installations (DMR)	3	Each
2	Solar System with Eight hours backup power per repeater and installation	2	Each
3	Base stations including all accessories and installation with battery backup	8	Each
4	Vehicle mounted radios including all accessories and installation	24	Each
5	Handheld radios including all accessories	122	Each
6	Solar System supply and install for Two sites	2	Each
7	Dispatch system (4 Administrators) Resident system with Administrative full control	4	Each

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Item Description		Quantity	Unit of Measurement
8	Maintenance Plan	36	Months
9	Installation and Configuration – Base Stations	8	
	<ul style="list-style-type: none"> <li>Installation and Configuration – Repeaters</li> </ul>	3	
	<ul style="list-style-type: none"> <li>Installation and Configuration – Radios</li> </ul>	146	
10	Training of Personnel	4	
11	Supply and install 100mb Link	1	

## 11. Conclusion

All measurements shall be taken during site inspection, and further questions or clarity to the specifications shall be answered during site briefing.