



Market Survey: MID Infrastructure Contract 4

1. Client and Market Survey:

The SKAO, formally known as the SKA Observatory, is a global collaboration of Member States whose mission is to build and operate cutting-edge radio telescopes to transform our understanding of the Universe, and deliver benefits to society through global collaboration and innovation. Headquartered in the UK, its two telescope arrays will be constructed in Australia and South Africa and be the two most advanced radio telescope networks on Earth. A later expansion is envisioned in both countries and other African partner countries.

Together with other state-of-the-art research facilities, the SKAO's telescopes will explore the unknown frontiers of science and deepen our understanding of key processes, including the formation and evolution of galaxies, fundamental physics in extreme environments and the origins of life. Through the development of innovative technologies and its contribution to addressing societal challenges, the SKAO will play its part to address the United Nations' Sustainable Development Goals and deliver significant benefits across its membership and beyond.

The SKAO invite expressions of interest for the contract described below.

To express an interest in this contract candidates must:

1. Create an account on the [SKAO Supplier Portal](#).
2. Complete the Registration process via the 'Tender notice overview' page for this contract on the SKAO Supplier Portal.

The submission of supporting information or documentation at this stage of the procurement process is not required.

At the next stage invitations to pre-qualify for the contract will be issued according to the indicative timeframe below.

A shortlist of pre-qualified contractors will then be invited to submit tenders.

2. Project:

The SKAO will have a uniquely distributed character: one observatory, operating two telescopes, on three continents for the global scientific community.

The two SKAO telescopes will be located in radio quiet zones in South Africa and Western Australia. They differ in design and are complementary by their very nature. Both are interferometers: arrays of antennas which when linked together act as one enormous telescope, bigger than would ever be possible in a traditional single-dish design.

In South Africa, the SKA-Mid telescope will initially comprise 197 dishes, 64 of which are already in place and form the MeerKAT precursor telescope, itself a world-class facility, which will be integrated into SKA-Mid. In Western Australia, an initial 131,072 low-frequency antennas will form the SKA-Low telescope, spread across 512 antenna stations.

The telescopes' design is scalable and upgradable, allowing future improvements to maintain their world-leading capabilities, and also to align with available funding. This includes state-of-the-art scientific and computing infrastructures, designed to progressively exploit the capabilities of the Observatory as computing technology continuously improves over coming decades.



3. Contract:

MID Infrastructure Contract 4: Mobile Radio System (MRS)

4. Contract Description:

The successful Contractor will be required to take responsibility for the design of the whole of the works. The tender package will include a reference design, which has been prepared by SKAO. Tenderers will be able either to adopt the reference design and provide such additional new design as necessary to complete it, or to prepare a fully new design. New design prepared by the Contractor will be subject to an acceptance procedure. The SKAO reference design will be deemed to have been accepted.

This contract is envisaged to include two phases of implementation:

Phase 1 includes the design, supply, installation, testing, commissioning, handing over and 12-month maintenance of a DMR based Low Band VHF communications system for the SKAO. This system will be used by other contractors and the SKAO during construction and operation of the SKA

MID Telescope and will therefore need to comply with requirements for use on an operational radio telescope without causing interference.

Phase 2 will provide the community in the vicinity of- and surrounding the SKA MID telescope, with a similar DMR radio system as for Phase 1. The new installation will be used for communications required by emergency services, area security, farming/business operations and general inter-personal communications, to compensate in part for the impact of the SKA project on general communications limitations in the greater surrounding area. Phase 2 includes the design, supply, installation, testing, commissioning, handing over and 12-month maintenance of a DMR based Low Band VHF communications system for the wider network.

The network is to be of a fully digital type, with VHF repeaters installed at the different sites to be specified. These repeaters will serve vehicle mounted mobile and hand-held radios. In addition, base stations will be installed at selected sites. The base stations, mobile and handheld radios will communicate with each other using several repeater sites. These repeater sites will be linked to each other using IP based point to point backhaul microwave radios, or optical fibre.

The type of system is to provide a flexible, soft configurable, repeater transparent, homogeneous network, eliminating the requirement for users to switch frequencies moving between repeaters.

The system will be installed at multiple locations surrounding the SKA MID telescope site near Carnarvon in the Western Cape, South Africa.

Only tenders from South African companies will be evaluated and ultimately accepted.

5. Tender Evaluation and Key Criteria:

- a.** The Contractor (including design engineers) should be in a position to demonstrate experience in DMR based Low Band VHF communications systems.
- b.** It is essential for the Contractor to have competent in-house or subcontracted Radio Frequency Interference (RFI) specialist.
- c.** The Contractor (including design engineers) should demonstrate experience in infrastructure design and construction of similar size and scope.
- d.** NEC (New Engineering Contract) contracting experience will be advantageous.
- e.** A "most economically advantageous tender evaluation method" will be adopted which will include both price and functionality/quality criteria.

The SKAO is an inter-governmental treaty organisation, and conducts its procurement and tender processes in accordance with its own procurement policies.

6. Contract Form:

The Contract will be executed under the NEC4 Engineering and Construction Contract (ECC) contract - Option A.

7. Indicative Timeframe:

Subject to the SKAO Council approving the SKA Construction Proposal in June 2021 and the meeting of other requirements, the table below sets out the **indicative timeframe** for this Contract:

Market Survey close	23 July 2021
Pre-Qualification period	26 July 20201 -13 August 2021
Invitation to Tender issued	27 August 2021
Closing date of Tenders	07 October 2021
Contract Award	08 December 2021
Completion (Phase 1 installation)	29 August 2022
12 month maintenance (Phase 1)	29 August 2023
Completion (Phase 2 installation)	30 April 2023
12 month maintenance (Phase 2)	30 April 2024