



**SOUTH AFRICAN RADIO ASTRONOMY OBSERVATORY
SQUARE KILOMETRE ARRAY SA PROJECT**

BID REFERENCE: SKASA FAP 001 2017

**REQUEST FOR INFORMATION FROM INTERESTED PARTIES FOR FINANCIAL
ASSITANCE PROGRAMME PARTICIPATION IN SKA CONSORTIA**

RFI INVITATION NOTICE

The South African Square Kilometre Array (SKA SA) project, which includes the construction of the MeerKAT radio telescope in the Karoo, is a project of the South African Radio Astronomy Observatory (SARAO), a national facility of the National Research Foundation. Information about the project is available from www.ska.ac.za.

SKA South Africa invites responses to this RFI from South African industry and institutions with appropriate existing expertise that may be eligible for financial assistance on a shared cost, shared risk basis towards participation in the Square Kilometre Array (SKA) design phase dish consortium in any or all of the following areas:

1. Dish Consortium:

Lead the SPF Band 1 and 5 development teams towards their CDRs. Project management, Systems Engineering and technical leadership of the two groups. Regular interaction with the two groups and participation in the management of the consortium.

Further develop the SPF services (controller, Vacuum and Helium) systems in concert with the Band 1 and Band 5 development.

Support the installation, setting to work and integration of the SKA Band2 feed and SPF services on the SKA-MPI Dish in the Karoo. Support Band 2 feed and services during the operation of the SKA-MPI dish during 2018.

Develop the SPF Band2 lab test jig to enable the acceptance testing of the Band2 feed during industrialisation, production and operation.

Provide the SKA Dish Consortium with general SPF engineering services to support the completion of the SKA Dish Consortium CDR.

2. INFRA Consortium:

The Square Kilometre Array (SKA) Telescope is a science mega-project that aims to build the world's largest radio telescope. Due to the high number of radio antennas (refer to Figure 1)

and very high processing requirements, the SKA's telescope in South Africa will consume a significant amount of power.

The current configuration of the SKA1-MID telescope due to be built in South Africa comprises of a core area that is densely populated with dishes. This core area accommodates approximately 75% of the dishes for SKA1, while the remaining dishes will be distributed along three spirals arms, which extend out from the core up to a distance of approximately 120km. The distance between these dishes increase with distance from the core, so that the outer dishes are significant distances from each other. Due to the large distances between the dishes in the spiral arms, especially the outermost dishes, the reticulation of power to these dishes will be a significant capital expenditure.

The SKA telescopes will be equipped with some of the most sensitive radio frequency receivers ever built. As such, the Karoo site has been declared as a radio frequency protection zone. Any equipment that is installed in this area will be subject to strict Radio Frequency Interference (RFI) requirements and measurements.

The scope of this work will relate to the feasibility and pre prototype design proposal of potential islanded power systems.

3. Science Data Processor (SDP):

Activities will include SDP Architecture review & documentation, Cost Submission, Compliance Submission, Risk review and CDR review.

Consortium management and coordination as a member (SDP SE) of the SDP project coordination group and SDP management team including, Systems Engineering oversight as required by Sprint tasks, Project Management of the Systems Engineering tasks & activities, SKAO (systems level) System Engineering point of contact, Risk management, Expertise in large scale and high performance computing and software systems

For more information on the bid process and work package areas: Organizations fitting participation criteria are encouraged to attend the SKA South Africa Information Day to be hosted at 10h00 on the **15 September 2017** at the SKA SA Johannesburg and Cape Town offices, linked via telecon, for further discussions and information dissemination on the requirements, work packages and the associated financial assistance programme. In order to attend the Information Day, please RSVP by 3 pm on Wednesday 13th September 2017 to industry@ska.ac.za and note that places may be limited.

Sealed RFI documents marked, **BID REFERENCE: SKA SA FAP 001 2017 REQUEST FOR INFORMATION FROM INTERESTED PARTIES FOR FINANCIAL ASSISTANCE PROGRAMME PARTICIPATION IN DISH CONSORTIUM** must be placed in the tender box at SKA SA Office, Tender Box, 3rd Floor, The Park, Park Road, Pinelands, Cape Town or before **11:00 on Friday the 29th September 2017**.

RFI documents can be requested from Rayyan Arnold rarnold@ska.ac.za or at www.ska.ac.za/tenders

For queries, or to obtain additional information, contact the **Supply Chain Specialist, Mr. Rayyan Arnold**, at rarnold@ska.ac.za or telephone number (021) 506 7300.