

SKA Progress ATUC

Sarah Pearce

18 November 2020

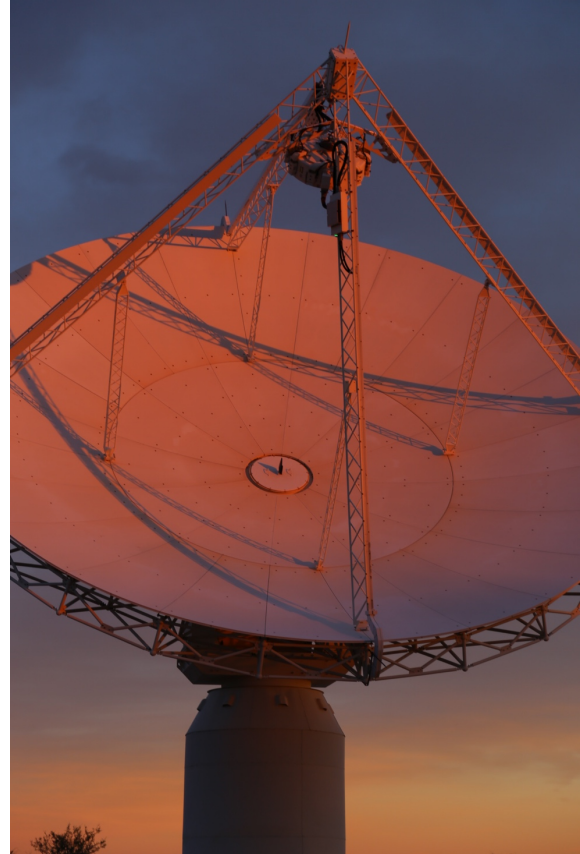
Australia's National Science Agency





SKA Progress

- IGO status
- Construction planning
- Bridging
- Site establishment
 - New facilities
 - MRO management
- Operations



SKA – IGO status



Council 1??



Member	Q3 2019	Q4 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
Australia			✓			
China				●		
India						●
Italy			✓			
Netherlands	✓					
Portugal				●		
South Africa						
Sweden				●		
United Kingdom				✓		

SKA – Construction planning

- At the September 2020 SKA Board meeting, the Board endorsed:
 - SKA1 Construction Proposal
 - Observatory Establishment and Delivery Plan
 - SKA Prospectus

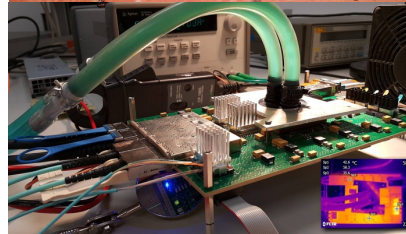
Construction Proposal (CP) and Observatory Establishment and Development Plan (OEDP) has a project cost of **€1986M** (mid-2020 EC)

Design Baseline	Sept 2020 submitted	Provided through annual contributions			
Total Cost (€M) (Aug 2020)	Capital cost of construction (€M)	Construction Support Budget (€M)	Observatory Operations & Business-Enabling Functions (€M)	Observatory Development Programme (€M)	Funding Period
	1054	228			
1986	1282		664	40	2021-2030



Construction allocations

- Allocation of work packages "finalized"
 - Focused on members achieving 70 % FWR
- Australia lead in:
 - Low Infrastructure (Industry contracts)
 - **Low Infrastructure Management (CSIRO)**
 - **Low Assembly Integration and Verification (CSIRO)**
 - **Low Station Management (CSIRO and Curtin)**
- And partner in:
 - **Digital systems (CSIRO)** joint with Netherlands
 - Station power & signal distribution and deployment (Industry)
 - **Software and computing (UWA, Swinburne and CSIRO)**
 - MID timing (UWA)

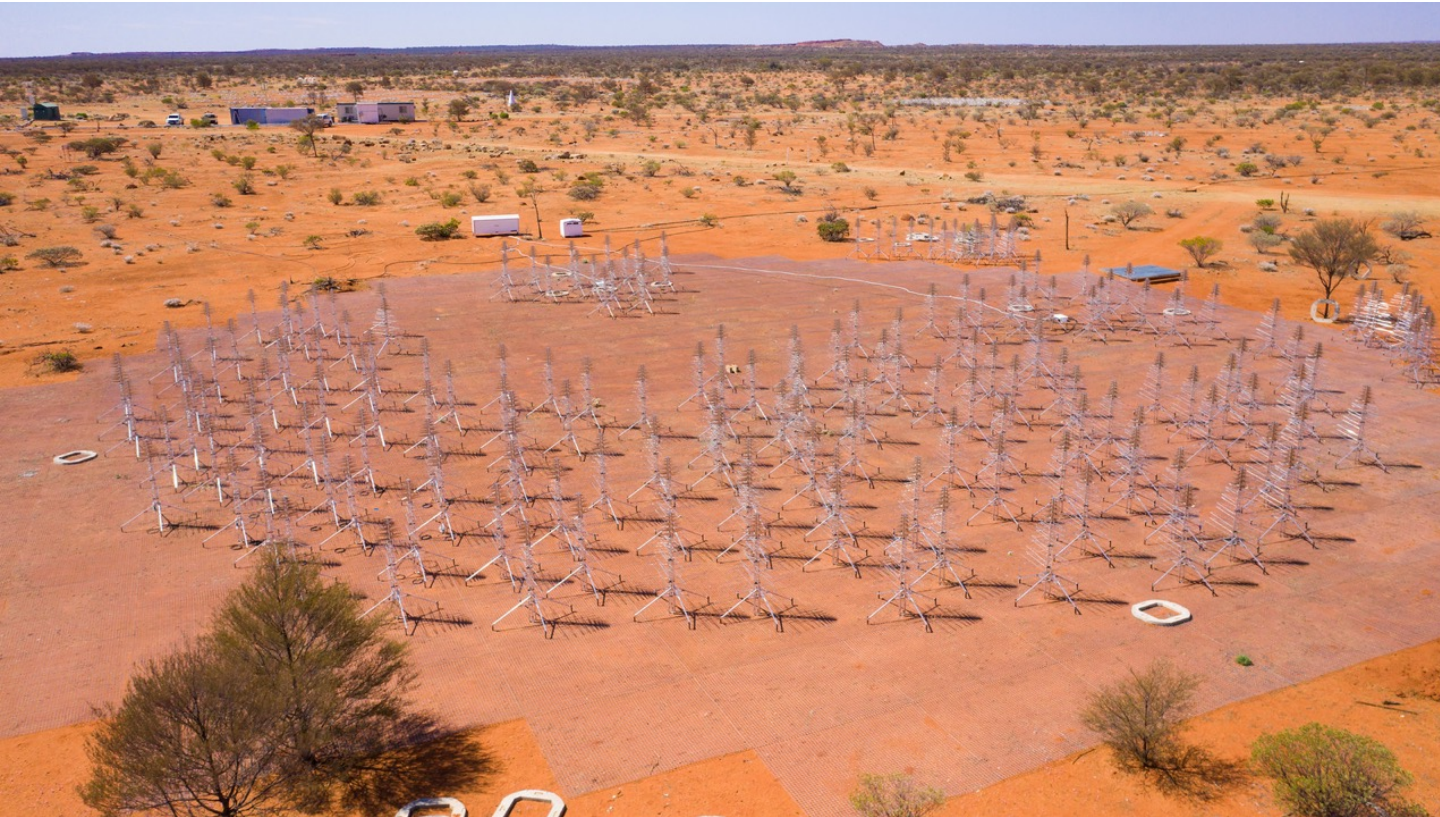




Summary Tier 1 Allocations

Contract	Tier 1 Lead	Status	Other Participating Countries	Contract type
Low Infrastructure	Australia	Conditional	-	ECCs
Low Infrastructure PSC	Australia	Conditional	-	PSC
Low Field Node	Italy	Conditional	Australia, United Kingdom	PSC, ECC (SC)
Low <u>Digitisation</u>	Italy	Conditional	Australia, India, United Kingdom, Netherlands	PSC, ECC (SC)
Low AIV PSC	Australia	Conditional	Japan, Netherlands	PSC
Low CSP	Netherlands	Conditional	Australia	ECC
Low Clocks	United Kingdom	Conditional	Switzerland	ECC
Low Timing	United Kingdom	Conditional	China, Spain	ECC
Mid Infrastructure	South Africa	Conditional	-	ECCs
Mid Infrastructure PSC	South Africa	Conditional	-	PSC
Mid Dish Structure	China	Conditional ¹	Italy, South Africa, Spain, Germany	ECC (SC)
Mid Dish PSC	South Africa	Conditional	-	PSC
Mid <u>Digitisation</u>	Sweden	Provisional ¹	Canada, France, South Africa	ECC
Mid AIV PSC	South Africa	Conditional	Japan and Portugal	PSC
Mid CSP	Canada	Conditional	TBD	ECC
Mid Clocks	United Kingdom	Conditional	Switzerland	ECC
Mid Timing	United Kingdom	Conditional	Australia, Spain	ECC
Mid <u>Cryo</u>	United Kingdom	Conditional ¹	(France, Germany)	ECC
MID SPF Services	South Africa	Conditional	-	ECC (SC)
Mid Band 1 SPF	Sweden	Conditional	India, Spain	ECC
Mid Band 2 SPF	South Africa	Conditional	-	ECC
Mid Band 5 SPF	United Kingdom	Conditional ¹	Sweden, (France, Portugal, Spain)	ECC
Low SPC	France	Conditional ²	-	ECC (PSC)
Mid SPC	France	Conditional ²	-	ECC (PSC)
Low Networks	Unallocated	-	-	ECC
Mid Networks	Portugal	Conditional ²	-	ECC (PSC)
OMC	India	Conditional	Italy, Portugal, South Africa, United Kingdom	PSC
SDHP	United Kingdom	Conditional	Australia, China, Germany, India, Italy, Netherlands, Portugal, South Africa	PSC
Low CPF	United Kingdom	Conditional ²	-	ECC (PSC)
Mid CPF	United Kingdom	Conditional ²	-	ECC (PSC)
<u>MeerKAT</u> Integration	South Africa	Conditional	-	PSC

Bridging – AAVS2 and EDA2 (Curtin/INAF)





Site establishment

- **Lease**

- Terms of new lease for Boolardy Station agreed
- Draft SKA Sub-lease being developed

- **ILUA**

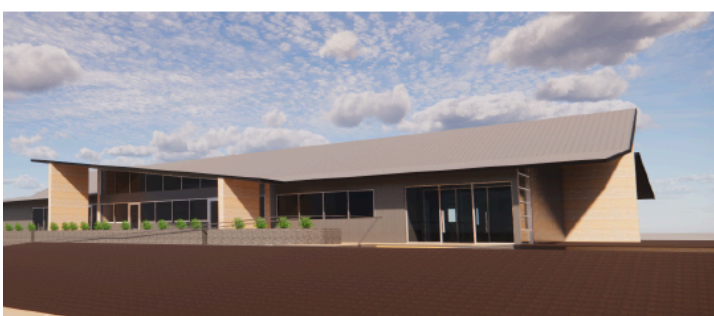
- Face to face meetings scheduled for 9-10 December 2020

- **Heritage surveys**

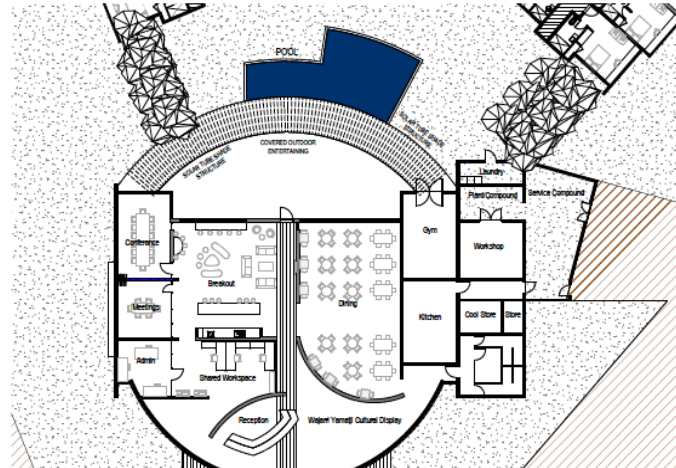
- COVID significantly slowed surveys this year
- Boolardy started full surveys in early October
 - Elder deaths terminated survey, prevented next one commencing
 - Re-commence 23 November
 - Will run thru Q1 2021



New facilities for SKA



Credit: Aurecon





MRO Management Plan

- **Governance**
 - Structure of Site Entity, support roles
 - Oversight and funding
- **Land Management** requirements and principles
 - Lease and CSIRO Land Mgt Policy obligations
 - Rehabilitation
 - Indigenous (ILUA, heritage etc)
 - Radio-astronomy primacy
- **Tenant** management and support
 - Leases / licences
 - Interference (including RFI management)
 - Tenant management
- **Stakeholder** management and Communications

SKA operations



- SKA operations will be collaboration between SKAO and CSIRO
- All staff working in one team
- Detailed staffing ~agreed
 - Now includes construction support staff
 - Peak of 137 staff in Aus (2028)
- Collaboration committee with SKAO and South Africa
- MoU approved and ready to sign
- Contract to sign mid-2021



SKA operations staffing

- SKAO employs:
 - SKA Low Telescope Director
 - PhD-level astronomers
 - Required finance, HR, procurement
- CSIRO employs other staff, including:
 - Deputy SKA Low Telescope Director
 - ~All staff at Geraldton and the MRO
 - Software and computing
- CSIRO will advertise these roles as they become available



CSIRO SKA Telescope Integration Leader

SKA Telescope Integration Leader

[Apply now »](#)

Date: 20-Oct-2020

Location: Perth, WA, AU 📍 Geraldton, WA, AU

Company: CSIRO

- **Ensure AIV outcomes are aligned with high-level objectives**
- **Develop environmentally sensitive solutions**
- **Build strong relationships and liaise with SKA partners around the globe**

CSIRO Astronomy and Space Science (CASS) builds and operates radio telescopes around Australia, including the iconic Parkes “Dish” and the Australia Telescope Compact Array in Narrabri. CSIRO is playing a lead role in the design, development and construction of the world’s largest radio telescope, the Square Kilometre Array (SKA). SKA Low, the Australian component of SKA, will be built at CSIRO’s Murchison Radio-astronomy Observatory (MRO), ~300km northeast of Geraldton, Western Australia.

As part of Australia’s contribution, CSIRO will perform the work of telescope Assembly, Integration and Verification (AIV) for SKA Low. As the Telescope Integration Leader, you will lead CSIRO’s AIV team, planning and executing SKA AIV activities and working towards telescope commissioning prior to handover to the science verification team. You will draw from a broad background in system engineering, project management and one or more areas of RF-signals and instrumentation, electronics or software engineering.

A job-share arrangement will be considered for this position if circumstances permit.

Closes 30 November



Thank you

We acknowledge the Wajarri Yamatji as the
traditional owners of the observatory site