Welcome and overview of the project status

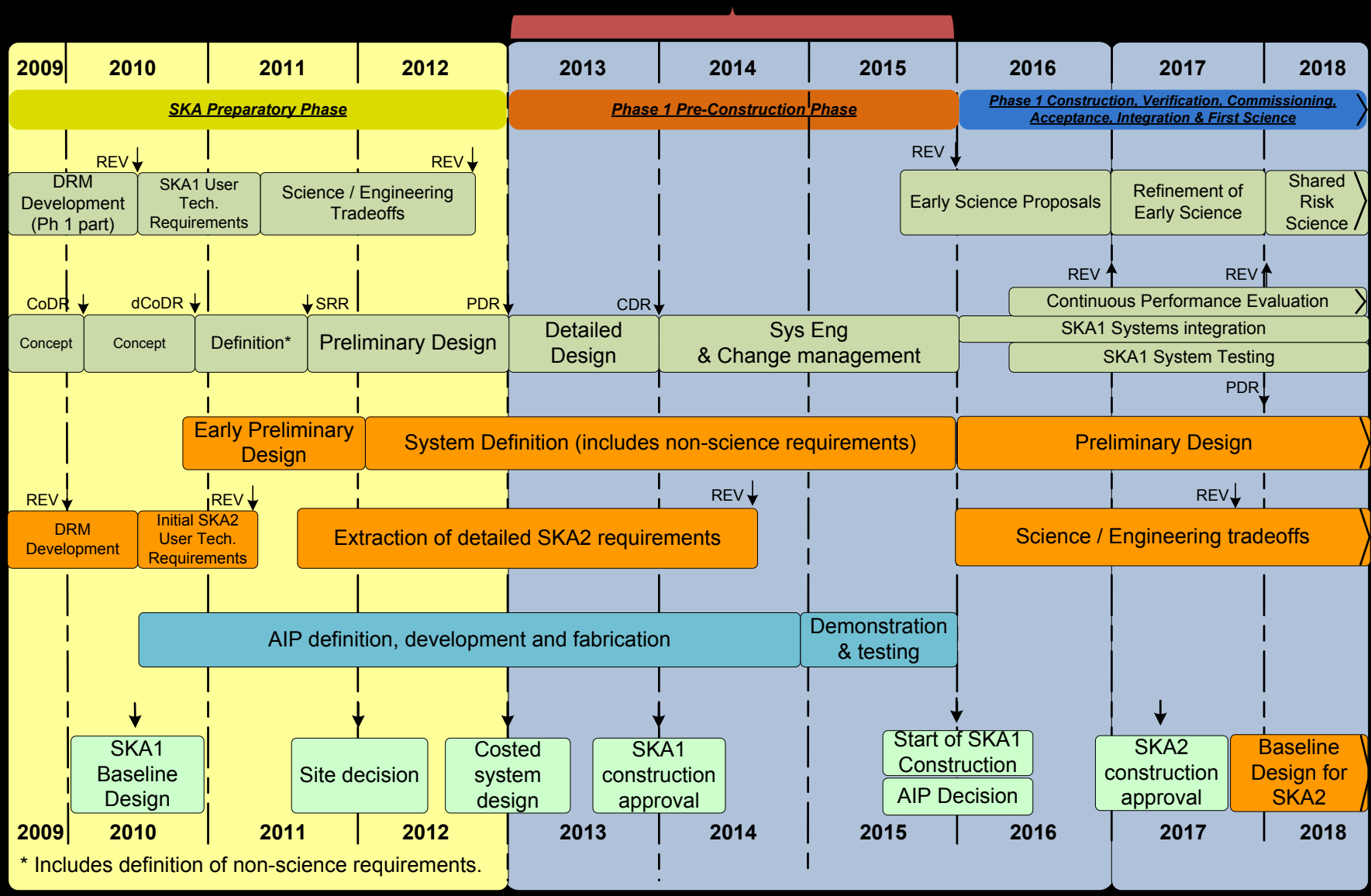
SKA System δ CoDR

Manchester, 23 February 2011

Changes since the System CoDR in Feb 2010

- focus on Phase 1
  - SKA Memos 125, 130
    - 250 dishes, 50 low frequency aperture arrays
  - science design reference mission for SKA_1
  - δCoDR documents
- delineation of the Advanced Instrumentation Program
  - Phased array feeds for dishes, mid-frequency aperture arrays, ultra-wideband single pixel feeds
  - decision points 2014 and 2016
- formation of the PrepSKA WP2 Management Team
  - WP2 Project Plan in place

Project Phases



Project Status

- SKA project is evolving quickly
  - government ministries & funding agencies are even more engaged than a year ago
    - Agencies SKA Group, SKA Siting Group, Governance & Funding WG

- Key decisions coming up (2011-12)
  - future organisation & governance for pre-construction phase (2012-15)
  - pre-construction phase funding
  - site decision

Goals of the Pre-Construction Phase

1. Progress the SKA design to Production Readiness Review stage and let contracts for construction of major sub-systems

2. Progress infrastructure roll-out on selected site to allow sub-systems to be deployed

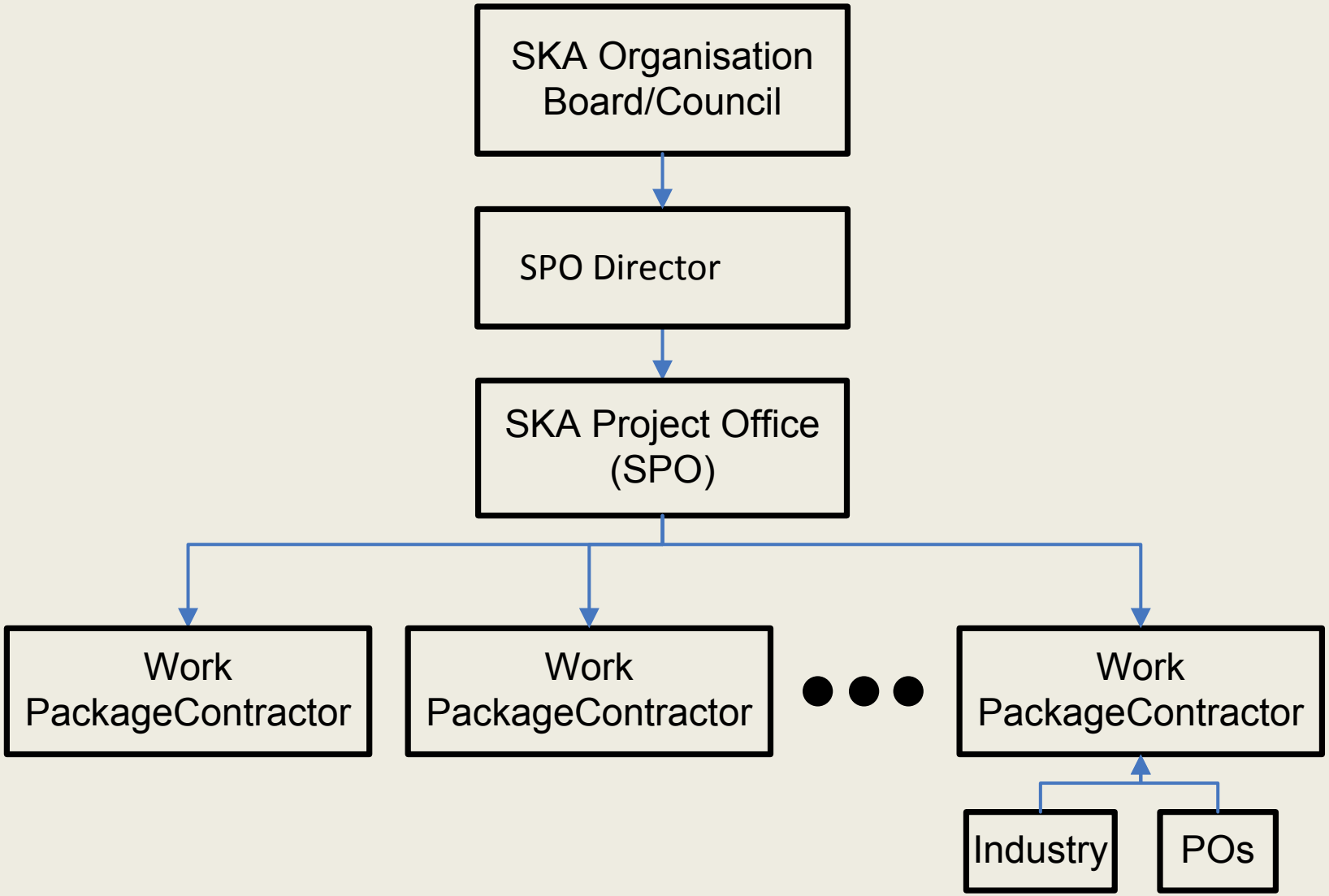
3. Mature the SKA legal entity into an organisation capable of carrying out the construction, verification, and operation of the telescope

Pre-construction phase

- Project Execution Plan and Funding Proposal
  - Agencies agreed its broad direction and content
  - Will be reviewed by an external panel, 8-9 March 2011
  - Initial decision by Agencies on funding level, 2 April 2011

- Pre-construction Phase governance
  - Legal entity for SKA Organisation to be established by 6 July 2011
  - Three proposals for hosting SKA Project Office received
    - will be reviewed on 10 March, decision 2 April 2011

Expected management structure in 2012



Approach

- Strong central project office (SPO) with management and system design authority
- Industry culture in managing and costing the project essential
- Close engagement of industry essential throughout PreCon phase
- SPO will contract work on major sub-systems to a small number of Work Package Contractors
  - WPCs are consortia of POs and industrial partners
- Major improvement over current “best efforts” basis

Work Packages

1. Management
2. System
3. Science
4. Maintenance and support /Operations Plan
5. Dishes
6. Aperture arrays
7. Signal transport & networks
8. Signal processing
9. Computing & software
10. Power
11. Site preparation

Assignment of Work Packages

1. "bottom up" approach

WPs are bid for and allocated competitively in a process managed by the SPO

- Board calls for bids from WPCs
- Bidding process managed by SPO
  - SPO ensures WPCs have capability and adequate plans to carry out work
  - SPO makes recommendations to Board on earned value of each WP
- Board allocates WP

Assignment of Work Packages (2)

2. “top-down”

Board allocates WPs following a review process by SPO to determine compliance with aims of WP and suitability of proposed contractors

- Board invites countries/institutions/consortia to take on a WP on basis of domain knowledge and potential availability of resources.
  - SPO ensures that WPC have the resources and adequate plans
  - SPO makes recommendations to Board on earned value of each WP

Costs

1 Jan 2012 - 31 Dec 2015

Total resources required: 90.1 M€

WPCs: 62.6 M€ (70%)

SPO: 27.5 M€ (30%)

- SPO staff: 19.3 M€
- office infrastructure & operational costs: 8.2 M€

100k€/py assumed

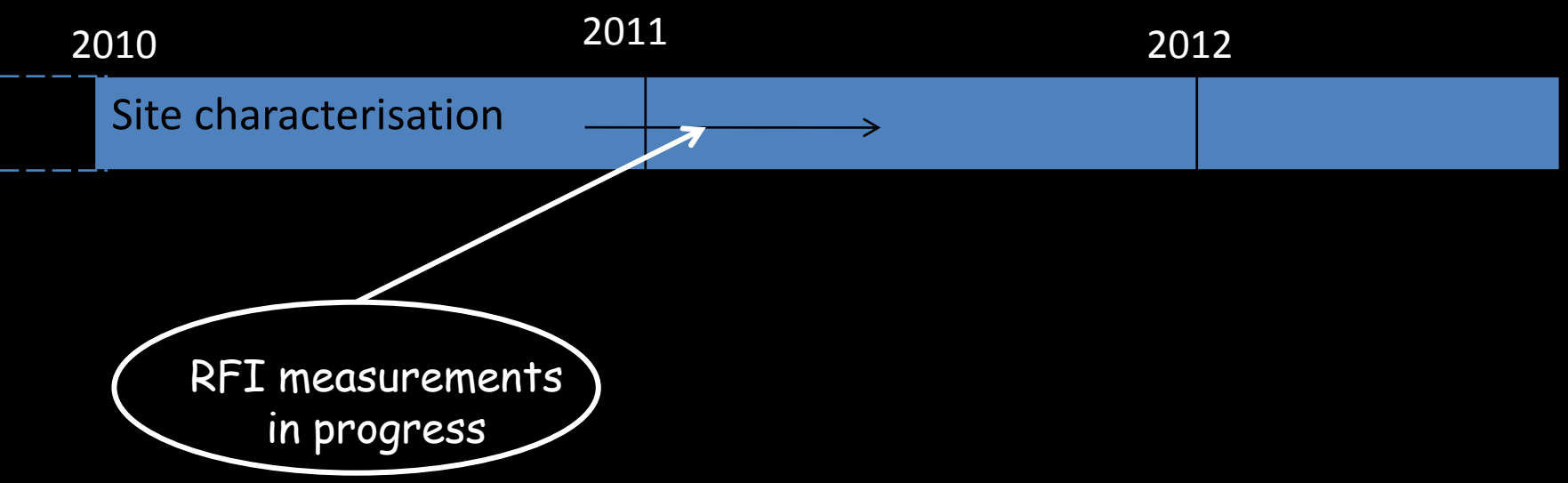
No institute overhead included

No explicit contingency included

“Embedded” SPDO staff in POs

Site selection

- Physical requirements
  - Extremely radio quiet environment
  - At least 3000 km in extent
  - Low ionospheric turbulence
  - Low tropospheric turbulence
- Two candidates short-listed in 2006
- Site selection process



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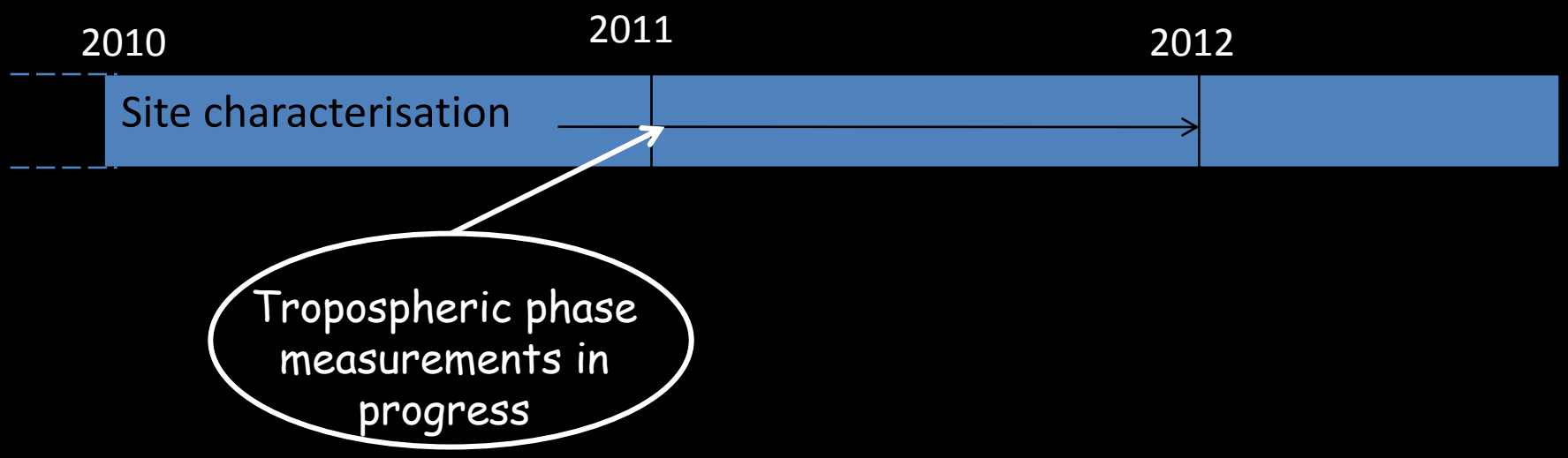
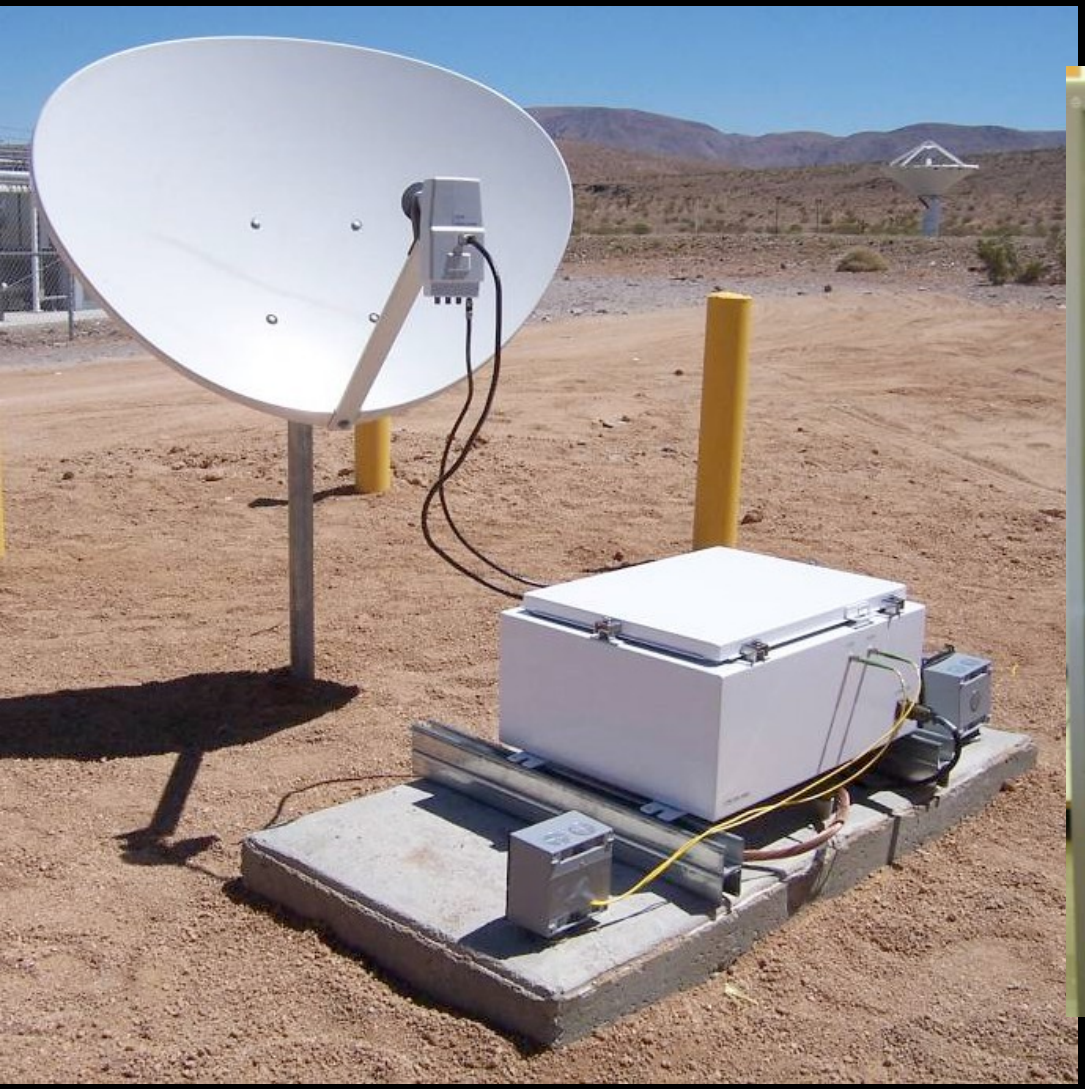


Tropospheric phase monitoring equipment



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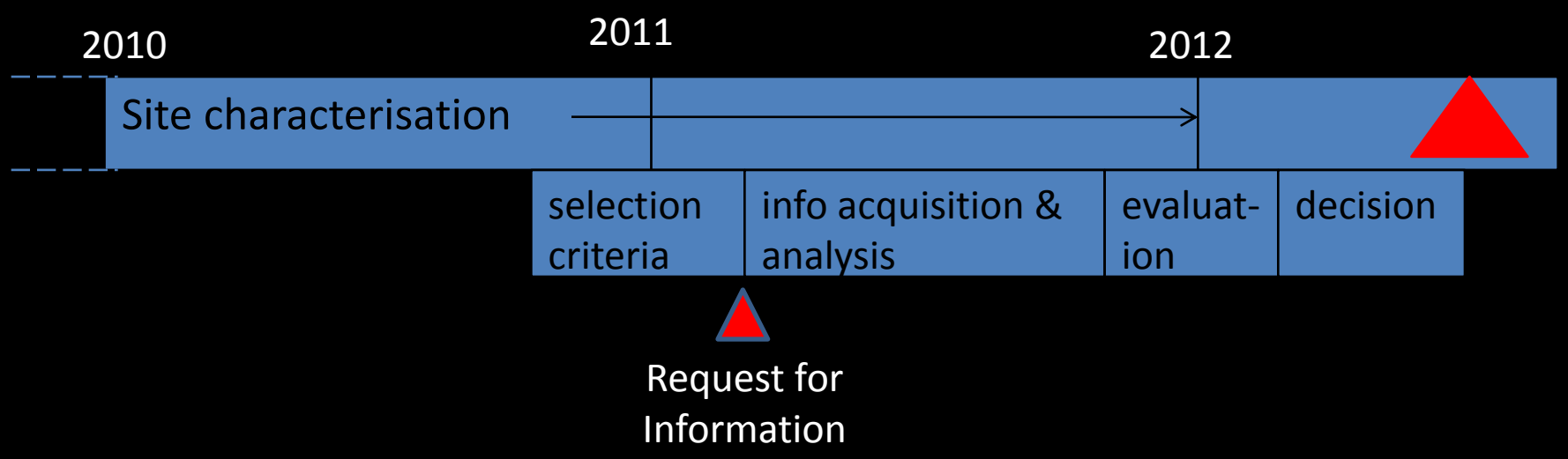

Top level schedule for the SKA

Technical

2008-12	telescope system design and cost
2013-15	detailed design in the pre-construction phase
2016-19	Phase 1 construction
2016	Advanced Instrumentation Program decision
2018-23	Phase 2 construction
2020→	full science operations with Phase 1
2024→	full science operations with Phase 2

Programmatic

2011	approve funding for pre-construction phase
	establish SKA organisation as a legal entity
	select location for SKA Project Office
2012	site selection
2014	approve construction funding for Phase 1 (350 M€, 2007)
2018	approve construction funding for Phase 2 (1.2 B€, 2007)