

Expression of Interest

Koodaideri Project – Phase 1

Project Overview:

The Koodaideri Project (Project), consists of the development of a new iron ore mine located approximately 110km west-northwest of Newman in the Pilbara Region and associated rail infrastructure which extends from the Koodaideri mine to Rio Tinto's existing rail network at Lyre.

The mine will include dry crushing and screening plant, non-process infrastructure, product stockyards, rail loop and load-out and rail link to Rio Tinto's main rail line.

Package Title:

Mine LTE Communications System

Package Reference:

KD1/H/CC/1628

Package Description:

The scope of works is for the design, supply, build, factory acceptance test, transport, install, commission, validate and optimise the below listed equipment and systems to site:

- A construction to production phase LTE communications system, including:
 - Site wide LTE coverage and capacity study to Company required specifications, including:
 - Spectrum analysis and RF modelling.
 - Integration with existing and the procurement/lease of additional licensed and/or unlicensed (if available) spectrum/technologies on behalf of Company.
 - Study report finding, recommendations and risk analysis.
 - LTE test and validation of a Company specified Evolved Packet Core, including:
 - EPC hardware, software and licensing.
 - MME.
 - S/P-Gateway.
 - 3GPP compliant Mission Critical Push to Talk System.
 - IP network switching and routing.
 - RAN, including:
 - Fixed, and semi-permanent macro and micro radio base-station and antenna equipment.
 - Mobile facility micro radio base-station and antenna equipment.
 - LTE heterogeneous networking radio base-station and equipment.
 - LTE Wireless Distributed Antenna System equipment and associated infrastructure for underground, indoor building, plant and process and operations.
 - On-site equipment fit-out in site communications rooms, shelters and on fixed, mobile mast facilities.

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- In-vehicle, mobile personnel and fixed location User Equipment provisioning and testing.
- Off-site and on-site User Equipment fit-outs
- LTE coverage and capacity drive testing, optimization, regression testing, interoperability and compliance testing and validation.
- Mobile RBS facility infrastructure delivery to Company specification, including:
 - Mobile and semi-permanent RBS facilities (Trailer and Skid).
- LTE and IP Network Test equipment, including:
 - Drive test tools.
 - Traffic generators.
 - RF analysis and simulation tools.
 - LTE Data and Voice UE and Network testing equipment.
 - Interoperability and compliance testing tools.
- LTE IP backhaul incorporating Nokia:
 - Packet Radio microwave equipment and antenna systems.
 - IP/MPLS Routing and Switching equipment.
 - Layer-2 and Layer-3 VPN service integration.
- Service design and integration with new and existing equipment:
 - Associated building/DC Power distribution and management systems.
 - LTE common core components, including:
 - HSS.
 - RADIUS.
 - OAM, OSS & BSS.
 - NMS, EMS.
 - Existing Company microwave, analogue and digital PABX, data and security network equipment, including:
 - SDH/PDH voice services.
 - Construction phase TETRA VMR interoperability.
 - Company VoIP system (Cisco Call Manager).
 - Legacy LMR Analogue E&M systems.
 - Cybersecurity Firewalls and user authentication, authorization, accounting and data protection systems to Company specification.
 - Company and OEM application infrastructure including:
 - Hardware.
 - Software.
 - Databases.
 - Licensing.
 - Backup & Restore.
 - Autonomous HME systems, VMR and Mine Monitoring and Control, Survey, Plant and Mobility application use-cases.
- Transition of construction phase LTE communications system to production phase LTE network and EPC located off-site, including:
 - Migration to production phase Data Center facilities as they become available onsite.
 - Migration and integration to the Company target state LTE distributed core architecture.

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- Intra-site backhaul and inter-site WAN integration to Perth Data Centre and Operations Center sites, commissioning and site acceptance testing to production phase design.
- Successful handover to operation including Equipment commissioning, Factory and Site Acceptance testing during construction and transition to production.
- Decommissioning and re-purposing of construction phase equipment as required.
- Produce content for site RadHaz folders for all LTE Radio sites.
- Produce project data books including manufacture, operation and maintenance manuals.
- Provide support and maintenance through to production handover to Company operations and support staff.
- Produce and deliver training material for operations and support.

Specific Scope Requirements: Suppliers wishing to be considered must be able to demonstrate their ability to complete the following tasks:

- Comply with the technical requirements of Project specification;
 - Project Specification KD-5060-T-SPE-00006.
- demonstrate that the scope can be delivered to the highest standards of health and safety, with zero harm to people and environment;
- demonstrate experience of successful completion of similar projects;
- demonstrate that the design capability, for selection of equipment will meet the requirements listed in project documentation;
- demonstrate capacity and capability to achieve Project schedule requirements; and
- demonstrate that the equipment supplied will be of high quality and standards that meet or exceed the Project quality requirements and specifications.

Forecast Award Date: January 2020

Package-Specific Criteria: Ability to design and supply the equipment to technical specification, scope of work and other requirements stated in contract documentation.

Generic Pre-Qualification Requirements: As per (draft) Selection Criteria

Expression of Interest: Suppliers and contractors are invited to express an interest in this scope of work by registering on the ICN Gateway online platform. Please ensure;

- The company profile on ICN Gateway is complete, up-to-date and accurate;
- Interest is registered as full-scope or partial-scope supplier (where applicable); and
- Responses to the generic pre-qualification criteria (questions) via the ICN Gateway, is provided.

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EOI Commencement Date: 14 October 2019

EOI Closing Date: 25 October 2019

Contact: Industry Capability Network of Western Australia. (+618) 9365 7556

More information about Pilbara projects at Rio Tinto is available at <http://www.riotinto.com/australia/pilbara-4691.aspx>

Disclaimer: *This package description and target award date is indicative only and subject to change. It is intended to provide a brief outline only of certain works that may be required for proposed Rio Tinto projects and should be read in conjunction with the Rio Tinto project description on ICN Gateway. Full scopes of work will be made available to parties invited to tender. There is no undertaking to contract or proceed to a competitive process implied by this form. Further contact with interested suppliers will be at Rio Tinto's discretion.*