

**Scope of Work for approval of Mine plan, Mine closure plan & Techno economical study of Kuraloi (A) North
Coal Mine**

A. Objective: -

Vedanta Limited has been declared as successful bidder for Kuraloi (A) North Coal block located in IB Valley Coal Field at Jharsuguda, Odisha in second attempt of 1st tranche of commercial coal block auction under The Mines and Mineral (Development and Regulations) Act, 1957. The exploration work with exploration density of approx.

The coal block has geological reserve of **1680 MT** and approved capacity of **8MTPA**, but Vedanta intends to develop this mine at its full potential i.e. **10 MTPA**.

Vedanta is intending to appoint a business partner for Geological reserve estimation & revalidation, preparation cum approval of Mine plan & Mine closure plan, and other related works. The brief scope of work is as mentioned below.

B. Scope of work: the scope of work is consisting 3 parts as mentioned below

1. Preparation and approval of 8MTPA mining plan as per the as per statutory requirement from respective authorities

- 1.1. The scope of work of bidder shall include preparation & revalidation of geological report, preparation Geological Model, high level study for mining options & comparison for total economical extractable coal, SR & GCV with OC & combination of OC method, preparation, and approval of Mine Plan along with Mine Closure Plan & other related activities. All statutory fee will be in the scope of Vedanta, the detailed scope of work shall be as under:
- 1.2. Review & revalidation of the existing Geological Report & all other reports, approvals etc. available with Vedanta pertaining to the Coal Block.
- 1.3. Preparation of a concept Note for Mining Plan & Progressive Mine Closure Plan & Presentation of the same along with all drawings, Plans, Maps.
- 1.4. Preparation of the Mining Plan & Mine Closure Plan based on the approval of the concept note by Vedanta.
- 1.5. Getting the Mine Plan reviewed by Vedanta and accordingly, incorporating the suggestions made if any.
- 1.6. Submission of Mining Plan & Mine Closure Plan to Ministry of Coal, Govt. of India for approval.

- 1.7. Addressing to any observation in the submitted Mining Plan, if notified by the standing committee/Ministry of Coal/ Coal controller and/or any other statutory authorities and Preparation of Presentations, Notes etc, if required for the same.
- 1.8. Presentation before the standing committee/Ministry of Coal/ Coal controller or any other statutory authorities, on behalf of Vedanta regarding the above. If required, Vedanta representatives shall accompany to such meetings.
- 1.9. Incorporating the Compliance/observations made by the authorities in the Mining Plan and resubmission of the Final Mining Plan and Mine Closure Plan to Ministry of Coal for approval.
- 1.10. Obtaining the approval of Final Mining Plan & Mine Closure Plan from Ministry of Coal and/or the Coal controller, as required.
- 1.11. Mining Plan is to be prepared as per the guidelines dated 29th May 2020 of MoC, Government of India followed by the terms of MMDR Act and MC Rules and prevailing guidelines
- 1.12. Mining plan is to be prepared in line with block allotment letter issued by MOC, Govt. Of India.

2. Techno economic Feasibility study of 10MTPA or maximum potential.

- 2.1. Preparation of digitized Geological Model and Mine model and carrying out the Reserve estimation, Grade estimation, Mine Planning, mine scheduling and estimation NPV of total forecasted cashflow of project using latest software.
- 2.2. Conduct study along with cost benefit analysis & comparison of options for different suitable combinations of various parameters like maximum extractable reserves with minimum stripping for OC, annual peak rate production capacity, Stripping ratios Cost per GCV and other such important parameters with validation using modelling software's.
- 2.3. To determine the ultimate Pit geometry with maximum extractable coal and maximizing peak rated capacity.
- 2.4. To suggest HEMM equipment selection with best suitability for Kuraloi North block considering techno commercial comparison.
- 2.5. Hydrogeological study shall be done.
- 2.6. Techno Commercial Solution: - To provide an estimate of cost of production +/-10% accuracy (s). Bidder to provide opex and capex on both outsourcing model and departmental model. Techno commercial analysis of different mining (such as surface miner/truck shovel) options.

- 2.7. Commencement Plan: - To Provide commencement plan and to prepare response to any technical query asked by MOC in process of approving Commencement Plan. All the queries shall be answered within 3 days.
- 2.8. Statutory / HSE: Enumerate various statutory permits required along with a possible timeline. Environment management plan preparation.
- 2.9. To evaluate, if 10Mtpa RoM coal production is the optimum capacity achievable, else if production is to be pushed to meet a target of 10Mtpa of RoM, what enabling design conditions are required and what are the constraints/risks in achieving such
- 2.10. Develop a fast-track Geological Model (3-D computerized) using available exploration data.
- 2.11. Determine the Ultimate Open pit geometry and the maximum Recoverable Coal within the Ultimate pit boundary.
- 2.12. Determine the mining rate from opencast mining; the mining rate represents the amount of coal and waste materials extracted from the mine; the estimation of this rate is closely related to the selection of the optimum exploitation rhythms. The mining rate must be enough, not only to supply the coal as required but also to allow the extraction of the waste that overlay (and interlay) the coal seams.
- 2.13. Evaluate, albeit at a high-level, the likely schemes for exploitation from opencast; schemes of exploitation depend not only on the characteristics of the mining benches but also on the characteristics of the equipment.
- 2.14. Bidder to suggest HEMM equipment deployment with techno commercial comparison.
- 2.15. Bidder to plan mining with best in class technology equipped with Artificial Intelligence, IoT etc.
- 2.16. Bidder to benchmark the mine with world class coal mines and provide the details of best practices followed. Details of benchmarking to be provided such as type of equipment used (surface/continuous miners, HEMM), infrastructure, CHP, outbound logistics and capex/opex details.
- 2.17. Year on year production schedule with optimization in stripping ratio, re-handling.
- 2.18. Geotechnical and hydrogeological study
- 2.19. Bidder to suggest Coal Handling System, the evacuation and outbound logistics. Vedanta has outsourced an agency for conducting logistics study, thus successful bidder has to work along with that agency for coal evacuation infra finalization.
- 2.20. Appropriately detailed assessments of applicable Modifying Factors together with any other operational factors and detailed financial analysis
- 2.21. Suggesting best in class digital technology/AI for minimizing the GCV losses/dilution and quantity of coal

- 2.22. Evaluating of mining equipment options (as justified) for the technical and economic viability of the project.
- 2.23. Surface Plan with an outline of location of support infrastructure and other facilities (Infrastructure plot plan to be provided)
- 2.24. Any required diversions of road, nalla / water stream or existing powerline is to be brought out
- 2.25. Year wise land requirement to be arrived based on the area required for stage wise pit, dump and infrastructure
- 2.26. Coal handling arrangement for coal from OC with flow sheet for CHP including handling and storage facility for coal
- 2.27. Requirement of utilities as mentioned below but not limited
 - 2.27.1. Sourcing of the power, drawing power line, substation, and power feeding arrangement to the mine. A line diagram of layout would be included in the report
 - 2.27.2. Water requirement for industrial and potable use and possible source of water would be studied
- 2.28. Service Buildings and residential arrangement to be developed conceptually and included in the report
- 2.29. Requirement of the land to be accessed and complete mapping of the land.
- 2.30. Mining shall be done considering minimum land acquisition, avoiding forest and private land up to the maximum extent.
- 2.31. Complete infrastructure requirement from pit to outbound loading point

3. **Preparing Detailed Technical Tender Document of MDO:** - Vedanta is intending the develop Kuraloi A North & Radhikapur West mine on end to end outsourcing MDO concept. For this successful bidder needs to prepare a technical tender document (MDO scope of work) which shall include MDO's scope related to pre mining activity, deployment of HEMM, capex for infra, access road, lightening, Coal handling plant, rapid loading system, ROM coal production, R&R township requirement, loading hauling of coal/OB, transportation of coal up to rapid loading system. Successful bidder can suggest additional scope for end to end outsourcing concept of Vedanta.

C. Timelines: -

- 1. For preparation and approval of mining plan 3 months from date of Lol/PO
- 2. For feasibility study within 5 months from date of Lol/PO

D. Deliverables: -

- 1.** Successful bidder shall provide geological model
- 2.** Report in MS Word and PDF
- 3.** Management presentations in MS Power Point
- 4.** Financial model in MS Excel with detailed working
- 5.** Tender/scope of work in MS Word