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Council for Geoscience

QUESTIONS AND ANSWERS

APPOINTMENT OF A SERVICE PROVIDER FOR THE PROVISION OF AN ENGINEERING DESIGN AND EXECUTION OF A PROPOSED PILOT SCALE ANTHROPOGENIC CARBON DIOXIDE INJECTION WELL AND ASSOCIATED INFRASTRUCTURE FOR A PERIOD OF TWENTY-FOUR MONTHS, IN SOUTH AFRICA, MPUMALANGA PROVINCE, GOVEN MBEKI MUNICIPALITY.

1. Request for 2-Month Extension
   We kindly request you to consider a two-months extension of proposal submission deadline that will allow sufficient time for discussions and alignment with rig providers and other third parties.

   Answer: Tender closing date has been extended to 25 September 2025

2. Alternate Commercial Model Proposal

   Given the number of unknowns at this stage, a Lump Sum commercial model may not accurately reflect the project's risks and uncertainties. We propose adopting a Time & Materials (T&M) approach with a budgetary estimate for planning purposes. This could be staged as follows:
   - Lump Sum for the engineering phase.
   - T&M for execution, based on the assumed well design and basic materials/equipment requirements.

   This structure would provide flexibility to accommodate evolving project details while still offering your Company a transparent cost framework.

   Answer: Additional technical data regarding Geological characterization has been shared to clear the unknows. Check our website and E-tender portal.

3. Aligned with request number 2, Halliburton believes that a tender in stages could make more sense, so execution quotation could be aligned with the engineer analysis done. It can help to avoid issues on quotations. So suggestion to have it separate in 2 quotations with different timelines and linked to each other:

   - Engineer Analysis
   - Execution of scope

   Is this approach acceptable?

Answer: Additional technical data regarding Geological characterization has been shared to clear the unknows. Check our website and E-tender portal.

4. Halliburton would like to request, if possible, a separate clarification call to discuss above clarifications submitted.

   Answer: On arrangement, CGS team is available

5. We are also wondering if it would be possible to know the name of the contractor who drilled the well(s) at/in proximity of the selected site for the CO2 pilot. Is this something that you could share with us? Ideally, we would like to receive the company name and a potential contact.

   Answer: Mzansi Exploration Drilling and Mining, Contact: +27827393297/ sam@mzansiexploration.co.za / braam@mzansiexploration.co.za

6. Engineering design for the injection well(s) and associated infrastructure – what does CGS mean by "associated infrastructure". Are we expected to design the surface CO2 injection facility? What about civil work?

   Answer: This refers to the above ground equipment and infrastructure that will connect to the below ground well to enable the pumping.

7. The submissions must include proposals for the design and construction of associated monitoring network – we would like to highlight a challenge regarding pricing:

   a. Selection of monitoring technologies is a critical component of MMV (Measurement, Monitoring and Verification) design phase, as such cost of monitoring technologies can be calculated only based on the final MMV design, not prior that.
   b. Therefore, we kindly request that either CGS to provide a list of required monitoring technologies to guide our pricing or confirm whether the selection of monitoring technologies will be finalized prior to proposal submission.

Answers: This should include any proposed equipment and/or processes to monitor the movement of the injected material (carbon dioxide).

8. From the RFP it is not clear whether CGS expects us to provide a quote for well design only or cost for drilling should also be included in the proposal?

   Answer: Drilling should be included.

9. Deliverables: A detailed Gantt chart outlining the project from design, execution, and monitoring over a period of twenty-four months – Could you please confirm whether CGS expects all services to be provided by a single vendor? Additionally, what is the planned mobilization date?

Answer: A consortium/subcontracting/joint venture is allowed. The Mobilisation should be as soon as possible after awarding of the contract.

10. Information regarding high level estimated priced bill of quantities for entire project life cycle – Could you please clarify what specific details are required during the proposal submission.

    Answer: Information, overview, and itemised cost on: (1) detailed well design, (2) execution of drilling (including mobilisation, drilling, associated drilling activities), execution of the injection phase (including the required equipment to support the injection), (3) monitoring during the injection process (including establishing the flow and movement of the injected fluids – carbon dioxide), and (4) demobilisation activities (including site rehabilitation and associated overall close out report).

11. Please clarify on the project schedule submission – is it fully related to design phase? Based on the current documentation, it appears to be more aligned with the construction phase.

    Answer: Design and execution (meaning the design and construction of the injection well and infrastructure, and undertaking the injection phase)

12. Will there be any cost-share requirements for the winning party in terms of the project budget?
    Answer: No, the winning bidder will be responsible to use its own capital. Council for Geoscience will settle invoices in line with project milestones and deliverables.

13. What geoscience data would be available for review during the proposal process? Could we get access to current Geocharacterization reports, reservoir models, well logs, or other geologic summary materials about the proposed injection site and storage reservoirs?

    Answer: Additional technical data regarding Geological characterization has been shared to clear the unknows. Check our website and E-tender portal.

14. We would like to enquire whether Subsurface Engineering (specifically Reservoir Engineering/dynamic simulation studies) development strategy feasibility studies have already been undertaken as part of the Geological Interpretation phase

    Answer: Conclusions from the geological characterisation highlight (1) there is sufficient volumetric geology is support in excess of several million tonnes of carbon dioxide, (2) economic viability is dependent on accessing existing

permeability that is largely confined to pre-existing fractures, (3) a well design to access largest permeability zones, either vertical or horizontal, should be highly considered, and (4) the location presents suitable economic viability through large emission sources.

15. What is meant by 'similar projects/ work' for the following technical capability qualifying criteria? Can this be similar projects like oil and gas projects?

    - Design of injections well or similar projects
    - Management of deep percussion drilling for C02 injections or similar work
    - Demonstration of drilling of anthropogenic carbon injection well or similar work ? Again, can this be related to similar projects like Oil and Gas injection Designed projects.

    Answer: Similar work includes any underground reservoir engineering, this may include, but not limited to, oil and gas, geothermal, and any injectivity programmes.

No.	Reference	Questions	Answer
16.	Scope work: 3.3.3 The engineering design must account for the need to enhance the fracture-controlled permeability. Moreover, it must provide requisite safeguards to limit the increased permeability to that required to meet the pilot injection considerations.	Is a reservoir model available which describes the structural geology, the distribution of reservoir porosity & permeability, and computational analysis of the CO2 injection rates, CO2 migration and CO2 storage capacity. If not available, such reservoir modelling will be required for this proposed study.	The available geological data has been shared. This includes the borehole logs, reflection seismic data, and structural data. Fracture reactivation modelling is also shared.
17.	Scope of Work: Figure 2, Page 16 Indicates the geological bore hole correlation	In order to prepare the Monitoring Program we have the following clarifications: 1. What is the areal extent that may be monitored?	1 At least 25 hectares. 2 Not anticipated. The design should have requisite mitigation.

	cross section and the legacy wells B/H7, B/H 438, B/H EVGP1, B/H 2068, B/H EVKF3 in the location area are within close proximity of the proposed CCS site at Lebohang.	2. Are there potential leak pathways through legacy wells. 3. Does the geological characterisation (and any computational simulation of CO2 injection) assess the potential lateral extent of the CO2 plume? 4. Is it expected that the CO2 plume movement towards the legacy wells and any other wells/ boreholes? 5. What is the integrity status of these bore holes wells mentioned and other boreholes in close proximity to the injection site? 6. Can these bore hole wells be used as monitoring /observation wells?	3 It is anticipated that this shall be dependent on the well design. 4 No. It is anticipated that the plume shall follow the preexisting fracture permeability. 5 It is anticipated that the older wells are collapsed. The new wells in the vicinity shall be available. 6 If accessible, yes.
18.	Evaluation Criteria: The number of wells shall be dependent on the engineering design being submitted. This may include separate wells, and/or proposals for coaxial well design.	We assume the CO2 injection well locations are specified. 1.Why is coaxial well mentioned? 2. Will all injection wells be drilled from the same surface location at the site? If the injection well locations are not yet specified should reservoir modelling be done to identify location and number of CO2 injection wells as a requirement of this proposed study?	1 Only mentioned as an option. 2 This should be accounted for in the proposed well design. 3 A 25 hectare study area is available. Additional reservoir modelling may be included in the proposal.
19.	Evaluation Criteria: It is advised that bids provide a benchmark against similar international standards and projects. For example, this may consider the United States Underground Injection Control (UIC) Class VI well designs that are employed	Can we consider other well standard as alternative to the (UIC) Class VI well design standards?	1 Yes, but must have justification.

	for carbon injection or equivalent.		
20.	HSE aspects: Environmental Impact Assessment (EIA) Study	In order to include recommendations/ guidance for our HSE requirement, environmental monitoring, and site rehabilitation, will you provide a copy of the EIA study.	1 Yes. We will share this.
21.	Scope work: 3.3.4 The injection shall target an initial volume of at least 10,000 tonnes of anthropogenic carbon dioxide, trucked to site and injected over a period of 24 months. It is expected that this will have a relatively small footprint that shall be constrained within the 25 hectare study area. The pilot plant design shall have considerations to increase the injection volume to at least 1,00 000 tonnes of anthropogenic carbon dioxide.	Is there a Basis of Design front-end engineering study completed and can this be shared in order we have a good understanding of the required volumes of CO2 and water for injection over time, yearly average.	1 Yes, this was focused on the available geology and broad comparison made with other international injection projects.
22.	Scope work: 3.3.	Is there a source of Electricity in the region available?	1 Off-grid power is required on the site.
23.	Scope work: 3.3.	Is there a source of water (for mixing with CO2) available in the region?	1 The contractor shall be responsible for sourcing the water.
24.	Scope work: 3.3.	We assume that required firefighting system to be provided in the plant, please confirm.	1 Yes.

25.	Geological characterisation report.	The Geological characterisation report does not discuss well design nor well location (bottom hole). Have you selected the CO2 injection well bore location and can you share this location?	1 It shall be located within the 25 hectare site. Highlighted on figure 3, 5, and 6.

26. Are we required to have a continuous 24-month physical presence in South Africa to support the project? Do we need to find a local partner to execute the work? It appears the design and engineering work can be performed remotely with occasional travel of experts.

    Answer: The most ideal, efficient, but responsive mechanism may be proposed.

27. Additional information: Environmental and Social Impact Assessment report has been shared and published in our website and E-tender portal.