

CTT 24670 SCOPE OF SERVICES

REVIEW OF STRATEGIC MASTER PLAN FOR MOSSEL BAY REFINERY OPERATIONS

1. INTRODUCTION

PetroSA invites the suitable Contractors to submit quotations to review cases based on available in-house feasibility studies and concepts. The information is to be reviewed, put into an economic model and reported on, and where required, to prepare a revised set of assumptions.

2. BACKGROUND

The GTLR will has ceased to operate due to limited gas reserves in existing offshore gas-fields.

The organization has identified various options to enhance and/or extend operations at the GTL refinery and urgently needs to develop these into an operationally and financially viable Master Plan. A number of these options are described in existing concept and feasibility studies.

PetroSA requires a number of refinery cases to be evaluated.

3. SCOPE OF WORK

The contractor shall apply its knowledge, skills and experience in finding the optimal solution for the GTLR from available studies and additional options to be identified by this review. The following areas and opportunities will be included in the scope (**not exhaustive**):

Upstream operation

- The update specifically excludes all offshore options, except:
- The update of the economic operations of the GTLR based on feedstock gas and condensate (the feedstock costs will be provided by PetroSA) supplied from the Luiperd field development in Block 11b/12b.

Macro-economics

Scope	PetroSA Supplied	Contractor supplied	Scope
Brent price forecast	Yes	To review	Review PetroSA forecast and provide commentary; Propose alternative if considered necessary
Product pricing (crack spreads w.r.t. Brent)	Yes		
Henry Hub gas price	Yes		
ZAR/USD Exchange rate	Yes		
RSA CPI% Annual	Yes		
US CPI% Annual	Yes		
Eskom electricity price increase% annual	Yes		
Discount rate / WACC	Yes		
SA Interest rate	Yes		

Cases to be evaluated:

Case 1 – LNG Feedstock

The consultant is required to provide an evaluation of the GTLR operating at maximum capacity based upon the following scope and provision of information:

Scope	PetroSA Supplied	Contractor supplied	Scope
LNG Infrastructure Capex	Yes	To review	Vendor to provide delivery methodology for LNG and associated Concept level Capex Estimate
LNG Gas energy price and Opex	Yes	Yes	Vendor to provide delivered ex ship gas price estimate and delivery OPEX
GTLR 3 by 3 Operations OPEX	Yes	No	Contractor to utilize for economics
GTLR Reinstatement Capex	Yes	No	Contractor to utilize for economics
Project definition where applicable	Yes	To advise	Contractor to advise on level of project maturity
GTLR Product slate	Yes	No	Contractor to utilize for economics
On-stream factor	Yes	To review	Contractor to review estimate and provide commentary and benchmark
Implementation Schedule	Yes	To review	Contractor to review estimate and provide commentary

Case 2 – Luiperd Block 11b/12b Feedstock

The consultant is required to provide an evaluation of the GTLR operating at maximum capacity based upon the following scope utilizing indigenous natural gas produced via the FA Platform:

Scope	PetroSA Supplied	Contractor supplied	Scope
Luiperd Gas Price	Yes	No	Vendor to use PetroSA information
Luiperd Condensate Price	Yes	No	Vendor to use PetroSA information
FA Platform OPEX	Yes	To review	Contractor to provide benchmark
FA Platform re-instatement Capex	Yes	No	Contractor to utilize for economics
GTLR 3 by 3 Operations OPEX	Yes	No	Contractor to utilize for economics
GTLR Reinstatement Capex	Yes	No	Contractor to utilize for economics
Project definition where applicable	Yes	To advise	Contractor to advise on level of project maturity
GTLR Product slate	Yes	No	Contractor to utilize for economics
On Stream Factor	Yes	To Review	Contractor to review estimate and provide commentary and benchmark
Implementation Schedule	Yes	To review	Contractor to review estimate and provide commentary

Case 3 – Liquid FEED 18,000 bpd refinery

This scenario is an option should the Luiperd Gas not be viable for GTLR, but viable for alternative markets in the immediate area. This project will then be linked to the Luiperd discovery, with a stream of Fuel Gas provided to the refinery. The refinery is supplied by Luiperd Condensate, delivered via the FA Platform, in the initial years, and imported condensate once the landed condensate rate declines.

Scope	PetroSA Supplied	Contractor supplied	Scope
Condensate Price	Yes		Contractor to review estimate and provide commentary
OPEX	Yes	To review	Contractor to provide benchmark
Capex	Yes	To review	Contractor to review estimate and provide commentary
Project definition where applicable	Yes	To advise	Contractor to advise on level of project maturity
Refinery Product slate	Yes	No	Contractor to utilize for economics
On-stream factor	Yes	To review	Contractor to review estimate and provide commentary and benchmark
Implementation Schedule	Yes	To review	Contractor to review estimate and provide commentary

Case 4 - Liquid Feed 46,000 bpd refinery (Enhanced Condensate Project)

The Enhanced Condensate Processing project is a revamp of the existing GTL Refinery which will enable the processing of imported condensate / light crude at a throughput of 46 000 bpd. This facility will not process landed gas and gas will not be required for fuel. An upgrade of the Marine Loading facility to enable the offloading of Suezmax tankers in a deeper position, is included in the project scope.

Scope	PetroSA Supplied	Contractor supplied	Scope
Condensate Price	Yes		Contractor to review estimate and provide commentary
OPEX	Yes	To review	Contractor to provide benchmark.
Capex	Yes	To review	Contractor to update estimate to today's money and

			review the estimating process, and provide commentary
Project definition where applicable	Yes	To advise	Contractor to advise on level of project maturity
Refinery Product slate	Yes	No	Contractor to utilize for economics
On-stream factor	Yes	To review	Contractor to review estimate and provide commentary and benchmark
Implementation Schedule	Yes	To review	Contractor to review estimate and provide commentary

Case 5 and 6 - An allowance is to be made for two operational proposals that could be identified through this review.

The tenderer is to include a schedule of rates for project team members whom will be performing work on the project.

The GTL refinery

- Clean fuels II compliance upgrade (different for the various options).
- Refinery options for Clean Fuels 2 (CF2) should be provided for all refinery cases (Cases 1-4)

Activities

The study will be at **concept** level and should include the following activities:

- Framing workshop - aligning expectations.
- Review previous reports / information as outlined above to be provided by PetroSA.
- Develop the investment options/cases as above.

- Develop economic model.
- Identify economically viable development pathways.
- Report to include an assessment of case maturity and readiness and do-ability.

The inputs will be based on appropriate techno-economic assumptions and calculations, available in-house information and preliminary data from technology vendors.

Financial and Economic Modelling

The study will provide financial / economic modelling on the following approach:

Financial outputs should have the following as minimum deliverables for every separate case:

1. Annual Cash Flow over 20 years covering the following cash flow items (Nominal terms; not discounted)

Gross Revenue
Costs
Bought-in Feeds (Ext)
Imported Cond. (Ext or Indigenous)
Imported Gas
(LNG/Indigenous/Other)
Reformat
Bought-in Feeds (Internal – if any)
Gross Oper. Cash Margin
Opex
Transfer Services
Distribution
Variable Opex
Fixed Costs (Own)
Fixed Costs (Shared Services)
Other income/(expenses)
Net Operating Cash Margin
Change in working capital
Cash from Operations
Net interest (on Cumulative Free Cash flow)

Investments
Shutdown & Turn around
Capex & Extraordinary Expenditure Abandonment/Decommissioning
Increase/ (Decrease) Cash & Equivalents.
Cum. Free Cash flow

2. Graphical representation of annual and cumulative cash flows
3. Net present value from Cash Flows (after applying discount rate)
4. IRR / MIRR from Cash Flows

A detailed comparison between the different cases is also required.

The inputs will be based on appropriate techno-economic assumptions and calculations, available in-house information and preliminary data from technology vendors.

Deliverables

The outcome of the study will be the following:

- A consolidated concept level report (including a presentation report).
- Economic model with outputs as described above.
- All assumptions that differ from those provided by PetroSA are to be defined with a reference to the data source.
- Capex and Opex Cost estimate (pre-FEL 1)
- New opportunity identification.
- Overall project schedule per case.

Overall Study Schedule

It is envisaged that this study will take 1 month to complete.

Study Initiation

The project kick-off meeting will be held between PetroSA and the contractor. At this meeting communication channels will be verified as outlined in this proposal. In order to avoid confusion, the scope, methodology and timeframes will be substantiated.

Discussion at this meeting may include but not be limited to:

- Access to available information.
- Critical review of all necessary project considerations.
- Project plan, and deliverable timeframes.
- Work procedures.
- Mobilization and allocation of resources required.

4. INFORMATION TO SUBMIT

If interested, the contractor is required to submit a proposal in accordance with the requirements stipulated below:

- Illustrating a clear understanding of the scope.
- Proposed approach to study execution, including Upstream, GTL Refinery and Logistics.
- Statement of experience to undertake the work proposed, giving specific examples and references.
- Structure of the proposed study team with CV's of key individuals.
- Detailed quotation.

Pricing for each case

Pricing for each case plus disbursements is to be specified based upon a man hour rate and number of hours for each team member.

Lump sum contract is to be quoted based on the sum of the cases.

The Proposal to state any information relative to the enquiry that may not have been specified above.

5. DECLARATION

By submitting a quotation, the Supplier declares that:

- a. the information provided is true and correct;
- b. the person submitting the proposal is duly authorized to submit the proposal on behalf of the Supplier;
- c. the proposal is completed independently from, and without consultation, communication, agreement or arrangement with any

competitor

- d. Communication between parties in a joint venture or consortium will not be construed as collusive tendering (As detailed in the Certificate of Independent Bid Determination-SBD 9, available from National Treasury's website)
- e. documentary proof regarding any proposal will be submitted to the satisfaction of PetroSA when called upon to do so; and

6. PROCESS

6.1 Evaluation Process

Proposals that contain the information as requested in paragraph 4 will be evaluated.

6.2 Enquiries

Technical enquiries regarding this enquiry should be submitted to Velaphi Gumede (velaphi.gumede@petrosa.co.za)

6.3 Quotation submissions

Interested Parties are required to submit the quotations to Imran Natha before the closing date and time.

6.4 Acceptance of Proposals

PetroSA reserves the right to withdraw this enquiry at its sole discretion.

7. CHANGES TO THE SCOPE OF SERVICES

The scope of the Services shall be subject to changes by additions, deletions or revisions thereto by PetroSA. The Consultant shall be advised of any such changes by written notification from PetroSA describing the change. The Consultant shall promptly perform and strictly comply with each such change when so instructed by PetroSA. Any extra services resulting from such changes will be charged at the Consultant's normal or agreed rates.

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