

DEENDAYAL PORT AUTHORITY

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Office of the Chief Mechanical Engineer,
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Gandhidham (Kutch) - 370 201

No. CME/Electrical/284/TEFRConsultantGH2/2023|GIM|53

Dated: 29.05.2023

To
M/s. PTC India Limited
2nd Floor, NBCC Tower, 15, Bhikaji Cama Place, New Delhi - 110 066
E-mail : info@ptcindia.com, baskaran.subramanian@ptcindia.com
Contact No.: (+91) 99103 56464

[Kind attention: Shri Baskaran Subramanian, Senior Vice President (BD & Consulting)]

WORK ORDER

Subject: Techno-commercial feasibility (TEF) study & finalization of work - 'Development of Green Hydrogen Hub at Deendayal Port, Kandla' & allied common user facilities - reg.

Ref.: (i) Proposal with Negotiated offer received vide letter ref. no. C/PTC/BD/DPA/291 received through e-mail dated 03.05.2023
(ii) Accepted Terms of Reference dated 24.05.2023

Sir,

This is to inform you that your offer for the work of "Techno-commercial feasibility (TEF) study & finalization of work - 'Development of Green Hydrogen Hub at Deendayal Port, Kandla' & allied common user facilities" has been accepted for the contract price of ₹ 41,50,000/- (Rupees Forty One Lakh Fifty Thousand only) plus GST extra. This is subject to complying with terms & conditions stipulated in enclosed Terms of Reference (ToR).

It is kindly requested to deposit the Performance Guarantee amounting to ₹02,07,500/- (i.e. 5 % of the contract price) within 21 days from the issuance of this Work Order in accordance with the ToR clause.

The work shall commence w.e.f. 30.05.2023.

Please acknowledge receipt of this Work Order.

Encl.: accepted copy of Terms of Reference (ToR)

Yours faithfully,


Chief Mechanical Engineer
Deendayal Port Authority

Term of Reference (ToR)

for

Techno-commercial feasibility (TEF) study & finalization of work – ‘Development of Green Hydrogen Hub at Deendayal Port, Kandla’ & allied common user facilities

A. Background:

Green hydrogen is hydrogen produced by splitting water by electrolysis. This produces only hydrogen and oxygen. While hydrogen can be used for any specific purpose, venting the oxygen to the atmosphere will have no negative impact on the environment, if we do not have any specific use for it.

To achieve the electrolysis we need electricity and power. This process to make green hydrogen is powered by renewable energy sources, such as wind or solar. That makes green hydrogen the cleanest option – hydrogen from renewable energy sources without CO₂ or any other greenhouse gases as a by-product.

Hydrogen generated through renewables is emerging as key element in energy mix globally to reduce carbon footprints. The decreasing cost of renewables and enhancement in electrolyser technology is likely make green hydrogen cost competitive in coming years.

Govt. of India has also set target of production of 5 million tonnes of Green hydrogen by 2030 and the related development of renewable energy capacity. Govt. has notified the “Green Hydrogen Policy” as one of the major steps to promote Green Hydrogen and has a goal to emerge as an export Hub for Green Hydrogen and Green Ammonia.

The MIV 2030 of Ministry of Ports, Shipping & Waterways (MoPSW), envisioned initiatives and thrust to promote Green Shipping and Green Ports. Accordingly, a National Action Plan prepared with focus on policy instruments, infrastructure, technology and solutions for Green Shipping. As a part of Green Shipping, the need is to create Green Ports through various measures such as increased usage of renewable energy (solar / wind), shore to ship electricity to vessels usage of clean fuels (Electric, LNG, CNG) to reduce vehicle emissions at ports, introduce Ammonia and Hydrogen as fuel for future usage in the ports. In this context, Deendayal Port has been identified as one of the three ports to be developed as “Hydrogen Hub” in line with the Maritime India Vision 2030. Green Hydrogen Hub will include (but not limited to) the production, storage / bunkering, Loading / unloading for EXIM etc.

In this connection, an Global Eols were invited from open market & positive response(s) from 10 applicants have been noted down till date.

B. Scope of work

The proposed study & further assistance will cover following:

1. Demand Assessment of Indian and international markets: Demand assessment is required for the purpose of assessing the resources like land, water and power requirements of the hub. Further, demand assessment will help to in sizing of infrastructure facilities required to be developed in the hub. Assessment of demand for both domestic market in the western region and also the potential international markets will be made based on published and available data / information. The assessment needs to have a realistic approach since heavy investment will be dependent of market sizing.
2. Support to DPA in identification, assessment of land availability for Project in phased manner.
3. Planning for RE Power requirement based on the outcome of demand assessment.
4. Assessment of water requirement-based demand and availability of water resources to meet the requirement.
5. Conceptual Layout of Green Hydrogen Hub along with area requirements.
6. Review of Electrolyser technologies for Green Hydrogen Production, Sizing of Green Hydrogen Plant
7. Assessment of other infrastructural requirements for setting-up of Green Hydrogen Hub
 - a. Land development / survey
 - b. Infrastructural requirements at the proposed site:
 - i. Improvement / strengthening requirements at site,

- ii. Access road, internal roads, drainage and other requirements,
 - iii. Water infrastructure requirements at site and options for its availability,
 - iv. Power infrastructure requirements.
8. Storage & Transportation for Green Hydrogen and Green Ammonia:
- a. Review of commercially available storage and transportation technologies,
 - b. Area and inventory requirement for guaranteed offtake capacity of Green Hydrogen / Green Ammonia,
 - c. Assessment of suitable storage structure / bunker and associated infrastructure,
 - d. Transportation infrastructure requirements to meet domestic requirements & export of ammonia,
 - e. Viability of Green Hydrogen fueled Vessels near coastal area for India and abroad,
 - f. Cost of storage and transportation.
9. Tendering / award of work
- a. Estimation of project CAPEX, OPEX and potential options for sourcing finance, in accordance with the prevailing rules & applicable guidelines of Govt. of India,
 - b. Formation of draft techno-commercial tender document, bid evaluation & finalization of work / developer.
 - c. Response to the Pre-bid / departmental queries.
10. Safety Assessment
- a. Health, safety & environmental risks assessment
 - b. Risk Assessment and risk mitigation plan
11. Financial Analysis & Preparation of Business Model
- a. Preparation of possible / detailed suitable Business Models
 - b. Necessary commercial work outs in case of PPP mode of execution
 - c. Finalization of Way forward through different meetings / presentations and necessary submissions
12. Support in statutory requirements / approvals from different authorities, enabling DPA 'single window' for developers.

13. Proof check for all relevant IS Codes, norms, guidelines and any other regulations related to the offered development.

C. Payment terms

1. Bill of Quantities (BoQ) for the work of *Techno-commercial feasibility (TEF) study, finalization of work - Techno-commercial feasibility (TEF) study & finalization of work - 'Development of Green Hydrogen Hub at Deendayal Port, Kandla' & allied common user facilities'*

Sr.	Description	Qty.	Unit	Rate	Amount (Qty. x Rate)
1	Professional Fee for study on planning & development of Infrastructure facilities for the proposed Green Hydrogen Hub in DPA, Kandla; Techno-commercial feasibility report, Estimation & Tendering as per listed scope of work	1	Job work	₹ 41,50,000	₹ 41,50,000
Total amount plus GST extra - ₹ 41,50,000					
Total amount plus GST extra (in Words) - Rupees Forty One Lakh Fifty Thousand only					

Sign. & Seal of Consultancy Firm

2. Milestones:

Sr.	Description of Event	Time period in days	Cumulat. Period from Work Order (W) / Model finalization (M)	Payment % of quoted amt. of Task 1
1-A	Kick off meeting & detailed site visit, Submission of Inception Report, detailed presentation on way forward & site identification for Green Hydrogen Hub	20	W+20	10 %
1-B	(i) Submission of draft Techno-Commercial feasibility report, prescribed Model with estimation for Green Hydrogen Hub	50	W+70	30 %
	(ii) Compliance to the queries (if any)	7	W+77	5 %
	(iii) acceptance of Techno-Commercial feasibility report & prescribed Model for Green Hydrogen Hub		-	
1-C	Estimation & submission of draft Tender papers for Green Hydrogen Hub in accordance with the prevailing rules & applicable guidelines of Govt. of India	25	M+25	20 %
1-D	(i) Detailed Engineering & drawings, Estimation & preparation of tender papers for common user facility, which may include CTU Connectivity, Desalination Plant, Piping corridor, periphery road network & allied facilities (if opted / required by DPA)	25	M+25	12 %
	(ii) Preparation of Pre-bid clarifications, Bid evaluation for common user facility (if opted / required by DPA)	7	-	8 %
	(iii) award of work for common user facility (if opted / required by DPA)		-	

1-E	Preparation of Pre-bid clarifications Bid evaluation for Green Hydrogen Hub	7 7	-	10 %
1-F	Award of work / finalization of developer for Green Hydrogen Hub		-	5 %

D. Other terms and conditions:

1. CME, DPA or Nominated official will act as an overall coordinator from their side for this assignment, which shall be responsible for coordinating, providing available possible information / data. The consultant shall submit the said requisites at the time of kick off meeting and intention of delay through data acquisition in piecemeal manner shall be strictly avoided.
2. Project Manager will be deployed by the consultant who will be responsible for overall management for all activities. Further, Consultant to provide adequate number of qualified and well-experienced engineering & commercial staff for the subject work, who have expertise / experience in different domain in order to accomplish the task successfully.
3. Required transport facility for the execution of work shall be arranged by Contractor at their own cost.
4. Genuine time period for statutory approvals, clearances, permissions from any other agency or port shall not fall in scope of consultant. However, consultant shall assist DPA to get the clearances as soon as the possible.
5. No other payment other than quoted BoQ will be applicable.
6. All tools / tackles, computers systems, transportation, site survey assistance etc. will be in scope of Consultant.
7. All knowledge and information not available within public domain which may be acquired in the performance of this assignment shall be regarded as strictly confidential and held in confidence, and shall not be directly or indirectly disclosed to any person whatsoever.
8. The consultant shall exercise all reasonable care & diligence in discharge of Technical, Professional and Contractual duties to be performed by them and will be fully responsible for carrying out their duties properly.
9. The offer will be valid for 120 days from last date of submission.
10. Performance Security shall consist of two parts;
 - (a) Performance Guarantee to be submitted at award of work, and
 - (b) Retention Money to be recovered from Running Bills.

Performance Security shall be 10% of the Contract Price, of which 5% of contract price should be submitted as Performance Guarantee in form of Bank Guarantee of Nationalized / Scheduled Bank (except co-operative bank) having its branch in Gandhidham, or Demand Draft, within 21 days on receipt of Work Order and balance 5% to be recovered as Retention Money from Running Bills. Recovery of 5% Retention Money to commence from the first bill onwards.

Total Performance Security will be refunded within 14 days from the date of completion of work.

Failure to comply with the above requirement (i.e. submission of 5% Performance Guarantee within 21 days on receipt of Work Order) shall constitute sufficient grounds for cancellation of the work.

11. DPA may close the assignment at any stage, for which no extra payment (other than performed tasks) will be made.
12. The time allowed for various services mentioned under milestones, shall be strictly adhered to by the consultant. In case of delay on satisfactory completion of any of the services under task 1 due to any default on part of consultant, the consultant shall be liable to pay LD for delay an amount equal to 0.5% per week per part thereof of the contract value of the respective task / work, beyond the scheduled period of undertaking the services to be consultant. Provided always that the entire amount of LD to be levied shall not exceed 10 % of total value of the contract.