

Expression of Interest (EOI) for Onboarding of the consultant for DPR preparation on Establishment and Operation of Hydrogen Valley Innovation Cluster in Odisha

Reference No : IITBBS/SRIC/SBS/SN/EOI/01

Date : 01.09.2023

All interested vendors/Agencies are requested to send their quotation in **Two Bid System** for making the DPR on Establishment and Operation of Hydrogen Valley Innovation Cluster in Odisha **by email to bijay@ittbbs.ac.in, by September 11, 2023. Details of EOI are as follows:-**

Background and Overall objectives for setting up a functional Hydrogen Valley Innovation Cluster

The objective of hydrogen valley is to demonstrate how the technology development in the entire value chain of hydrogen as an energy vector fit together in an integrated system approach through industrial deployment at a small scale with special focus on

- Improve through research and innovation, including activities related to higher Technology
- Readiness Levels (TRL), the cost-effectiveness, efficiency, reliability, quantity, and quality of clean hydrogen solutions, including production, distribution, storage, and end uses;
- Strengthen the knowledge and capacity of scientific and industrial actors along the hydrogen value chain, while supporting the uptake of industry-related skills;
- Carry out demonstrations of clean hydrogen solutions with the view to local, regional, and nationwide deployment, aiming at assessing the resource availability, involving stakeholders, and addressing renewable production, distribution, storage, and use for transport and energy intensive industries as well as other applications.
- Increase public and private awareness, acceptance, and uptake of clean hydrogen solutions.
- Development and commercialization of a new product/process in the hydrogen value chain.
- Significant improvements in the existing product/process/applications.
- Substantial quality upgradation, reduced material consumption, reduced energy consumption, cost reduction, improved competitiveness.
- Development and deployment of technology or design to satisfy existing occupational health and/or safety standards or improve upon them.

Focus areas covering the green hydrogen value chain

The suggested focus areas to be covered encompassing the entire green hydrogen value chain are

- **Green Hydrogen Production:** Further improvements are required especially in cost reduction and efficiency increase for a variety of green hydrogen production routes, the main workhorse being electrolysis, supported by other routes exploiting direct sunlight such as thermal dissociation of water using concentrated solar energy or through photocatalysis.

The DPR shall focus on green hydrogen production using water electrolysis and shall have specific road map taking most appropriate production route out of various available options such as Alkaline Electrolysis (AEL), Proton Exchange Membrane Electrolysis (PEMEL), Solid Oxide

Electrolysis (SOEL), Anion Exchange Membrane Electrolysis (AEMEL) and Proton Conducting Ceramic Electrolysis (PCCEL) and other routes of renewable Hydrogen production.

- **Hydrogen end usage:** The DPR shall explore the potential of Hydrogen usage in various sector and align it with various advantages/limitations of Odisha state. A few sectorial examples are
 - Transport and Mobility
 - Clean heat and power
 - Oil refining
 - Steel industry
 - Fertilizers,
 - Methanol production
 - City-gas distribution, etc.

- **Hydrogen Storage and Distribution:** The DPR shall be essentially dealing with constant supply of the green hydrogen for effective operation in selected application area(s). It may include Hydrogen Storage, Hydrogen in the natural gas grid, Liquid hydrogen carrier, Improving existing hydrogen transport means, compression, purification, and metering solutions, Hydrogen refueling or any other efficient process.

X-----X-----X

In accordance with above information, IIT Bhubaneswar looks forward to onboard a reputed consultancy partner for detailed analysis and Project Report for establishment and operation of Hydrogen Valley Innovation Cluster in Odisha. The DPR will be submitted to the Department of Science Technology, Government of India. **The DPR shall cover the deployment of the complete value chain at small industrial scale in selected application areas**

Project requirements:

- Establishment of HVIC as a legal identity
- Workout and define year-wise production targets depending on locational/regional strengths, preparedness, and utilization capabilities to minimize storage and transportation.
- Creation of a Centre of Excellence for testing, validation, and standardization of hydrogen technologies.
- Production and Supply to at least two sectors to meet green hydrogen demand
- Demonstrate existing/new green hydrogen markets as off-takers for better adoption and clean energy transition thereby contributing impact, and likely prospects of replicability and scalability through the shared commitment of stakeholders.
- Financing structure and strategy, including envisaged sources of co-funding/ co-financing to be identified for both HVIC and as a future scope.
- An annual production of green hydrogen production capacity up to 500 tonnes per year through various proven technology routes will be considered a small scale.
- Demonstrate early success (high TRL) and longer-term success (lower TRL)

- Showcase scalability and sustainability over a duration that is longer than the project lifetime.
- After the initial phase of 5 years as envisaged and successful demonstration, each HVIC will plan to scale up a commercial level.
- The DPR structure shall be as per the annexure 1 and shall be developed in consultation with consortium members.

Expertise of the Firm participating in the EoI

- The consultant firm shall have expertise in green hydrogen field demonstrated through various white papers/reports/consultancy work completed.
- The firm shall have comprehensive prior experience in various green hydrogen application areas, described above.
- The firm shall have understanding of the developments happening in green hydrogen field globally. Operations in the countries part of “Mission Innovation” announced in Cop21 will be an asset.
- Prior association with an implemented green field project involving green hydrogen will be as asset.
- The firm shall have detailed understanding on energy mix and energy potential in Odisha
- Experience in green hydrogen sectors in Odisha is a must.
- The firm shall confirm the preparation of DPR as per the annexure 1 (where ever possible necessary inputs, including technical and financial inputs, shall be provided by consortium members)
- Documentary proof are needed for the compliance with above points

Terms & Conditions

1. Bidders must submit their bids in a single Envelop that contains the following documents:

Cover 1

- Bid Securing Declaration Form
- Technical Bid along with literature
- Authorization Certificate if any.
- copy of your Income Tax return copies (last three years) and copy of PAN
- Similar Work Order/ Purchase Order copies executed in National Importance Institutions like, IITs, NITs, IISERs, NISER, Central Universities, State and/or Central Governments, etc.,
- Bidders details.

Cover 2

- Price Bid

2. The offer must be submitted in **Two Bid - Two Envelope** only though said mail ID i.e bijay@ittbbs.ac.in , before the last date & time for bid submission. Late and delayed tender will not be considered.

3. **Technical evaluation will be conducted by the technical committee of this institute. Technically qualified/disqualified bidders will be intimated through mail accordingly. Thereafter only technically qualified bidders will send their price Bid through mail.**
4. Quotation document (s) and all enclosures must contain the signature of the competent authority of the firm.
5. In case, the firm quoting for above mentioned items is the Authorized Dealer / Distributor of the manufacturer. Copy of authorization certificate should be enclosed with the quotation. Offers submitted without proper authorization shall be rejected summarily.
6. **Conditional tenders will not be accepted.**
7. **PAYMENT:** 100% payment will be made after delivery of final DPR and found satisfactory and acceptance by the Indenter.
8. **LIQUIDATED DAMAGES:** As time is the essence of this order, the date of delivery should be strictly adhered to, otherwise the delivery in full or in part may not be accepted and penalty for late delivery will be imposed @ 0.5% per week (07 days) to be calculated on day basis, subject to a maximum of 10% of the total value of supply order & beyond 10% subject to approval of Competent Authority IIT Bhubaneswar. In case of cancellation of order no compensation will be paid towards progress of order/procurement.
9. **Delivery: Delivery of the final DPR must be completed within 15 days from the date of issue of Work Order.**
10. **Award of the Contract:** Contract will be awarded to lowest evaluated bidder subject to qualify in technically evaluation.
11. **Service Support:** One month from the date of handover the final DPR.
12. **For technical queries, Contact details are as under**
E-mail: bijay@ittbbs.ac.in
Contact No : 9438562282
13. **False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Finance Rules along with such other actions as may be permissible under law.**
14. IIT Bhubaneswar reserves the right to accept or reject or cancel any or all enquiries or quotations at any stage without assigning any reason thereof.
15. For any dispute, the place of jurisdiction shall be Bhubaneswar, India only.

Yours faithfully,

Sd/-xxxx
Deputy Registrar
SRIC
E-mail: dr.sric@iitbbs.ac.in
For & Behalf of IIT Bhubaneswar

Proposed structure of DPR

The tentative DPR structure should contain, among others, details such as;

1. Preparedness to host Hydrogen Valley Innovation Cluster in Odisha
2. Introduction and Background of the Proposed Hydrogen Valley Innovation Cluster:
3. Project Objectives (to be provided by consortium partners):
4. Members of a consortium of Hydrogen Valley Innovation Cluster as a whole:
 - Describe the consortium (Project Management & Governance). How does it match the project's objectives, and bring together the necessary disciplinary and inter-disciplinary knowledge?
 - Hydrogen Production, Storage & Utilization, Offtakers, R&D, Hydrogen Safety & Maintenance.
 - Show how the partners will have access to the critical infrastructure needed to carry out the project activities.
 - Describe how the members complement one another (and cover the value chain, where appropriate).
 - In what way does each of the member contribute to the project?
 - If applicable, describe the industrial/commercial involvement in the project and explain why this is consistent with and will help to achieve the specific goals which are proposed in the project.

5. Framework and Methodology of key activities for HVIC to be undertaken:

- Selection of proposals and adding new partners & collaborations:
- Describe and explain the overall methodology, including the concepts, models, and assumptions that underpin your work. Explain how this will enable to deliver the project's objectives. Refer to any important challenges one may have identified in the chosen methodology and how it is intended to be overcome.
- Describe any national or international research and innovation activities whose results will feed into the project, and how that link will be established.
- Explain how expertise and methods from different disciplines for the consortium will be brought together and integrated with the pursuit of your objectives.

6. Legal Structure & Governance to Manage Hydrogen Valley Innovation Cluster:

7. Review & Monitoring of the HVIC:

8. Work plan and resources:

(Enough detail in each work package to justify the proposed resources to be allocated and also quantify information so that progress can be monitored. Resources assigned to work packages should be in line with the objectives and deliverables)

- Brief presentation of the overall structure of the work plan/ GANTT Chart;
- Timing of the different work packages and their components;
- Quantified list of deliverables (year-wise), and milestones to be achieved

(year-wise) for five years for the valley.

10. Expected Target & Outcome for five years:

(Green hydrogen production capacity, cost of hydrogen production, tangible and intangible benefits, likely reduction in carbon emissions, indigenous manufacturing capabilities, creation of employment opportunities across the value chain, development of cutting-edge technologies, innovation ecosystem in the country and off-takers)

11. Impact:

- The credibility of the pathways to achieve the expected outcomes and impacts specified in the work program, and the likely scale and significance of the contributions due to the project.
- Suitability and quality of the measures to maximize expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.

12. Risk management strategy:

- Strategic risks related to supply chain challenges for critical inputs
- Technological risks related to uncertainties due to technologies at the R&D stage or unforeseen technological developments
- Operational or project-level risks, such as availability of water, land, or energy resources or essential data, and safety.

Bidder Information Form

- (a) *The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm]*

Date: ***[insert date (as day, month and year) of Bid Submission]***

Tender No.: _____]

Page 1 of _____ pages

01.	Bidder's Legal Name <i>[insert Bidder's legal name]</i>
02.	In case of JV, legal name of each party: <i>[insert legal name of each party in JV]</i>
03.	Bidder's actual or intended Country of Registration: <i>[insert actual or intended Country of Registration]</i>
04.	Bidder's Year of Registration: <i>[insert Bidder's year of registration]</i>
05.	Bidder's Legal Address in Country of Registration: <i>[insert Bidder's legal address in country of registration]</i>
06.	Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
07.	Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> Articles of Incorporation or Registration of firm named in 1, above.

Signature & Seal of Bidder _____

Name _____

Business Address

VENDOR MASTER FORM

(To facilitate registration under PFMS and fund transfer through RTGS, NEFT/ INTRA BANK Transfer- One time information required on Bidder's letter head)

SI No.	Information required	Data furnished
1	Name of the supplier company /firm	
2	CIN Number (in case of company)	
3	Complete contact address with PIN number	
4	Landline phone number	
5	Mobile number of contact person/ Finance Executive (for SMS on payment details)	
6	e-Mail ID (for receiving payment details)	
7	PAN Number	
8	GST Registration Number (with copy of GST registration certificate)	
9	TAN Number	
10	Bank account number (with a copy of cancelled cheque or Xerox copy of cheque leaf)	
11	Name of the Bank	
12	Name of the Bank Branch	
13	IFSC Code of Bank	
14	MICR Code of Bank	
15	Bank Account details where LC is to be opened in case of foreign suppliers (if applicable)	

I / We hereby declare that the particulars given above are correct and complete. If the transaction is delayed or credit is not effected at all for reason of incomplete or incorrect information, the Indian Institute of Technology, Bhubaneswar will not be responsible.

Authorised signatory with date and seal

Bid-Securing Declaration Form

Date: **[insert date (as day, month and year) of Bid Submission]**

Tender No.: _____

To: **IIT Bhubaneswar, Argul – 752050, Odisha**

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of **Two Year** from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

- (a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
- (b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of: (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid).