

CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH

DIGWADIH CAMPUS, DHANBAD-828108

NOTICE FOR EXPRESSION OF INTEREST FOR SELECTION OF INDUSTRY PARTNER FOR GASIFICATION COLLABORATIVE PROJECT

1. Background

CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, Jharkhand is one of the premier laboratories under the Council of Scientific and Industrial Research (CSIR), Ministry of Science & Technology, Government of India. CSIR-CIMFR has prior expertise and experience in coal/biomass/wastes gasification and already installed 1.5TPD Oxy-blown Pressurized Fluidized Bed Gasifier (PFBG) under the aegis of NITI Aayog, Govt. of India. CSIR-CIMFR successfully conducted experimentations with high ash coal (up to 49%) and biomass in oxy-steam mode. The Institute achieved H₂ and CO concentrations (v/v%) in the range of 25 – 30 % and carbon conversion more than 94%. Moreover, feed-specific operational philosophy has been established. The Institute generated and protected Various IPs in the form of product and process patents, different copyrights, design registration.

In this direction, CSIR-CIMFR invites the Expression of Interest (EOI) from Coal/biomass/wastes Gasifier Developer/Manufacturer as Industry Partner for collaborative R&D project in the area of i) coal gasification; ii) biomass/wastes gasification and iii) co-gasification (coal and biomass/waste).

2. Requirement

CSIR-CIMFR requires an industry partner to execute collaborative R&D work/feasibility/pre-feasibility study in the area of coal/biomass/municipal solid wastes/RDF gasification as well as co-gasification at pilot/demo/commercial scale funded by different Govt. /PSUs/Private organizations. Therefore, Expression of Interest (EOI) is invited from Coal and/or biomass/wastes Gasifier Developer/Manufacturer as Industry Partner having expertise in the area(s) of i) coal gasification; ii) biomass/wastes gasification and iii) co-gasification (coal and biomass/waste). Details eligibility criteria of Industry Partner are described in the following section. The Firm having expertise in the area of coal gasification, may apply only for coal gasification collaborative work, the Firm having expertise in the area of biomass/wastes gasification may apply for biomass/wastes gasification work; and the Firm having expertise in both the areas of coal and biomass/waste gasification/co-gasification may apply for

all the three cases separately.

3. Eligibility Criteria

3.1 General Criteria

- 3.1.1 The Firm should have registered office in India.
- 3.1.2 The Firm should have Indian Company Registration Certificate along with CIN Number
- 3.1.3 The Firm should have GST Registration Certificate, PAN Certificate
- 3.1.4 The Firm should provide Audited balance sheet for last three financial years
- 3.1.5 The Firm should provide Income tax return for last three financial years
- 3.1.6 Cumulative turnover of the firm should be minimum of Rs. 3.00 core during the last three financial years and Rs. 1.00 crore in the last financial year.

3.2 Technical Criteria

- 3.2.1 The firm should have experience on design/development/fabrication/manufacturing of pilot/demo/commercial coal/biomass/wastes gasifiers with respect to their submitted technical bids.
- 3.2.2 The Firm should have pilot/demo/commercial scale fixed bed/fluidized bed/entrained flow coal/biomass/wastes gasifier to conduct experimentations. The firm should submit supporting documents in favour of their claim.
- 3.2.3 The firm should have qualified technical manpower and required infrastructure/workshop for Installation / operation / maintenance / modification as per process requirement of the aforementioned gasifiers. The firm should submit supporting documents in favour of their claim.
- 3.2.4 The firm should have suitable syngas cleaning section as per requirement as well as generated syngas composition analysis arrangement. The firm should submit supporting documents in favour of their claim
- 3.2.5 Generated syngas should have calorific value i) $> 1200 \text{ kcal/Nm}^3$ for coal gasification, ii) $> 1000 \text{ kcal/Nm}^3$ for biomass/waste gasification, and iii) $> 1200 \text{ kcal/Nm}^3$ for co-gasification (coal and biomass/waste).
- 3.2.6 The Firm should be capable to collect and prepare feed (coal/biomass/wastes) for the fixed bed/fluidized bed/entrained flow gasifier as per process requirement.
- 3.2.7 Any joint venture/consortium with one or more firms submitting the BID for the above-mentioned cases will only be allowed, if it is formed before the date of publication of the said NIT.

3.3 Financial Selection Criteria

The Firm after fulfilling General and Technical criteria should be evaluated based on the following financial criteria:

Firm should quote the recurring expenditure [operation, maintenance, contingencies, manpower, consumables excluding feedstock (coal/biomass/wastes).] per tonne of feed (coal/biomass/wastes) for single gasification experiment in existing pilot/demo/commercial scale gasifier with syngas cleaning. Technically qualified lowest quoting firm(s) with respect to each case will be selected for the collaborative work.

The selected firm should deposit a Bank Guarantee of Rs. 25,000/- (Rs. Twenty-five thousand only) for each 1st, 2nd and 3rd case while applying for only one case. However, if the firm is selected either for any two or all the three cases, the firm should deposit a Bank Guarantee of Rs 50,000/- (Rs fifty thousand only) before signing of the agreement. The validity of the bank guarantee should be two months more than the agreement period. The bank guarantee will be released after the completion of the agreement period and certification by the user scientist of CSIR- CIMFR regarding completion of the said agreement.

4. General Terms and Conditions for selected Industry Partner

- 4.1 The selected firm shall have to sign an agreement with CSIR-CIMFR on mutually agreed Terms and Conditions as per CSIR guidelines.
- 4.2 Scope/responsibility of CSIR-CIMFR and the selected Industry Partner will be clearly defined in the agreement.
- 4.3 Selected Industry Partner and CSIR-CIMFR shall separately organize raw materials, manpower and all other requirements for conducting the experiments as per requirement in their respective facilities.
- 4.4 CSIR-CIMFR and the selected Industry partner will share the results which will be included in the final project report after joint technical discussion as per collaborative project requirement.
- 4.5 Final report will be prepared jointly by CSIR-CIMFR and the selected Industry partner.
- 4.6 There will be a joint Monitoring Group for the collaborative PROJECT. The Monitoring Group shall consist of members from CSIR-CIMFR and the selected Industry partner. The Monitoring Group will also review the progress of the PROJECT. The said monitoring group will be chaired by Director, CSIR-CIMFR or his nominee

- 4.7 Any intellectual property rights [patents/design/trademark/copyrights] obtained by the parties prior to signing of the agreement shall remain the property of that party itself. The other party shall have no right to that intellectual property.
- 4.8 The intellectual property [Knowhow/process/design/technique/patents/ copyrights] generated in the PROJECT shall be jointly owned by CSIR-CIMFR and the selected Industry partner; the extent of ownership shall be decided mutually depending upon the relative inputs [intellectual/technical /financial/physical] made by the parties hereto to the PROJECT.
- 4.9 The selected Industry Partner shall have the option to commercially exploit/use the intellectual property generated in the collaborative PROJECT on non-exclusive basis subject to payment of licencing fee/royalty and other terms and conditions for the commercial exploitation as per CSIR guidelines. A separate agreement between CSIR-CIMFR and the party will be made for utilization of intellectual property by the PARTY.
- 4.10 The procedural formalities for securing and maintaining the intellectual property rights [patents/trademark/copyright] if any, shall be the responsibility of CSIR-CIMFR through CSIR and the expenditure incurred thereof shall be borne by each party equally. The question of whether or not intellectual property right should be secured and the territory where these shall be secured shall be decided by mutual discussion.
- 4.11 Utilization of any Intellectual property [Knowhow/process/design/technique/patents/ copyrights] generated in the PROJECT shall be decided jointly by CSIR-CIMFR and the selected Industry.
- 4.12 The royalty/licensing fee accrued from licensing of the intellectual property to other party (ies) shall be shared between CSIR-CIMFR and the selected Industry partner in a ratio to be mutually decided depending upon the relative inputs to the collaborative PROJECT and in the transfer of intellectual property to other party (ies).
- 4.13 During the work envisaged under the agreement in the event of CSIR scientists exploring, inventing or discovering results other than the specific objectives of the collaborative PROJECT, CSIR-CIMFR shall retain absolute rights on such results. CSIR-CIMFR shall first offer such results to the Industry Partner on negotiated terms by entering into a separate agreement. In case, the PARTY does not accept the offer, CSIR-CIMFR shall be free to release such results to other parties without any obligations to the selected Industry Partner.
- 4.14 In case of any dispute arising out of this EOI/ consequent agreement, the competent authority of

CSIR-CIMFR will be the final authority in resolving the issues.

5. Expression of interest

The interested firm should submit their EOI(s) in two bids (Technical and Financial Bids) separately with all necessary information and documents. A single firm can participate for all the three, two or any one case(s) as mentioned in point no. 2 and 3.3.

5.1 Technical Bid for Collaborative Work in the area of Coal Gasification

Technical bid should include following supporting document and acceptance by the firm on its Letterhead:

	Requirement	Firm's Remarks (Tick appropriately)	Supporting documents with page numbers of the BID/ Acceptance to be given by the firm
a.	The Firm should have registered office in India, Indian Company Registration Certificate, CIN Number, GST Registration Certificate, PAN Certificate, Audited balance sheet for last three financial years, Income tax return for last three financial years	Yes/No	
b.	Total cumulative turnover of the firm should be minimum of Rs. 3.00 core during the last three financial years and Rs. 1.00 crore in the last financial year	Yes/No	
c.	The firm should have experience on design/development/fabrication/manufacturing of pilot/demo/commercial coal gasifiers	Yes/No	
d.	The Firm should have pilot/demo/commercial scale fixed bed/fluidized bed/entrained flow coal gasifier to conduct experimentations.	Yes/No	
e.	The firm should have qualified technical manpower and required infrastructure/workshop for Installation / operation / maintenance / modification as per process requirement of the aforementioned gasifiers.	Yes/No	
f.	The firm should have suitable syngas cleaning section as per requirement as well as generated syngas composition analysis arrangement.	Yes/No	
g.	Generated syngas should have calorific value > 1200 kcal/Nm ³	Yes/No	
h.	The Firm should be capable to collect and prepare feed (coal) for the fixed bed/fluidized bed/entrained flow gasifier as per process requirement	Yes/No	-----

5.2 Financial Bid for Collaborative Work in the area of Coal Gasification

Financial Bid seeks quotation by the Firm on its Letterhead

	Requirement	Quoted by the Firm (Technically qualified lowest quoting Firm will be selected as Industry Partner) in INR including GST and any other taxes/levies	
a.	Recurring expenditure [operation, maintenance, contingencies, manpower, consumables excluding feedstock (coal) per tonne of feed (coal) for single gasification experiment in existing pilot/demo/commercial scale gasifier with syngas cleaning.		

5.3 Technical Bid for Collaborative Work in the area of biomass/wastes gasification.

Technical bid should include following supporting document and acceptance by the firm on its Letterhead

	Requirement	Firm's Remarks (Tick appropriately)	Supporting documents/ Acceptance to be given by the firm
a.	The Firm should have registered office in India, Indian Company Registration Certificate, CIN Number, GST Registration Certificate, PAN Certificate, Audited balance sheet for last three financial years, Income tax return for last three financial years	Yes/No	Provide supporting documents
b.	Total cumulative turnover of the firm should be minimum of Rs. 3.00 core during the last three financial years and Rs. 1.00 crore in the last financial year	Yes/No	Provide supporting documents
c.	The firm should have experience on design/development/fabrication/manufacturing of pilot/demo/commercial biomass/wastes gasifiers	Yes/No	Provide supporting documents
d.	The Firm should have pilot/demo/commercial scale fixed bed/fluidized bed/entrained flow biomass/wastes gasifier to conduct experimentations	Yes/No	Provide supporting documents
e.	The firm should have qualified technical manpower and required infrastructure/workshop for Installation/operation/maintenance/modification as per process requirement of the aforementioned gasifier	Yes/No	Provide supporting documents

f.	The firm should have suitable syngas cleaning section as per requirement as well as generated syngas composition analysis arrangement	Yes/No	Provide supporting documents
g.	Generated syngas should have calorific value > 1000 kcal/Nm ³	Yes/No	Provide supporting documents
h.	The Firm should be capable to collect and prepare feed (biomass/wastes) for the fixed bed/fluidized bed/entrained flow gasifier as per process requirement	Yes/No	

5.4 Financial Bid for Collaborative Work in the area of biomass/wastes gasification

	Requirement	Quoted by the Firm (Technically qualified lowest quoting Firm will be selected as Industry Partner) in INR including GST and any other taxes/levies	
a.	Recurring expenditure [operation, maintenance, contingencies, manpower, consumables excluding feedstock (biomass/wastes) per tonne of feed (biomass/wastes) for single gasification experiment in existing pilot/demo/commercial scale gasifier with syngas cleaning.		

5.5 Technical Bid for Collaborative Work in the area of co-gasification (coal and biomass/waste).

Technical bid should include following supporting document and acceptance by the firm on its Letterhead.

	Requirement	Firm's Remarks (Tick appropriately)	Supporting documents/ Acceptance to be given by the firm
a.	The Firm should have registered office in India, Indian Company Registration Certificate, CIN Number, GST Registration Certificate, PAN Certificate, Audited balance sheet for last three financial years, Income tax return for last three financial years	Yes/No	Provide supporting documents
b.	Total cumulative turnover of the firm should be minimum of Rs. 3.00 core during the last three financial years and Rs. 1.00 crore in the last financial year	Yes/No	Provide supporting documents
c.	The firm should have experience on design/development/fabrication/manufacturing of pilot/demo/commercial coal and biomass/wastes gasifiers	Yes/No	Provide supporting documents

d.	The Firm should have pilot/demo/commercial scale fixed bed/fluidized bed/entrained flow gasifier to conduct co-gasification experimentations with coal and biomass/wastes.	Yes/No	Provide supporting documents
e.	The firm should have qualified technical manpower and required infrastructure/workshop for Installation/operation/maintenance/modification as per process requirement of the aforementioned gasifier	Yes/No	Provide supporting documents
f.	The firm should have suitable syngas cleaning section as per requirement as well as generated syngas composition analysis arrangement	Yes/No	Provide supporting documents
g.	Generated syngas should have calorific value > 1200 kcal/Nm ³	Yes/No	Provide supporting documents
h.	The Firm should be capable to collect and prepare feed (coal and biomass/wastes) for the fixed bed/fluidized bed/entrained flow gasifier as per process requirement.	Yes/No	

5.6 Financial Bid for Collaborative Work in the area of co-gasification (coal and biomass/waste).

	Requirement	Quoted by the Firm (Technically qualified lowest quoting Firm will be selected as Industry Partner) in INR including GST and any other taxes/levies	
a.	Recurring expenditure [operation, maintenance, contingencies, manpower, consumables excluding feedstock (coal and biomass/wastes) per tonne of feed (coal and biomass/wastes) for single co-gasification experiment in existing pilot/demo/commercial scale gasifier with syngas cleaning.		

6. Submission of EOI

The interested parties are requested to submit their EOI Bids online through NIC at www.etenders.gov.in on or before the due date of submission of March 21st, 2023.

Kindly visit CSIR-CIMFR Website www.cimfr.nic.in for the details.