Extension of due date for EoI

Subject: Expression of Interest for Technology tie-up for Ash Handling System and High Concentration Slurry Disposal (HCSD) System

This has reference to the Expression of Interest (EoI) published on BHEL's website i.e. www.bhel.com Ref No.: BHEL/AA/TL/0903 dated March 28, 2024, seeking interest from Respondent who are meeting the requirements of this EoI and are willing to be associated with BHEL through a License & Technology Collaboration Agreement (TCA) on long term basis to enable BHEL to design, engineer, manufacture, test, supply, erect, commission, retrofit, repair and service the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in the EoI.

The due date for receiving the proposals against the EoI has now been extended up to **May 10, 2024 (Friday).**

The interested Respondent shall ensure that their response, along with details requested as per the Annexures of the EoI, is received by BHEL on or before extended due date.

Contact details for submission of response and for seeking clarifications are as below:

Sr Manager (Technology Licensing)
Corporate Technology Management,
Bharat Heavy Electricals Limited (BHEL),
BHEL House, Siri Fort, New Delhi 110049
Tel: +91-11- 66337339
Mobile: +91 7838293011
E-Mail: techeoi@bhel.in

Bharat Heavy Electricals Limited

(A Government of India Undertaking)

Delhi – 110 049

India

Notice for Inviting

Expression of Interest (EoI) for

Technology tie-up
for
Ash Handling System and High Concentration Slurry Disposal

(HCSD) System

EoI Ref No.: BHEL/AA/TL/0903

Date: March 28, 2024

INDEX

SECTION-1

Disclaimer

The information contained in this Expression of Interest (EoI) document provided to the Respondent (s), by or on behalf of Bharat Heavy Electricals Limited (BHEL) or any of its employees or advisors, is provided to the Respondent (s) on the terms and conditions set out in this EoI document and all other terms and conditions subject to which such information is provided.

1. The purpose of this EoI document is to provide the Respondent (s) with information to assist the formulation of their proposal. This EoI document does not purport to contain all the information each Respondent may require. This EoI document may not be appropriate for all persons, and it is not possible for BHEL, its employees or advisors to consider the business/investment objectives, financial situation and particular needs of each Respondentwho reads or uses this EoI document. Each Respondentshould conduct his own investigations and analysis and should check the accuracy, reliability and completeness of the information in this EoI document and where necessary obtain independent advice from appropriate sources.
2. BHEL, its employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the EoI document.
3. BHEL may, in its absolute discretion, but without being under any obligation to do so, modify, amend or supplement the information in this EoI document.
4. The issue of this EoI does not imply that BHEL is bound to select and shortlist any or all the Respondent (s). Even after selection of suitable Respondent, BHEL is not bound to proceed ahead with the Respondentand in no case be responsible or liable for any commercial and consequential liabilities in any manner whatsoever.
5. The Respondent (s) shall bear all costs associated with the preparation, technical discussion/presentation and submission of response against this EoI. BHEL shall in no case be responsible or liable for these costs regardless of the conduct or outcome of the EoI process.
6. Canvassing in any form by the Respondent (s) or by any other agency on their behalf shall lead to disqualification of their EoI.
7. Notwithstanding anything contained in this EoI, BHEL reserves the right to accept or reject any application and to annul the EoI process and reject all applications, at any time without any liability or any obligation for such acceptance, rejection or annulment and without assigning any reasons, thereof. In the event that BHEL rejects or annuls all the applications, it may at its discretion, invite all eligible Respondents to submit fresh applications.
8. BHEL reserves the right to disqualify any applicant during or after completion of EoI process, if it is found there was a material misrepresentation by any such applicant or the applicant fails to provide within the specified time, supplemental information sought by BHEL.
9. BHEL reserves the right to verify all statements, information and documents submitted by the applicant in response to the EoI. Any such verification or lack of such verification by BHEL shall not relieve the applicant of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

SECTION-2

SCHEDULE OF EoI PROCESS & CONTACT DETAILS

A. Schedule of EoI process:

The schedule of activities during the EoI Process shall be as follows -

Sl. No.	Description	Date
1.	Issue of EoI document	**28th March, 2024**
2.	Last date of submission of EoI response	**26th April, 2024**

B. Contact Details:

Sr Manager (Technology Licensing)
Corporate Technology Management,
Bharat Heavy Electricals Limited (BHEL),
BHEL House, Siri Fort, New Delhi 110049
Tel: +91-11- 66337339
Mobile: +91 7838293011
E-Mail: techeoi@bhel.in

SECTION – 3

Details of Expression of Interest (EoI)

3.1 Introduction:

This Expression of Interest (EoI) seeks response from Respondent who are meeting the requirements of this EoI and are willing to be associated with BHEL through a License & Technology Collaboration Agreement (TCA) on long term basis to enable BHEL to design, engineer, manufacture, test, supply, erect, commission, retrofit, repair and service the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EoI.

3.2 About Bharat Heavy Electricals Limited:

BHEL is an integrated power plant equipment manufacturer and largest engineering & manufacturing enterprise of its kind in India, catering to core infrastructure sectors of Indian economy viz. Energy, Transportation, Oil & Gas, Industrial, Renewable & non-conventional energy and defence. BHEL is listed on both major stock exchanges of India (BSE and NSE), wherein the Govt of India (GoI) is holding 63.17% of its equity. To position the company as global industrial giant, GoI categorized BHEL as "Maharatna Company" in 2013, empowering the company with enhanced autonomy in decision-making.

BHEL has 16 manufacturing units, 4 power sector regions, 8 service centers and 4 regional offices besides a host of project sites spread all over India and abroad. The annual turnover of BHEL for the year 2022-23 was around USD $2.8 Billion (Rs 23,365 Cr). Highly skilled and committed manpower of approx. 29000 employees, state-of-art manufacturing facilities and technologies have helped BHEL to deliver a consistent track record of performance. With the current order book exceeding US $ 14 Billion (Rs. 102000 Cr), BHEL is poised for an excellent future growth.

Our ongoing major technology tie-ups include Siemens Energy Global GmbH & Co. KG., Germany (for Steam Turbines, Generators and Condensers); MHI, Japan (for Flue Gas Desulfurization Systems); Leonardo S.p.A, Italy (for Super Rapid Gun Mount); GE Tech GmbH, Switzerland (for Steam Turbine for Nuclear Power Plant and for Gas Turbines); Vogt Power International, USA (for Heat Recovery Steam Generators); Indian Space Research Organization (ISRO) (for Space Grade Lithium-Ion Cells); CSIR-IIP (PVSA-based Medical Oxygen Plant); NANO Co. Ltd., Korea (for SCR Catalysts); HLB Power Co. Ltd., Korea (for Gates and Dampers); Kawasaki Heavy Industries, Japan (for Stainless Steel Coaches for Metros); Valmet Automation Oy, Finland (for DCS System), Sumitomo SHI FW, Finland (CFBC Boilers) and Babcock Power Environmental Inc., USA (for Selective Catalytic Reduction Systems).

More details about the entire range of BHEL's products and operations are available at www.bhel.com

3.3 About Industrial Systems Group (ISG)

BHEL through its unit named Industrial Systems Group (ISG) based at Bangalore, (State: Karnataka) has been supplying material handling systems and automation systems to thermal power plants and steel industry on EPC basis. The material handling systems include Coal Handling System and Ash Handling System for Thermal power plants and Raw Material Handling System for steel plants.

3.4 Scope of Cooperation:

BHEL seeks responses from reputed Original Equipment Manufacturer (OEM) of Ash Handling System and High Concentration Slurry Disposal (HCSD) System for technology transfer and collaboration on a long term basis to design, engineer, manufacture, assemble, test, supply, erect, commission, repair, service and retrofit the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EOI.

BHEL intends to manufacture these Ash Handling Plant Systems and High Concentration Slurry Disposal (HCSD) System under a long term licensing & technology transfer agreement which could be operationalized with transfer of technology. Interested parties/Respondent meeting requirement of this EoI are invited to respond to this EoI.

Upon receipt of responses against EoI from the OEM, BHEL will review the responses to ascertain suitability of the offer made by the Respondent and shortlist the party (ies) for further discussions. Detailed discussions on commercial and other terms and conditions to finalize the Technology Collaboration Agreement (TCA) shall be held with shortlisted party(ies)/ Respondent (s). The detailed terms and conditions for such a paid-up license agreement shall be mutually agreed upon.

Indicative scope of technology transfer for Ash Handling Plant System and High Concentration Slurry Disposal (HCSD) System is given in **Annexure-1.**

3.5 Prequalification requirements (PQR):

The Respondent shall meet following qualification requirements as on the date of submission of this EoI (to be substantiated by relevant certificate(s)/ documents).

3.5.1 The Respondentshould be a supplier of Ash Handling Systems and should have executed Ash Handling Systems involving design, engineering, manufacture/got manufactured, supply, erection/supervised erection and commissioning/supervised commissioning for:

a) Following Wet Bottom Ash Handling System for pulverized coal fired boilers:

i. A Jet Pump System in conjunction with water impounded Bottom Ash Hopper having capacity of 50 Tonnes per hour (dry ash basis) or more per jet pump.

AND

ii. A submerged Scraper Chain Conveyor System having capacity of 20 Tonnes per hour (dry ash basis) or more per Conveyor.

The Collaborator shall submit references for both the types i.e. Jet pump system, Submerged scrapper chain system.

AND

b) Following Pneumatic Fly Ash Handling System for conveying fly ash from ESPs of single pulverized coal fired boiler unit:

i. Pressure conveying system of capacity 30 Tonnes per hour or more conveying capacity.

AND

ii. Vacuum conveying system designed for 30 Tonnes per hour or more conveying capacity per vacuum extractor including Wet fly ash handling system using wetting unit system installed in Fly Ash Evacuation (FAE) Tower.

Collaborator shall submit references for both the types i.e. Vacuum System and Pressure System.

AND

c) Pneumatic Fly Ash Transportation System for transporting fly ash from pulverised coal fired boiler unit having capacity of not less than 20 Tonnes per hour for a conveying distance of not less than 500 meter to ash silo and including fly ash storage silo.

AND

d) Complete ash slurry disposal system for handling not less than 40 tons of ash per hour for pulverised coal fired power stations which includes, among others, ash slurry pumps & piping system with associated controls.

AND

e) Dewatering System: The Dewatering bin system for a coal fired boiler, which includes dewatering bin, settling tank and surge tank for separating ash & water from the slurry of Bottom ash hopper & coarse ash hoppers.

AND

f) Complete High Concentration Slurry Disposal (HCSD) System for handling not less than 40 Tonnes per hour for coal fired power stations, which includes, among others, positive displacement ash slurry pumps & piping system with associated controls.

AND

3.5.2 The systems mentioned at 3.5.1 a), b), c), d) and f) above should have been in successful operation for one (1) year in at least one (1) plant which is commissioned not more than 20 years prior to date of closing of EoI. For the dewatering bin system at 3.5.1 e) above, system should have been in successful operation for one (1) year in at least one (1) plant. For the purpose of qualification, the experiences as specified at above clauses in the separate plants are also permissible.

AND

3.5.3 The activity of design and engineering specified at clause 3.5.1 a), b), c), d), e) and f) should have been carried out by the Respondent itself and not through any external design agency/agencies.

3.6 Restrictions on Specified Transfer of Technology with an entity from a country which shares a land border with India

3.6.1 Respondent from a country which shares a land border with India will be eligible to respond to this EoI only if Respondent is registered with Competent Authority (Registration Committee constituted by the Department of Promotion of Internal Trade (DPIIT) of Govt. of India). Such registration should be at least valid for the entire period of EoI due date or any extension thereof.

3.6.2 Respondent from a country which shares a land border with India means: a) An entity incorporated, established or registered in such country; or b) A subsidiary of an entity incorporated, established or registered in such country; or c) An entity substantially controlled through entities incorporated, established or registered in such country; or d) An entity whose beneficial owner is situated in such a country; or e) An Indian (or other) agent of such an entity; or f) A natural person who is a citizen of such a country; or g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

3.7 Instructions:

3.7.1 The Respondent (s) should submit their response(s) along with enclosed annexures on or before **April 26, 2024.**

Annexure-1: Indicative Scope of Technology Transfer
Annexure-2: Indicative technical features of Ash Handling System and High Concentration Slurry Disposal (HCSD) System for which the Transfer of Technology is sought
Annexure-3: Respondent's experience in the field of Ash Handling System and High Concentration Slurry Disposal (HCSD) System
Annexure-4: Reference list of Ash Handling System and High Concentration Slurry Disposal (HCSD) System supplied by Respondent

3.7.2 The response shall necessarily be accompanied with following details:

1. Company background
2. Product Profile
3. Technical details
4. Reference list of customers
5. Annual Audited financial reports for last 3 (three) years.

3.7.3 **Language:** All correspondences and documents related to the EoI response shall be in English language, provided that any printed literature furnished by the Respondent (s) may be written in another language, as long as such literature is accompanied by a translation of its pertinent passages in English language in which case, for purposes of interpretation of the bid, the English translation shall govern.

3.7.4 The Respondent (s) shall abide by the terms & conditions, as applicable, of the EoI.

3.7.5 All pages of the response against this EoI shall be duly signed by the authorised signatory.

3.7.6 Multiple proposals from the same Respondent should not be submitted.

3.7.7 BHEL at its discretion shall inspect the Respondent's works/office/reference site premises for the purpose of evaluation, as deemed necessary before selection of Collaborator. BHEL decision in this regard shall be final.

3.7.8 Any Respondent which has been debarred/blacklisted by Central/State Governments of India or by any entity controlled by Central/State Governments of India from participating in any of their project, as on date of submission of EoI, shall not be eligible to submit the EoI.

In case any amendment/corrigendum to this EoI is issued, it shall be notified only at www.bhel.com

3.8 Process To Be Confidential:

Information relating to the examination, clarification, evaluation and comparison of EoI and recommendations shall not be disclosed to Respondent (s). Any effort by Respondent (s) to influence BHEL in processing of EoI or selection decisions may result in the rejection of the response against EoI.

3.9 Governing Laws & Jurisdiction:

The EoI process shall be governed by, and construed in accordance with the laws of India and the Courts at New Delhi (India) shall have exclusive jurisdiction over all disputes arising under, pursuant to and / or in connection with the EoI process.

Annexure-1

Indicative Scope of Technology Transfer

a)	License & transfer of technology relating to design, engineer, manufacture, assembly, test, supply, erect, commission, repair, service and retrofit the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EoI.
b)	Assistance during procurement of new machines, special tools, Jigs & Fixtures, setup of test facility, pilot plant etc. required for manufacturing and testing of components /equipment required for Ash Handling System and High Concentration Slurry Disposal (HCSD) System at BHEL works.
c)	Transfer of applicable and relevant knowledge and information/ Know-how and Know-why pertaining to design, engineer, manufacture, assembly, test, supply, erect, commission, repair, service and retrofit the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EoI.
d)	Preparation of manufacturing drawings for all components, sub-assemblies required for Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EoI. Preparation of Purchase Specification and Quality Plan for all applicable bought out items for which manufacturing drawings are not prepared by proposed collaborator.
e)	Transfer of all design, design calculations, manufacturing drawings, process and instrumentation diagram, control write up, control logic diagram, transfer of applicable computer programs etc.
f)	Technical and quality surveillance assistance and supervision during design, engineer, manufacture, assembly, test, supply, erect, commission, repair, service and retrofit the Ash Handling System and High Concentration Slurry Disposal (HCSD) System as specified in this EoI.
g)	Transfer of typical documents of Ash Handling System and High Concentration Slurry Disposal (HCSD) System, as specified in this EoI already supplied by Respondent such as General Arrangement drawings, layout drawings, Technical data sheets, Quality assurance plan, PG test procedure, Spare parts, Special tools etc.
h)	Transfer of improvements/modifications/developments/up gradations to be carried out by the Respondent during the period of Technology Collaboration Agreement for taking care of new market requirements and obsolescence. Subsequent updates required due to component obsolescence or updates implemented by Respondent due to safety consideration would also be provided.
i)	Transfer of information regarding sub-vendors to enable BHEL to procure items.
j)	Training of BHEL engineers to enable them to design, engineer, manufacture, assembly, test, supply, erect, commission, repair, service and retrofit the Ash Handling System and High Concentration Slurry Disposal (HCSD) System.
k)	Deputation of Respondent's experts to assist BHEL in absorbing the technology for Ash Handling System and High Concentration Slurry Disposal (HCSD) System.
l)	BHEL can apply/implement the technology for other similar material or in similar application or in different industries.
m)	BHEL shall have access to the collaborator's physical library for accessing the existing engineering documents, standards, PG test reports, documents of their principal collaborator (if any), as well as the library (hard copies as well as soft) developed by them etc.

(SIGNATURE)

Annexure-2

Indicative technical features of Ash Handling System and High Concentration Slurry Disposal (HCSD) system for which the Transfer of Technology is sought

A) Bottom Ash Handling System:

The bottom Ash Handling System shall evacuate ash from Bottom ash hopper and/or Economizer hoppers at the desired rate and convey the ash slurry to Ash slurry sump of Ash Slurry Pump house/Dewatering bin (Hydrobin).

A.1) Jet Pump system (Intermittent removal):

In case of intermittent or batch removal system, the bottom ash and/or economizer ash shall be stored in a water impounded bottom ash hopper. The stored ash shall be crushed in a clinker grinder and transported to Ash Slurry pump house/dewatering bins by means of jet pumps.

A.1.1) Indicative feature of jet pump is as below:

SN	Attributes	Indicative technical features
a)	Capacity of Jet pump	Up to 120 Tonnes per hour (dry ash basis) (Collaborator to specify max capacity of Jet pump available)

A.1.2) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Bottom ash hopper (Water impounded) & its internal accessories
b)	Feed gate
c)	Clinker grinder
d)	Jet pump
e)	Bottom ash overflow tank/sump and pumping system
f)	Flushing apparatus system for the economizer hopper

A.2) Submerged Scrapper Chain Conveying System (Continuous removal):

In case of continuous type bottom ash removal system, the bottom ash from the boiler falls via the dry ash hopper-cum-transition chute into the water filled trough provided with a continuously moving scrapper chain conveyor. The wet ash is crushed in clinker grinder and gets discharged into the sloping ash trenches/belt conveyor/jet pump. In case of ash trenches, the ash aided by high pressure water jets, the slurry is led to the bottom ash slurry sump. The ash slurry from economizer hopper is also fed to this sump or scraper chain conveyor or ash slurry trench. The combined slurry (Bottom Ash + Economizer Ash) is then transported from this sump to the Main Ash slurry pump house or ash dyke by means of Centrifugal ash slurry pumps.

A.2.1) Indicative feature of Submerged Scrapper Chain Conveying System is as below:

SN	Attributes	Indicative technical features
a)	Capacity of Scrapper chain conveyor	Up to 75 Tonnes per hour (dry ash basis) (Collaborator to specify max capacity of Scrapper chain conveyor available)
b)	Drive arrangement	Hydraulic/VFD
c)	Chain tensioning arrangement	Hydraulic/Screw jack
d)	BAH Gate opening/closing	Through Hydraulic Power pack
e)	Capacity of all other equipment	To suit the conveying rate

f)	Interchanging Working and stand-by conveyors with the boiler on load should be possible

A.2.2) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Transition chute below boiler
b)	Submerged scraper chain conveyor
c)	Clinker grinder
d)	Flushing apparatus/Feeder ejector system for the economizer hopper

A.3) Coarse Ash Handling System (APH and Duct):

The coarse ash collected in the Air preheater and Duct hoppers are to be disposed either in wet form or dry form. In case of evacuation in dry form, the ash shall be conveyed to Buffer hoppers/Intermediate Silo by Vacuum or Pressure conveying system. In case of evacuation in wet form, the coarse ash shall be mixed with water and slurry to be stored temporarily in a coarse ash tank or ash trenches in the boiler area. The coarse ash slurry shall further be transported to Main Ash slurry pump house by Jet pumping system or Centrifugal ash slurry pump.

A.3.1) Indicative feature of Coarse Ash Handling System is as below:

SN	Attributes	Indicative technical features
1. Wet Form		
a)	Capacity of jet pump	Up to 50 Tonnes per hour (dry ash basis) (Collaborator to specify max capacity of Jet pump available)
2. Dry Form		
a)	Capacity of ash conveying rate per stream	Up to 50 Tonnes per hour (dry ash basis) (Collaborator to specify max capacity of Jet pump available)

A.3.2) Broadly, this system comprises of the following equipment:

SN	Equipment
1. Wet Form	
a)	Feeder ejector or any ash slurry conveying equipment
b)	Coarse ash tank or ash slurry trench
c)	Jet pump or centrifugal ash slurry pump
2. Dry Form	
a)	Material feed valve
b)	Ash vessel
c)	Bag filters

A.4) Dewatering Bin (Hydro bin) Ash Handling System:

The bottom ash, eco, eco outlet and coarse shall be transported to Hydrobins by means of ash slurry pumps/jet pumps. The hydro bins shall be designed to decant water to settling tanks. After decantation of water from hydro bins, the moisture laden ash should be discharged by means of unloading equipment to trucks and belt conveyors.

A.4.1) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Hydraulically operated discharge gates
b)	Bottom ash crushers
c)	Hydro bin tanks with all internals
d)	Settling tank and Surge tank
e)	Vibrating feeders
f)	Belt conveyors for feeding to ART

g)	Decanted water pumps

B) Pneumatic Conveying System (From ESP to Buffer hopper/Intermediate Silo)– Vacuum and Pressure system:

The Fly Ash Collected in the ESP hoppers are to be evacuated at the desired rate to a buffer hopper or an intermediate Silo. This shall be accomplished either by a Vacuum Conveying System or a Pressure Conveying System.

B.1) Indicative feature of Pneumatic Conveying System is as below:

SN	Attributes	Indicative technical features
a)	Ash evacuation rate (Vacuum)	Up to 80 Tonnes per hour (dry ash basis) per stream (Collaborator to specify max ash evacuation capacity available separately through Vacuum and Pressure conveying system)
b)	Ash evacuation rate (Pressure)	Up to 140 Tonnes per hour (dry ash basis) per stream (Collaborator to specify max ash evacuation capacity available with them separately through Vacuum and Pressure conveying system)

B.2) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Material handling valve / Feed valve
b)	Ash vessel / Unloading Tee
c)	Air intake valve, (as applicable)
d)	Bag filter
e)	Instrument air Compressors
f)	Transport air Compressors / Vacuum pumps

C) Pressure Conveying System (From Buffer hopper/Intermediate Silo to Storage Silo):

The Fly Ash Collected in the Buffer hopper or an intermediate Silo are transported to main Fly Ash Storage Silos by Pressure conveying system. The Fly Ash Silos shall have outlets to load the fly ash to Open trucks / closed tankers or wagons.

C.1) Indicative feature of Pressure conveying system is as below:

SN	Attributes	Indicative technical features
a)	Ash evacuation rate per stream	Upto 140 Tonnes per hour (dry ash basis)
b)	Ash conveying distance	500 to 1600 meters

(Collaborator to specify max ash evacuation capacity and max distance conveyed available with them through Pressure Conveying System)

C.2) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Material handling valve / Feed valve
b)	Ash vessel
c)	Bag filter
d)	Instrument air compressors
e)	Transport air Compressors
f)	Rotary feeders
g)	Unloading spout / telescopic chute

h)	Ash conditioners

D) High concentration slurry disposal (HCSD) system for combined Bottom ash and Fly Ash:
Bottom ash is to be transferred through belt conveyor from dewatering bins/any other means to ART and Fly ash is to be transferred through ash conditioners from Fly ash/HCSD silo to ART for mixing. Thereafter combined ash slurry or fly ash slurry alone shall be disposed through HCSD pump to ash dyke.

D.1) Broadly, this system comprises of the following equipment:

SN	Equipment
a)	Rotary feeder
b)	Ash conditioner
c)	ART (Mixing tank)
d)	Charge Pump
e)	HCSD Pump

E) Other technical requirements:

1) Process and instrumentation drawing along with control write up.
2) Block logic diagram along with permissive, interlocks and trip conditions.

(SIGNATURE)

Annexure -3

Respondent's experience in the field of Ash Handling System and High Concentration Slurry Disposal System (HCSD)

SN	Requirement	Response (YES/NO) and remarks if any
a)	Whether the Respondent is an OEM of Ash Handling System and High Concentration Slurry Disposal System (HCSD).	
b)	Whether Respondent is meeting PQR mentioned at clause 3.5. Reproduced below: 1) The Respondentshould be a supplier of Ash Handling Systems and should have executed Ash Handling Systems involving design, engineering, manufacture/got manufactured, supply, erection/supervised erection and commissioning/supervised commissioning for: a) Following Wet Bottom Ash Handling System for pulverized coal fired boilers: i. A Jet Pump System in conjunction with water impounded Bottom Ash Hopper having capacity of 50 Tonnes per hour (dry ash basis) or more per jet pump. AND ii. A submerged Scraper Chain Conveyor System having capacity of 20 Tonnes per hour (dry ash basis) or more per Conveyor. AND b) Following Pneumatic Fly Ash Handling System for conveying fly ash from ESPs of single pulverized coal fired boiler unit: i. Pressure conveying system of capacity 30 Tonnes Per Hour or more conveying capacity. AND ii. Vacuum conveying system designed for 30 Tonnes per hour or more conveying capacity per vacuum extractor including Wet fly ash handling system using wetting unit system installed in Fly Ash Evacuation (FAE) Tower AND c) Pneumatic Fly Ash Transportation System for transporting fly ash from pulverised coal fired boiler unit having capacity of not less than 20 Tonnes per hour for a conveying distance of not less than 500 meter to ash silo and including fly ash storage silo. AND d) Complete ash slurry disposal system for handling not less than 40 tons of ash per hour for pulverised coal fired power stations which includes, among others, ash slurry pumps & piping system with associated controls. AND e) Dewatering System: The Dewatering bin system for a coal fired boiler, which includes dewatering bin, settling tank and surge tank for separating ash & water from the slurry of Bottom ash hopper & coarse ash hoppers. AND f) Complete High Concentration Slurry Disposal (HCSD) System for handling not less than 40 Tonnes per hour for coal fired power stations, which includes, among others, positive displacement ash slurry pumps & piping system with associated controls. AND	

	2)The systems mentioned at 3.5.1 a), b), c), d) and f) above should have been in successful operation for one (1) year in at least one (1) plant which is commissioned not more than 20 years prior to date of closing of EoI. For the dewatering bin system at 3.5.1 e) above, system should have been in successful operation for one (1) year in at least one (1) plant. For the purpose of qualification, the experiences as specified at above clauses in the separate plants are also permissible. AND 3)The activity of design and engineering specified at clause 3.5.1 a), b), c), d), e) and f) should have been carried out by the Respondent itself and not through any external design agency/agencies.	
c)	Whether Respondent's company background and its product profile along with technical details for Ash Handling System and High Concentration Slurry Disposal System (HCSD) in thermal power plants being offered to BHEL under this EoI enclosed.	
d)	Whether product data sheet, flow diagrams and General Arrangement (G.A) drawings enclosed as per PQR at clause 3.5 of this EoI.	
e)	Whether Respondent's detailed reference list as per Annexure-4 enclosed.	
f)	Whether Respondent's audited annual financial reports including auditor's report for last 3 years enclosed.	
g)	Whether the design of Ash Handling System and High Concentration Slurry Disposal System (HCSD) offered for technology transfer is the latest being marketed by the Respondent.	
h)	Whether Respondent has provided relevant certificate/ document to substantiate the PQRs at Clause 3.5 of this EoI.	
i)	Whether the Respondent owns the Intellectual Property Rights for the technology being proposed for transfer under the Technology Collaboration Agreement (TCA) or have an unencumbered right from the owner of the Intellectual Property Rights to sub-license the technology, if applicable. If yes, whether list of such Intellectual Property Rights enclosed.	
j)	Whether Respondent has any experience in establishing a new manufacturing, testing and assembly facilities, if so please specify.	
k)	Whether information on market share of Respondent enclosed.	
l)	Whether Respondent has been debarred/blacklisted by Central/State Governments of India or by any entity controlled by Central/State Governments of India from participating in any of their project, as on date of submission of EoI.	
m)	Whether Respondent has carried out erection and commissioning or supervised erection and commissioning of Ash Handling System and High Concentration Slurry Disposal System (HCSD) for the projects mentioned in their certificates/documents submitted in support of PQRs at 3.5 of this EoI.	

(SIGNATURE)

Annexure -4

Reference list of Ash Handling System and High Concentration Slurry Disposal System (HCSD) supplied by Respondent

Sl. No.	Project Name / Location	Customer & End user details	Type of Ash Handling System / HCSD System	Description of Sub-system	Capacity	Month and year of supply	Year of commissioning

(SIGNATURE)