

DETAILS OF PRE-TENDER MEETING

1	Name of Work:	Ethanol Separation Package
2	Project:	Assam Bio Refinery Project, ABRPL, Numaligarh, Assam
3	Venue	Engineers India Limited - Gurugram, Sector-16, on NH-8 Gurguram, Haryana- 122 001
4	Date & Time of Meeting	At 1030 HRS (IST) on 25.03.2019
5	Contact Person	Mr. Ayush Mathur, GM (Projects) /Mr. K Shivaji , Project Manager ayush.mathur@eil.co.in / shivaji.k@eil.co.in Tele. No. +919818688737/+919910691951
6	Purpose of Meeting:	Important provisions of Bidding Document viz. Bidder Qualification Criteria, Commercial Terms & Conditions and Technical Specifications/details shall be discussed during the meeting.
7	Brief about Scope of Work:	As per enclosed Document titled “Brief Scope of Supply / Work for Ethanol Separation Package”

Agencies are requested to submit the details (Experience & Financial) in the enclosed Annexures (A, & B) to the e-mail ids mentioned in this notice positively by 22.Mar, 2019 and are also requested to bring along with them 2 copies of their Experience Record (Order copies/ Completion Certificate/ Operational Certificate etc.) for similar kind of works (*similar packages for Biomass / Paper Industry*) and the complete audited annual FY Statements of the immediate preceding 3 FYs.

Note: Bidders are requested to depute their senior & competent representatives for the meeting.

Encl.

1. Annexure-A “Details of all Past Projects of similar nature completed in last 10 years”
2. Annexure-B “Format for Financial Details”

**PRE TENDER MEET
(ASSAM BIO REFINERY PROJECT OF M/S ABRPL)**

A. ANNUAL TURNOVER OF LAST 3 YEARS:

Year	Amount (Currency_____)
Year 1: 2017-18	
Year 2: 2016-17	
Year 3: 2015-16	
Year 4: 2014-15	

B. FINANCIAL DATA FOR LATEST AUDITED FINANCIAL YEAR (FY 2017-18):

Description	Amount (Currency_____)
Net Worth	
Working capital	

C. Balance sheet in the name of _____

D. Original balance sheet in English or other language _____

E. Organization structural details _____

F. Holiday list / banned of any PSU / GOVT organization _____

G. Registration details on Central Public Procurement Portal (CPPP) of Government of India (<http://eprocure.gov.in/eprocure/app>): _____

**** Bidders are requested to enclose “Balance sheets of all Three years” & “Organisation structure” while submitting the Annexure-B.**

1. Net worth Calculation:

Net worth means paid up share capital, Share Application Money pending allotment* and reserves# less accumulated losses and deferred expenditure to the extent not written off.

Reserves to be considered for the purpose of net worth shall be all reserves created out of the profits and securities premium account but shall not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.

*Share Application Money pending allotment will be considered only in respect of share to be allotted.

Accordingly, the definition of Net worth shall be as follows:

Paid up share capital	XXXX
Add: Share Application Money pending allotment	XXX
Add: Reserves (As defined Above)	XXXX
Less: Accumulated Losses	XX
Less: Deferred Revenue Expenditure to the extent not written off	XX
Net worth	XXXX

2. Working Capital calculation:

Working Capital shall be Current Assets minus Current Liabilities.

3. Turnover Calculation:

Turnover shall be calculated including Excise Duty but excluding other Incomes.

1.0 SCOPE OF SUPPLY / WORK

1.1 GENERAL

- 1.1.1 The equipment/system supplied shall be complete in every respect, ready for operation. It is not intent of purchaser to specify every piece of equipment / item, therefore any item not specifically mentioned in this specification but required as per good engineering practice and safe and trouble free operation of the system shall be deemed to have been specified by the purchaser and shall be included in Contractor's scope of work/supply. **Vendor to note that this is a "Zero deviation" bid. Hence any deviation, what so ever, to the tender specification is not acceptable. Any exclusion or deviation or ambiguity in the scope of supply and/or work shall be submitted for clarifications during pre-bid meeting. For any such discrepancy or deviation identified after award of work, purchaser's decision shall be final and binding on the contractor without any price and/or time implications.**
- 1.1.2 Any item / component / facility not specifically mentioned but required as per good engineering practice within package battery limit for safe, continuous, trouble free operation of the plant is deemed to have been specified and shall be included in the scope of Contractor, without any commercial implication to Owner.
- 1.1.3 **Contractor to consider and include site visit (s), as required, to make themselves fully aware of the space available for Ethanol Separation Package and ensure complete feasibility of the scheme before submission of technical offer as no price implication whatsoever shall be entertained after award of Contract. Attached layout / scheme is preliminary in nature and for guidance purpose only, Contractor shall develop layout / scheme considering all facilities required making the system complete and operational.**
- 1.1.4 Survey of the area if required for detail engineering, shall be included in Vendor's scope of work.
- 1.1.5 All the items / packages / facilities shall comply with applicable national and international codes & standards as well as any statutory regulation in existence particularly for that items/package/facility.
- 1.1.6 Before award of job "Vendor" implies "Bidder".

1.2 SCOPE OF SUPPLY

- 1.2.1 The purpose of the equipment package is to purify fermented ethanol solution into fuel-grade ethanol (99.5 vol-%) and to recover water for re-use. Any removed stillage will be collected for treatment (treatment area is not in scope of supply). Stillage is a suspension containing yeast, enzymes, sugars and residual components of cellulose.
- 1.2.2 The scope of supply includes but not limited to:
- a) All main equipment and auxiliary equipment within battery limit on "skid" mounted unit.
 - b) Complete Electrical / Instrumentation / Structural / Architectural / Piping works of the above package as per respective Scope of Work / Specifications attached elsewhere with the Material Requisition Document.
 - c) All pressure vessels, storage tanks and heat exchangers conforming to requirements specified in Static Equipment part of this document and other documents enclosed with material requisition.
 - d) All rotating equipment as covered under Rotating Equipment part of this document and other documents enclosed with material requisition.
 - e) Insulation (if necessary, winterization temperature 5 °C) and painting.
 - f) Material handling facilities viz. electric wire rope hoist, chain pulley blocks etc. complete with accessories and associated facilities such as Geared trolley, monorail beam etc.

NOTE: Type, quantity and capacity shall be decided during detailed engineering based on Material handling facilities study that shall be carried out by Contractor, taking in to account the selected equipment size & weight and the same shall be submitted to ABRPL/EIL for approval.

- g) Special tools and tackles for day to day operation and maintenance, if any (Price to be included in the base price).
- h) Mandatory Spares as per list attached elsewhere in the MR (Price to be included in the base price).
- i) Commissioning spares, as required (Price to be included in the base price).
- j) Quotation for recommended spares for two years' normal operation and maintenance for complete package including those required for electrical, instrumentation, piping etc. Itemized price list to be submitted along with the bid. Owner shall order these spares separately.
- k) First fill of lubricants, chemicals, refrigerants and other consumables and replenishment of any loss of these during erection and commissioning.
- l) Base Plates/base frames for all equipment including drive unit along with other appurtenances.
- m) Drawings, documents, specification, inspection & test reports, performance test procedures etc. as defined in document no. B215-000-80-43-VDR-4600.
- n) Any other item not specifically mentioned but required for safe and efficient operation of the equipment.

1.3 SCOPE OF WORK

1.3.1 Vendor's scope of Work / Services shall include the following, as described in this Specification, its attachments and documents/drawings referred therein forming a part of the Tender Document.

- i) Design and Engineering
- ii) Procurement of equipment and material
- iii) Fabrication and assembly at works
- iv) Inspection and testing of equipment at works
- v) Painting at shop (primer + finish coat) including supply of paint
- vi) Packing and Supply
- vii) Receipt and unloading at site
- viii) Storage and handling at site
- ix) Site fabrication
- x) All super structural works, Piping works, electrical, instrumentation works
- xi) Erection / Installation of equipment at site
- xii) Inspection and testing at site
- xiii) Painting at site, including supply of paints,
- xiv) Mechanical completion and commissioning
- xv) Performance Guarantee Test of the complete plant at site
- xvi) "On site" training of Owner's personnel for operation and maintenance.

- xvii) All statutory clearances and permits from local, statutory and other bodies for the package / system, as required/applicable shall be as per GCC/SCC.
- xviii) Painting shall be done as per painting specification attached elsewhere in the Bid Package.

2.0 EXCLUSIONS

- 2.1 Civil foundation/Piling works are excluded from package vendor's scope. However, all foundation bolts required for the Vendor's supplied equipment / super structure shall be supplied by vendor. Also Vendor shall submit detailed drawings and load data for construction of civil foundation / Piling by others.

3.0 BATTERY LIMITS

- 3.1 Except where specifically stated otherwise, the Bidder's battery limit shall include all connections at the terminal points outlined and/or identified in specifications and standards enclosed with or referred to in this requisition.

4.0 UTILITIES

- 4.1 All the utility lines shall be made available at single point near Package Battery Limit. Further distribution (engineering, procurement, fabrication, erection etc.) up to various users' location from the battery limit point, including incorporation of any conversion equipment / facilities as required, shall be in the scope of the Contractor.
- 4.2 Electric Power shall be provided as specified in Electrical Job Specification.
- 4.3 Instrumentation power / connections shall be provided as specified in Instrumentation Job Specification.

5.0 REFERENCE

- a. Process Data Sheet for Distillation & Dehydration of Ethanol (Doc. No. 2118091-DSE-0130-OCC-0000-135-0001)

Customer: Assam Bio Refinery Private Limited
 Project: Assam Biorefinery

PROCESS DATASHEET
DISTILLATION AND DEHYDRATION OF ETHANOL

Document name: 2118091-DSE-0130-OCC-0000-135-0001
 Document created: #####

1. Key process variables

Parameter		Design parameters at 100% capacity				Parameters to be guaranteed			
		Fermented wash	Product ethanol	Water for re-use	Spent wash	Fermented wash	Product ethanol	Water for re-use	Spent wash
Flowrate	t/h	69	6.2	9.3	53	76	>99,5% of ethanol in fermented wash	≥9	Balance
Temperature	°C	32	40			~32	40		
Phase		Suspension	Liquid	Liquid	Suspension	Suspension	Liquid	Liquid	Suspension
Viscosity	cP	30				< 100			
Density	kg/m ³	965				965			
pH		~5				~5			
Components									
Ethanol	w/w	9.0 %	99.5 %	0.04%	0.04%	<10%	≥99,5%	≤0,05%	≤0,05%
Glucose oligomers	w/w	0.8 %			balance	< 1,4%			
Pentose sugars	w/w	0.3 %			balance	< 0,6%			
Other dissolved components	w/w	1.1 %			balance	< 1,8%			
Yeast	w/w	0.5 %			balance	< 1%			
Unreacted cellulose	w/w	1.1 %			balance	< 2%			
Other suspended solids	w/w	1.5 %			balance	< 3%			
Fusel oils	w/w	100ppm			balance	< 250ppm			
Aldehydes	w/w	20 ppm			balance	< 100ppm			
Standard to be fulfilled			IS 15464: 2004				IS 15464: 2004		

2. Other process requirements

- Fusel oils and aldehydes will separated and they will disposed for combustion at the on-site CHP
- Overall losses of ethanol with fusel oils and aldehydes and other streams shall be <1% of the quantity of ethanol in the fermented wash
- Fermented wash is pumped to distillation from an atmospheric storage tank
- Separated water and spent wash are pumped to atmospheric storage tanks

3. Turndown

- Distillation and dehydration of ethanol shall meet the production specifications at 50% flowrate of fermented wash.

4. Other requirements and notes

- Distillation of ethanol shall use LLP flash steam at 1,4 bar(g) as primary heat source