RASHTRIYA ISPAT NIGAM LIMITED, VISAKHAPATNAM STEEL PLANT

WORKS CONTRACTS DEPARTMENT, VISAKHAPATNAM – 530 031 (A.P.)

INDIA

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NOTICE INVITING EXPRESSION OF INTEREST NO: VSP/WC/BF/50031-0/EOI/2010–2011 DATED 27.04.2010

VISAKHAPATNAM STEEL PLANT INVITES “EXPRESSION OF INTEREST“ FROM PARTIES WITHIN INDIA FOR THE “MAINTENANCE OF ALL EQUIPMENTS AND PROCESS SYSTEM WHICH ARE INSTALLED IN BLAST FURNACE #3 COMPLEX INCLUDING MECHANICAL, ELECTRICAL & AUTOMATION SYSTEM “. VISAKHAPATNAM STEEL PLANT IS LOOKING FOR COMPETENT AGENCIES HAVING THE REQUIRED EXPERTISE & EXPERIENCES.

The details regarding Blast Furnace #3, the associated equipments, electrics and automation with scope of work etc. detailed at ANNEXURE-1 are placed along with this Notice in VSP’s website www.vizagsteel.com

Interested and eligible Persons / Agencies may submit their “EXPRESSION OF INTEREST“ with all relevant details and supporting Documents as mentioned in Annexure -1 on or before -27th May 2010 to the Dy General Manager – Works Contracts I/c, Visakhapatnam Steel Plant, Visakhapatnam – 530 031, India. For any queries Sri S.Raghu AGM (works contracts) may be contacted through his e-mail address sraghu@vizagsteel.com

Dy General Manager - Works Contracts I/c
ANNEXURE-1

VISAKHAPATNAM STEEL PLANT

Blast Furnace: An Overview-

At present VSP is having 2 No Blast Furnace (BF#1, BF#2) of 3200 m³ each with 4N° of Taphole & 34 N° of Tuyers and is operating at 120% of rated capacity. These furnaces are having Double Bin Bell Less Top with conveyor charging system, 4 N° of Stoves, Slag Granulation with Air lift system. The cast house is equipped with motorized Clay gun & Drilling machine. THE slag is evacuated to Slag Yard via series of conveyors. The Annual production capacity of the existing furnaces is around 4.2 MT of Hot metal.

Keeping in view the future steel market VSP has embarked on expansion mode and in the First stage of expansion for 6.3 MT it is augmenting its hot metal capacity by constructing a new Blast furnace #3 with following salient features:

**New Blast Furnace # 3:**

The rated annual hot metal production of the new furnace is 2.5 MT of hot metal with a daily hot metal production (avg.) of 7,150 HM t .The Hearth diameter is of 13.0 m and useful volume: 3,800 m³. There are 4 N°. Tap hole and 34 N°. of Tuyers. The furnace is equipped –New Generation Parallel Hopper Bell less Top of 65 m3. The measuring equipments consist of special probes like – Above Burden probe, IN –Burden probe, profilometer, radar Stack line etc.

BF cooling system consisting of Cast iron & Copper staves is having three closed circuit of Soft water & one open circuit of Industrial water. The tuyers Stock is of Double carden type. The Taphole are equipped with Hydraulic Clay Gun, Drilling Machine & Cover Manipulator. The Dust catcher consists of Annular Gap Scrubber. The Slag Granulation is of INBA design with cooling Tower. The furnace is equipped with Pulverized Coal Injection with Dense phase system at a rate of 60 t/h. There are 3 N° of Stoves with Ceramic Burners to Supply blast 1250° C at 5.5 Bar. The furnace is fed through well equipped stock house and an inclined conveyor.

Further Section wise details are indicated below :

**Visakhapatnam Steel Plant**

**New Blast Furnace # 3 :**

It has a annual hot metal production of 2.5 MT with a daily hot metal production (avg.) of 7,150HM t .The Hearth diameter is of 13.0 m and Working volume of 3,230 m3 and useful volume: 3,800 m3. The other salient features are:
FURNACE PROPER FEATURES

Hearth diameter: 13.000 m
Belly diameter: 14.770 m
Throat diameter: 9.500 m
N° of tuyeres: 34
N° of tap holes: 4

- **New Generation Parallel Hopper Bell less Top**
  Hopper volume: 65 m³

- **Bleeder Valves**
  PW coffee pot bleeder

- **Special Probes**
  Above Burden Probe
  Under Burden Probe
  Profilemeter
  Mechanical stockline detector
  Radar stockline detectors

- **BF Cooling elements (Cast Iron Staves & Copper Staves)**
  Four soft water closed loop circuits
  1) under hearth cooling and hearth staves
  2) tuyere body, tuyere coolers and hot blast valves (Low pressure)
     tuyere nose and probes (High pressure)
  3) cast iron staves (until row S5) and copper staves
  4) cast iron staves (rows R1R3)
     Primary cooling water: soft water
     Secondary water: industrial water
     Emergency system: elevated storage tank and electric
     pumps fed by Diesel Generator.

- **Double cardan Tuyere Stocks (34 No.)**
Casthouse Equipment

Hydraulic clay guns (4 set)
Hydraulic tap hole drilling machines (4 set)
Hydraulic Cover manipulator (4 set)

SLAG GRANULATION SYSTEM

INBA Slag Granulation system
Granulation system, dewatering system, cooling tower

GAS CLEANING PLANT

Annular Gap Scrubber
Primary cleaning: Dust Catcher
Secondary cleaning: PW annular gap scrubber (A.G.S)
B.F. gas volume wet: 550,000 Nm3/h (peak)

PULVERIZED COAL INJECTION SYSTEM

Dense phase PW P.C.I. system
Pulverized coal injection capacity: 60 t/h
Injection system: PW dense phase
No. of raw coal grinding and drying lines: 2
Transport gas: nitrogen
Mill type: vertical
Raw coal silo capacity: 600 m3
Fine coal silo capacity: 1,500 m3
Fine coal sieving machines: 2 Nos above FCS

HOT STOVES

Hot Stoves (internal combustion chamber)

Internal combustion chamber with
Mushroom dome
Type of burner: ceramic, improved design
DUST EXTRACTION SYSTEM

- Dust / Fumes Extraction system

Electrostatic Precipitator with 6 Fields (Furnace) and 3 Fields (Stock House), 90KV peak is equipped with dust extraction and storage system including ID fans, rapping and pneumatic transport system to silo.

STOCK HOUSE

- The burden for furnace charging is stored in Bunkers and transferred to main charging conveyors (steel Chord) via series of screens, vibrofeeders Weigh Hoppers. There are 22 bins of various capacity 250 to 550 m³ which receives materials coke, sinter ore, additives via series of conveyors of sizes 800 to 1200 mm including steel chord.
- There are 14 single deck & 1 Double deck screen.

POWER SYSTEM

- Power is received at 2 No. of ECR at 11 kv and stepped down to 6.6 kv level for HT motor & 415 volt for LT and other application.
- There are 3 no. of 10 MVA(oil type), 2 no. of 5 MVA(oil type), and 14 no. of 2 MVA(Dry Type) transformers installed.
- The Level -1 Automation is based on Distributed Control System with client server architecture of ABB make. The Level-2 Automation consists of Process control models & SACHEM expert system.

AUTOMATION

Level 1 Automation system including field instruments.

- Distributed control system with client server architecture
- PLC control stations
- PC based engineering
- and operator stations
- Redundant data
- Communication bus
- Redundant servers
- Distributed I/O units

Level 2 Automation system
SCOPE OF WORK

The following maintenance activities are under the scope of External Agency.

Mechanical:

The Routine & Breakdown Maintenance including replacement/rectification of spares in part or whole of following equipments which are useful for Blast furnace operation:

1) Hydraulic System upto 320 bar for operating
   - 4 nos. each of Mudguns, Drilling machines, Cover manipulators for Cast House tapholes,
   - Hot stoves valves ranging from Dia 400mm to 2300mm, and
   - equipments of Bell Less Top like valves, Bleeders and Probes.
2) All EOT cranes and Telphers (35/10 T capacity-3 N°, 10 to 5 ton capacity -5 n°., Less than 3 T approx. 25 N°.), Telfers and Hoists of different capacities- approx. 84 nos.
3) 38 nos. of centrifugal Pumps of different discharges ranging upto 2500 cubic meter per hour, 2 nos. of INBA Dewaterer, with elements, pipelines & valves and their drive motors.
4) Double suction Fans of capacities upto 3,50,000 cubic meter per hour, 2 nos. of ESP’s (@90 KV) for cast house & stock house. Suction hoods, ducts & valves and their drive motors (Type - ,HT motor 1250 X2 & 450X2)
5) Screens & Vibrators (Single deck-14N°,Double DecK-01 N°., Vibro feeders-34 N° with VFD ) and gates of Stock house.
6) 2 Nos. of Vertical roller mill of capacity 35 T/ hr, their Feeders, screens, Bag filters, Hoppers, N2 compressors- 2 nos., with vessels, pipelines and valves.
8) Cast house Tuyere stock maintenance (34 N°)
9) Cooling system circuits of both open & close type using soft and industrial water, their valves, metallic hoses and pipelines ().
10) Fire- fighting Pumps with different valves and Pipelines.

Electrical:

The Routine & Breakdown Maintenance including replacement/rectification of spares in part or whole of following power system equipments which mostly comprises of :

1) Transformers (3 no. of 11/6.6 kv,10 MVA // 2 no. of 11/6.6 kv,5 MVA// 14 NO, OF 11/.415 KV,2 MVA) including 2 no. of 11 kv switch board, 2 no. of 6.6 kv switch board ,2 no. of CRP panel and one 800 KVA DG set.
2) Maintenance of all MCC panels (12 N°), PDB panel (250 A -10 N°, 100 A -10 N°, 63 A- 10 N°),
3) Maintenance of Lighting of the Bf# 3 complex area.
4) Revisioning/replacement / rewinding of all LT & HT motors. (approximately 300N°. of LT and 20 N°. of 6,6KV HT motors.
5) Maintenance of DCS system (17 controllers, workstation, HMI, N/W switches etc) including trouble shooting, Inspection, Routine & schedule maintenance of field devices, VFD Drives/Measuring Probes/Field Instruments/Special instruments system like Analysers, Amanoscope/FDA system etc.

General:

1) Housekeeping of all area of workplace is under the scope of agency.
2) Agency has to follow all the Quality management system while executing the contract.
3) All spare parts for maintenance is under scope of VSP.
4) Compliance to all statutory and regulatory norms on safety, compensation & environment pollution control of central & state government is under scope of agency.
CRITERIA FOR AGENCIES

The Agency should have following capabilities for:

1) Should have executed successfully a maintenance contract in steel industry or similar large process Industry, working in three shifts for minimum three years during preceding five years independently.
2) Should have resources to mobilize manpower and act as principal employer for qualified degree engineers, diploma engineers, skilled, semi skilled & unskilled manpower to meet site requirement.
3) Should have their own necessary mobile equipment, tool & tackles to support the activities and execute the contract.
4) Should have all the statutory certification/licenses from state/central government to execute the contract.
5) Should be in sound financial position to mobilize resources and execute contract.
6) The agencies must submit the documentary evidence to support their qualification.

AGENCIES SHOULD HAVE EXPERIENCES IN THE FOLLOWING AREA OF WORK:

1. HYDRAULIC SYSTEM: The agency must have working experience on maintenance and trouble shooting of hydraulic system in steel industry or similar process industry and reclamation/repair of various hydraulic equipments like pumps, valves, cylinders, actuators, accumulators etc.
2. BLT: The agency must have earlier worked on maintenance and trouble shooting of Bell-less top charging system of Blast Furnace.
3. ROTATING EQUIPMENTS: The agency must have working experience on changing of rotor assembly of fans, blowers of capacity 3,00,000 cubic meter along with experience in balancing and trouble shooting.
4. UTILITY SYSTEM: The agency must have earlier worked on Maintenance/repair of utility compressors, Pressure vessels (up to 40 kg/cm2) and Pressure Reducing Valves and valves.
5. STOCK HOUSE: The agency must have working experience on maintenance / changing of complete vibro-screen, and their elements (mats, gearboxes, bearings etc.) , vibrofeeders, bunkers, weigh hoppers, feeding gates and their drives.
6. SGP/INBA: The agency must have working experience on maintenance of INBA dewatering system or any other slag granulation system of Blast Furnace
7. E.S.P.: The agency must have earlier worked on Electrostatic Precipitator System and Pneumatic Dust Evacuation System, its maintenance and trouble shooting.
8. RECLAMATION JOB: The agency must have working experience on maintenance/changing and reclamation of various motorized and other gearbox assemblies, fluid couplings and clutch mechanisms.
9. POWER SYSTEM: The agency must have working experience on 11 KV power system including 11/6.6 KV oil cooled minimum 5 MVA transformers , 11 KV switch board , Vacuum breakers and Vacuum Contactors, Protective relay settings, Substation Automation systems.
10. AUTOMATION: The agency must have working experience on DCS (Distributed Control System) system including all the software & hardware aspect of programming, networking, and trouble shooting. The agency must also have working experience on VVVF Drives, its functionality, microprocessor and trouble shooting.
11. H.T. & L.T. MOTORS: The agency must have working experience on maintenance, alignment, condition monitoring and trouble shooting of H.T. motors (6.6 KV) and L.T. motors (415V) along with fluid coupling technology.
GENERAL INFORMATION ABOUT THE AGENCY

1. Name of company:

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2. Registered address:

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   Telephone.............................. Fax...................... Telex ....................E-mail....................

3. Names and nationalities of principals/directors and associates

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4. Type of company (natural person, partnership, corporation, etc.):

5. Description of company (e.g. general maintenance contractor):

6. Company's nationality:.........................................................

EXPERIENCE AS CONTRACTOR:

7. List of contracts of similar nature and extent performed during the past 5 years

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<th>Sl. no</th>
<th>Name of work</th>
<th>Work value</th>
<th>Period of contract</th>
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A separate sheet may be attached along with copy of the each work order.

Signature: .............................................................

(a person or persons authorized to sign on behalf of the tenderer)

(Date:.........................}