BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING MANAGEMENT DIVISION
INDIA

2X200 MW EXTENSION OF TISHREEN THERMAL POWER PLANT PROJECT, PEEGT MINISTRY OF ELECTRICITY
SYRIAN ARAB REPUBLIC

REQUEST FOR EXPRESSION OF INTEREST FOR HELLER TYPE DRY COOLING SYSTEM WITH JET CONDENSER

MAY, 2009

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a. Preamble:

BHEL PEM has invited an Expression of interest (EOI) on a Global basis, from Original Equipment Manufacturers (OEM) / in Consortium with EPC Partner, for Heller Type Dry Cooling System for a Power Plant being executed by BHEL in the Syrian Arab Republic, through advertisements placed in the print media in India and abroad, as well as on BHEL website.

The following document shall be understood as an input for the preparation of an Expression of Interest only. The purpose of this document is NOT to provide a detailed specification for bidding purposes, but shall give the recipient an impression of the overall scope and purpose of the project in order to allow interested parties to submit an Expression of Interest (EOI) to BHEL for the Heller type dry cooling system described elsewhere in this document.

About BHEL:

Bharat Heavy Electricals Limited, is the largest engineering and manufacturing enterprise in India in the energy related/ infrastructure sector, and caters to Power Generation and Transmission, Industry, Transportation, renewable energy etc. BHEL has installed Thermal, Gas based and Hydro Power Projects with cumulative capacity exceeding 1,25,000 MW in India and abroad.

About PEM:

Project Engineering Management (PEM) Division is BHEL's power plant system integrator providing total engineering solutions for Power Projects, enabling BHEL to offer complete Engineering, Procurement and Construction services

B. Detailed requirements

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

BHEL has been awarded a contract for 2 x 200 MW oil/ gas based Thermal Power Plant in Syria, on an EPC basis.

The Owner of Tishreen Thermal power plant is Public Establishment of Electricity for Generation and Transmission (PEEGT), Ministry of Electricity, Syrian Arab Republic.

The Owners specifications calls for "Main Cooling system will be Heller Type Dry Cooling System with Jet Condensers".

1.2 PROJECT LOCATION

Tishreen Power station is situated about 50 Km east of Damascus, capital of Syrian Arab republic.

a) Design ambient parameters at Site

Altitude		605-606 m above Sea level
Barometric Pressure		920 mbar
Ambient Air Temp.	Max Dry bulb	45 ^{0}C
	Min	-10 ^{0}C
Wind speed.	Basic speed	35 m/s at 10 m height
Seismic.		Zone 3 according to UBC – rev 1997 (8 degree MSK-64) Zone 2B according to Syrian Arabic Code.
Atmosphere		Windblown Dust and Sand

		Storm

1.3 BRIEF TECHNICAL DESCRIPTION OF THE HELLER TYPE DRY COOLING SYSTEM WITH JET CONDENSER

Design, Engineering, Procurement, Manufacturing, Inspection/ Testing at Manufacturers Works, Suitable Painting, Packing for Transportation, Delivery at Site, Unloading/ Handling & Storage at Site, Unpacking, Site Fabrication, Erection, Testing, Commissioning, Trial run, Performance Guarantee Testing, Spare Parts during Guarantee period, Consumables during Guarantee period, handing over to Customer, Guarantee/ warranty obligations, etc. of Complete Heller type Dry Cooling System with Jet Condenser as a "Complete Package" on Turnkey, EPC basis including all its Mechanical, Electricals, Control & Instrumentation, Civil works etc.

Each Heller type Dry Cooling System with Jet Condenser shall comprise of Following Major Items

a) Air cooler bundles
b) Direct Contact Jet condenser
c) Steam Jet air ejectors with internal piping & valves
d) 2X100% Condensate Pumps with drive Motors
e) 2X50% Hydraulic Machine groups (CW Pumps with drive Motors & Recovery Turbines)
f) CW Piping and Valves for Main CW System
g) Storage Tanks including 2X50% refilling pumps
h) Painted Carbon steel Natural Draft Cooling Tower shell steel structure and aluminium cladding (including lightening protection, aviation lighting, internal earthing)
i) Control equipment (PLC with redundant controllers) with cabling to field equipment.
j) Low voltage Electrical equipment (0.4 KV MCC and internal cabling)
k) Cable trays/ Conduits in Cooling tower

l) Lightning protection bars & Earthing bars to ground for Cooling towers
m) Cathodic protection for Main CW buried piping
n) One movable water jet cleaning equipment per cooling tower
o) ACW Wet Cooling Tower with 2X100% ACW Pumps with Drive Motors, Piping, Valves, Fittings etc
p) All site fabrication works as required
q) Civil Works for Cooling Towers, Cooling Towers MCC room.
r) Spare Parts required for Guarantee period.
s) All Consumables, such as Lubricants, Chemical and other Consumable Materials during Guarantee period.
t) Performance Testing
u) Erection & Commissioning
v) Supervision of Erection & Commissioning

1.4 QUALIFICATION REQUIREMENTS

The parties interested in responding to this Expression of Interest shall satisfy the following Qualification Requirements:

a. They shall be Original Equipment Manufacturers (OEMs), and shall have valid technology licence for engineering, procurement, manufacture of Heller Type Dry cooling systems, briefly described above.
b. They shall not be bound by the Laws of their Land or of Technology provider's Country, or of Syrian Arab Republic, debarring them from supplying equipment to Syria and to carry out site fabrication, erection, commissioning in Syria.
c. They shall have executed Heller Type Dry Cooling Systems for similar or higher rating Power Plants, on Engineering, Procurement Construction (EPC) Basis, for similar duties and site conditions, with at least one of them in successful operation for a minimum period of 3 years, executed within the last ten years, with satisfactory performance. Necessary documentary evidence in the form of end users certificate shall be enclosed.

d. Prototype equipment is not acceptable

e. The Parties responding to this EOI notice shall be willing and able to legitimately carry out Commercial activities in Syria.

f. The OEMs as described under clause 1.4 a. above, can submit EOI for complete EPC execution on their own, or in consortium with an EPC Contractor having the requisite experience for site fabrication, Civil works, Erection and commissioning of Heller type dry cooling System as described above. The EPC Contractor shall also satisfy the Qualification requirements against Serial Nos. 1.4 b, c and e above

1.5 FINANCIAL PARAMETERS

The parties interested in responding to this Expression of Interest (EOI) shall submit the following documents along with their EOI

1. Table 1, with "√" marked against the applicable range

TABLE 1				
SL NO.	**PARAMETER**	**CRITERIA**	**RANGE**	**TICK AS APPLICABLE**
1	Net worth (average of 3 yrs to be worked out).	Growth over previous year.	>10%	
			5-10%	
			<5%	
2	Sales (Turnover)	Growth over previous year.	>10%	
			5-10%	
			>0<5%	
			0% & below	
3	Debt equity ratio ie long term debt / share holders fund(Share capital+Free reserves)		1:1	
			1.1 upto 1.5:1	
			1.6 & above:1	
4	Current ratio ie Current asset/current liablity		2:1	
			less then 2 upto 1.1:1	
			1:1	
5	Profit before tax	Growth over previous year.	>10%	
			5-10%	
			<5%	
6	Profit after tax	Growth over previous year.	>10%	
			5-10%	
			<5%	

2. Audited Financial Statement for preceding 3 financial/calendar years, i.e. for 2008, 2007, & 2006, shall be submitted along with EOI. If audited financial

statement for 2008 is not available then unaudited financial statement duty certified by Chief Executive Officer and Chief Financial Officer of the Company may be furnished.

3. The latest unutilized line of credit for fund based and non-fund based limits with cash and bank balances including fixed deposit of bidder as on a date not earlier than 15 days prior to the date of submission of EOI duly certified by the bankers, shall be submitted along with EOI. In case certificates from more than one banker are submitted, the certified unutilized limits shall be of the same date from all such banks.

Note:

a. Net worth means the sum total of the paid up share capital and free reserves. Free reserve means all reserves credited out of the profits and share premium account but does not include reserves credited out of the revaluation of the assets, write back of depreciation provision and amalgamation. Further any debit balance of Profit and Loss account and miscellaneous expenses to the extent not adjusted or written off, if any, shall be reduced from reserves and surplus.
b. Other income shall not be considered for arriving at annual turnover/sales.
c. The exchange rate as on closing date of expression of interest shall be considered.

2 BRIEF DUTY PARAMETERS FOR DESIGN OF HELLER TYPE DRY COOLING SYSTEM

a. Design operating data

	100% duty (MCR design)	**MCR with worst ambient temp**	**VWO**
Heat duty, G Cal/ Hr	225	257	236
Turbine condenser pressure, ATA	0.156	0.342	0.17

b. Design site data

	100% duty (MCR design)	**MCR with worst ambient temp**	**VWO**
Ambient dry bulb temp Deg C	26	40	26

	100% duty (MCR design)	MCR with worst ambient temp	VWO
Barometric pressure (m bar Ca)	920	920	920

3 EXPRESSION OF INTEREST

3.1 PURPOSE OF EXPRESSION OF INTEREST

The purpose of the Expression of Interest (EOI) is to give interested Qualified Parties an opportunity to express their interest in executing Heller type Dry Cooling System as described above. As part of the EOI, the interested Parties will be required to furnish experience record in the execution of Heller type Dry Cooling System with Jet Condenser of a similar nature to this project.

3.2 SUBMISSION OF EXPRESSION OF INTEREST

3.2.1 Information to be included in the Submission

The submission shall include as a minimum, the following information to assist in the assessment and evaluation of the submission:

(i) A covering letter of Expression of Interest from the interested parties

(ii) Forms 1 & 2 as contained in Section 3, duly filled with the requested information / responses to questions.

3.2.2 All Blanks Filled In

The blanks in the Forms in Section 3 are to be completed in full.

3.2.3 Authorized Signatures

The Expression of Interest and all accompanying documents shall be signed by persons authorized with Power of Attorney by the interested Parties. The designation and authority of the signatory shall be stated.

3.3 LANGUAGE

All correspondence in connection with this Expression of Interest and all reference documents accompanying the submission are to be in English.

3.4 SUBMISSION DETAILS

3.4.1 Expression of Interest Heading

All correspondence relating to this Expression of Interest shall carry the following project heading:

"EXPRESSION OF INTEREST FOR EPC CONTRACT
FOR HELLER TYPE DRY COOLING SYSTEM WITH JET CONDENSER
FOR 2 X 200 MW EXTENSION OF TISHREEN TPP
SYRIAN ARAB REPUBLIC"

3.4.2 Latest Date for Submission

The Expression of Interest must be submitted latest within 15 days of publication of notice inviting EOI by e-mail to the following address:

Email: satinderbedi@bhelpem.co.in

Tel: +91 120 4329029

Fax: +91 120 4329046

3.4.3 Hard Copy of Expression of Interest

A hard copy of the Expression of Interest shall be delivered to the following address as confirmation of the email submission:

Mr Satinder Bedi,
Addl General Manager, Operations Group - I,
BHARAT HEAVY ELECTRICALS LTD,
PROJECT ENGINEERING MANAGEMENT,
PPEI Building, Plot No. 25, Sector 16A,
NOIDA 201301, U.P. INDIA.

The outside of the sealed envelope shall be marked with the heading referred to in Section 3.4.1 above. The hard copy should be delivered within one week of the latest date of submission mentioned above.

3.4.4 Clarifications

Clarifications can be directed to the contact person, at the address or by e-mail, contact details as in Section 3.4.3 above, latest within one week of publication of the notice inviting EOI.

4 FORMS AND INFORMATION TO BE SUBMITTED

The following forms are to be filled in by the interested Parties and returned as part of the submission of Expression of Interest.

Where necessary, reference / supporting documents to complement the information in the Forms should be attached to the EOI submission.

FORM 1

INFORMATION IN SUPPORT OF EXPRESSION OF INTEREST

1. HELLER TYPE DRY COOLING SYSTEM WITH JET CONDENSER SUPPLIES

No.	Question	Interested Party's response
1.1	Name of Manufacturer and location of manufacture	
1.2	Attach reference list of completed projects	
1.3	If in consortium with an EPC contractor, attach reference list of competed projects of Consortium Partner	

2. STRUCTURE OF ORGANIZATION FOR EPC EXECUTION

No.	Question	Interested Party's response
2.1	EPC execution by OEM or in Consortium	
2.2	If in Consortium, describe the division of responsibility with Consortium Partner	

3. INTERESTED PARTIES CONTACT INFORMATION (To be filled up separately for Consortium Partner if applicable)

No.	Question	Interested Party's Response
3.1	Contact Person Name	
3.2	Office Telephone Number	
3.3	Mobile Phone Number	
3.4	Telefax Number	
3.5	Office Address	
3.6	E-mail Address	

Place and Date: _____

Signature: _____

FORM 2

LIST OF HELLER TYPE DRY COOLING SYSTEM WITH JET CONDENSER FOR THERMAL POWER PLANTS SUCCESSFULLY COMPLETED AND PERFORMANCE TESTED BY THE INTERSTED PARTY

(Please put in **bold** font for projects in Syria)

No.	Project Name and Country,	EPC Execution by Manufacturer or in Consortium	Unit Capacity (MW) and No. of Units	Heat load (Gcal/Hr.)	Turbine Condenser Pressure (Ata)	Design Dry bulb Temp. (^{0}C)	Work Description (Scope of works, main items, specialized inputs)	Customer Performance Feedback enclosed (yes/ No)	Commissioning Date

Note: Submission of Performance Certificate from end user for at least one executed Project as described under Clause 1.4 © above is mandatory

Place and Date: _____ Signature: _____