

MIYAR HYDRO ELECTRIC POWER COMPANY LIMITED

INVITATION FOR EXPRESSION OF INTEREST FOR CIVIL & HYDRO-MECHANICAL WORKS

EOI Notice No: Miyar EOI Civil/ HM

Name of the work:

Civil & Hydro-Mechanical works

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INVITATION FOR EXPRESSION OF INTEREST

- A. Miyar Hydro Electric Power Company Limited (MHEPCL) is a special purpose vehicle promoted by Moser Baer Projects Private Limited (MBPPL), for development of Miyar Hydro Electric project Project (3x40 MW) in Lahul & Spiti, HP. MHEPCL invites Expression of Interest (EOI) from eligible potential prospective Contractors for following Civil & Hydro Mechanical works as per brief particulars of scope of work mentioned hereinafter:

Package No. (Lot MHEP)	Scope of work
CW I	Diversion Tunnel & Barrage.
CW II	Intake Works, HRT, upto Ch. 4200m.
CW III	Part HRT Ch 4200 to outlet, Surge Shaft & Valve House.
CW IV	Pressure Shaft, Powerhouse, Tail Race & GIS Works.
HM I	Design, Fabrication, Supply, Erection, Testing of Steel liner for Pressure Shafts/Penstocks
HM II	Design, Fabrication, Supply, Erection & Testing of : Diversion Tunnel Gates & Hoisting arrangement, Barrage Radial Gates & Stoplogs, Intake Gates & Stoplogs, Trash Rakes and TRCM, Surge Shaft Gate, Tail Race (Draft Tube) Gates, Trash Rack at Tail race outlet & Adit Inspection Gates

- B. Complete Scope of work & key experience criterion are given in the EOI document, which are available in CD in our office free of cost or may be downloaded from our corporate website www.moserbaerprojects.com Contact Person: Mr. Mohammed Aamir, Phone: +91 9910078645, e mail : mohammed.aamir@moserbaer.in.
- C. MHEPCL reserves the right to reject any or all EOIs or cancel/ withdraw the invitation of Expression of Interest (EOI) without assigning any reason whatsoever and in such case no company/ intending company shall have any claim arising out of such action. Please visit website regularly for updated information or change, if any.

All information and documentation should be provided at address below within 30 days of publication of this Expression of Interest by e-mail and via courier to:

Miyar Hydro Electric Power Company Limited,
235, Okhla Industrial Estate, Phase-III, New Delhi.
Phone: 011-47624100

SECTION I
PREAMBLE & REQUIREMENTS

1.1 Introduction of Moser Baer Projects Pvt. Ltd

Moser Baer Project Private Limited (MBPPL) is one of the Moser Baer group company and has been incorporated with the vision to become a leading energy developer in India. It is one of the fastest growing Integrated Power companies in India, operating across a synergetic span of verticals comprising Coal, Power Generation (thermal & hydro), Power Trading, EPC and Renewable (Solar).

Moser Baer Project Private Limited (MBPPL) undertakes sustainable development of hydropower projects by respecting the environment, public safety and well being by synergizing economy and development in a viable balance.

MBPPL recognizes the responsibility for environmental management and pushes hydro power development to contribute to substitution of emissions towards the inevitable need and good of low carbon economy.

The challenge of balanced hydro power development in a responsible and viable manner calls for innovations and best engineering practices in the project design and development with diligent social responsibility.

The process of development of hydro power projects by MBPPL is an extensive one that involves strategic assessment of the project site and project parameters prior to preparing the project for execution. The project is then executed through consultation and evaluation with all stakeholders and laws that guide and facilitate sustainable hydropower development.

Our Hydro Strategy

- Generate long term and strong cash-flows for Moser Baer Group on the strength of low and lowering cost of generation.
- Create base for synergetic businesses around each major hydro power station. Careful selection of the project locations and sites.
- Portfolio of projects that suit the market opportunities by location and

maximization of peak generation.
<ul style="list-style-type: none"> ▪ Early and efficient execution. ▪ Innovation in design & project scheduling. ▪ Sustainable development

Best Practices

<ul style="list-style-type: none"> ▪ Differentiate ourselves from the ðas usualð developers. (<i>Through basin / cluster approach</i>)
<ul style="list-style-type: none"> ▪ Measure value of each project.
<ul style="list-style-type: none"> ▪ Understand each project opportunity diligently through site visits and technical analysis.
<ul style="list-style-type: none"> ▪ Be a serious and systematic developer. ▪ Extensive geo-technical investigations to minimize/pre-empt surprises. ▪ Rigorous process for DPR preparation. ▪ Engage internationally acknowledged consultants and review consultant.
<ul style="list-style-type: none"> ▪ Independent design, construction, engineering and review team of eminent experts to ensure relevance and soundness of the DPR.
<ul style="list-style-type: none"> ▪ Design and development of these projects to suit merchant markets. ▪ Appropriate contracting strategies: taking contractors as ðthe partners for achievingð. ▪ Aiming for early land acquisition to commence the preparations.

1.2 Project Background

1.2.1 Location:

The state of Himachal Pradesh has vast Hydro Power potential. The Chenab River, also known as Chandra Bhaga River in its upper reaches, is one of the major rivers in Himachal Pradesh. It

is formed by the confluence of two rivers viz. Chandra and Bhaga at Tandi near Keylong in Lahaul & Spiti district of Himachal Pradesh.

Miyar HEP is located on Miyar Nalla which is a major tributary of Chenab River. Miyar Nalla joins Chenab River at about 40km downstream of the confluence of Chandra and Bhaga Rivers. Udaipur town is at the confluence of Miyar Nalla and Chenab River. The location of the project is shown below:



The project has been awarded by Himachal Pradesh Govt. on open bidding process. Miyar Hydroelectric Power Company Ltd. is SPV to implement Miyar Hydro-Electric Project in Lahaul & Spiti District in the state of Himachal Pradesh.

The project diversion site is located approximately 7 km upstream of confluence of Miyar Nalla and Chenab River, and the power house is proposed near Udaipur town on the right bank of Chenab River, about 500 m upstream of confluence of Miyar Nalla with Chenab River. The latitude, longitude of diversion site are $32^{\circ}46'08''$, $76^{\circ}42'27''$ and for power house site are $32^{\circ}43'06''$ N, $76^{\circ}40'14''$ E.

1.2.2 Access:

The nearest rail head is Joginder Nagar railway station, which is about 300 Km from Project site. The proposed Miyar HEP is about 220 km from Bhuntar (Kullu) airport, which is the

nearest airport. By road the project is well connected through from Mandi to Keylong via Bhuntar, Manali, Rohtang upto Keylong. From Keylong, the project is connected to Udaipur by road via Tandi.

Udaipur is well connected with other parts of Himachal Pradesh. The details of accessibility are given below:

Nearest Airport : Bhuntar, 210 km from Miyar Project site.

Nearest Railhead : Joginder Naga, 350 Km from Project site.

Roads Route - I

Mandi ó Manali ó Tandi ó Udaipur : 270 Km Hilly

Manali ó Keylong (On Manali-Leh route) : 115 Km Hilly

Keylong ó Udaipur : 55 km Hilly

Alternate Route

The Manali-Leh route becomes inaccessible during December to April due to closure of the Rohtang pass; though intra valley communication remains open generally. An alternate route to reach the site is via J&K i.e.

Delhi - Jammu - 583 Km Hilly

Jammu - Kishtwar - 257 Km Hilly

Kishtwar - Killar - 125 km Hilly

Killar - Udaipur - 82 Km Hilly

However, this route also gets occasionally closed during January to March in the territory of Himachal Pradesh.

During winter season (Mid Dec to April) GoHP runs the Helicopter services in which seats are available on first-come- first- serve basis.

1.2.3 Climate:

This region is a low rainfall area as most of the precipitation in the region is in the form of snow. The rainfall takes place during the monsoon months only and the catchment experiences snowfall during the remaining period of the year. The Southwest monsoon is dominant during July to September, and most of the precipitation is in the form of rainfall.

Average maximum temperature at Keylong area which is in the upstream of the Udaipur site ranges from 0.7°C in February to 23.1°C in August and the average minimum temperature from -10°C in February to 10°C in July. The Permanent snow line of the basin is considered at 4600 m elevation keeping in view the pronounced effect of western disturbances in the project basin.

1.3 Project Layout

The Miyar Hydro Electric Project (3x40 MW) is envisaged as a run-of-river scheme for utilizing the flows of Miyar Nalla to utilise the head available between the proposed barrage location near Sakoli village with FRL of EL 2845 m asl and the proposed surface power house located near Udaipur town on the right bank of Chenab River just upstream of the confluence of Chenab River and Miyar Nalla. It is a high head scheme with rated head of 213.87m having Full Reservoir Level (FRL) and Minimum Draw Down Level (MDDL) as 2845 m asl and 2837.23 m asl respectively. It is essentially a run of the river scheme with diurnal pondage for generation of electricity. The project comprises of a 27m high barrage (above river bed level), 6.65 km long and 4.70m diameter headrace tunnel followed by a 10m diameter surge shaft, a 3.6m diameter pressure shaft/penstock, a surface power house and a tail race channel. The tail race, located on the right bank of the Chenab River, is discharging into Chenab River with normal tail water level as 2610.6 m asl (under normal operating condition) and minimum tail water level as 2608.80 m asl.

1.4 Description of Project Components

1.4.1 Barrage

The barrage axis is located near Sakoli Village. At the proposed barrage axis the river is straight in a reach of about 200 m between two bends with waterfalls. The average river bed level at the barrage axis is EL 2820.0 m asl. The crest level of barrage is kept at EL 2820.0 masl just at the river bed. The width of gorge present at the barrage top level is approximately 90 m.

1.4.2 River Diversion Works

During the construction of barrage structure and stilling basin, the flow of Miyar Nalla will be diverted through a D-shape, gated diversion tunnel, located at the right bank. The inlet structure is located about 160 m upstream of barrage axis with an invert level at elevation

2821.25 m a.s.l., while the outlet portal is situated about 160 m downstream of the barrage axis at an invert level 2816.52 m a.s.l. Two fixed wheel type gates (4.5 m (w) x 6.5 m(h)) are provided at inlet. The diversion tunnel is optimized for a design flood of 401 m³/s, which corresponds to a 25-year occurrence period.

The diversion scheme consist of a 12.6 m high upstream cofferdam with a crest level at elevation 2833.1 m asl and 3.0 m high downstream cofferdam with crest level at elevation 2820.0 m asl. The 6.50 m diameter D-shaped diversion tunnel has a length of 247 m. A 35.5m long open channel has been provided at just downstream of outlet portal of diversion tunnel to pass the flow from outlet portal of diversion tunnel to the river. The invert level of channel, where it discharges the water to river, is at 2815.77 m asl.

1.4.3 Water conductor system

1.4.3.1 Intake

The intake structure is proposed about 20 m upstream of the barrage axis on the left bank. The river bed level at the intake inlet level is about EL 2820.0 m a.s.l and sill level is kept at EL 2826.80 m a.s.l. The design discharge for intake structure has been considered as 61.35m³/s. Platform for the gate operation is kept at EL 2846.00 m a.s.l. The approach to the intake gate operational platform has been planned from the barrage top.

A trash rack has been proposed to trap the wood logs, boulders and other floating material. The sufficient water seal is provided below Minimum normal reservoir level to prevent vortices as per IS 9761. Minimum draw down level (MDDL) has been kept at EL 2837.23 m a.s.l. A gated arrangement is provided at intake having a gate size of 3.7 m (h) x 4.70 m (w x h).

1.4.3.2 Head Race Tunnel

The Headrace Tunnel (HRT) of finished diameter 4.7m connects the intake at its upper end and pressure tunnel below the surge shaft at its lower end. It is located on the left side of Miyar Nalla and has a total length of 6653 m. The normal profile of the HRT is fully concrete lined and circular shape with a lining thickness of 30 cm. For construction purposes 3 Adits are foreseen, Adit-1 (215 m. length) is about 287m downstream of the intake, the Adit-2 (473 m. length) is at 3129.5 m from intake and Adit-3 (370 m. length) is at 5283 m downstream of power intake. All Adits are foreseen to be self draining. The primary use of all Adits is to

facilitate the construction of the HRT. After construction the Adits could serve as permanent adits for inspection and maintenance.

The three curves in the HRT alignment have been provided keeping in view the requirement of construction adits and also to ensure the adequate cover is available through out the alignment.

1.4.3.3 Surge Chamber

A restricted orifice upstream surge shaft with a uniform diameter is adopted for the project. The surge shaft is underground and open at the top. An approach road to access the top of surge shaft is proposed.

Details of Surge Shaft Arrangement:

Description	Unit	
Top elevation	m a.s.l.	2895.00
Bottom elevation	m a.s.l.	2780.00
Height (Vertical Shaft)	m	115.00
Max. Surge level	m a.s.l.	2892.80
Min. Surge level	m a.s.l.	2793.49
Lining	m	0.60
Finished Diameter	m	10.0
Riser Diameter, Height	m	3.60, 84

1.4.3.4 Pressure Tunnel, Penstock and Valve House

A steel lined pressure tunnel of 370 m length and 3.6 diameter is connected between lower end of the HRT and valve chamber. The valve chamber has arrangement to feed into surface penstock connecting to the Powerhouse. The 154.6 long and 3.6 m diameter penstock with two anchor blocks is provided along the hill facing the Chandra Bhaga river terrace. The penstock connects the valve chamber and having a manifold arrangement in the other end to feed into three unit turbines. The surface valve house is equipped with a monorail crane of 50 t capacity and a 2600 mm diameter spherical valve. The rock mass at valve chamber site is fair to good and required permanent face protection for excavated face.

1.4.4 Power House

The surface powerhouse and its appurtenant structure are proposed to be located on the right bank of the Chandra Bhaga River near Udaipur town, with installed capacity of 3 x 40 MW. Powerhouse Complex consists of surface Power house, Transformer / GIS bay & Auxiliary bay. Power house bay in turn consists of machine bay, erection bay, unloading bay and Auxiliary bay. The overall length and width powerhouse are 85.5 m & 17m respectively. Description of each bay is given below.

1.4.5 Transformer / GIS Bay

Transformer bay is sized to house three nos of III-phase unit transformers. The length and width of transformer bay is 38.6m x 14m respectively. These transformers are transported from unloading bay. Rail tracks are laid on the floor to push the transformers to its designated positions. A 1m deep soak pit is proposed around transformer area for fire fighting considerations. The transformers are connected with bus bars from generator at machine hall through bus duct that opens at higher level of u/s concrete wall. An oil-water separator tank is proposed adjacent to unit transformer-1. GIS floor is proposed above transformers at EL. 2627.55 m.

1.4.6 Tail Race Channel

Tailrace comprises of concrete walls and foundation raft. The left and right walls shall connect to the end DT gate piers by means of contractions joint. The walls shall extend upto EL. 2610.00. At the exit, a crest is proposed which is slightly above the river bed level. A trashrack is provided at sill level of 2608.80m to avoid any boulder entry into tailrace from river during operation of plant.

All the dimensions given above are from the DPR design. The same might change during actual design of the structure.

Draft DPR is available with MHEPCL. Applicants may study the same on the request to MHEPCL.

1.5 Salient Features:

1.5.1 Project:

PROJECT LOCATION		
State	Himachal Pradesh	
District	Lahul & Spiti	
River	Miyar Nallah	
Vicinity	Udaipur village	
	Diversion Site	Power House Site
Latitude	32°46'08" N	32°43'06" N
Longitude	76°42'27" E	76°40'14" E
HYDROLOGY		
Catchment area	km ²	901
Snow fed catchment area	km ²	601
Total annual inflow in 90% dependable year	10 ⁶ m ³	1104.10
Average discharge in 90% dependable year	m ³ /s	34.82
Minimum ecological water release taken	m ³ /s	1.27
Flood discharge for river diversion (~Q25) Non monsoon Flow	m ³ /s	149
Flood corresponding to 1 in 500 year return period	m ³ /s	526
Standard Project Flood (SPF)	m ³ /s	832
Probable Maximum Flood (PMF)	m ³ /s	1353
PONDAGE		
Maximum normal reservoir level	m a.s.l.	2845.00
Minimum Draw Dawn level	m a.s.l.	2837.23
Design Flood level (corresponding to SPF)	m a.s.l.	2845.00
Live storage	10 ⁶ m ³	0.9
BARRAGE		
Average river bed level at barrage axis	m a.s.l.	2820
Bridge Deck level	m a.s.l.	2847
Barrage Crest Elevation	m a.s.l.	2820
Bridge Deck Level	m a.s.l.	2847
Total width of Barrage structure including non-overflow block	M	90
Height of barrage (Above Sill Level)	m	27
RIVER DIVERSION		
Diversion Tunnel (D-Shape) Length, Diameter	m	247,6.5
Inlet and Outlet Elevations	m a.s.l	2821.25,2815.77
Upstream Cofferdam Elevation	m a.s.l	2833.1
Height of U/S Cofferdam	m	12.6
Downstream Cofferdam Elevation	m a.s.l	2820
TUNNEL INTAKE		
Number of openings		1

Invert sill elevation	m a.s.l.	2826.8
Nominal Discharge	Cumecs	61.35
HEADRACE TUNNEL		
Excavated Shape		Modified Horse Shoe
Finished Shape		Circular
Length	m	6653
Finished Diameter	m	4.7
Velocity for nominal discharge	m/s	3.5
Slope		
From intake to Adit-2	%	1.69
From Adit-2 to Adit 3	%	3.44
From Adit-3 to Surge Shaft	%	0.33
Nominal discharge	m ³ /s	62.17
Lining type		Concrete
Thickness	m	0.3
ADITS		
Number of Adits		3
Type & Size		D-Shape, 4.5 m
Length of Adit-1 (near intake)	m	215
Length of Adit-2	m	473
Length of Adit-3	m	370
SURGE SHAFT		
Vertical Shaft		Underground
Top elevation	m a.s.l.	2895
Bottom elevation	m a.s.l.	2780
Riser diameter, height	m	3.6,84
Max. upsurge level	m a.s.l.	2892.8
Min. down surge level	m a.s.l.	2793.49
Lining	m	0.6
Diameter	m	10
Restricted Orifice Diameter	m	3.6
VALVE HOUSE		
Type & Number		Surface, one
Butterfly valves		
Number, diameter		One, 2.6 m.
PRESSURE TUNNEL/PENSTOCK		
Internal Diameter of Pressure Tunnel	m	3.6
Length of Pressure Tunnel	m	370
No. of Pressure Tunnel		1
Internal Diameter of Surface Penstock	m	3.6
Length of Surface Penstock	m	154.6
No. of Surface Penstock		1

Quality of Steel		ASTM A-537'Class 2
UNIT PENSTOCK		
Number		3
Internal diameter	m	2.1
POWERHOUSE		
Type		Surface
Turbine type		Francis
Number of units		3
Turbine setting elevation	m a.s.l.	2604
Rated discharge per unit	m ³ /s	20.45
Rated head	m	215.54
Installed capacity per unit	MW	40
Inlet valve type		Spherical
Number		3
Diameter	m	1.6
Generator type		3 Phase
Number		3
Nominal speed	rpm	428.6
Voltage I Frequency	kV /Hz	11.0/50
Power factor	cos	0.9
Normal Tail Water level	m	2610.6
TRANSFORMER DECK		
Transformer type		3 phase
Location		Outdoor
Number		3
Unit capacity	MVA	50
VolItage ratio	kV / kV	11.0/220
TAIL RACE CHANNEL		
Type & Number		Surface, One
Size (LxW)		133 x 15.5
Slope		1 in 8
Nominal Discharge	Cumecs	61.35
Outlet Sill Elevation	m asl	2608.8
POWER BENEFITS		
90% dep. energy	GWh	451.79
90% dep. Energy with 95% plant availability	GWh	438.53

1.5.2 Hydro-Mechanical Equipments:

A) BARRAGE RADIAL GATES

1)	Nos. required	3
2)	Type of gates	Radial gates, under sluice type
3)	Size adopted	10.0 m (w)x 4.0 m(h)
4)	Sill level	El 2820.00
5)	Top of gate opening	El 2826.50
6)	Trunnion Level	El 2824.40
7)	FRL	El 2845.00
8)	Design Head	25.00m
9)	Deck Level	El 2846.00
10)	Gate Weight + EPs (embedded parts)	(40.0 + 5.0) x 3 = 135.0 t
11)	Type of Hoist	Hydraulic Hoist
12)	Capacity (min.)	2 x 50 t each

B) STOPLOGS FOR BARRAGE RADIAL GATES

1)	No. of openings	03
2)	Type of gate	Slide Gate
3)	Nos. required (of stoplogs)	One set of consisting (2 units)
4)	Size (overall)	10 m x 5.6 m.
5)	Sill level	El. 2820
6)	Top of stoplogs	El. 2825.60
7)	FRL	El 2845.00
8)	Design Head (max.)	25.00 m.
9)	Size of each unit	10 m. x 2.8 m.(approx.)
10)	Position of skin plate	Downstream
11)	Position of sealing arrangement	Downstream
12)	Operation	By Gantry Crane & lifting beam
13)	Weight of one set of stoplog + 3 sets of EPs	120 t.
14)	Gantry Crane Capacity	30 t (Min.)
15)	Weight of lifting beam	5 t

C) SPILLWAY STOPLOG GANTRY CRANE

1)	No. required	1
2)	Type of Gantry	Traveling Type
3)	Gantry crane capacity	30 t (min.)
4)	Rails levels	EL 2847.00 m asl

D) INTAKE TRASH RACKS

1)	Nos. of sets	2
2)	Type	Removable - operated by Trash Rack Cleaning Machine
3)	Overall size of trash rack panel (w x h)	11.10m x 9.40m
4)	Size of each trash rack panel (w x h)	5.50m x 9.40m
5)	Bar Spacing	60 to 80 mm (approx. to be confirmed by turbine supplier)
6)	Inclination	15° to vertical
7)	Sill Level	EL 2826.80 m a.s.l
8)	Top of deck (Deck Level)	EL 2846.00 m a.s.l
9)	Total Weight	22 t (approx.)

E) INTAKE GATE & HYDRAULIC HOIST

1)	No. required	1
2)	Opening Size	3.70 m (w) x 4.70 m (h)
3)	Type of gate	Fixed Wheel type
4)	Construction	Gate shall be fabricated in 2 units and joined together by flexible joints
5)	Sill Level	EL 2826.80 m a.s.l
6)	FRL	EL 2845.00 m a.s.l
7)	Design Head	18.20m
8)	Position of Skin Plate	Upstream
9)	Position of sealing arrangement	Upstream
10)	Weight of gate + E. P.	3.0 t (including ballast)+ 7.0 t = 20.0 t
11)	Type of hoist	Hydraulic hoist
12)	Hoist Capacity	2 x 15 t

F) DRAFT TUBE GATE AND GANTRY CRANE

1)	Nos. required	3
2)	Size of gate Type of gate	5.20 m x 3.00 m (w x h) , Slide type
3)	Sill Level	EL 2597.00
4)	Max. T.W.L. Design Head	EL 2620.25 23.25 m (corresponding to max. T.W.L.)
6)	Operation	By gantry crane
7)	Position of Skin Plate	Turbine Side
8)	Position of Sealing	Turbine side
9)	Arrangement	
10)	Gantry Crane Capacity	20 t (min.)
11)	Weight of gate + E. P.	(12.0 t + 5.0 t) x 3 = 51.0 t
12)	Lifting Beam	2.0t

G) TAILRACE TRASH RACKS

1)	Nos. of sets	One set
2)	Type	Removable type - operated by Mobile crane
3)	Size of trash rack	1 set - 15.50 m x 3.00m (w x h) consisting of 2 panels each of size 7.75 m x 3.00 m
4)	Bar Spacing	Subject to information on size of boulders, etc
5)	Inclination	Vertical
6)	Sill Level	EL 2608.80
7)	Weight	6.0 t (approx.)

H) STEEL LINING FROM SURGE SHAFT TO VALVE HOUSE

1)	Steel Lining	From surge shaft to valve house
2)	Steel Lining diameter	3.60m
3)	Thickness	16mm
4)	Construction	Steel welded
5)	Levels	As per drawing
6)	Corrosion allowance	1.5 mm (as per IS 11639)
7)	Weight of steel lining	550 t

I) SURFACE PENSTOCK & BIFURCATORS

1)	Surface Penstock	From Valve House to power House
2)	Penstock Diameter	3.6 m/ 2.8 m.
3)	Thickness	18 to 30 mm approx.
4)	Construction	Steel Welded
5)	Levels	As per drawing
6)	FRL	El 2845.00
7)	Water Hammer and maximum surge	30% approx.
8)	Maximum Design Head	320 m. approx.
9)	Corrosion Allowance	1.5 mm. (as per IS11639)
10)	Weight of penstock, bifurcations including expansion joint and manhole	350 t (aapprox.)

J) DIVERSION TUNNEL GATE & HOIST

1)	No. of Gates	Two
2)	Opening Size	6.50 m (w) x 6.50 m (h)
3)	Type of gates	Fixed Wheel
4)	FRL	EL 2832.10m asl
5)	Sill Elevation	EL.2821.25m asl
6)	Closing	By mobile crane / Pair of winches
7)	Weight of Gate + E.P.	(22.0 t + 6.0 t) x 2 = 56.0 t

K) ADIT INSPECTION DOOR

1)	No. of Doors	One
2)	Size	2.20 m (w) x 2.20 m (h)
3)	Type	Hinge type gate
4)	Operation	Manual by winch/jacks
5)	Weight of gate + E. P.	2.0 t + 1.0 t

1.6 INVITATION/ PRESENT REQUIREMENT:

1.6.1 Applications are invited for "**Expression of Interest**" from reputed Contractors for Civil & Hydro-Mechanical Works of Miyar HE Project for the following work packages:

Package No. (Lot MHEP)	Scope of work
CW I	Diversion Tunnel & Barrage.
CW II	Intake Works, HRT, upto Ch. 4200m.
CW III	Part HRT Ch 4200 to outlet, Surge Shaft & Valve House.
CW IV	Pressure Shaft, Powerhouse, Tail Race & GIS Works.
HM I	Design, Fabrication, Supply, Erection, Testing of Steel liner for Pressure Shafts/Penstocks
HM II	Design, Fabrication, Supply, Erection & Testing of : Diversion Tunnel Gates & Hoisting arrangement, Barrage Radial Gates & Stoplogs, Intake Gates & Stoplogs, Trash Rakes and TRCM, Surge Shaft Gate, Tail Race (Draft Tube) Gates, Trash Rack at Tail race outlet & Adit Inspection Gates

The Project duration is foreseen as 38 months from the commencement of above works.

Applicants are advised to study the EOI document carefully. EOIs prepared in accordance with the procedure enumerated in EOI document should be submitted to MHEPCL not later than the scheduled time and date as laid down at Section II, clause 1.9.

1.6.2 Site visit is not mandatory for EOI, however, the applicants in their own interest, should inspect and examine the site and its surroundings and satisfy themselves, before submitting their EOI, in respect of the site conditions including but not restricted to the following which may influence or affect the work in the proposal submitted with EOI:

- a) Site conditions including access to the site, existing and required roads and other means of transport/ communication for use by them in connection with the works;
- b) Requirement and availability of land and other facilities for their enabling works, colonies, stores and workshops etc.;
- c) Ground conditions including those bearing upon transportation, disposal, handling and storage of materials required for the work or obtained therefrom;
- d) Source and extent of availability of suitable materials including water, etc. and labour (skilled and un-skilled), required for work and Laws and Regulations governing their use and employment;
- e) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work;
- f) The limit and extent of surface and sub-surface water to be encountered during the performance of the work and the requirement of drainage and pumping;
- g) The type of equipment and facilities needed, preliminary to, for and in the performance of the work; and
- h) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this Contract.
- i) Environmental Aspects.
- j) Applicable local taxes, royalty etc.
- k) Cultural, social and aspiration aspects of the local population

The applicant and any of its personnel or agents will be granted permission by the MHEPCL to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the applicant, its personnel, and agents, will release and indemnify the MHEPCL and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

The applicants should note that information, if any, in regard to the site and local conditions, in these EOI documents is indicative only and has been given merely to assist the applicants and is not warranted to be complete.

The applicants should note and bear in mind that the MHEPCL shall bear no responsibility for former's lack of acquaintance of the site and other conditions or any information relating thereto. The consequences of the lack of any knowledge, as aforesaid, on the part of the applicants shall be at their risk.

The applicants should note and bear in mind that the costs of visiting the Site shall be at the applicant's own expenses.

1.7 AIM & OBJECTIVE:

A call to potential contractors to register interest in Civil & Hydro-Mechanical works and to demonstrate their ability to meet the requirements for execution of Civil & Hydro-Mechanical works.

1.8 QUALIFICATION REQUIREMENTS:

Applicants who fulfill the following criteria shall be considered for participation:

(A) Work Experience:

LOT MHEP CWI : Diversion Tunnel & Barrage

- (i) Completion of at least two works of 15 meter high Barrage in last 7 years.
- (ii) Completion of at least one work of tunneling.
- (iii) Availability or capability to arrange key equipment for carrying out the construction under this package.

LOT MHEP CWII : Intake Works, HRT, upto Ch. 4200m.

- (i) Completion of at least two works of 2 km long tunnel, excavation and concrete lining in last 7 years.

- (ii) Availability or capability to arrange key equipment for carrying out the construction under this package.

LOT MHEP CWIII : HRT Ch 4200 to outlet, Surge Shaft & Valve House

- (i) Completion of at least two works of 2 km long tunnel, excavation and concrete lining in last 7 years
- (ii) Completion of at least two works of Surge shaft in last 7 years.
- (iii) Availability or capability to arrange key equipment for carrying out the construction under this package

LOT MHEP CWIV : Pressure Shaft, Powerhouse, Tail Race & GIS Works

- (i) Completion of at least two work of pressure shaft/ Penstock in last 7 years.
- (ii) Completion of at least one work of surface power house in last 7 years
- (iii) Availability or capability to arrange key equipment for carrying out the construction under this package

Lot HMI : Fabrication, Erection, Testing of Steel liner for Pressure Shafts/Penstocks

Have a successful experience as prime contractor in the execution of at least three projects of a nature and complexity comparable to the proposed contract within the last five years including:

- (a) Design, fabrication and installation of penstocks of at least 2.0m diameter in at least two projects in the last ten years, and
- (b) Annual production of at least 500 tonnes of fabricated steel in one of the last five years.

Lot HMII : Fabrication, Erection, Testing of Diversion Tunnel Gates & Hoisting arrangement, Barrage Radial Gates & Stoplogs, Intake Gates &

**Stoplogs, Trash Rakes and TRCM, Surge Shaft Gate, Tail Race (Draft Tube)
Gates, Trash Rack at Tail race outlet & Adit Inspection Gates**

Successful experience, either by the Applicant Company itself or by the proposed manufacturer(s) who have given authorisation to the Applicant in required format for the following Hydro-mechanical items and /or works in preceding fifteen (15) years:

- (a) Designing, procurement, manufacturing and supply of submerged type Radial Gates operated by hydraulic hoists atleast in two project in last two years.
- (b) Designing, procurement manufacturing/fabrication, supply, installation, testing and commissioning of Vertical lift gates with hoist having atleast in two projects in last two years.

(B) Financial Capability:**Financial Capability Criteria for Lot CW I/II/III/IV:**

- (i) Turn over: Average Turnover in the last three years should not be less than Rs. 100 crores.
- (ii) Net worth: Should be positive and more than equity including share premium in last 3 years
- (iii) Profitability: Should have earned profit in the last 3 years.
- (iv) Working Capital: available working capital should be more than Rs. 10 crores.

Financial Capability Criteria for Lot HM I/II:

- (i) Have an average annual turnover as prime contractor over the last five years of Rs 5 crores equivalent; and
- (ii) Have a positive Networth and access to line of credit/liquid funds sufficient to meet the construction cash flow for the contract for a period of four

months, estimated as not less than Rs 2.0 crores equivalent, taking into account the applicant's commitments for other contracts.

Note:

1. *Other income shall not be considered for arriving at Annual Turnover.*
2. *The Applicant's financial evaluation vis a vis the requirement as stipulated above shall be done on the basis of duly printed Annual Report for the immediately preceding 5 (five) years submitted by the applicant along with the application. Further, standalone audited Annual Financial Statement of applicant shall be forming part of the Annual report.*

In case, if Applicant's have not submitted the above Annual Report along with application, then a certificate from CEO/CFO of the Applicant shall be submitted along with application mentioning that the requirement of Annual report as per governing law of country is not mandatory.

In such cases duly notarized copies of Audited Printed Annual Financial Statement (Balance Sheet, Profit & Loss Statement, cash flow statement, Auditor's Report thereon including all relevant Schedules/ annexure etc.) for the immediately preceding 5 (five) years be submitted by the applicant along with the application.

3. *In case where Audited financial result for the immediately preceding year is not available, then a statement of account as on the closing date of the immediately preceding financial year depicting the Turnover, Profitability and Net Worth (calculated as per laid down criteria) duly certified by their Statutory Auditor/ Certified Public Accountant carrying out the statutory audit shall be enclosed with the application along with copy of appointment letter of the statutory auditor.*
4. *Wherever, the Annual Report/ duly notarized copies of Audited Printed Annual Financial Statement are based on other than English language, then duly printed & translated in English language duly certified by approved/ recognized English translator shall be submitted with the application.*

(C) Manpower Capability:

Manpower Availability Criteria for Lot CWI/II/III/IV:

- (i) Project Manager for deployment at this Work having about 15 years work experience at Water resource project in construction of Barrage and underground works for Lot MHEP CWI, tunnel for Lot MHEP CWII, shafts for Lot MHEP CWIII and Power House for Lot MHEP CWIV
- (ii) Managers for the surface works, underground works, equipment maintenance and construction power having 10 years experience in respective field should be available for deployment.

Manpower Availability Criteria for Lot HMI/II:

Provide suitably qualified personnel to fill the key management and specialist positions.

1.9 LETTER OF TRANSMITTAL

The interested Contractors of repute, having similar exposure in similar works as described under para 1.8 above, should submit the letter of transmittal in the given format and all other forms along with Expression of Interest document (in 2 sets) as listed in Section III, by means of courier/ personally in MHEPCL office on or before date & time as mentioned in Section II para1.9.

1.10 EVALUATION CRITERIA FOR SHORTLISTING OF APPLICANTS

For the purpose of short listing, applicants will be evaluated in the following manner:

- a. The initial criteria prescribed in clause 1.8 above, in respect of experience of similar class of works completed will first be scrutinized and the applicant's eligibility for the short list for the works to be determined.
- b. The applicants qualifying the above initial criteria will be evaluated by scoring method formulated by MHEPCL on the basis of details furnished by Applicants.
- c. Short listing of the Applicants shall be subject to thorough verification of their credential by Technical Committee of experts to be constituted by MHEPCL. Information relating to the examination, clarification, evaluation and comparison of EOIs, and recommendations for the shortlisting shall not be disclosed to applicants or any other persons not officially concerned with such process until the shortlisting has been announced.
- d. Each qualified Applicant will be required to make the presentation to the Technical Committee showing their plans and methodology for implementation of the project. The total score of the presentation and total qualifying marks will

be considered for the final selection of successful Applicant. The decision of the Technical Committee shall be final and binding on

- e. all participating Applicants and without being liable to challenge in any court of law.
- f. Any effort by a applicant to influence the MHEPCL processing of evaluation or decisions may result in the rejection of the Applicant's EOI.

Even though an applicant may satisfy the above requirements, he would be liable to disqualification if he has:

- i. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the pre-qualification document.
- ii. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.

SECTION II
INFORMATION & INSTRUCTIONS FOR APPLICANTS

1. GENERAL:

- 1.1 The language of communication shall be English only.
- 1.2 EOI shall remain valid for the period of six months after the date of last date of receipt of EOI from Applicants.
- 1.3 Every application form should be accompanied by EOI Security in the form of Cheque/ BG amounting to Rs. 50,000/- (Rs. Fifty Thousand) valid upto and including [date 90 days after the period of EOI validity], which shall be returned with in one month of expiry of EOI Security validity, to those Applicants who are not short listed as laid down under Section I, clause 1.11.
- 1.4 Letter of transmittal and forms 'A' to 'P' seeking information/documents are given in Section - III. The applicant should submit the letter of transmittal attached with the 'EOI' Document.
- 1.5 All information called for in the enclosed forms should be furnished against the relevant columns in the forms. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a 'nil' or 'no such case' entry should be made in that column. If any particulars/ query is not applicable in case of the applicant, it should be stated as 'not applicable'. The applicants are cautioned that not giving complete information called for in the application forms or not giving it in clear terms or making any change in the prescribed forms or deliberately suppressing the information shall result in the applicant being summarily disqualified. Applications received late will not be entertained.

- 1.6 The application should be type written. The applicant should sign and affix his office seal on each page of the EOI document. Overwriting should be avoided. Corrections, if any, should be made by neatly crossing out, initialing, dating and rewriting. The applicant may furnish any additional information, which is deemed necessary to establish capability to successfully complete the envisaged project. Pages of the prequalification document are numbered. Additional sheets, if any added by the applicant, should be numbered. All these should be submitted as a package with signed Letter of Transmittal. Superfluous information need not be furnished and no information shall be entertained after submission of EOI document unless specifically called for.
- 1.7 References, information and certificates from the respective clients certifying suitability, technical know how or capability of the applicant should be signed by authorized signatory.
- 1.8 Any information furnished by the applicant found to be incorrect either immediately or at a later date, would render him liable to be debarred from taking up the project.
- 1.9 The EOI document in prescribed form duly completed and signed should be submitted in hard copy (original) and a soft copy, MS-Word compatible, in a sealed cover. The sealed cover superscribed as **"INVITATION FOR EXPRESSION OF NOTICE NO.: Miyar EOI Civil/ HM"** shall be received in the office of MHEPCL, upto 5 PM on 20th July'11. Documents submitted in connection with EOI will be treated confidentially & will be the property of MHEPCL.
- 1.10 Prospective applicants can seek any clarification in this regard from the Office of the MHEPCL at the address mentioned above. Further, it is suggested that for better understanding of the site conditions, applicant may undertake a site visit at their own interest & cost before submitting the EOI document.

- 1.11 MHEPCL reserves its right not to respond to any question raised or provide clarification sought in its sole discretion.
- 1.12 At any time prior to the deadline for submission of EOI, the MHEPCL may amend the EOI documents by issuing Addenda. Any Addendum thus issued shall be part of the EOI documents and shall be posted on corporate website www.moserbaerprojects.com. Applicants are advised to visit the website regularly. To give prospective applicants reasonable time in which to take an Addendum into account in preparing their EOI, the MHEPCL may extend as necessary the deadline for submission of EOI.
- 1.13 Without being liable for any damages or obligation or assigning any reason to the applicant, MHEPCL reserves the right to -
- a. Amend the scope of work.
 - b. Restrict the short listing of applicants to any number deemed suitable by it.
 - c. Reject any or all EOIs of the applicants.
- 2.0 The discretion and decision of MHEPCL, in respect of the 'EOI', shall be final and shall not be open to be challenged in any Court of Law. MHEPCL reserves the right to accept or reject any application and/or to annul the selection process and reject all applications at any time without assigning any reason or incurring any liability to the applicants
- 3.0 The particulars of the Scope of work given in Section-I are indicative only and subject to change and may be considered only as advance information to assist the prospective applicant.
- 4.0 Applicants are liable to be disqualified, if they have:
- a. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the EOI document.
 - b. Record of poor performance such as abandoning project, not properly completing

the assigned project, or financial failures/weaknesses etc.

5.0 DISCLAIMER

The information in this document has been prepared to assist the Applicants in preparing the non binding EOI and it is clarified that:

- i. It does not constitute an invitation to offer or an offer in relation to the transaction.
- ii. This document does not constitute any contract or agreement of any kind whatsoever.
- iii. This document does not, purport to contain all the information that the interested Applicants and their advisors would desire or require in reaching decisions as to the requirement. Interested Applicants should form their own view as to what information is relevant to such decisions and make their own independent investigations in relation to any additional information.
- iv. Neither the information in this document nor any other written or oral information in relation to the requirement or otherwise is intended to form the basis of or the inducement for any investment activity or any decision to enter into any contract or arrangement in relation to the transaction and should not be relied on as such. Neither MHEPCL nor their employees or advisors shall be liable to any interested party or any entity under any law including the law of contract, tort, the principles of restitution or unjust enrichment or otherwise for any loss, expenses or damage which may arise, or be incurred, or suffered, in connection with this document, or any matter that may be deemed to form part of this document, or any other information supplied by or on behalf of MHEPCL or their employees or advisors or otherwise arising in any way from the selection process mentioned herein.
- v. MHEPCL is not bound to accept any or all the EOIs. MHEPCL reserves the right

to reject any or all EOIs without assigning any reasons. No applicant shall have any cause of action or claim against MHEPCL or its officers, employees, advisors, agents, successors or assignees for rejection of this EOI.

- vi. Failure to provide information that is essential to evaluate the applicant's qualifications or substantiation of the information supplied, shall result in disqualification of the applicant.
- vii. It shall not be assumed that there shall be no deviation or change in any of the herein mentioned information. While this document has been prepared in good faith, neither MHEPCL nor any of their respective officers or employees or advisors or agents make any representation or shall have any responsibility or liability whatsoever in respect of any statements or omissions here from. Any liability is accordingly expressly disclaimed by MHEPCL or any of their respective officers, employees, advisors or agents, whether negligent or otherwise.

SECTION III
LETTER OF TRANSMITTAL
EOI for the Package : *(Insert Package Numbers)*

To : (Name and Address of MHEPCL)

Sir,

- 1.0 Having examined the EOI Documents, including Addenda Nos. *(Insert Numbers)*, the receipt of which is hereby acknowledged, we the undersigned, hereby submit the relevant information.
- 2.0 We hereby certify that all the statements made and information supplied in the enclosed forms 'A' to 'P' and accompanying statements are true and correct.
- 3.0 We have furnished all information and details necessary for EOI and have no further pertinent information to supply.
- 4.0 We also authorize MHEPCL or their authorized representatives to approach individuals,
- 5.0 MHEPCLs and firms to verify our competence and general reputation.
- 6.0 **Attachments to the EOI Form:**

In line with the requirement of the EOI Documents we enclose herewith the following Attachments to the EOI Form :

- (a) Attachment 1: EOI Security in the form of
(Please fill in the alternative chosen) for a sum of
(Name of currency and amounts in words & figures) valid upto and including [date 90 days after the period of EOI validity].
- (b) Attachment 2: A power of attorney duly authorised by a Notary Public indicating that the person(s) signing the EOI have the authority to sign the EOI and thus that the EOI is binding upon us during the full period of its validity.
- (c) Attachment 3: The documentary evidence establishing that we are eligible to EOI are qualified to perform the proposed works if our EOI is accepted. The qualification details has been furnished as per your format enclosed with the EOI documents (Form A to P).

- 7.0 We confirm that we or our Assignee (applicable for Foreign Applicants) shall also get registered with the concerned Sales Tax Authorities, in the state where the project is located.
- 9.0 We agree to EOI terms by this EOI shall be valid for a period of six months from the date fixed for submission of EOIs as stipulated in the EOI Documents, and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
- 10.0 We understand that MHEPCL reserves the right to reject any or all EOIs or cancel/ withdraw the invitation of Expression of Interest (EOI) without assigning any reason whatsoever and in such case no company/ intending company shall have any claim arising out of such action..

Dated this.....day of.....2011

Thanking you, we remain,

Yours faithfully,

(Signature)
(Printed Name)
(Designation)
(Common Seal)

Date :

Place :

Business Address:

Country of Incorporation:
(State or Province to be indicated)

Name & Address of the Principal Officer:

Note: Applicants may note that no prescribed proforma has been enclosed for Attachment 2, (Power of Attorney) and Applicants may use their own proforma.

SECTION III
FORM A
FORM OF DECLARATION

**A DECLARATION IN RESPECT OF THE SUBMITTED EOI DOCUMENTS/
PROPOSALS.**

Subject: In respect of Global EOI for Execution of Miyar HE Project, *(Insert Package Number)*

It is declared without any reservation whatsoever

- 1) that the EOI proposals are without any deviations and are strictly in conformity with the documents issued by the MHEPCL.
- 2) that in case any deviations are noticed which might have crept inadvertently, that such deviations without reservation of any kind are automatically deemed to have been withdrawn by the Applicant.

(To be Signed by all the Members of the Joint Venture or Consortium or the authorised representative holding Power of Attorney on behalf of all Partners).

.....
.....
.....
.....
.....
.....

N.B: WITHOUT THIS CERTIFICATE EOI IS LIABLE TO BE REJECTED.

SECTION III
FORM B
General Information

All individual firms and each partner of a joint venture are required to complete the information in this form.

1.	<i>Name of firm</i>	
2.	<i>Head office address</i>	
3.	<i>Telephone</i>	<i>Contact</i>
4.	<i>Fax</i>	<i>Telex</i>
5.	<i>Place of incorporation / registration</i>	<i>Year of incorporation / registration</i>

SECTION III
FORM C
General Experience Record

Name of Applicant or partner of a joint venture

All individual firms and all partners of a joint venture are requested to complete the information in this form. The information supplied should be the annual turnover of the Applicant (or each member of a joint venture), in terms of the amounts billed to clients for each year for work in progress or completed, converted into Indian Rupees, at the rate of exchange at the end of the period reported.

Use a separate sheet for each partner of a joint venture.

Applicants are not required to enclose testimonials, certificates and publicity material with their applications.

<i>Annual turnover data</i>		
<i>Year</i>	<i>Turnover</i>	<i>INR equivalent</i>
2006		
2007		
2008		
2009		
2010		

SECTION III
FORM D
Joint Venture Summary

<i>Names of all partners of a joint venture</i>
1. Lead partner
2. Partner
3. Partner
4. Partner
5. Partner
6. Partner

Total value of annual construction turnover, in terms of work billed to clients, in Indian Rupees equivalent, converted at the rate of exchange at the end of the period reported:

<i>Annual turnover data (Indian Rupees equivalent)</i>						
<i>Partner</i>	<i>Form C page no.</i>	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010
<i>1. Lead partner</i>						
<i>2. Partner</i>						
<i>3. Partner</i>						
<i>4. Partner</i>						
<i>5. Partner</i>						
<i>6. Partner</i>						
<i>Totals</i>						

SECTION III
FORM E
Particular Experience Record

Name of Applicant or partner of a joint venture

On a separate page, using the format of Form (E1), the Applicant is requested to list all contracts of a similar nature and complexity as the contract for which the Applicant wishes to qualify, and undertaken during the last seven years. The partners of a proposed joint venture should provide details of similar contracts proportionate to their share in the joint venture. The value should be based on the currencies of the contracts converted into Indian Rupees, at the date of substantial completion, or for current contracts at the time of award. The information is to be summarized, using Form (E1), for each contract completed or under execution by the Applicant or by each partner of a joint venture.

SECTION III
FORM E1
Details of Contracts of Similar Nature and Complexity

Name of Applicant or partner of a joint venture

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract	
	Country	
2.	Name of Employer	
3.	Address of Employer	
4.	Nature of works and special features relevant to the contract for which the Applicant is bidding	
5.	Contract role (check one) <input type="checkbox"/> Sole Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Management Contractor <input type="checkbox"/> Partner in a joint venture	
6.	Value of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts).	
	Currency	Currency Currency
7.	Equivalent value in Indian Rupees	
8.	Date of award	
9.	Date of completion	
10.	Contract/subcontract duration (years and months)	
	___ Years	___ months
11.	Specified requirements	
12.	For sole/prime contractors, indicate the approximate value and nature of substantial work (more than 20 percent in contract value) undertaken by subcontract, if any.	

SECTION III
FORM F
Current Contract Commitments /Works in Progress

Name of Applicant or partner of a joint venture

Applicants and each partner to an application should provide information on their current commitments under all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts under execution or approaching completion or for which full completion certificate has yet to be issued.

<i>Name of contract</i>	<i>Value of outstanding work (current INR equivalent)</i>	<i>Estimated completion date</i>
1.		
2.		
3.		
4.		
5.		
6.		

SECTION III
FORM G
Personnel Capabilities

Name of Applicant or Partner of a joint venture

*Applicants should provide the names of at least two candidates qualified to meet the specified requirements. The data on their experience should be supplied in separate sheets using **Form G1** for each candidate.*

1.	Title of position	
	Name of prime candidate	
	Name of alternate candidate	
2.	Title of position	
	Name of prime candidate	
	Name of alternate candidate	
3.	Title of position	
	Name of prime candidate	
	Name of alternate candidate	
4.	Title of position	
	Name of prime candidate	
	Name of alternate candidate	

Note: Names proposed above will be posted against the work. Any change in name at later stage will require the approval of the MHEPCL.

SECTION III
FORM G1
Personnel Candidate Data

Name of Applicant or Partner of a joint venture

	Position	Candidate () Prime () Alternative
<i>Candidate information</i>	Name of candidate	Year of birth
	Professional qualifications	
<i>Present employment</i>	Name of Employer	
	Address of Employer	
	Telephone Fax	Contact (manager/personnel officer)
	Present job title of candidate	Years with present MHEPCL

Summarize professional experience to meet the specified requirements, in reverse chronological order. Indicate particular technical and managerial experience relevant to the Project.

<i>From:</i> <i>Month/yr.</i>	<i>To:</i> <i>month/yr.</i>	<i>Company</i>	<i>Project (country)/Position/Relevant technical and management experience</i>

SECTION III
FORM H
Equipment Capabilities

Name of Applicant or Partner of a joint venture

The Applicant should indicate availability of all critical equipment, which he would propose to use for the Works, in separate sheets in a form as shown below:

List of Proposed Equipment

S. No.	Name of Equipment	Capacity or production rate	Nos. of unit	Year of manufacture	Current ownership *1	Current location (country)	Estimated purchase price (US\$ per unit)
1							
2							
3							
4							
5							
6							
7							

*1: Classify as I owned (Lead Partner or other Partner), or II to be leased and III to be purchased. Equipment proposed should not be older than **3 (three)** years.

Notes:

- If contractor proposes any special methodology of construction for any of the structure, a note to its effect to be attached and technical details and justification also to be furnished.
- The construction equipment planning should be commensurate with construction methodology, availability of construction material and overall construction programme.

SECTION III
FORM I
Equipment Data

Separate Form I should be prepared for major items of equipment listed in this Form H.

Name of Applicant or Partner of a joint venture

Name of equipment		
Equipment information	1. Name of manufacturer	2. Model and power rating
	3. Capacity or production rate	4. Year of manufacture
Current status	5. Current location	
	6. Details of current commitments	
Source	7. Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> To be purchased	

Omit the following information for equipment owned or to be purchased by the Applicant or Partner.

Present Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and title

	Fax	
Agreements	Details of rental/lease/manufacture agreements specific to the Project:	

SECTION III
FORM J
Financial Data

Name of Applicant or Partner of a joint venture :

Applicants, including each Partner of a joint venture, should provide financial information to demonstrate that they meet the requirements stated in the Instructions to Applicants summarizing actual assets and liabilities in U.S. dollars equivalent. Based upon known commitments, summarize projected assets and liabilities in U.S. dollar equivalent for the next two years. Each Applicant or Partner of a joint venture must fill in this form

<i>Financial information in US\$ equivalent</i>	CURRENT YEAR		PROJECTED FOR NEXT TWO YEARS			
	(Million US\$)		(Million US\$)			
	Financial Year		Financial Year		Financial Year	
	2011 / 2010-11		2012 / 2011-12		2013 / 2012-13	
	1 st half	2 nd half	1 st half	2 nd half	1 st half	2 nd half
	(6 month)	(6 month)	(6 month)	(6 month)	(6 month)	(6 month)
1. Total assets						
2. Current assets						
3. Total liabilities						
4. Current liabilities						
5. Profits before taxes						
6. Profits after taxes						

Specify proposed sources of financing to meet the cash flow demands of the Project, net of current commitments

<i>Source of financing</i>	<i>Amount (US\$ equivalent)</i>
1	
2.	
3.	

SECTION III
FORM K
Litigation History

Name of Applicant or partner of a joint venture

Applicants, including each of the partners of a joint venture, should provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution. A separate sheet should be completed for each partner of a joint venture.

<i>Year</i>	<i>Award FOR or AGAINST Applicant</i>	<i>Name of client, cause of litigation, and matter in dispute</i>	<i>Disputed amount (current value, INR equivalent)</i>

SECTION III
FORM L
Proposed Site Organization

Name of Applicant or Partner of a joint venture

A. Preliminary Site Organization Chart

B. Narrative Description of Site Organization Chart

C. Description of Quality Assurance at Site

D. Description of Relationship between Head Office and Site Management

SECTION III
FORM M
CONSTRUCTION PROGRAMME

Submit a construction programme in bar chart form, showing at least the activities below:

LOT MHEP CWI

KEY ACTIVITIES

1.0 Mobilization

2.0 Diversion works & Coffor Dam

- 2.1 Excavation of Diversion Tunnel
- 2.2 Concreting of Diversion Tunnel
- 2.3 Construction of Coffor Dam and River Diversion

3.0 Barrage Works

- 3.1 Stripping of Abutments.
- 3.2 Excavation of foundation
- 3.3 Concreting in Overflow section
- 3.4 Concreting in Non Overflow

LOT MHEP CWII

A. KEY ACTIVITIES

1.0 Mobilization

2.0 Intake Works

- 2.1 Excavation of Intake tunnels/ Gate Chamber/Gate Shafts/ Surface Excavation for the Trash Racks etc.
- 2.2 Concreting of on the Intake tunnels, Gate chamber, Gate shaft and trash racks

3.0 Head Race Tunnel

- 4.1 Excavation of HRT
- 4.2 Lining of HRT
- 4.3 Contact Grouting
- 4.4 Plugging of Adit

LOT MHEP CWIII

A. KEY ACTIVITIES

1.0 Mobilization

2.0 Head Race Tunnel

- 2.1 Excavation of HRT
- 2.2 Lining of HRT
- 2.3 Contact Grouting
- 2.4 Plugging of Adit

3.0 Adit for the pressure shaft at different levels and for the Surge Shaft

- 3.1 Excavation of adit for the pressure shaft and surge shaft

4.0 Surge Shaft

- 4.1 Excavation of surge shaft top
- 4.2 Installation of the gantry
- 4.3 Excavation of pilot shaft
- 4.4 Slashing of the shaft
- 4.5 Concrete lining of the surge shaft
- 4.6 Concrete lining of the surge shaft liner portion

5.0 Valve House

- 5.1 Excavation of pressure shaft valve house

5.2 Concreting for the installation of the EOT crane in the valve house**LOT MHEP CWIV****A. KEY ACTIVITIES****1.0 Mobilization****2.0 Pressure Shaft**

- 2.1 Installation of the equipment for excavation of the shaft.
- 2.2 Excavation of shaft
- 2.3 Concreting in the pressure shaft in coordination with the installation of liners

3.0 Construction of Power House

- 3.1 Excavation of power house
- 3.2 Concreting of column and beam structures upto crane beam level
- 3.3 Control room

4.0 Concreting of column and beam structures upto crane beam level.**5.0 Casting of GIS floor****6.0 Tail Race Tunnel and Outlet Structure**

- 6.1 Construction of coffer dam to facilitate construction of the TRT and Outlet structure
- 6.2 Excavation of TRT and Outlet structure
- 6.3 Lining of the TRT and concreting of Outlet structure

LOT MHEP HMI/ II

- 1. Mobilization & Start of Fabrication Workshop.
- 2. Schedule of Design, fabrication, Erection & Testing of Hydro-Mechanical equipments.

SECTION III
FORM N
CONSTRUCTION METHODS
(For Lot MHEP CW I/II/III/IV)

The Applicant shall submit, in outline, descriptions of proposed methods, sequences facilities and layouts to be used for relevant works package. The information should be submitted in sufficient detail to allow an assessment of the general adequacy of the Applicant's proposals. Sketches, drawings and diagrams should be included where necessary for clarification of the description. Required number and classification of manpower, equipment and materials to be used for each particular activity shall be described.

Details and descriptions shall be provided of the following:

1. Temporary Installations Services

- 1) General layout and location of all temporary facilities proposed.
- 2) Layout of temporary roads to be constructed including approximate length, width, maximum grade, surface finishing, etc.
- 3) Layout of aggregate plant.
- 4) Layout of concrete batching and mixing plant.
- 5) Layout of office, quarter, workshops, warehouse, motor pool and other necessary buildings and approximate area of land for each facility.
- 6) Layout of water supply system, including purposes, supply capacity, source of water, etc.
- 7) Sanitary installations and sewage treatment.
- 8) Layout of electric power supply system/ Arrangement of Construction Power by utilizing DG Sets.
- 9) Layout of telecommunication system including radio system.
- 10) Plan of first aid facilities.
- 11) Layout of other temporary facilities.\
- 12) Storage facility of construction material like Cement, Steel, Aggregate, Structural Steel etc. in view of site accessibility, climate conditions & project duration.

2. Care of Water during Construction

Outline design and description of all diversions, protection and dewatering systems and measures proposed for care of water during construction. The designs shall incorporate outline planning and design with sufficient information such as assumptions, calculations, and drawings provided to enable the evaluation of general adequacy of the works proposed for the construction sites.

3. Surface excavation and Underground excavation

Methods and equipment to be used for excavation, loading and hauling to disposal or stockpile areas.

4. Rock support and slope protection

- Type and design of rock bolts and method of installation.
- Methods and equipment for application for Shotcreting.

5. Embankment and Backfill Construction

General programme for all works related to and methods and equipment for, the embankment and backfill constructions.

6. Concrete**i) Aggregate processing:**

- plan of aggregate plant to be provided including location, specifications of plant, diagram of production flow, location of borrow areas, method of extraction of materials etc.
- layout of plant,
- type, capacity, layout and location of crushing, screening, washing and conveying equipment,
- production schedule of aggregate.

ii) Concrete batching:

- plan of concrete/ shotcrete batching and mixing plant to be provided including location, specifications of plant with weight printing recorder automatically operated, aggregate stock yard/bins with capacities, etc.,
- layout of plant,
- type, capacity, layout and location of concrete batching and mixing equipment,
- production schedule of concrete.

iii) Temperature control:

Methods to control temperature of concrete materials, if required.

iv) Admixtures:

Submit brochures giving the pertinent information regarding properties and recommended dosages of all the admixtures recommended by the Applicant for concrete, shotcrete and grout.

v) Concrete placing:

Give full details of methods for concrete transport, placing, Temperature Control, compaction and curing in main structures.

7. Disposal of Muck

Describe methods for carrying and dumping muck.

8. Access Roads

Description of methods and equipment for maintenance and upkeep of all access roads to sites (excluding National Highways and State Highway).

9. Foundation excavation for Barrage

River bed excavation

10. The Requirement of Special Equipment:

Note:

The Applicant shall prepare construction methodology in detail after careful study of Project site, geology, construction material, hydrology & project access roads etc. The construction methodology should commensurate with equipment planning, project personnel and detail construction programme and milestones.

SECTION III
FORM O
LIST OF PROPOSED DESIGN CONSULTANTS
(Applicable for Lot MHEP HMI/II)

S. No.	Proposed Associate For	Names & Addresses of Associates	Years of Experience	Years of Association with the Prime Applicant

SECTION III
FORM P
Additional/ Supplemental Information

Name of Applicant or Partner of a joint venture

Add any further information that the Applicant considers to be relevant to the evaluation. If the Applicant wishes to attach other documents, list them below. Please add information regarding the Environment management plan, relations with local population, safety considerations etc.

Applicant should not enclose testimonials, certificates, and publicity material with their applications; they will not be taken into account in the evaluation of qualifications and will be discarded.