

EPC execution of Power House Electro-Mechanical Works for Heo Hydro Electric Project (240 MW)



ISO: 9001, 14001,
& 45001

Bid Document
Sec-II: Information for Bidders

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1. PROJECT PROFILE

1.1. GENERAL DESCRIPTION OF THE PROJECT

The proposed project is a Run of the River Hydro Electric Project on the Yarjep River which is a right bank tributary of the Siyom river. This project involves utilizing a gross head of 211 m. The flow is diverted from the river toward a tunnel by a barrage. The barrage is located on Yarjep river near Purying village. The project envisages 16 m high barrage, a 3.55 km long circular finished head race tunnel (HRT). A surface powerhouse will be constructed to accommodate three Francis Turbines with vertical synchronous generators to generate 240 MW. The turbine flow directly enters into Tato-I water conductor system. Therefore Heo HEP and Tato-I HEP establishes operational relationship of Master and Slave. Total catchment area of the project is 1065 sq. km. The standard Project flood (SPF) and probable maximum flood (PMF) are 3200 and 3900 cumecs, respectively. The Project is designed with a small reservoir, which involves a submergence of 8.4 Ha.

1.2. LOCATION OF THE PROJECT

The Heo Hydro Electric Project is located in Shi Yomi district of Arunachal Pradesh. The nearest road head is Hiri which is about 29 km from Mechuka and 151 km from Aalo Town. The project Barrage is located 4.5 km downstream of the confluence of the Sae Chhu with the Yarjep, and about 29 km downstream of Mechuka. The proposed barrage site is located between 94°16'31''E longitude and 28°32'20''N latitude near Hiri/Purying villages. Proposed Power house site is located between 94°18'43''E longitude and 28°32'32''N latitude near Gapo/Meying villages. The nearest road heads are Gapo and Hiri villages which are linked to Mechuka and Tato villages.

1.3. ACCESS TO THE PROJECT SITE

For Heo project the nearest Broad Gauge railhead is at Silapathar (approx. 297 km) in Assam. Another broad-gauge railhead is at Gogamukh, which is presently serving the under- construction Lower Subansiri project.

Guwahati, Assam, the largest city of North-East India, is about 770 km from the Project Area. Guwahati is well connected by road, rail and air with the rest of the country and its airport caters to some international flights as well. Other airports near the project area are at Pasighat & Donyi Polo Airport (Hollongi- Itanagar) in Arunachal Pradesh and Dibrugarh & North Lakhimpur in Assam.

Bidders are required to verify the various road distances for access to the Project Site prior to submission of Bid.

1.4. ACCESS PERMIT TO THE PROJECT AREA

For Indian other than native of Arunachal Pradesh, Inner Line Permit is required for entering into any part of Arunachal Pradesh. Inner line Permits are issued by the Secretary (Political), Government of Arunachal Pradesh.

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Pradesh, Itanagar and respective Deputy Commissioner and Additional Deputy Commissioner of the Districts. These can also be obtained from Resident Commissioner's office/Liaison Offices located at New Delhi, Kolkata, Guwahati, Shillong, Dibrugarh, Tezpur, North Lakhimpur, Jorhat. ILP can be obtained online at www.arunachalilp.com. Foreign nationals require a Protected Area Permit (PAP) for entering into Arunachal Pradesh.

1.5. EXISTING AND PROPOSED ROADS IN THE PROJECT AREA

- The approach roads from existing Tato-Mechuka Road to Barrage site and Powerhouse site is being constructed by NEEPCO. The said roads shall be maintained by the contractor during the whole construction period.
- Contractor shall construct and maintain permanent roads including bridges/culverts from the left abutment of the main river crossing bridge to Power house and From power house to Adits of valve house and Surge shaft.
- Haul roads to various work sites such as quarry sites, dumping area, etc. as well as other temporary service roads to be constructed and maintained by the Contractor as per requirement. Bridges/culverts required for such temporary roads shall also be constructed and maintained by the contractor.

1.6. GENERAL CLIMATIC CONDITION OF THE PROJECT AREA

The topography of the state is very rugged and is full of hill ranges and deep gorges with steep terrains which break into wide chaos of spurs and ridges. The project area catchment altitude varies from 1386 m to 4500 m. The average annual rainfall varies from 2000 mm to 2700 mm. The area experiences heavy precipitation during the monsoon. The climate is cool during winter and occurrence of frost over large tracts is observed in the high hill ranges. The climate over the foot hill is warm and sub-tropical. Temperature varies from 5 degree to 25 degree Celsius on the hills and from 12 degree to 32 degree Celsius on the foot hills.

1.7. POWER EVACUATION

Power generated from Heo HEP is proposed to be evacuated through 220 kV transmission line to a common pooling point in the region. To evacuate power from Hydro Power Projects being developed in Arunachal Pradesh, CEA has prepared a comprehensive Master Plan. For evacuation of power from Siang basin, two pooling points have been proposed. Power from the Projects, namely Hirong (500 MW), Tato-II (700 MW), Pauk (145 MW), Tato-I (186 MW) and Heo (240 MW) are proposed to be pooled at Siang Pooling Point-2 whereas power from the projects notably Naying HEP (1000 MW) and Siyom HEP (1000 MW) will be fed to proposed 400/220kV Kamki Pooling Station (Siang PP-1). One 400 kV transmission line has been envisaged for carrying power from PP-2 to PP-1. The combined power of PP-1 and PP-2 is proposed to be evacuated to Silapathar 400 kV Pooling Station. Power from Silapathar would further be evacuated to Northern and Western grids by suitable HT links.

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1.8. MATERIALS

The Employer will not issue any material for execution of the work. The Contractor shall make his own arrangements for all materials, consumables etc. for completion of the works, within his quoted amount.

1.9. LOCAL FACILITIES AND SERVICES IN THE PROJECT AREA

1.9.1. Availability and employment of the labour

No skilled labour is available locally and generally comes to Arunachal Pradesh from the neighboring states and rest of the country. The Contractor shall be expected to employ skilled local Indian personnel for supervisory work as far as possible. In order to minimize problems arising from the employment of labour, as well as from the transport and construction activities and other consequences of their activities, the Contractor must ensure close liaison and good relations at all times with the local authorities and the populace of the project area. The Contractor shall have to make their own arrangements for the accommodation of all workers in the project.

The Contractor shall be required to obtain labour licenses for the employment of labour from the concerned statutory authorities.

1.9.2. Power supply

The responsibility of arranging power for the work shall lie in bidder's scope. Grid power is currently not available in the project area. Therefore, the requirement would have to be met by installing diesel generating sets and the bidder shall quote their prices accordingly.

The bidder is requested to note that while it is not binding on NEEPCO for supply of power from the national or state grid or otherwise at any stage of construction of the project, there is a possibility that grid power may be available for project construction works in future. As and when grid power is available, grid power availed by the contractor shall be metered jointly including Employer and recovery shall be affected @ Rs. 30.00 per Unit which shall include grid power price per unit. Non-availability of power however, would not entitle the Contractor to make any claims whatsoever either for time extension or extra payments.

As and when grid power is available, the same shall be made available at 33 KV at one point in each location, viz Power House and Barrage site. The Contractor shall make his own network at required voltage levels for the work sites, complying with all statutory regulations. Contractor shall provide and install all the necessary transformers, switchgears, wiring, fixtures, electric poles, bulbs, (proper fencing wherever required) and other temporary equipment for further distribution and utilization of energy for power and lighting and shall remove the same on completion of the work. NEEPCO will not be responsible for any inconvenience caused due to the failure of power supply and no compensation for delay in works on this account will be entertained.

1.9.3. Medical services

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NEEPCO presently doesn't have any medical facilities of its own in the project. The bidders are required to enquire nearby available medical facilities, if any and shall make their own arrangement of medical services at Project Site as per requirement.

1.9.4. Water supply

Water for construction purposes and potable water of suitable quality shall have to be arranged by the Contractor at his own cost.

1.9.5. Communication

Currently, Airtel is the only mobile & internet service provider in the project area. The Contractor shall make his own arrangements for internal telephone communication as well as for internet facilities.

1.9.6. Land for the contractor's accommodation, installation and storage area

Land for contractor's accommodation, installation, storage area, etc. will be provided by NEEPCO.