



North Eastern Electric Power Corporation Ltd.
(A Government of India Enterprise)
An ISO 9001, 14001 & OHSAS 18001 Corporation

OFFICE OF THE HEAD OF PLANT

KOPILI H.E. PLANT: DIMA HASAO DISTRICT::UMRONGSO – 788931

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No. NEEPCO/HOP/EOI/2012/01 Dated 24-09-2012

Invitation of “Expression Of Interest” (EOI) for **any or all the following works** of 2x25 MW Khandong Power Station, 1x25 MW Kopili Stage-II Power Station and 4x50 MW Kopili Power Station, at Kopili Hydro Electric Plant, Umrongso, Dima Hasao, Assam-788931.

Group-A: Repair and Maintenance of 50MW Hydro-Turbine Generator sets along with all associated auxiliaries.

Group-B: Repair and Maintenance of 25 MW Hydro-Turbine Generator sets along with all associated auxiliaries.

Group-C: Repair and Maintenance of Generator Transformers (3- ϕ , 28.5 MVA, 11/132 kV and 1- ϕ , 20 MVA, 11/220kV).

Group-D: Repair & maintenance of 11/33/132/220 kV Switchyard equipments alongwith associated control & relay circuits.

Project Brief:

Kopili Hydro Electric Plant is located in the Dima Hasao District of Assam State, about 270 Km from Guwahati via Nagaon. The nearest rail head is Lanka Junction on Bongaigaon-Guwahati-Lumding section. The distance from Lanka to Kopili Power Station is about 80 Km. The rail head and power station is connected by road. Alternatively, road transport from Guwahati via Shillong is at a distance of 250 Km.

- 2x25 MW Khandong Power Station: Commissioned in the year 1984.
- 4x50 MW Kopili Power Station : 2 units were commissioned in the year 1988 and other 2 units were commissioned in the year 1997
- 1x25 MW Kopili Stage-II: Commissioned in 2003.

Since 2006 Kopili Hydro Electric Plant has been facing the threat of reservoir water acidity and as a result rapid corrosion and subsequent erosion has been noticed in the parts of turbine, cooling water pipes, and all types of valves which are made of cast steel or mild steel. From 2007 to 2009 failure of tubes of air & oil cooler was a common phenomenon in KHEP. Seizure

of thrust bearing in one of the unit also took place due to ingress of water in the oil bath through punctured tubes.

Erosion in major parts of turbine viz. Top Cover, Pivot Ring, , Guide Vanes & Bush Housings , Spiral Casing, Stay Vanes, inside surface of MIV body, inlet & out let pipes of MIV, Vortex pipes attached with the upper cone, Upper Cone, Lower cone and DT liner have been noticed during the last five years.

Till date all the eroded areas are of the above mentioned underwater parts of the turbine are being repaired through weld build up and all the coolers are being repaired by replacement of punctured cooler tubes with new ones.

1. Scope of work: Scope of works are not limited to the following, there may be inclusion or exclusion in the scope of works based on actual requirement during execution of the works.

Group – A:

Repair and Maintenance of 4X50MW Hydro-Turbine Generator sets along with all associated auxiliaries of 4x50 MW Kopili Power Station at Kopili Hydro Electric Plant as per the scope of works indicated below:

TURBINE:

- a) Dismantling, cleaning, weld repair after pre-heating as required, profile matching by hand grinding, surface blue matching, ultrasound test for flaws/cracks in welding and reassembly of all parts of turbine as per OEM drawing & measurement viz. top cover, guide apparatus, guide vanes, pivot ring, runner, runner cone, upper & lower cone, Bottom Bracket, Brake track etc.
- b) Heat treatment & weld build up of stay vanes and stay ring, profile matching by hand grinding as per measurement of OEM drawing.
- c) Cladding of existing DT liner wherever is required.
- d) Dismantling, overhauling & reassembly of guide vanes and MIV servomotors.
- e) Reassembly of the all the parts of turbine as per guidelines of OEM.

GENERATOR:

- a) Dismantling of top bracket after dismantling of necessary parts like, over speed device, slip ring, collector casing, PMG/SSG and rotor lead etc. & placing the same at service bay.
- b) Dismantling of thrust collar, decoupling of turbine & generator shafts, lifting of rotor and placing the same at service bay after proper leveling of support stools.
- c) De-brazing of pole to pole joints, removal of poles from the rim punching, re-insulation, replacement of pole windings as per OEM manual and reassembly of the same after checking, repairing if required of poles. Dry-out of rotor, testing like insulation resistance, impedance (Individual & combine) and HV tests of rotor poles and necessary rectification if required.

- d) Cleaning of stator, checking / replacement of wedges, slot packer and all other related works including tightness of joints segments, core stud etc. including painting of core & winding as per OEM manual.
- e) Reassembly of the all the parts of generator as per guidelines of OEM.

BEARINGS:

- a) Dismantling of all guide & thrust bearings, DP test, polishing, blue matching with respect to shaft journals and setting of pads as per OEM guide line after journal polishing.

COOLING WATER SYSTEM AND DRAINAGE & DEWATERING SYSTEM:

- a) Fabrication of cooling water (CW) pipes of sizes 25NB to 400NB consisting of several bends & tees at different locations.
- b) Dismantling & replacement of different sizes of CW valves.
- c) Dismantling of all air & oil coolers, cleaning of tubes, water boxes, weld repair if required, matching the welded area by grinding, reassembly, hydrostatic pressure test & reassembly the same with new gasket.
- d) Replacement of all types of cooler tubes after cutting of old tubes, removal of expanded portion from the tube sheet with puller, fixing & expanding of new tube end with tube sheet, reassembly & hydrostatic test.
- e) Maintenance of all pumps motors (up to 175 KW rating) including proper greasing, replacement of bearings, seals, gland packing, checking of electrical connections including starter panels, tightening of nuts & bolts etc.
- f) Dismantling of motor & pump including refitting, alignment etc.

OIL PRESSURE UNIT:

- a) Overhauling of OPU screw pumps, idler valves, replacement of mechanical seals, bearing if required, replacement/adjustment of pressure switch, idler, NRV etc. at their respective required pressure.
- b) Filtration of oil through filter machine.

INSTRUMENTATION:

- a) Calibration & replacement of different DTTs, RTDs, thermostats, and pressure switches, OTI, WTI, level switches, limit switches etc.

EXCITATION SYSTEM:

- a) Cleaning, checking of slip ring, rotor leads, excitation transformer, thyristors & DVR panels and other equipment related to excitation system & necessary rectifications.

LEVELLING & ALIGNMENT:

- a) Leveling of rotor as per OEM manual.
- b) Unit axis alignment by shimming at coupling flanges of turbine & generator shafts.
- c) Balancing of the unit if required to minimize vibration.

BOXING UP & RECOMMISSIONING:

- a) Fixing of all dismantled components of the machine after proper centering & locking of shaft, pad setting, oil flashing & filling of oil in different bearing housing, charging of cooling water system, fixing of RTDs, DTTS, Thermostats, vapor seals, spinning of m/c after carrying out necessary activities, dry-out of generator, cooling down of the generator, protection check and synchronization.

AUXILIARIES:

- a) Cleaning, trouble shooting, checking & replacing if required different auxiliary relays and contactors, different panels, TBs & other electrical systems related to unit auxiliary.
- b) Checking & rectification of protection / control system, checking of HMC, EHG, UAB, SSB, Control panels, control circuits etc.
- c) Maintenance of DG set including cleaning and mobile oil changing, minor repairing.
- d) Visual Inspections, Impedance testing, Voltage recording, Specific gravity recording/ checking electrolyte levels of lead acid batteries and filling of distilled water as and when required.
- e) Maintenance of Blower system including greasing, replacement of bearings, belts, necessary rectification etc.
- f) Maintenance of HP and LP compressor including necessary minor repairing.

Group – B:

Repair and Maintenance Hydro-Turbine Generator sets along with all associated auxiliaries of 2x25 MW Khandong Power Station, 1x25 MW Kopili Stage-II Power Station at Kopili Hydro Electric Plant:

Scope of works is same as indicated against Group-A.

Group – C:

Repair & maintenance of Generator Transformers (3- ϕ , 28 MVA, 11/132 kV and 1- ϕ , 20 MVA, 11/220kV) at Kopili Hydro Electric Plant:

- a) Dismantling, repairing & erection of components of generator transformer viz. conservator tank, bushings, neutral CT, OTI, WTI, MOG, bucholtz relay, Pressure relief valve, cooler pump, cooler bank and related pipes and other related parts. Dragging of the transformer to the workplace as per requirement also dragging of transformer from one bay to other bay.
- b) Filtration of the oil in intermediate tank, dry out of the core & winding in the main tank with required nos. of cycles of vacuum pulling and filling of N₂ gas to achieve required IR, filling of oil under vacuum in the transformer tank and close circulation of oil to achieve required BDV and IR.
- c) Fixing of all other accessories of the transformer like pumps, valves, NRVs, oil & water pipe lines between cooler bank and transformer main tank etc.

- d) Testing of the transformer for $\tan\delta$ of bushings & windings, DC resistance measurement of windings, Insulation Resistance (IR) test, Oil Break Voltage (BDV) measurement, pre-commissioning test of the transformer etc.
- e) Cleaning, checking, healthiness checking of 11KV bus bar, related GT LA, bus-bar support insulator, 11KV LA, CT, PT etc.

Group-D

Repair & maintenance of 11/33/132/220 kV Switchyard equipments alongwith associated control & relay circuits at Kopili Hydro Electric Plant as per the scope indicated below:

- a) Works same as for GT applicable for transformers and auto transformers at switchyard and colony substation.
- b) Retrofitting/ Erection and commissioning of new equipment like SF6 breaker, CT, PT, Isolators, Earth switch etc. whenever need arises.
- c) Check bushings (insulators) of lighting arresters, CTs, PTs, circuit breakers, transformers, and insulators stakes of isolators, post insulators, if found cracked or broken, replace them.
- d) Check for quality and quantity of oil in oil circuit breakers, auto transformers, CTs, PTs, and other oil filled apparatus, if required filter / change the oil.
- e) For gas circuit breakers check for quality and quantity of gas (SF6).
- f) Check and ascertain soundness of compressed air system i.e. all compressors are delivering required volume of compressed air at rated pressure and pipe line network is intact with out any leak for gas circuit breakers.
- g) Measure insulation resistance (IR) between windings, between windings to earth, various live point to earth etc by meggers of suitable voltage rating and check for adequacy.
- h) Clean contact points of isolator blades, earth switches, NO/NC contacts, breaker contacts, etc. by cleaning reagents.
- i) Check all mechanical and electrical indicators mounted on various apparatus for their proper functioning.
- j) Check proper functioning of Buchholtz relay, winding / oil temperature sensing relays of transformers and all other relays mounted on equipment itself and their marshalling boxes.
- k) Checking the healthiness of luminaries installed and carrying out replacement of lamps, chokes, ballast, luminaries whenever need arises.

2. Invitation:

Reputed Firms / Organizations who have adequate experience in the field of Repair and Maintenance of Hydro-Turbine Generator sets along with all associated auxiliaries for Group-A & Group-B and Repair and Maintenance of Generator Transformers of similar or higher rating & voltage class against Group-C and Repair & maintenance of 11/33/132/220 kV Switchyard equipments against Group-D may apply. **The Firms / Organizations may apply for any or all groups.**

Sealed EOI prepared in accordance with the procedure enumerated in EOI document should be submitted to the HOP, KHEP, NEEPCO Ltd., Dima Hasao, Assam - 788931 not later than the scheduled time and date as prescribed.

3. Contents of the Proposal:

The Expression of Interest document should be in the format prescribed as Form –I. The firm should substantiate the information supplied, including experience, business turnover, clientele, qualifications etc. by providing supporting documents as proof.

4. Brief Criteria / Procedure for Selection:

The Firm/ Organization participating in the above exercise should have expertise in the prescribed areas and should fulfill the following prequalification criteria:

- The firm must be a registered firm having valid PAN and Service Tax Registration Number.
- The firm must have valid Electrical License, Labour License and EPF Registration.
- The firm should have an experience of minimum 5 continuous years as on 30-09-2012 in the relevant field.
- The firm should have carried out minimum 3 nos. of similar nature of works in Central/State PSUs/Private in the last 5 continuous years as on 30-09-2012.
- The firm should furnish Audited Annual turnover of the last three consecutive years i.e. during the year 2009-10, 2010-11 & 2011-12.
- The firm should have adequate organizational structure comprising qualified manpower having sufficient knowledge and expertise in the relevant field.

All EOI's received in time will be scrutinized & short listed (group-wise) keeping in view the above criteria. The Corporation, if required, may also take presentations from the short listed firms on their past experience, assignments undertaken, methodology etc. Based on the presentation, the Corporation would reserve the right to further shortlist the organizations by assigning weightages on their overall performance for further selection process. The short listed applicants shall be empanelled with KHEP, NEEPCO Ltd. for a period of 2 (two) year. During the period under empanelment, as and when required, the firm would be invited to submit techno-commercial / financial proposals on the basis of actual/indicative scope of works. The Corporation reserves the right to further extend the period of empanelment based on the performance of the firm/organization.

5. Format of Application:

Applications should be made in the format prescribed in Form-I (separate form for each Group has to be submitted). Incomplete application forms will be rejected summarily.

6. Last Date of Submission:

The completed application must be submitted in the format prescribed in sealed envelopes, superscribed with EOI No., Group & Name of Work and should reach the HOP, KHEP,

NEEPCO Limited, Umrongso, Dima Hasao, Assam – 788931 (India) latest by **30-10-2012 upto 3:30 p.m.**

7. NEEPCO reserves the sole right to accept or reject any or all proposals without assigning any reason whatsoever.

8. Address for contact / queries only: The HOP, KHEP, NEEPCO Limited, Umrongso, Dima Hasao, Assam – 788931 (India), Phone No.-03670-288222.

(NOTE : Detailed techno-commercial and Financial Bids are not required to be submitted with EOI at this stage)

Head of Plant, KHEP,
NEEPCO Ltd., Dima Hasao District,
Umrongso, Assam – 788931.

Form-I

Application Form for Expression of Interest” (EOI)

Group – A: Repair and Maintenance of Hydro-Turbine Generator sets along with all associated auxiliaries of 4x50 MW Kopili Power Station, at Kopili Hydro Electric Plant, NEEPCO Limited, Umrongso, Dima Hasao, Assam-788931.

Group – B: Repair and Maintenance of Hydro-Turbine Generator sets along with all associated auxiliaries of 2x25 MW Khandong Power Station and 1x25 MW Kopili Stage-II Power Station, at Kopili Hydro Electric Plant, NEEPCO Limited, Umrongso, Dima Hasao, Assam-788931.

Group – C: Repair and Maintenance of Generator Transformers (3- ϕ , 28 MVA, 11/132 kV and 1- ϕ , 20 MVA, 11/220kV) of 2x25 MW Khandong Power Station, 1x25 MW Kopili Stage-II Power Station and 4x50 MW Kopili Power Station, at Kopili Hydro Electric Plant, NEEPCO Limited, Umrongso, Dima Hasao, Assam-788931.

Group-D: Repair & maintenance of 11/33/132/220 kV Switchyard equipments alongwith associated control & relay circuits.

(To be filled in by the Applicant Firm/ Organization.)

Note:

1. **Against each group, separate application form has to be submitted.**
2. Please apply in the prescribed format only. Please attach extra sheets/pages if necessary.
3. The complete application should reach at the prescribed address latest by **30-10-2012 upto 3:30 p.m.**

PART A

Q1. Name of the Firm/ Organization:

Q2. In case the Firm is a subsidiary of a larger organization, please write the name of the holding organization:

Q3. Firm/ Organizations registered address:

Q4. Firm/ Organizations address for correspondence regarding this works, including phone numbers (mention city code), fax numbers and e-mail addresses:

Q5. Details of the authorized signatory of the Firm/ Organization for communication regarding this works:

a. Name: _____

- b. Designation: _____
- c. Contact details of the authorized signatory
- i. Office Phone (Direct Line/Extension Number): _____
- ii. Fax Number : _____
- iii. Mobile Phone Number : _____
- iv. E-mail ID : _____

Q6. Please attach the audited Annual Financial Reports of the Firm/ Organization of the preceding three financial years.

- Q7. a. FY 2011-12 Turnover - _____ INR
- b. FY 2010-11 : Turnover - _____ INR
- c. FY 2009-10 : Turnover - _____ INR

PART B

Section-I

Experience of the Firm/ Organization:

Main Line Business	Total Experience since the inception of the Firm/ Organization (in years)

Section -II

Details of relevant project experience of the Firm/ Organization:

Sl. No.	Title / brief description of the relevant works carried out	Client Name	Value of Works (in ₹)	State of works Execution (Completed / under progress) as on date	Any other relevant information

Section-III

Qualification and experience of Key Professionals:

Sl. No.	Field of Expertise (in Years)	Qualification & Institute.	Experience (in years)