

Rehabilitation of Penstock in Kameng HEP using
combination of CFRP and GFRP



Bid Document
Part-1: Short & Detail NIB

PART-1: SHORT & DETAIL NOTICE INVITING BIDS

Rehabilitation of Penstock in Kameng HEP using combination of CFRP and GFRP



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Indian Society for Trenchless Technology
908, Hemkunt Chambers,
89, Nehru Place, New Delhi 110 019



**Center for Underground Infrastructure
Research & Education**
Department of Civil Engineering
The University of Texas at Arlington

**SHORT NOTICE INVITING BIDS (E-Tender)
NOTICE INVITING BIDS (NIB) No. NEEPCO/PEN/IND/001 Dated 18/03/2019**

Indian Society for Trenchless Technology (IndSTT), India, jointly with Centre for Underground Infrastructure Research & Education (CUIRE), University of Texas at Arlington, USA, on behalf of North Eastern Electric Power Corporation Limited (NEEPCO), now invites online electronic bids from prospective bidders fulfilling the Qualifying Requirement under Single-Stage Two-Envelope bidding system through International Competitive Bidding (ICB) route for selecting Project Implementation Agency (PIA) for carrying out the work of **“Rehabilitation of Penstock-II (Partly Underground and partly Over ground) of Kameng Hydro Electric Project (600 MW) located at Kimi, Arunachal Pradesh, India through trenchless rehabilitation method of lining the existing Penstock using a combination of Glass Fiber Reinforced Polymer (GFRP) and Carbon Fiber Reinforced Polymer (CFRP) on a turn-key and design-build basis”**.

For further details, interested bidders may visit the websites of IndSTT & CUIRE at <http://www.indstt.com>, <https://www.uta.edu/ce/cuire/> and NEEPCO's website www.neepco.co.in, e-tender portal <https://www.abcprocure.com>, Central Public Procurement portal <http://www.eprocure.gov.in> etc. Any subsequent changes/modifications/notifications against this tender shall be updated on the websites mentioned above.

Last date for bid submission is 18/04/2019 by 1500 hrs (IST).

Place: New Delhi
Dated: 18/03/2019

Director General
Indian Society for Trenchless Technology
(INDSTT)

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NIB No. NEEPCO/PEN/IND/001 Dated 18/03/2019

DETAIL NOTICE INVITING BIDS (E-TENDER)

(International Competitive Bidding)

1. The North Eastern Electric Power Corporation Limited (NEEPCO) is building Kameng Hydro Electric Project (600 MW) (KaHEP) at Kimi, Arunachal Pradesh, India with GPS coordinates latitude 27.16577 and longitude 92.6824. NEEPCO is planning to rehabilitate damaged Penstock #2 of the Project through trenchless rehabilitation method of lining the existing penstock by utilizing a combination of glass fiber reinforced polymer (GFRP) and carbon fiber reinforced polymer (CFRP). For the rehabilitation, NEEPCO has appointed the Indian Society for Trenchless Technology (IndSTT), India, jointly with Centre for Underground Infrastructure Research & Education (CUIRE), University of Texas at Arlington, USA as the front end engineering consultant.

Under the assignment, IndSTT, jointly with CUIRE, on behalf of NEEPCO, now invites online electronic bids from prospective bidders fulfilling the Qualifying Requirement under Single-Stage Two-Envelope bidding system through International Competitive Bidding (ICB) route for selecting Project Implementation Agency (PIA) for carrying out the work of **“Rehabilitation of Penstock-II (Partly Underground and partly Over ground) of Kameng Hydro Electric Project (600 MW) located at Kimi, Arunachal Pradesh, India through trenchless rehabilitation method of lining the existing Penstock using a combination of Glass Fiber Reinforced Polymer (GFRP) and Carbon Fiber Reinforced Polymer (CFRP) on a turn-key and design-build basis”** at an approximate estimated cost of US\$ 22 Million.

2. Scope of work:

The scope of work under this tender covers the following:

- i) Rehabilitation of Penstock #2 of Kameng Hydro Electric Power Project by installation of a FRP system.
- ii) Providing engineering, design, Supply and installation of Carbon fiber reinforced polymer (CFRP) lining system in Penstock #2 of the Project.
- iii) Furnishing and fabrication of all materials, labor, equipment, and services for the supply, installation and finish of the system utilizing FRP; and post-installation verification testing.
- iv) Services required may include, but are not limited to, inspecting Penstock and ensuring that they are suitable for CFRP installation; surface preparation, including removal of the



existing coal tar epoxy coating; controlling installation environment conditions; installing the FRP system; post-installation testing; and curing. Detailed specification and work scope are stated in Part-5 of Bid Document.

- v) Providing design and drawing for permanent facilities to be provided in rehabilitated penstock for future inspection and installation of same.
- vi) Rehabilitation may be necessitated in one or more zones of Penstock #1. Zone wise designs of different zones for Penstock #1 shall be identical to that of Penstock #2.

The selected PIA will furnish all materials, tools, equipment, transportation, necessary storage, access, labor, and supervision required for the proper installation of the FRP composite system. The locations and layout of the Penstock is identified in Part-5 (Section 10) of Bid Document.

NOTE: The referred specifications and statement of work scope are the current best determination of appropriate specifications and work scope. If a Bidder believes work scope should be modified in some way, the Bidder should clearly state on a separate sheet in its proposal what changes it proposes, and why; and should be prepared to justify its suggested changes to NEEPCO upon request.

The detailed scope of work is described in Part-5 of Bid Document.

3. Bidding Procedure:

The Bidder shall submit Bids under Single Stage Two Envelope bidding system through online as follows:

Techno-Commercial Bid (Envelope No. 1): Shall contain Earnest Money Deposit (EMD), documents in support of Qualifying Requirements and Techno-Commercial Bid.

Price Bid (Envelope No. 2): Shall contain Price Bid. Price Bids of only those Bidders who qualify in Techno-Commercial evaluation shall be opened.

4. Time of Completion:

The project is time sensitive and shall be completed within 100 days from the date of issue of the Letter of Intent.

5. **Earnest Money Deposit:** US\$ 0.44 Million for overseas bidders and INR 3.00 Crores for domestic bidders. The EMD may be paid /deposited as per procedure given in Part-3 of Bid Document. Without EMD or insufficient EMD value, the bid shall be rejected.

6. Qualifying Requirements:

6.1 General Qualifying Requirement for the Bidder



- (i) The bidder shall be either an applicator or a manufacturer of Carbon Fiber reinforced Polymer (CFRP)
- (ii) The bidder shall be a registered entity in their own country.

6.2 Technical Qualifying Requirement:

The rehabilitation process requires higher skill levels, both in the engineering as well as execution/installation aspects of the project. The CFRP lining and rehabilitation works are state-of-art process and therefore dependent on the design parameters and the design approach of engineers engaged in design and execution. To address this fact, it is proposed that the project be executed on turn-key/design-build basis by trenchless or general construction companies by employing engineers adequately experienced in CFRP lining process. Prequalification of Project Implementation Agencies (PIA) therefore needs to cover details about nominated engineers which the Consultant/Corporation shall evaluate and approve before the project is awarded for execution.

It should also be noted that the works are of emergency repair nature therefore the “time is of essence” in the project. This aspect may be noted by the bidder while participating in the bid. Further, as the performance of the liner shall be dependent on design as well as application of materials, it may be noted that the selected PIA shall be responsible for all concerned activities as highlighted in this document.

Primary interest of the pre-qualification is to get a PIA with adequate experience so that the challenging job of penstock rehabilitation work could be completed with sound engineering basis. To meet the above requirements, the bidder should have the following qualifications:

- 6.2.1 A minimum of 10 years and 10,000 m² surface area of documented FRP pipe rehabilitation experience with a minimum of 1.5 km and minimum 2000 mm in diameter of pipeline rehabilitation projects verifiable with reference letters from respective Owners. The pipe rehabilitation experience should include minimum 750m of retrofit/rehabilitation work from inside of encased/buried steel pipe with pressured flow with in-situ wet layup CFRP system.
- 6.2.2 A certificate of completed training from the manufacturer/supplier for at least five field representatives who will be present on site throughout the duration of the project.
- 6.2.3 The installers shall have a minimum of two and the supervisors shall have a minimum of four years of experience with FRP systems.
- 6.2.4 Not with standing above NEEPCO/INDSTT/CUIRE shall have the right to seek any other information/testimonies, as may be required and non-submission/refusal to submit these shall result in disqualification.

Note: Documentary evidence in support of the above experience in the form of work order/ Contact Agreement copy, work completion certificates shall be submitted along with the bids.

6.3 Financial Qualifying Requirement:

- i) **Minimum Average Annual Turnover (MAAT):**



Minimum Average Annual Turnover of the bidder shall be US\$ 8 Million / INR 56 Crores in the best three Financial Year out of the last 5(five) Financial year. Other income shall not be considered for arriving at the minimum average annual turnover.

ii) **Liquid Asset:**

The bidder should have liquid assets or / and evidence to availability of unutilised credit facilities of not less than US\$ 3 Million / INR 21.00 Crores. The Certificate of Banker regarding the availability of unutilised credit facilities (Fund based and non-fund based) shall not be dated earlier than 30(thirty) days prior to the latest date for submission of bids.

Liquid Asset = Current Asset – (Inventory + Pre-paid expenses).

iii) **Net Worth:**

The Net worth of the bidder as on last day of the preceding financial year shall not be less than 50% of the Paid-up Share capital.

The Net Worth shall be calculated based on Subscribed and Paid-up Capital + Free Reserves + Unallocated balance surplus amount of Profit and Loss Account less (a) Expenses not written off (b) Loss in Profit & Loss Account if not reduced from Reserves.

Complete Audited Annual Reports along with Audited Balance Sheets, Profit and Loss Account & detailed Schedule and other financial statements for the preceding 5(five) financial years, along with Letter of adequacy and commitment from their Bankers/ Financial Institutions of International repute should be furnished along with their bids for evaluating the above financial criteria. In case where the audited results of the preceding financial years are not available, certified financial statements from a practising Chartered Accountant / Certified Public Accountant (CPA) will be also considered acceptable.

Authenticated documentary evidence in support of qualifying requirements, as mentioned under Clause 6.1, 6.2 & 6.3 above, shall be submitted in Techno-Commercial Bids. The documents should be in the form of Work Orders issued by Clients/Owners and Certificate of Clients/ Owner. Bids submitted without fulfilling the qualifying requirements shall be outright rejected.

6.4 Joint-Venture Bidders:

Individual Company/Firm, who do not individually fulfil the qualifying requirements indicated above can form Joint-Venture/consortium with other partner and its partner shall have a legally binding Agreement for joint and several responsibilities and should submit copies of such Agreements with the Bid. In the event of Joint-Venture/Consortium, the role of each partner, along with name of the lead partner, must clearly be indicated in the joint venture/consortium agreement. In no case shall the joint venture/consortium have more than 2(two) partners. One of the partner shall be nominated as the lead partner, and his authorization shall be evidence by submitting a Power of Attorney signed by legally authorized signatory(s) of the other partner. The lead partner shall be authorized by Joint-



Venture/consortium to incur liabilities and receive instructions for and on behalf of the Joint-venture/consortium, and the entire execution of the contract, including payments, shall be done exclusively with the lead partner. Lead partner shall be solely responsible to the Owner for all the performance and commercial obligation of the contract.

The partners of the Joint-Venture/Consortium shall either be a manufacturer of FRP or applicator having experience indicated in the qualifying requirement at Clause 6.1 and 6.2 as the activities are to be performed within an existing buried steel penstock with limited access points and the liner has to perform as a single object.

6.4.1 In case of Joint-Venture/Consortium, all its partners shall have a legally binding Agreement for joint and several responsibilities. The detailed qualifying criteria of lead partner and other partner are as below:

- i) There shall be 2 (two) partners in the Joint-Venture/Consortium, with minimum holding of 60% for the lead partner.
- ii) The lead partner or both partners of Joint-Venture/Consortium shall collectively meet the following requirements:
 - a. General Qualifying Requirement for the Bidder as specified in Clause 6.1 above.
 - b. Technical Qualifying Requirement as specified in Clause 6.2 above.
 - c. Minimum Average Annual Turnover (MAAT) of not less than percentage share in Joint-Venture/Consortium.
 - d. Criteria given in Clause 6.3 (ii) & 6.3 (iii)
- iii) Individual Company/Firm or Joint-Venture/Consortium shall collectively satisfy, as a whole, the requirements specified under Clauses 6.1, 6.2 and 6.3 above. However, parties claiming to have past experience by virtue of being a partner of Joint-Venture/Consortium, while executing particular works in the past, shall also have to produce documentary evidence of their role and scope of work in the aforesaid Joint-Venture/Consortium, which only shall be counted for the purpose of assessing experience of this Joint-Venture/Consortium.

Authenticated documentary evidence in support of qualifying requirements, as mentioned under Clause 6 above, shall be submitted in Techno-Commercial Bids. For qualifying requirements specified at Clause 6 above, the documents should be in the form of Certificate of Clients/ Owner. Bids submitted without fulfilling the qualifying requirements shall be outright rejected.

6.5 All the Bidders shall enter into an Integrity Pact with the Owner at the time of submission of Techno-Commercial Bids. For this, the Owner has appointed the following two persons, who each shall act as an Independent External Monitor (IEM) for overseeing the



compliance of obligations by the parties under the Integrity Pact. The Contact Addresses of IEM are as under:

- (i) Shri S. Manoharan, IAS (Retd.)
"Raagamaalika" House New No.-4 (Old No.-14)
Thirumurugan Street,
Kalakshetra Colony, Besant Nagar,
Chennai-600 090.
Mobile No.: +91-8754483098
 - (ii) Sri Ardhendu Sen, IAS (Retd.)
House No. J-1229, Palam Vihar,
Gurgaon-122017, Haryana,
Mobile No.: +91-8800633366
7. The Bid document may be downloaded from websites of IndSTT & CUIRE at <http://www.indstt.com>, <https://www.uta.edu/ce/cuire> and www.neepco.co.in, e-tender portal <https://www.abcprocure.com> & Central Public Procurement portal <http://www.eprocure.gov.in> as per Clause 14 of this Part.
- However, submission of bids, bid fee and EMD by bidders, opening of Bids, evaluation of bids etc. till finalization of tender shall be conducted in the e-tendering portal <https://www.abcprocure.com>.
8. The detailed scope of works and other terms and conditions are elaborated in the bid document. For any clarification related to terms and conditions of Bid Document, bidders are requested to refer Clause 14 of this NIB.
9. **Registration for Participation in Bids**
- a. Bidders are required to enroll on the e-Procurement module of the identified e-Procurement Portal (URL: [https:// www.abcprocure.com](https://www.abcprocure.com)). Bidders shall pay the Rs. 3000 registration fee at the portal.
 - b. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
 - c. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the Portal.
 - d. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile. Issuance of DSC III is expected to take minimum of 15 days from the date of submission of the document to the certifying authority. For further details on application process please refer to <https://www.abcprocure.com/EPROC/>.
 - e. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
 - f. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.



10. BID FEE

Bidders shall have to pay BID FEE (non-refundable) for participation in this instant NIB of US\$ 340 (US dollar three hundred forty only) (for overseas bidder) / INR 23,600.00 (Rupees twenty three thousand six hundred only) (for Indian bidders) including 18% GST. Applicable bank charges shall be borne by the bidder.

The bidder shall make the payment to NEEPCO through SB Collect or NEFT/RTGS. Bidders shall clearly indicate the NIB No. against which the bid fee is paid.

Particulars of NEEPCO bank account is given below.

- a) Name of the Bank : SBI, Main Branch, Shillong, Meghalaya, India
- b) Name of Beneficiary's Account: North Eastern Electric Power Corporation Ltd.
- c) Bank A/c No: 10881522463
- d) Type of A/c : Cash Credit A/c
- e) IFS Code: SBIN0000181

The bidders preferring to make the payment through "SB-COLLECT" of State Bank of India shall refer to Clause No. 12 below for procedures/ steps elaborated therein. The bidder shall submit the proof of payment of bid fee and also indicate their GSTIN via e-mail to indstt@indstt.com & indstt@gmail.com.

11. Submission and opening of Bids

11.1 Bidders shall prepare and submit their bids in the electronic form in <https://www.abcprocure.com>

Bidding forms will be available in the above website.

Bids will be opened on the stipulated date in the office of the Indian Society for Trenchless Technology at New Delhi.

Besides online submission, the following documents are required to be compulsorily submitted physically as stipulated at Clause 10.1 (iv), Part-3 (ITB) of Bid Document:

- a. ***Earnest Money Deposit (EMD) in the form of Bank Guarantee or Demand Draft or e-receipt of money paid through SB-COLLECT of State Bank of India/ NEFT/RTGS, in original, as provided at Clause 15, Part-3 of Bid Document;***
- b. ***Power of Attorney (as per format provided at Form-D, Part-6 of Bid Document), in original.***
- c. ***Joint-Venture Agreement Form (as per format provided at Form-E, Part-6 of Bid Document), in original.***



The above documents shall be submitted by hand or by registered Post/ Courier in a sealed envelope superscripted as **“Hard Copy of documents against NIB No NEEPCO/PEN/IND/001 Dated 18/03/2019 for the work of Rehabilitation of Penstock-II (Partly Underground and partly Over ground) of Kameng Hydro Electric Project (600 MW) located at Kimi, Arunachal Pradesh, India through trenchless rehabilitation method of lining the existing Penstock using a combination of Glass Fiber Reinforced Polymer (GFRP) and Carbon Fiber Reinforced Polymer (CFRP) on a turn-key and design-build basis”** at the following address within the scheduled date and time mentioned in Clause 14 below.

**“Office of the Director General
Indian Society for Trenchless Technology
908, Hemkunt Chambers,
89, Nehru Place, New Delhi-110 019”**

11.2 Bidders may view the tender opening results of Techno-Commercial and Price Bids in <https://www.abcprocure.com> by marking their presence for online tender opening.

For any clarification and further information interested persons or parties may contact:

Dr. Niranjana Swarup,
Director General,
Indian Society for Trenchless Technology (IndSTT)
908, Hemkunt Chambers,
89, Nehru Place, New Delhi 110019
Email: indstt@indstt.com
Phone: +91-011-47670800 or +91 -9811499248

11.2 Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues. It may also be noted that DSC III issued by Indian authority is required and bidders should try to secure the DSC III in advance so that they are able to download the bid documents immediately after it is hosted on the e-portal. No extension of time on account of delay in securing the DSC III shall be provided.

12. The procedure/steps for payment by SB-COLLECT of State Bank of India (for payment of EMD & Bid Fee):

STEP-1	The bidder shall visit url/ web page https://www.onlinesbi.com/prelogin/institutiontypedisplay.htm on any internet browser.
STEP-2	State Bank Collect page will appear. Select “ALL India” for “State of Corporate/Institution” Select “PSU” for “Type of Corporate/Institution” Click “GO”
STEP-3	In the new screen, select PSU Name as “North Eastern Electric Power Corporation Limited” and Submit.
STEP-4	In the new screen, select Payment Category as “SHILLONG- PARTIES” .



STEP-5	<p>New Screen will appear, here the bidder has to fill all the required information for the payment as under:</p> <p>i) Under Name of Payer: The Bidder is to fill up his Name and Address.</p> <p>ii) Under Short Details of Payment: The Bidder shall indicate BID FEE, and EMD as applicable. In case of BID FEE and EMD payment, the Bidder shall indicate BID FEE or EMD as applicable and the NIB No. (Example: for payment of EMD against NIB NEEPCO/PEN/IND/001 Dated 18/03/2019, the bidder has to fill under this option as “EMD for NIB No. XX dated DDMMYYYY”).</p> <p>iii) Under Type of PAYER: The Bidder is to select VENDOR OR CONSULTANT whichever is applicable.</p> <p>iv) Under CIN in case the Payer is a company: The bidder is to fill up his CIN in case of a company, otherwise may kept blank.</p> <p>v) Under Payment amount: The bidder is to fill up the amount as per bid condition.</p> <p>vi) Subsequent information for Name, Date of Birth/Incorporation, Mobile Numbers are to be filled as required.</p> <p>vii) Fill Captcha.</p> <p>viii) Then Submit.</p>
STEP-6	<p>In the new screen, check the details and click “CONFIRM”, if correct.</p>
STEP-7	<p>The Multi Option Payment System will be available for making the payment. The Bidder may select option as per convenient and make the payment.</p>
STEP-8	<p>After successful payment, the system will generate receipt. The receipts may also be generated from Reports - i.e. SB Collect (Request Report/ Download Report). This system generated receipt shall be downloaded for submission as per bid condition.</p>

13. Bid validity: 180 (one hundred eighty) days from the date of opening of Techno-Commercial Bids.

14. Tender timeline:

The Bid Document shall be initially hosted in the following websites, which can be downloaded by the prospective bidders free of cost w.e.f. 19/03/2019

- (i) <http://www.indstt.com>
- (ii) <https://www.uta.edu/ce/cuire/>
- (iii) <http://www.neepco.co.in>
- (iv) <http://www.eprocure.gov.in>

Queries if any, may be submitted by the prospective bidders via e-mail addressed to the Consultant at following e-mail IDs latest by 28/03/2019 (10 days from the date of commencement of downloading of bid document from the above websites)

- 1. indstt@indstt.com
- 2. najafi@uda.edu



Simultaneously, copies of such queries shall also be sent to the following e-mail IDs of NEEPCO:

- (i) contract_neepco@yahoo.com,
- (ii) neepco_dne@yahoo.co.in

Based on the bidders' query received, a pre bid conference shall be held in New Delhi on 02/04/2019.

The Bid Document along with clarification to bidders' queries and corrigendum to Bid Documents, if any shall be hosted in the e-tendering portal <https://www.abcprocure.com> by 07/04/2019.

All subsequent activities pertaining to the tender including submission of bids, bid fee and EMD by bidders, opening of Bids, evaluation of bids etc. till finalization of tender shall be conducted in the e-tendering portal.

The Techno Commercial bids shall be opened on 18/04/2019 at 1530 hrs (IST).
Last date for receipt of specified documents in hard form: 18/04/2019 at 1500 hrs (IST).
Date of opening of price bid shall be notified subsequently.

In the event the date for receipt of offline documents and date of opening of bids are declared as a closed holiday then the date of submission of offline documents and opening of Bids will be the following working day at the appointed times.

15. Bidders are requested to visit <http://www.indstt.com>, <https://www.uta.edu/ce/cuire/>, e-tender portal <https://www.abcprocure.com> and NEEPCO's website <http://www.neepco.co.in> and Central Public Procurement portal <http://www.eprocure.gov.in> regularly for any corrigendum/addendum/modification/clarification of the Bid Document.
16. Submission of bids shall not automatically construe qualification for evaluation. IndSTT/ CUIRE/ NEEPCO reserves the right to reject any or all bids, or to annul the bidding process and reject all the bids for any justified and genuine grounds without thereby incurring any liability to the affected bidders, nor does it have any obligation to inform the bidders of the ground for the action of IndSTT/ CUIRE/ NEEPCO.

**Director General
Indian Society for Trenchless Technology
(INDSTT)**