

E-Tender Notice

**POWER TRANSMISSION CORPORATION OF UTTARAKHAND LTD.
(A Govt. of Uttarakhand Enterprise)
CHIEF ENGINEER, OPERATION & MAINTENANCE
GARHWAL ZONE, PTCUL
26 - CIVIL LINES, ROORKEE – 247667**

E-Tender for “Providing, Fixing and Installation of Electric Fencing and Strengthening of Safety System of Power Cables in Trenches and other associated work with Digital Linear Heat Detection Cable System (LHDC) in 33 kV Switchyard at 220/132/33 kV Substation under 220 kV O&M Division, Rishikesh” against E-Tender specification No. CE/GZR-12/2026-27.

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Sr. No.	DESCRIPTION	
1.	Tender No.	CE/GZR-12/2026-27
2.	Name of Work	Providing, Fixing and Installation of Electric Fencing and Strengthening of Safety System of Power Cables in Trenches and other associated work with Digital Linear Heat Detection Cable System (LHDC) in 33 kV Switchyard at 220/132/33 kV Substation under 220 kV O&M Division, Rishikesh.
3.	Completion Time	6 Months from the date of award
4.	Tender issuing office	Office of Chief Engineer (O&M) Garhwal Zone, Power Transmission Corporation of Uttarakhand Ltd. " 26-Civil Lines, Roorkee-247667
5.	Tender Fees	Rs. 5,000.00+ 900.00 (GST@18%) =Rs. 5900.00 (Non refundable)
6.	EMD/Bid Security	Rs. 1,70,000.00
7.	Last date of Submission of Bid	21.09.2026
8.	Last Date and Time of Opening of Bid	22.09.2026
9.	Address & Place of Submission of Bid supporting documents.	Chief Engineer (O&M), Garhwal Zone, PTCUL, 26-Civil Lines Roorkee-247667.
10.	Type of Tender	Open Tender
11.	Contact & Telephone No. of the Tender issuing office	Phone No.:- 01332-272256
12.	E-mail address of the tender issuing office	ce_oandmg@ptcul.org

**(CHIEF ENGINEER (O&M)
GARHWAL ZONE,
ROORKEE**

PROVIDING, FIXING AND INSTALLATION OF ELECTRIC FENCING AND STRENGTHENING OF SAFETY SYSTEM OF POWER CABLES IN TRENCHES AND OTHER ASSOCIATED WORK WITH DIGITAL LINEAR HEAT DETECTION CABLE SYSTEM (LHDC) IN 33 KV SWITCHYARD AT 220/132/33 KV SUBSTATION UNDER 220 KV O&M DIVISION, RISHIKESH.

PQR including technical & financial requirement / criteria

(A) PRE QUALIFYING CRITERIA:-

The tenders/bidders must have to visit site of work & have to submit site visit certificate issued by concerned Executive Engineer(O&M)/Superintending Engineer (O&M) along with technical bid, failing which the bid of the tender may be rejected summarily.

(B) TECHNICAL QUALIFYING CRITERIA

1. The Tenderer/bidders should have adequate experience of similar type of work/supply during last Seven years, as per following conditions:
 - a. Three similar completed works costing not less than the amount equal to Rs. 19.72 Lakh.
 - Or
 - b. Two similar completed works costing not less than the amount equal to Rs. 24.64 Lakh.
 - Or
 - c. One similar completed work costing not less than the amount equal to Rs. 39.43 Lakh.
- Similar work means Providing, fixing and installation of electric safety system at 220KV or above higher voltage level substation at any GOI/GOU/PSU/ Central.
2. The Tenderer should furnish the details of their experience and statement of past works in the form "Details of orders executed during last Seven years" annexed. Photostat copies of order and performance reports of these items from various State Electricity Boards/other Govt. Departments also be given.
3. Experience certificate should be issued by an officer not below the rank of Executive Engineer mentioning nature of work, Agreement No., Amount of work, Scheduled time of completion of work and Actual time of completion etc.
4. Electrical "A" Class license Certificate of Uttarakhand Only and validity of the registration should be furnished along with the technical bid.
5. Any partner shall solely or JV jointly shall meet Technical Qualifying Requirement (TQR) of the respective tender

(C) FINANCIAL QUALIFYING CRITERIA

1. **Minimum Average Annual Turnover:-** The minimum average annual turnover of the tenderer for the best three years (36 months) out of the last five years should not be less than **Rs. 87.24 Lakh**
2. For Financial Qualification Criteria, Joint Venture Partners shall jointly / collectively meet 100% of Financial Qualification Requirement (FQR) of the respective tender.

Note: The balance sheet and all other financial documents attested/certified by CAs to substantiate fulfillment of FQR should be with UDIN failing which the tender will be summarily rejected without any further reference.
3. A copy of PAN of the firm and all its partners.
4. A copy of GST Registration.
5. A copy of EPF, ESI Registration
6. Solvency certificate from Bank (20% of bid value) should be submitted.


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TECHNICAL SPECIFICATIONS OF ELECTRIC FENCING

- 1.1 Energizer should be compatible with FG7C Controller.
- 1.2 Energizer should be independent zone control- unconstrained.
- 1.3 Energizer should have Large LCD display with background colours which changes according to the status of the energizer. "Green " colour should indicate that all is fine, "orange" indicate that attention is required and "red" indicate an alarm condition.
- 1.4 Energizer should display the following information when specific codes inserted : Fence health on a scale of 1 to 9 for each the Zones independently, fence input voltages, fence return voltage, energy stored, capacity used, fence voltage loss and battery voltage.
- 1.5 Integral power supply capable of accepting 230VAC 50 hz +-10%
- 1.6 Internal 7Ah battery backup which switches over in the event of AC failure and charge automatically on the resumption of AC supply.
- 1.7 High voltage output: 7.8 KV at 1000 ohms load
- 1.8 Low voltage output: 1.2 KV at 1000 ohms load
- 1.9 Output energy 3.7 joule with 500 ohms load
- 1.10 Pulse interval 1 sec
- 1.11 Energizer should have APT - Adaptive Power Technology functionality. The energizer should adapt automatically to changing environmental conditions on the site.
- 1.12 Individual High voltage transformer for each Zone
- 1.13 Independent high and low voltage zones
- 1.14 All HV & LV pulses shall be synchronized with each other.
- 1.15 Multiple fence energizers should be synchronized together so that fence zones located in close proximity to each others still comply with the requirements of EN60335-2-76 without the use of additional physical barrier.
- 1.16 Magnetic tag switch should be provided for on/off the energizer without keypad. There should be a provision to disable Magnetic tag switch through keypad.
- 1.17 Energizer should have following dedicated inputs:
 - 1.17.1 Fence voltage high/low for each zones
 - 1.17.2 Panic alarm
 - 1.17.3 Gate open or close
 - 1.17.4 Energizer On/Off for each zones
- 1.18 Energizer should have following dedicated outputs:
 - 1.18.1 One 12 volt strobe light for each zone
 - 1.18.2 One 12 volt siren
 - 1.18.3 One 12 volt regulated DC secondary power source
- 1.19 Energizer should raise audible alarm in the following condition:
 - 1.19.1 Fence tampered
 - 1.19.2 Removal of fence earth connection from energizer
 - 1.19.3 Gate opened
 - 1.19.4 Energizer is in service condition
 - 1.19.5 Removal of energizer' lid
 - 1.19.6 Panic button pressed
 - 1.19.7 Low battery condition
 - 1.19.8 Battery disconnected
- 1.20 Energizer LCD should display symbols for following indication:
 - 1.20.1 Energizer is in low voltage or off
 - 1.20.2 Fence voltage is low or bad
 - 1.20.3 Fence alarm active or bypassed
 - 1.20.4 Energizer is in service or tampered condition
 - 1.20.5 Gate open or not
 - 1.20.6 Gate alarm active or bypassed
 - 1.20.7 past event for any gate/fence alarm or main fail
 - 1.20.8 energizer running on main power or battery
 - 1.20.9 battery good/low or flat indication

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- 1.21 Each output shall be capable of being defined as the following:
 - 1.21.1 Audible alarm
 - 1.21.2 A red LCD backlit indication for Fence alarm
 - 1.21.3 A amber LCD backlit indication for panic alarm
 - 1.21.4 Shows fence health in good condition/on by indicating a green LCD backlit and an amber LCD backlit for check condition and a red LCD backlit for alarm condition.
 - 1.21.5 Controller idle status by a blue LCD backlit indication

2. Fence energizer configurable settings The following settings shall be able to be configured within each fence energizer by the supervisor

- 2.1 All outputs shall be programmable
- 2.2 Independent High power fence voltage
- 2.3 Independent Low power fence voltage
- 2.4 Fence alarm voltage
- 2.5 Siren-on time between 2 second to 270 sec
- 2.6 Alarm-off time between 2 second to 270 sec
- 2.7 Number of alarm events before re-arm adjustable between 1 event to 16 events
- 2.8 Alarm re-arm time adjustable from 20 sec to 7.7 days
- 2.9 The time delay for both gate to stay open before alarm adjustable from 2 second to 270 second
- 2.10 Strobe light out can be used for alarm indication or fence on/off indication
- 2.11 The magnetic tag enable/disable function .
- 2.12 Battery service level/ battery auto check level selectable from 10.5 volts to 12.1 volts

1. KEYPAD

Druid Keypad should be installed at site. Keypad should have following features;

- 2.13 Keypad should control and program energizer
- 2.14 LED indication of fence ON/OFF
- 2.15 Individual zone status
- 2.16 LED indication of fence zone/gate/service/tamper alarm
- 2.17 LED indication of fence low voltage, fence/gate alarm bypassed or active, event in history, battery indication.
- 2.18 Beeper
- 2.19 Panic alarm code
- 2.20 Separate access for user and supervisor to prevent unauthorized access
- 2.21 Local energizer control on/off
- 2.22 Backlit Keypad with adjustable brightness
- 2.23 LED indication of energizer status and fence condition.
- 2.24 Program the I/O card

2. FENCING POSTS

4.1 Strain Posts

The 20x20mm hot dip galvanized strain post should be used. The height of strain post should be 1.1mtrs above the wall.

4.3 FENCING POST SUPPORT The support to the posts will be galvanized. Adequate number of support post will be used for holding the posts in position.

3. INSULATORS

The insulators to be used on security posts will be made up of UV Stabilized glass filled high-density polyethylene. It will have a shield to prevent arcing between wire and post. The insulators will have glossy surface to prevent accumulation of dust and facilitate cleaning.. The insulator must have a breakdown voltage of atleast 15 kV.

4. HYBRID NYLON TENSIONER

The heavy duty nylon tensioner is a tension system and an spring all in one. This enables the wire to stay slack free thus reducing the amount of maintenance required on the fence over a long period of time.

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5. LARGE TAIL HOOKS

The Large tail hooks to be used at tensioners.

6. WARNING SIGN BOARD

Yellow colour double sided UV protected warning sign board to be provided in English.

7. HIGH VOLTAGE CABLE

1 SQ mm stranded copper wire will be use for connecting zones. The inner insulation should be of Polypropylene and the outer insulation should be of High Density Polyethylene material. The cable should withstand a high DC voltage of 15KV.

8. EARTH SPIKES

The galvanised earth spike/stake is used to earth the electric fence system. Hot dip galvanised earth spike with nuts and washer 1.2 m in length. Separate earthing system will be made for the electrified perimeter security fence system. The earthing for the fence will not be connected to the mains earthing system. The earthing system will be made highly effective particularly in difficult or dry soil conditions of the site.

9. FENCE WIRE

The Wire used for the power fence will be of minimum 1.6mm in dia stranded in 11 strands configuration galvanized wire. It will have excellent conductivity. Resistance not more than 100 ohms/km.

10. LINE CLAMP

The line clamps are used to join and electrically connect cables, wires and poly ropes. The line clamp ensures that a good electrical connection is maintained between the joints so that the electric fence functions correctly.

*Hot Dip Galvanized

*30microns

11. FENCE LIGHT

Fence light is a warning device that tells in a flash whether the security fence is operating or not. The Fence light will flash with every energizer. Fence light will have a one directional viewing angle, allowing the light to shine into secure area only. The status will not visible to external areas. Fence light will work between 3kv to 12kv. Each zone of the security fence will have one Fence light installed.

12. LIGHTNING DIVERTER

The Double pole lightning diverter will be UV stabilized plastic housing with stainless steel plates to protect against the likelihood of power surge coming through the fence to the energizer.

13. ALARM SYSTEM

The alarm system will be AUDIO & VISUAL in nature to indicate intrusion in the protected zone. Siren will have a maximum 110dB output and Strobe lights will be visible over a distance of 100 meters when in operation.

14. HOUSING BOX

A powder coated weatherproof IP66 metal enclose with ventilation fan and canopy will be installed for housing energizer and accessories.

15. SYNCHRONIZATION MODULE

A sync module at each energizer should be placed to synchronize the pulses

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Technical Specification of Digital Linear Heat Detection Cable System (LHDC)

LHDC: The Digital LHDC shall be UL approval and be Certified. Alarm Temperature: 700-070 = 70°C, 700-090 = 90°C Max Ambient Temperature: 700-070 = 45°C, 700-090 = 70°C Min Operating Temperature: -65°C Min Installation Temp: -40°C Outer Sheath: Nylon (68°C & 90°C - Black)* Hytrel (180°C - Violet)* Stainless Armour Option* UV & Chemical Resistant, 9.0 Material 9.1 Conductor : Tinned copper coated steel 9.2 Insulation : Thermoplastic (Blue and Orange) 9.3 Outer Sheath : Nylon (Rilsan) (Black) 9.4 Outer Braid : Stainless Steel - (Part No. 700-071 Only) 10.0 Conductor Diameter : 0.9mm 11.0 Insulation Material Thickness : 0.35mm 12.0 Approval : UL Listed, File No. S24081 13.0 Approximate Detection Time small flame : 5 sec.

Voltage Rating: 150Vdc (Dielectric Test 500Vdc) Outer Diameter: (Maximum) 4.0mm $\pm$ 0.3mm Stainless Steel Armour 4.5 $\pm$ 0.3mm 30Vac, 42Vdc

Resistance: ~100/km (29/kft) per leg

Velocity of Propagation: ~55%

Capacitance: 88 – 150 pF/m (26 – 45 pF/ft)

Inductance: 540 – 1050 nH/m (165 – 320 nH/m)

LHD PANEL: NETWORKING FEATURES • Network up to 16 loops (16x1 loop panels, 8x2 loop panels, 4x4 loop panels or any mix up to max 16 loops) • True peer-to-peer and fault tolerant network for high system reliability • BS5839 part 1 compliant network **PANEL FEATURES** • Disable all relays • Optional 40, 80 zone alarm LEDs • Easy 5 key-press set-up • Large blue LCD display • Supports USB upload/download • Supports connection of external printer separately • Alpha-numeric style keypad and navigation keys • Option to upload a company logo • multipal zone compact mimic support • Panel buzzer 'mute' in engineering mode • Up to 72 hour standby • 3 min Inhibit Timer function • Remote LED Support • Level -3 configurable Passcode support • Sounder Synchronization • System IO Card support - Pt13 compliant • Fire Brigade Control & Indication panel Support • Fire Transmission & Keysafe Support • Fire Transmission LED Support **SOFTWARE FEATURES** • PC configuration software support • multipal fire zones (can be used with or without LEDs) • 7 day timers • Event logging • Onboard diagnostics • Class change function • Coincidence and verification detection for false alarm management • Sensitivity adjustment e.g. between day and night • Input/output logic • Enhanced zone support up to 160 LEDs • Type B dependency • Alternative zone referencing scheme • Programming optional language support • Event Logic support • Remote LED Event Logic **HARDWARE FEATURES** • Battery backed real-time clock (2 & 4 loop) • 2 independent sounder circuits • 500mA multi-protocol loop driver, Output Relays: Fire relay: Single pole changeover 24V DC 1A Extended: Single pole changeover 24V DC 1A Aux relay: Programmable single pole changeover 24V DC 1A Onboard Data Ports: 1 x RS485 (Repeater connection) 1 x PC Programming Port 4 Optional Ports: RS232 third party protocol interface Sounder Circuits: 2 output circuits.

MCP: Material PC/ABS Weight 130g Flush 180g Surface Colour Red, Ral 3001 Dimensions Semi-flush mounting: 89 x 93 x 27.5 (WxHxD) Surface mounting : 89 x 93 x 59.5 (WxHxD) IP Rating IP24D Operating Temperature -10°C to 55°C Relative Humidity 10% - 93% non-condensing **ELECTRICAL SPECIFICATION** Operating Voltage 15V to 32Vdc max Current Consumption Quiescent Current: 80µA (24V, no comms) Alarm Current: 130µA (24V, with comms) **MANUAL CALL POINT PRODUCT DESCRIPTION** HM-MCP-GLASS-AP ADDRESSABLE CALL POINT PA RT CODE DESCRIPTION PS230 Pack of ten resettable elements MUS041W Manual call point back box MUS155 Pack of five glass elements SC070 Pack.

SOUNDER: 2. Operate Voltage 3. Alarm Current 4. Sound Pressure 5. Tone Nature 6. Humidity Range 7. Operate Temperature 8. Flash Intensity AGNI-405 24VDC (9-18VDC) 80 to 100mA 88dB Dual Tone

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