GUJARAT ENERGY TRANSMISSION CORPORATION LTD.

SARADAR PATEL VIDYUT BHAVAN,

RACE COURSE, BARODA – 390 007.

TECHNICAL SPECIFICATION

OF

FALL PROTECTION EQUIPMENTS

GETCO/E/TS PPE-AF/R1 FEB13

Signature & Seal of Bidder

SPECIAL INSTRUCTION TO BIDDER

SECTION: I

QUALIFYING REQUIREMENT FOR BIDDERS FOR FALL PROTECTION EQUIPMNTS

1) The bidder should have proven experience of not Less than 3 years in design, manufacture, supply and testing of offered item. Bidder shall confirm this & submit the documentary evidence.
2) Bidders not meeting the requirement as at (1) above but ~~is~~ authorized by OEM for sales can also participate, provided they have valid ongoing authorization with OEM for testing/repairing of the equipment **valid for** three years **as on date of bid submission**. Submit the authorization, experience certificate & performance letters with bid.

3) Bidder should submit performance report of the offered equipments from two STU(State Transmission Utility) or CTU (Central Transmission Utility) ~~/~~ or Government owned Company or Reputed Industries.

4) The bidder should have service infrastructure including trained manpower in India. Details shall be submitted.

5) Bidder should have facility to test the fall protection equipments at the time of inspection as per confirming standards in India. Submit details.

6) The bidder should give satisfactory service for a period of at least 5 years. In the case of authorized supplier by OEM, the bidder shall furnish joint undertaking with OEM for accepting joint and several liabilities of all obligations under the contract.

7) The bidder shall furnish, with his bid all the type test reports/ **EC type certificates**, from accredited laboratory (accreditation based on ISO/IEC/Guide 25/17025 or EN 45001 by the national accreditation body of the country where the lab is located) , as per IS/IEC or any equivalent standard of the equipment, not older than FIVE(5) years and valid till validity of the offer.

8) The manufacturer shall have adequate design infrastructure, manufacturing facility & capacity and procedures including quality control. The MQP covering all these shall be submitted with the bid. demonstrate the same in his bid through relevant documents.

9) Notwithstanding anything stated above, the owner reserves the right to assess bidder's capacity to perform the contract, should circumstances warrant such an assessment in the overall interest of the contract and owner.

10) Bidder should submit Qualifying Requirement with documents for each item separately.

SECTION – II

TECHNICAL TERMS & CONDITONS OF LINE MAN SAFETY BELT

1. SCOPE

1.1. The overall scope of work proposed to be assigned to the successful bidder according to this specification covers the following aspects.

1.1.1. The design, schematic drawings, manufacturing, at manufacture's works.

Supply and demonstration of the equipment as detailed in the equipment schedule.

1.1.2. Complete testing at manufacturer's works.

1.1.3. F.O.R. destination supply of completely assembled equipment.

1.1.4. Testing and commissioning of these equipment at site/ field.

1.1.5. It is not the intent to specify completely all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship as mentioned in clause (4) and shall be capable of performing continuous commercial operation up to the supplier's guarantee & expected life of equipment. In a manner acceptable to the purchaser, who will interpret the meaning of drawings and specifications, and shall have the power to reject any work of material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective trouble free operation. Such components shall be deemed to whether those are specifically brought out in this specification and/or the commercial order or not.

2. SCHEDULE OF REQUIREMENT

2.1. The delivery of the material in any case shall be finished within **delivery schedule.**

2.2. Delivery instructions shall be issued to the successful bidder/s after placement of order and successful inspection & testing of equipment at bidder works.

3. STANDARDS

3.1. Unless otherwise specified elsewhere, in this specification, the rating, performance and testing of equipment shall confirm to the latest revisions of the relevant standards, available at the time of placement of order.

3.2. If purchaser demanded, the supplier submits the copy of relevant standards for verification of test data.

4. PRINCIPAL TECHNICAL PARAMETERS

4.1. The fall protection equipments shall meet the technical requirements as listed in **Annexure-I**.

5. TESTS

5.1. The equipment offered shall be fully type tested as per the relevant standards. Test certificate shall be supplied along with offer not less than five years old.

5.2. The purchase reserves the right to demand repetition of some or all type tests in presence of the purchaser representative. For this purpose the bidder may quote unit rates for carrying out each type test. This will not be considered for evaluation.

5.3 **Type test reports:**

Bidder shall submit relevant type test reports / EC type Examination Certificate, as per applicable standards, but not older than 5 years and valid up to expiry of validity of offer, shall be submitted for all the above items. In case of non-submission of some of the type test reports, the bidder shall confirm the submission of same before commencement of supply, without affecting delivery schedule, from NABL accredited laboratory, free of cost. In absence of this confirmation, the offer will be evaluated as non submission of type test report.

5.4. **Special Remarks: At the time of Inspection out of total inspection quantities, 2 (two) sample is selected for acceptance test & carry out static strength & dynamic strength as per EN 364 as asked in tender. As sample is not useful for further use, supplier should recoup it by new one from same batch.**

5.5. **Supplier should prepare & submit proto unit for approval.**

6. INSPECTION DURING MANUFACTURING

6.1. The inspection may be carried out by the purchaser at any stage of manufacture. The

successful bidder shall grant free access to the purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications and shall not prevent subsequent rejection if the equipment is found to be defective.

6.2. The supplier shall keep the purchaser informed well in advance, about the manufacturing program so that the arrangement can be made for inspection.

6.3. The purchaser reserves the right to insist for witnessing the acceptance routine testing of bought out items.

7. Quality Assurance Plan:

7.1. The bidder shall invariably furnish along with his offer the Quality Assurance plan adopted for manufacturing the equipments/ components.

7.2. The bidder shall specifically express his consents to accept additions, revisions to the quality assurance plan to meet the purchaser's requirements if needed. The final quality assurance plan to be adopted shall be decided after discussion with successful bidder.

7.3. The bidder shall also submit the Field Quality Plan (FQP).

8. GUARANTEE

8.1. All the equipment supplied against this specification shall be guaranteed for defects/ performance for a period of **24 months** from the date of commissioning.

8.2. Any engineering error, omission, wrong provision, equipment failure etc., if found during actual commissioning of the equipment shall be attended by the bidder at free of cost.

8.3. During guarantee period, if any defect observed, it is bidder responsibility to collect and return back item from/to site/ consignee to attend the same.

8.4. On each failure of equipment, supplier should give a detailed report of failure to transmission wing, corporate office, GETCO, invariably.

9. RESIDUAL LIFE ASSESSMENT CERTIFICATION:

9.1. During guarantee period, after completion of a year since supply, supplier should carry out visual inspection of all supplied safety belt & carry out load test as per standard & give certification for residual life of supplied safety belt, at free of cost.

9.2. Bidder shall quote the unit rate for the above work (cl.7.1) for their service beyond guarantee period

10. SUBMISSION OF DEMO/ PROTO ITEM:

10.1.1. After opening of Technical Bid, the Bidder must submit one set of the offered item as Demo/ Proto unit to Chief Engineer (TR), Corporate Office, GETCO, within 7 days with a forwarding letter mentioning model number, Serial Number etc. (Please submit the exact model as quoted in tender. Higher end model or lower end model is not accepted)

10.1.2. GETCO reserved the right to disqualify the bidder on non-submission/ late submission of Demo/ Proto unit.

10.1.3. The subject Demo/ Proto unit will remain in GETCO's custody till the issuance of the purchase order to the successful bidder/s.

10.2. **DEMOSTRATION:** During technical scrutiny of the bid, purchaser will ask to give demonstration of the offered equipment at purchaser's/ supplier's site. The bidder shall demonstration the equipment within one week of intimation from purchaser. The purchaser will evaluate the suitability of product for their application, present practice & test equipments used. Based on demonstration, the purchaser decision will be last & unchallenged for acceptance/ non acceptance of product even if product will comply tender's other terms.

11. DOCUMENTATION

11.1. The bidder shall furnish as a part of their offer, complete set in triplicate of technical literature/ manuals, data sheets, MQP, FQP and typical schematic drawings of test equipment offered by them.

12. MANUAL

12.1. The bidder should submit technical manual demonstrating the:

A. Commissioning Methods

B. Storage methods

C. Routine Checks/ Inspection

12.2. Bidder shall submit the technical manual at the time of approval of drawings.

13. PACKING AND TRANSPORT

13.1. All equipment/ material shall be suitably packed for transport, carriage at site and outdoor storage during transit. The contractor shall be responsible for any damage to the equipment during transit and it should be replaced without any extra cost.

13.2. The cases containing material shall be very carefully packed and marked with appropriate caution symbols i.e. “FRAGILE”, “HANDLE WITH CARE”, “USE NO HOOK” etc. The contents of each package shall bear marking that can be readily identified from the package list.

13.3. Packing shall provide complete protection from moisture, termites and mechanical shocks etc. The moisture absorbent material like silica or other substance should be packed in cotton bags and placed inside the packing.

13.4. Wherever necessary proper arrangement for attaching slings for lifting shall be provided and all packages clearly marked with gross weight, signs showing ‘UP’ and ‘DOWN’ sides of boxes, contents of each package, order no. and date, name of the substation of which the material in the package forms part of and any handling and unpacking instructions considered necessary.

13.5. Any material found shortfall inside the packing case, shall be supplied by the manufacturer/ supplier without any extra cost within 15 days.

13.6. Bidder shall ascertain, prior to shipment, from concerned authorities, the transport limitations like weight, maximum allowable package size for transportation, etc.

13.7. Each consignment shall be accompanied by a detailed packing list containing the following information :

a. Purchase order reference
b. Name of consignee
c. Details of consignment
d. Destination
e. Total weight of consignment
f. Handling & unpacking instructions
g. Bill of materials indicating contents of each package
h. Sign showing upper/ lower side of crate, fragile material etc

14. TRAINING

14.1. The Successful bidder shall provide training to GETCO employees at all transmission circle sites (i.e. total locations), at no extra cost. The training should cover the theory & on-hand training of:

a. Familiarization with instrument & its parts

b. Procedure of installation, testing & commissioning

c. Special precautions, handling, checkpoints while using the equipments etc.

d. Routine checks / inspection of the equipments.

14.2. The programme of the training shall be mutually discussed and finalized by the purchaser.

15. SCHEDULES

15.1. The bidder shall fill in the following schedules which form part of the tender specification and offer.

Schedule – A	Guaranteed Technical Particulars (GTP)
Schedule – B	Deviation from technical specification
Schedule – C	List of accessories/ material for the offered equipment with unit price
Schedule – D	Requirement of first testing & commissioning of Equipments

15.2. If the schedules are not submitted duly filled in with the offer, the offer is likely to be rejected.

15.3. Unless otherwise brought out separately by the bidder in the schedules of deviations the equipment offered shall be deemed to conform to the specification, as listed in this tender, scrupulously.

15.4. Any deviation from the specification shall be specifically brought out in the schedules supported by authentic documents, standard and clarification, otherwise the offer may be liable for rejection. Any deviation from the specification shall be highlighted giving reasons.

16. INFORMATION TO BE FILLED INVARIABLY BY THE BIDDER

16.1. For ready reference of the purchaser, the items of information required to be invariably furnished by him in his offer, are listed below:

a. Four copies of the authentic English translation of each of the standards to which the offered equipment conforms in case these are other the standards specified in this specification.

b. Schedules as mentioned above

c. Documents and drawings listed.

ANNEXURE – I
PRINCIPAL TECHNICAL PARAMETERS

PRINCI	ITEM	SPECIFICATION
	FALL PROTECTION EQUIPMENTS	**1. <u>GENERAL</u>** 1. The usability of these safety belts is in Power Transmission Utility i.e. for working on 66KV to 400KV Class Switchyard equipments, Gantries, structures, as well as transmission line towers during maintenance for safety precaution of person working on height. It shall be perfectly adaptable to all these user specific needs and diversity of working conditions. 2. The fall protection equipments shall give maximum safety and optimal comfort to the user. 3. It shall be fit for wide range of body types & sizes 4. It shall be easy to don and adjust. It could be worn without any difficulty and user can feel good with these equipments. 5. The equipments shall give full freedom to user for his smoother movements during ascent, working and descent. 6. All the equipments shall have Label pack with clear and durable cover to protect the lable from environmental effects and loss 7. Full body harness comprises straps (Primary/ Secondary), fittings, buckles or other elements, suitably arranged and assembled to hold the whole body of a person and to support the wearer during a fall and after the arrest of a fall. 8. **CARRY BAG:** Each Set supplied in proper carry bag so it will be easy by Line Man to carry during long distance maintenance. 9. **LOGO:** GETCO Logo should be provided on safety strap 10. **COLOUR:** GETCO will provide color of strap, belt etc to successful bidder.

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1	**FULL BODY HARNESS**	1. Full body harness shall have: a. Shoulder Strap b. Secondary Strap c. Seat Strap d. Thigh Strap e. Waist Strap for support purpose f. Adjustment element for shoulder strap & thigh strap g. Attachment element i. 2 Chest attachment for fall arrest during climbing ii. 2 lateral 'D' ring for work positioning iii. 1 dorsal 'D' ring – back side for fall arrest lanyard during working. h. Buckles for connecting & adjusting straps quickly and easily i. Marking j. Adjustable lanyard clips k. Work Positioning Lanyard l. Twin Fall Arrest Lanyards with Shock Absorber **2. Materials & Construction** 2.1. Webbing shall be made from polyester & thread should be made from polyamide material. 2.2. Sewing threads shall be contrasting shade of color than webbing. 2.3. Webbing shall be with Dual color i.e. contrasting colours on inside & outside to make the donning easy and to identify any twist. 2.4. Webbing shall be with protective finish to repel dust, water, moisture, oil, grease, etc. 2.5. Web finials to prevent fraying on web ends shall be provided. 2.6. The width of primary straps shall be at least 40 mm, that of secondary straps being at least 20 mm. 2.7. The lanyard attachment element should be located on the back of the wearer. 3. All straps and waist belt shall be capable of adjustment to fit

		the user and mean of adjustment shall be provided. 4. Suitable arrangement for organizing the excess webbing after adjustment shall be provided. 5. The harness should provide support (Padding) for the body around the lower chest (Waist), over the shoulders and around the thighs. 6. The "D" ring or other equivalent facility provided for the attachment of the lanyard is located in the upper part of the harness so that angle formed between the spine of a suspended user and the safety lanyard does not exceed angle specified in standards. 7. The harness shall also have suitable arrangement to park the unused leg of twin leg fall arrest lanyard. 8. Hardware for safety belt, safety strap, and lanyards, shall be drop forged or pressed steel and have a corrosive resistive finish. 9. The cushion part of the body belt shall : 9.1. Contain no exposed rivets on the inside 9.2. Be at least 7 cm in width. 9.3. A minimum four tool loops shall be so available on body belt such that it should not be obstacles or it should be supplied with tools bag which should be attached with safety belt. 10. A suitable liner shall be used around bar of 'D' ring to prevent wear between these members and the leather or fabric enclosing them or should have other provision satisfactory to GETCO. 11. All stitching shall be lock stitched. Stitching parallel to an edge shall not be less than 4 mm from edge of narrowest member caught by the thread. **12. STATIC STRENGTH:** When tested at each attachment element with a force of 15KN applied to the Torso Dummy for 3 min, the Full body harness does not release the Torso Dummy. 13. **DYNAMIC STRENGTH:** When tested at each Fall Arrest Attachments element with a torso dummy of 100 Kg mass,

		the full body harness withstands two successive drop tests with an torso dummy, once from a head-up position, once from a head-down position. After each drop-test, the torso dummy is arrested in a Head-Up position, and angle between the longitudinal axis of the dorsal plane of the torso dummy and the vertical is less than 50 degrees. 14. **STANDARD:** Full body harness should be designed & tested as per EN 361 or equivalent or higher standard. 15. **HARDWARE:** 15.1. The karabiner, Rope Grab adjuster, 'D' ring, Hook and other Hardware used with Harness should be alloy steel material conforming to standard EN 362: 2004.
1a	**LANYARDS**	**<u>LANYARDS:</u>** 1. Both ends of lanyards shall be suitably transparently laminated. 1.1. They are made up of cross stitched **Polyamide Kernmentel Rope**. 1.2. **Standard:** Lanyard should be designed & tested as per EN 354 or equivalent or higher standard
1a (I)	**WORK POSITIONING LANYARD**	**<u>Work Positioning lanyard</u>** 1.3. The length of Work Positioning lanyard shall be 1.5M 1.4. The length should be adjustable using grip type adjuster. 1.5. It should be sleeved with protective cover. 1.6. One end it should have alloy steel Karabiner with gate opening not less than 15 mm, easily fastened to work positioning buckle. 1.7. The other side should have convenient rope grip adjuster for easy length adjustment when used with Kernmentel rope. 1.8. It shall conform the latest version of the standard EN 358

1a(II)	**FALL ARREST LANYARDS WITH SHOCK ABSORBER**	**<u>Fall Arrest Lanyards with shock absorber:</u>** 1.9. It shall be Twin leg type lanyard. 1.10. The length of fall arrest lanyards shall be 2.0 M 1.11. Its one end should have two legs with zinc plated Alloy steel tower hooks having gate opening of 85 mm, conforming EN 362:2004 1.12. The other end should have one Energy Absorber with Karabiners with suitable arrangement of fasting to dorsal. 1.13. The maximum force transmitted to the user i.e. fall arrest forces shall be less than 6KN for all the cases including the case when both the legs of lanyard attached and fall occurs. 1.14. Shock absorber: It should be designed as per EN 355:2002
2	**RETRACTABLE BLOCK**	**1. Retractable Block:** 1.1. It should have durable, high impact polymer casing with webbing lanyard. 1.2. It shall be compact and light weight. 1.3. The length of webbing is 6 Meter. 1.4. It shall be with fast activating braking mechanism. 1.5. It shall be with integral load indicator to identify to remove it from the service. 1.6. The webbing shoud be compatible to connect with full body harness dorsal 'D' ring by suitable hook. While block connector shall have zinc plated Alloy steel tower hooks having gate opening of 85 mm for anchoring, conforming EN 362:2004 1.7. It shall be with built in swivel. 1.8. It should confm EN 360:2002

SCHEDULE: A

GUARANTEED TECHNICAL PARTICULARS

(TO BE FILLED IN BY THE TENDERER AND FURNISH WITH TECHNICAL BID)

The GTP is to be filled up in this format and, in the page of Tender Specification only, to be submitted in duplicate along with the offer. This is intended for speedy comparison of various bidders GTP. The tenderer shall fill in the particulars against appropriate items in respect of each rating and type of equipment offered in the broad categories listed below:

1	Bidder Name					
2	Make					
2	Check List					
	Item	**Model No**	**Qty**	**Material**	**Size/length/ Dimension**	**Conforming to Standard**
A	Full Body Harness					
	Shoulder Strap					
	Secondary Strap					
	Seat Strap					
	Thigh Strap					
	Waist Strap					
	Chest Attachment					
	Lateral ‘D’ rings					
	Dorsal ‘D’ rings					
	Buckle					
	Marking					
	Shoulder padding					
	Waist Padding					
	Thigh Padding					
	Tool loops					
	Tool Bag					
	Carry Bag					
B	Fall Arrest Lanyards with Shock absorber					
	Lanyards					
	Tower Hook					
	Shock Absorber					
	Karabiners					
C	Work Positioning Lanyards					

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	Lanyards					
	Karabiners					
	Length Adjuster					
D	Retractable block with webbing					
	Block					
	Webbing					

SCHEDULE: B

DEVIATION FROM TECHNICAL SPECIFICATION

All the deviation from this specification shall be set out by the bidder, clause by clause, in this schedule. Unless specifically mentioned in this schedule, the bidder shall be deemed to confirm to the specification

Sr No	Clause No	Details of deviation with justification

SCHEDULE: C

LIST OF ACCESSORIES/ EQUIPMENT FOR OFFERED EQUIPMENT

Sr No	Description	Qty required	Make and type

SCHEDULE: D

REQUIREMENT FOR FIRST TESTING AND COMMISSIONING OF EQUIPMENT TO BE CONFIRMED BY BIDDERS

1) The successful bidder has to provide operation & maintenance manual, all drawing, literature etc., for the equipment to be supplied, write up for testing and commissioning procedures, setting calculation etc., detailed drawing with trouble shooting protocols to all consignee destination as well as to the transmission department of corporate office, GETCO, Vadodara.
2) O&M manual should contains:
    a. Vendor contact details (Name, Designation, Mobile No, Fax No, E-Mail etc)
    b. Storage Instruction
    c. Erection & Commissioning Instruction
    d. Operating procedure/ Instruction and Maintenance schedule
    e. List of bought out component & sub-vendor's address.
    f. Technical data sheet.
    g. Leaflets and bought out component
    h. Drawing etc.

Signature & Seal of Bidder