

SCOPE OF WORK (SOW)

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1. GENERAL

Parbati Koldam Transmission Company Limited ("PrKTCL") is implementing supply and Installation of OPGW on existing 400 kV Koldam – Ludhiana (PG) line which is LILOed at 400 kV Ropar (PSTCL) (150 kms) ("Project") approved as Communication Scheme in the 11th meeting of NCT.

1.1. Associated Transmission System:

The following transmission system is envisaged under the scheme:

- Supply and Installation of OPGW on existing 400 kV Koldam – Ludhiana (PG) line which is LILOed at 400 kV Ropar (PSTCL) (150 kms)

2. SCOPE OF WORK

The scope of work shall cover following:

Survey, planning, design, engineering, supply, testing at manufacturer's works, transportation, unloading and delivery at site including insurance & storage, supervision of erection/installation, installation of OPGW and its accessories in live line condition including all associated works, splicing, termination, testing, training, and demonstration for acceptance, commissioning and documentation for the Communication System defined below:

I. Fibre Optic Cabling and associated items

- a) OPGW including all associated hardware accessories & fittings
- b) Fibre Optic Approach Cable including installation hardware
- c) Underground Fiber Optic cable (UGFO)/All Dielectric Self Supporting (ADSS) cable including installation material, accessories and fixtures (if applicable)
- d) Fibre Optic Distribution Panels (FODP) & Joint Box
- e) Very Small Aperture Terminal (V-SAT) based Communication System. (if applicable)
- f) Supply of spares
- g) All other associated work/items described in the technical specifications.

"The existing earthwire along with its hardware & fittings shall be dismantled & taken away by the Contractor on installation of OPGW. The Contractor shall quote the buyback price for the dismantled earth wire / OPGW (along with hardware fittings & accessories)."

Standard OPGW designs are to be used for various voltage levels & wind zones of transmission lines that are mentioned at Section-02 of Technical Specifications. In case of constraints in adopting standard design for any of the transmission line(s) or for any specific sections such as higher spans (>600m), Valley crossings, snow covered sections or for other voltage levels & wind zones etc., the Contractor may propose customized design(s) during detailed engineering to meet the requirement.

Mostly, the OPGW Cable under this specification shall be installed under live line conditions, i.e. with all circuits of the transmission line charged to their voltage. Installation The bill of quantities for the same is specified in the appendices accordingly. However, the actual quantities for the requirement may vary during implementation which shall be finalized after detailed survey. The Contractor has to carry out the detailed survey and collect the required data for preparation of OPGW BoQ. Aviation Globules are to be removed and reinstalled from earth wire to OPGW wherever applicable during OPGW installation.

II. Communication Equipment and DC Power Supply System

- a) SDH Equipment along with suitable interfaces & line cards etc.
- b) Associated Termination equipment system including E-1 channel banks & drop-insert multiplexer, subscriber line interfacing card and digital access cross-connect switching (DACS).
- c) Network Management System (NMS)
- d) All cabling, wiring, Digital Distribution Frame patch facilities, equipment MDF's and interconnections to the supplied equipment at the defined interfaces.
- e) MDF & DDF cross connects required to route and activate circuits.
- f) System integration of the supplied subsystems and also integration with existing communication equipment such as SDH, MUX etc.
- g) Integration of supplied system with existing and new PMUs, RTUs, SCADA system, PLCC equipment, PABX etc.
- h) Reconfiguration of communication channel in existing communication equipment.
- i) Repeater Shelter along with associated subsystem (if applicable)
- j) Maintenance of the supplied system

III. Maintenance of installed Communication System during Defect Liability Period and for a period of 6 years after Defect Liability Period.

All other associated works/items described in the technical specifications for a viable and fully functional communication network.

The above scope of work is indicative and the detailed scope of work is given in the Technical Specification (Volume-II) of the Bidding Documents.

3. BID PRICE SCHEDULE:

The Bid Price Schedule is attached separately in Volume-III.

4. PHYSICAL AND OTHER PARAMETERS

4.1.Details of the Transmission Line - The details of the transmission line are indicated below:

Name of Transmission Line	Originating Sub-station	Terminating Sub-station
400 kV D/C Koldam – Ludhiana Transmission Line (Triple Snowbird Conductor)	800 MW Koldam-HEP of NTPC (Himachal Pradesh)	400/220 kV Ludhiana Substation of PGCIL (Punjab)

4.2.Access to Site -

PrKTCL will provide the requisite support to the successful Bidder to access to the site/locations for performing the Scope of Work. However, payment towards damage of crops, trees or any other payments arising out of this Scope of Work shall be paid to the farmer/landowner and shall be paid by the Contractor and the same will be reimbursed by the Employer on submission of the proof of actual payment*.

**PrKTCL will provide the detailed SOP for payments towards crop, tree or any other payments towards performing the Scope of Work.*

PrKTCL have been granted the approval under Section 164 of the Electricity Act, 2003 to operate and maintain the aforementioned transmission line vide Gazette publication dated 17th June 2009.

The Contractor shall be responsible for planning and conducting its operations and those of its sub-contractors so that neither the Contractor nor any of its sub-contractor shall (a) enter upon lands (other than the designated Site) or waterbodies in their natural state unless authorized by the Project Manager and or appropriate person; (b) close or obstruct any utility installation, highway, waterway, harbor, road or other property unless applicable permits are obtained and authorized by the Project Manager and or appropriate person; or (c) disrupt or otherwise interfere with the operation of any portion of any pipeline, telephone, conduit or electric transmission line, ditch, navigational aid, dock or structure unless otherwise specifically authorized by the appropriate Person.

5. DIFFERENT SECTIONS OF TECHNICAL SPECIFICATION

For the purpose of scope of work, technical specification shall consist of following sections, and they should be read in conjunction with each other.

1. Section-01-General
2. Section-02-OPGW
3. Section-03 Equipment Characteristics
4. Section-04-Repeater Shelter
5. Section-05-DCPS Battery
6. Section-06-EMI-EMC
7. Section-07-Testing
8. Section-08-Training and support services
9. Section-09-Documentation
10. Section-10-Project Management
11. Section-11 Aerial Fibre Optic Cabling requirement
12. Technical specification of VSAT FORMAT
13. UGFO Specifications

6. SPECIFIC REQUIREMENT

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----- End of Scope of Work -----