# BUYER ADDED BID SPECIFIC ADDITIONAL TERMS AND CONDITIONS - Annexure-A

# **PRE-QUALIFICATION CRITERIA:**

| JOB        | SUPPLY OF UNEARTHED, ARMOURED XLPE POWER HT & LT CABLES 2 X 660MW RAGHUNATHPUR THERMAL POWER PROJECT, PHASE-II, WEST BENGAL   |
|------------|---|
| SL NO      | CRITERIA  |
| FINANCIAL  |   |
| 1.0        | a) BIDDER SHOULD HAVE AVERAGE MINIMUM ANNUAL FINANCIAL TURNOVER OF RS. 37.5 LACS, DURING THE LAST THREE CONSECUTIVE FINANCIAL YEARS ENDING ON 2023-24 AND SHOULD SUBMIT THEIR AUDITED BALANCE SHEET AND PROFIT & LOSS ACCOUNT FOR LAST THREE FINANCIAL YEARS, IN SUPPORT OF THE SAME. |
|            | b) IN CASE AUDITED BALANCE SHEET AND PROFIT & LOSS ACCOUNT HAS NOT BEEN SUBMITTED FOR ALL 3 YEARS INDICATED ABOVE THEN THE APPLICABLE FINANCIAL AUDITED STATEMENTS SUBMITTED BY THE BIDDERS AGAINST THE REQUISITE THREE YEARS, WILL BE AVERAGED FOR THREE YEARS.                      |
|            | c) IF FINANCIAL STATEMENTS ARE NOT REQUIRED TO BE AUDITED STATUTORILY, THEN INSTEAD OF AUDITED FINANCIAL STATEMENTS, FINANCIAL STATEMENTS ARE REQUIRED TO BE CERTIFIED BY CHARTERED ACCOUNTANT.   |
| TECHNICAL  |   |
| 2.0        | TECHNICAL PQR   |
|            | THE BIDDER SHOULD HAVE PREVIOUS EXPERIENCE OF SUPPLYING MINIMUM <b>7050 METERS</b> OF ANY TYPE OF CABLES TO GOVT./ PSU/ REPUTED ORGANISATIONS AGAINST SINGLE/MULTIPLE ORDER IN LAST THREE YEARS AS ON LAST DATE OF BID SUBMISSION.  |
|            | BIDDER SHALL HAVE TO SUBMIT RELEVANT DOCUMENTS IN SUPPORT OF THE SAME.  |
| 3.0 Notes: |   |
| А          | BIDDER SHOULD HAVE VALID PAN. RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.   |
| В          | IN CASE THE JOB IS UNDER EXECUTION/ ONGOING JOB, THE VALUE OF EXECUTED PORTION OF THE JOB SHALL AT LEAST CORRESPOND TO THE RESPECTIVE VALUES SPECIFIED ABOVE EVEN IF THE CONTRACT HAS NOT BEEN COMPLETED OR CLOSED.   |
| С          | AFTER SATISFACTORY FULFILLMENT OF ALL THE ABOVE CRITERIA, OFFER SHALL BE CONSIDERED FOR FURTHER EVALUATION & PARTICIPATION AS PER NIT & ALL OTHER TERMS OF TENDER.  |
| D          | CONSORTIUM/JOINT VENTURE BIDDING IS NOT ALLOWED.  |

# SCOPE AND TECHNICAL CONDITIONS OF CONDITIONS (TCC):

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# **1.0 PROJECT INFORMATION**

| SI. No. | Description                    | Details   |
|---------|--------------------------------|---|
| 1       | Project Title                  | Raghunathpur TPP Ph-II (2x660 MW)   |
| 2       | Customer                       | Damodar Valley Corporation (DVC)  |
| 3       | Location                       | The Site can be approached from District Head Quarters Purulia through State Highway SH-5 (Purulia-Barakar).  Nearest Town: Raghunathpur - 7 Km  District Head Quarters: Purulia - 38 Km  Nearest City: Asansol - 50 Km  Nearest Major City: Kolkata - 270 Km |
| 4       | Nearest Railway<br>Station     | Nearest Railway Station: Bero – 20 Km  Other Nearby Stations: Asansol Junction – 50 Km  Durgapur Junction – 100 Km  |
| 5       | Nearest Airport                | Nearest Commercial Airport: Durgapur Airport – 92 Km  |
| 6       | Access By<br>Road/Major Cities | National Highway NH-19 about 44 Km from the site.  National Highway NH-10 about 8 Km from the site.   |
| 7       | Address                        | Project Director/ Construction Manager, BHEL Site Office Raghunathpur Thermal Power Station Phase-II Raghunathpur, District – Purulia, State – West Bengal  |

The bidder is advised to visit and examine the site of WORKS and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into the contract. All costs for and associated with site visits shall be borne by the bidder.

## 2. SCOPE OF WORK:

#### 2.01 **COMMON SCOPE**:

- 2.01.1 This specification covers the Supply of the XLPE HT Power Cable and PVC/XLPE insulated with PVC sheathed LT power/control cable with proper packing.
- 2.01.2 The transportation, insurance during transit and delivery to site/BHEL store as mentioned in this specification in the head of Project Information.
- 2.01.3 a) MDCC will be obtained by vendor before dispatch.
  - b) Vendor has to submit Test Certificate (TC), Guarantee Certificate and certificate of conformance (COC) for issuance of MDCC by BHEL.
  - c) MATERIAL DESPATCH CLEARANCE CERIFICATE (MDCC) shall be issued by BHEL prior to dispatch.
  - d) Copy of MDCC and other dispatch document shall accompany with every dispatch.

#### 2.02 SCOPE FOR XLPE HT CABLE

This document covers the technical specification of cross-linked polyethylene (XLPE) insulated and PVC sheathed power cables for three phase 11kV Unearthed system. The followings Cable to be supplied

- 1. 3C x 185 sq mm HT Cable (11kV Unearthed, ARMOURED)
- 2. 3C x 95 sq mm HT Cable (11kV Unearthed, ARMOURED)

### **2.02.1 CONDUCTOR**

The conductors shall be composed of aluminum wires complying with **IS: 8130: 1984** or latest amendments thereof.

#### 2.02.2 INSULATION

The insulation shall be of cross-linked polyethylene conforming to the requirements given in Table 1 of IS: 7098: 2011 (Part-II) or latest amendment thereof.

### 2.02.3 INSULATION SCREENING

The insulation screening shall consist of two parts:

- a) Non-Metallic Screening
  - Non-metallic part shall be applied directly over the insulation of each core and shall consist of either a semi-conducting tape or extruded semi-conducting compound or a combination of the two or either material with a semi-conducting coating. Minimum thickness should be 0.3 mm.
- b) Metallic Screening

Metallic screening shall be helical wrapped Copper tape.

#### 2.02.4 FILLERS AND INNER SHEATH

- a) The Inner Sheath shall be of polyvinyl chloride (PVC) compound conforming to the requirements of Type ST1 of **IS: 5831: 1984** or latest amendments thereof.
- b) The color of the inner sheath should be black.
- c) The filler material is to be compatible with that of inner sheath.
- d) The filler material will be same as inner sheath.
- e) The method of application for inner sheath with filler material shall be Pressure/Vacuum extruded and for inner sheath without filler material shall be Pressure extruded.

### 2.02.5 SCREENING

All cables shall be provided with conductor screening. Conductor screening shall be provided over the conductor by applying non-metallic semi-conducting tape or by extrusion of semiconducting compound or a combination of the two.

#### 2.02.6 ARMOURING

- a) Armouring shall be applied over the insulation or protective barrier or non-metallic part of insulation screening.
- b) A binder tape may be applied on the armour.
- c) Armouring shall be of Galvanized round steel wire conforming to: Table 6 of IS: 7098: 2011 (part-II) and IS: 3975: 1999.
- d) The armour shall be applied as closely as practicable.
- e) The minimum coverage of armouring shall be 90%.
- f) The gap between armour wires shall not exceed one armour wire space with no cross-over/ overriding.
- g) The breaking load of joint shall be 95% of normal armour.

#### 2.02.7 OUTER SHEATH

- a) The outer sheath shall be applied by extrusion over the armouring.
- b) The outer sheath shall be of polyvinyl chloride (PVC) compound conforming to the requirements of Type ST2 of IS: 5831: 1984 or latest amendments thereof.
- c) The thickness of outer sheath shall be not less than the minimum value specified in col 6 of Table 7 of IS: 7098: 2011: (Part-II).

#### 2.02.8 TESTS

# 2.02.8.1 Type Tests

- a) All cables to be supplied shall conform to type tests as per relevant standards and proven type.
- b) The bidder shall furnish the reports form the manufacturer of the cables of all the type tests listed hereunder carried out within last ten years of the date of bid opening. These reports should be for the tests conducted either in government approved third party laboratory or witnessed by client (such as major utilities/industries) on identical/ similar cables to those ordered under this contract.
- c) In case bidder is not able to submit report of type test(s) conducted in last ten years, or in case type tests report(s) are not found to be meeting the specification/ relevant standard requirements, then all such tests shall be conducted under this contract (at a third party laboratory or witnessed by BHEL) by the bidder free of

- cost to BHEL, and reports shall be submitted for approval. No charges shall be paid for testing under such circumstances.
- d) The type test of similar type higher rating cable shall be accepted for lower rating also.
- e) The report of following type test will be submitted:

| S. No. | Type Tests                                  | Requirements of tests   | Test Method                            |
|--------|---|---|--|
| 1      | Test on Conductor                           |   |  |
| а      | Tensile test (for aluminum)                 | IS: 8130: 1984  | IS: 10810: 1984 (Part-<br>II)          |
| b      | Wrapping test (for aluminum)                | IS: 8130: 1984  | IS: 10810: 1984 (Part-<br>III)         |
| С      | Resistance test                             | IS: 8130: 1984  | IS: 10810: 1984 (Part-<br>V)           |
| 2      | Test for armouring wires                    | Clause 7, Table 6 of IS: 7098:<br>2011 (Part-II) and IS: 3975               | IS: 10810: 1984<br>(PartXXXVI to XLII) |
| 3      | Test for thickness of insulation and sheath | Clauses 11 & Tables 4, 5, & 7<br>and Annex A of IS: 7098: 2011<br>(Part-II) | IS: 10810: 1984 (Part-<br>VI)          |
| 4      | Physical tests for insulation               | n   |  |
| а      | Tensile strength and elongation at break    | Table 1 of IS: 7098: 2011 (Part-II)   | IS: 10810: 1984 (Part-<br>VII)         |
| b      | Ageing in air oven                          | Table 1 of IS: 7098: 2011 (Part-II)   | IS: 10810: 1984 (Part-<br>XI)          |
| С      | Hot set test                                | Table 1 of IS: 7098: 2011 (Part-II)   | IS: 10810: 1984 (Part-<br>XXX)         |
| d      | Shrinkage test                              | Table 1 of IS: 7098: 2011 (Part-II)   | IS: 10810: 1984 (Part-<br>XII)         |
| е      | Water absorption (gravimetric)              | Table 1 of IS: 7098: 2011 (Part-II)   | IS: 10810: 1984<br>(PartXXXIII)        |
| 5      | Physical test for outer shea                | ath   |  |
| a      | Tensile strength and elongation at break    | IS: 5831: 1984  | IS: 10810: 1984 (Part-<br>VII)         |
| b      | Ageing in air oven                          | IS: 5831: 1984  | IS: 10810: 1984 (Part-<br>XI)          |
| С      | Shrinkage test                              | IS: 5831: 1984  | IS: 10810: 1984 (Part-<br>XII)         |

| r  | T   | 1                                   | T                                 |
|----|---|-------------------------------------|-----------------------------------|
| d  | Hot deformation   | IS: 5831: 1984                      | IS: 10810: 1984 (Part-<br>XV)     |
| е  | Loss of mass in air oven                                  | IS: 5831: 1984                      | IS: 10810: 1984 (Part-X)          |
| f  | Heat shock  | IS: 5831: 1984                      | IS: 10810: 1984 (Part-<br>XIV)    |
| g  | Thermal stability   | IS: 5831: 1984                      | IS: 10810: (Part-LX)              |
| 6  | Partial discharge test                                    | 19.2 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLVI)   |
| 7  | Bending test  | 19.3 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-L)          |
| 8  | Dielectric power factor test as a function of voltage     | 19.4 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLVIII) |
| 9  | Dielectric power factor test as a function of temperature | 19.4 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLVIII) |
| 10 | Insulation resistance (volume resistivity) test           | Table 1 of IS: 7098: 2011 (Part-II) | IS: 10810: 1984 (Part-<br>XLIII)  |
| 11 | Heat cycle test   | 19.5 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLIX)   |
| 12 | Impulse withstand test                                    | 19.6 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLVII)  |
| 13 | High voltage test   | 19.7 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>XLV)    |
| 14 | Flammability test   | 19.8 of IS: 7098: 2011 (Part-II)    | IS: 10810: 1984 (Part-<br>LIII)   |

### 2.02.8.2 Routine and Acceptance Tests

- a) Routine testing shall be conducted in line with the applicable standards for every lot offered for inspection otherwise, All the tests (mentioned below) are to be conducted for every lot of cable in Government approved third-party laboratories, Test Certificates are to be submitted to BHEL for approvals and Clearance to be taken from BHEL in writing before Dispatched the Materials.
- b) Acceptance tests shall be conducted on every lot offered for inspection otherwise, All the tests (mentioned below) are to be conducted for every lot of cable in Government approved third-party laboratories, Test Certificates are to be submitted to BHEL for approvals and Clearance to be taken from BHEL in writing before Dispatched the Materials.
- c) Cost of conduction of routine and acceptance testing shall be deemed to have been included in the quoted supply prices.
- d) The following shall constitute acceptance tests:
  - i. Tensile test (for aluminum),
  - ii. Wrapping test (for aluminum),
  - iii. Conductor resistance test,

- iv. Test for thickness of insulation and sheath,
- v. Hot set test for insulation,
- vi. Tensile strength and elongation at break test for insulation and outer sheath,
- vii. Partial discharge test,
- viii. High voltage test, and
- ix. Insulation resistance (volume resistivity) test.
- x. Test for cross linking for extruded semi-conducting screen.
- e) The following shall constitute routine tests:
  - i. Conductor resistance test,
  - ii. Partial discharge test
  - iii. High voltage test.
  - iv. Length of the Cable
  - 2.02.8.3 Cost of cables consumed for testing shall be to bidder's account.

### 2.03 SCOPE FOR LT CALBE:

- a) This document covers the technical specification of cross-linked polyethylene (XLPE) insulated and PVC sheathed power cables for three phase 1.1kV Unearthed system. The followings Cable to be supplied
- i. 3.5C x 300 sq. mm ALUMINIUM LT ARMOURED POWER CABLE
- ii. 3.5C x 70 sq. mm ALUMINIUM LT ARMOURED POWER CABLE
- iii. 3.5C x 25 sq. mm ALUMINIUM LT ARMOURED POWER CABLE
- iv. 3C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE
- v. 5C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE
- vi. 2C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE
- vii. 10 C X1.5 SO.MM COPPER CONTROL CABLE
- b) The vendor may choose following alternative: "PVC Insulated and PVC Sheathed LT POWER CABLES" OR "XLPE Insulated and PVC Sheathed LT POWER CABLES"
- c) This document covers the technical specification of Polyvinyl chloride (PVC) insulated and PVC sheathed power cables and cross-linked polyethylene (XLPE) insulated and PVC sheathed power cables for three phase system up to 1100Volts
- d) Four core cables shall be acceptable if 3.5 core cables are not available.

### 2.03.1 CONDUCTOR

- a) The conductors shall be composed of plain copper or aluminum wires complying with **IS: 8130: 1984** or latest amendments thereof.
- b) **FOR PVC Cable**: Cables with reduced neutral conductor shall have sizes as given in Table 1 of **IS: 1554: 1988** (Part-I) or latest amendment thereof.
- c) **FOR XLPE Cable**: Cables with reduced neutral conductor shall have sizes as given in Table 2 of **IS: 7098: 1988** (Part-I) or latest amendment thereof.

# 2.03.2 INSULATION (PVC)

- a) **General Purpose Insulation:** The insulation shall be of Type A PVC compound conforming to the requirements of **IS: 5831: 1984** or latest amendments thereof. OR
  - **Heat Resisting Insulation:** The insulation shall be of Type C PVC compound conforming to the requirements of **IS: 5831: 1984** or latest amendments thereof.
- b) The method of application of PVC insulation shall be extrusion.
- c) The average thickness of insulation shall not be less than the nominal value specified in Table 2 of IS: 1554: 1988 (Part-I) or latest amendment thereof.
- d) The insulation shall be so applied that it fits closely on the conductor (or the barrier if any) and it shall be possible to remove it without damaging the conductor.
  - e) The smallest of measured values of thickness of insulation shall not fall below the nominal value specified in Table 2 of **IS: 1554: 1988 (Part-I)** or latest amendment thereof by more than 0.1mm+0.1 x nominal value.

# 2.03.3 INSULATION (XLPE)

- a) The insulation shall be of cross-linked polyethylene conforming to the requirements given in Table 1 of IS: 7098: 1988 (Part-I) or latest amendment thereof.
- b) The method of application of cross-linked polyethylene insulation shall be extrusion.
- c) The average thickness is insulation shall not be less than the nominal value specified in Table 3 of IS: 7098: 1988 (Part-I) or latest amendment thereof.
- d) The insulation shall be so applied that it fits closely on the conductor (or the barrier if any) and it shall be possible to remove it without damaging the conductor.
- e) The smallest of measured values of thickness of insulation shall not fall below the nominal value specified in Table 3 of IS: 7098: 1988 (Part-I) or latest amendment thereof by more than 0.1mm+0.1 x nominal value.

### 2.03.4 CORE IDENTIFICATION

- a) Cores shall be identified as specified below for 3.5Core cables as Red, blue, and yellow coloring of PVC/ XLPE insulation for three phase conductors and black coloring of PVC/ XLPE insulation for reduced neutral conductor.
- b) For balance cables, the core identification shall be in line with clause no. 10 of IS: 1554: 1988 (Part-I) and IS: 7098: 1988 (Part-I) for PVC insulated and XLPE insulated cables respectively.

#### 2.03.5 FILLERS AND INNER SHEATH

- a) The fillers and inner sheath shall be of the following:
  - i. Vulcanized rubber, or
  - ii. Thermoplastic materials, or
  - iii. Proofed tape requirement as per IS.
- b) Vulcanized or thermoplastic material used for inner sheath shall not be harder than PVC used for insulation and outer sheath. Fillers and inner sheath materials shall be so chosen as to be compatible with the temperature ratings of the cable and shall have no deleterious effect on any other component of the cable.
- c) The inner sheath shall be applied by extrusion. It shall be ensured that it is as circular as possible.
- d) The inner sheath shall be so applied that it fits closely on the laid up cores and it shall be possible to remove it without damaging the insulation.

- e) **FOR PVC Cables:** The thickness of inner sheath shall be as given in Table 4 of **IS: 1554: 1988 (Part-I)** or latest amendment thereof.
- f) **FOR XLPE Cables:** The thickness of inner sheath shall be as given in Table 5 of **IS: 7098: 1988 (Part-I)** or latest amendment thereof.
- g) When one or more layers of binder tapes are applied over the laid up cores, the thickness of such tapes shall not be construed as part of the inner sheath.

#### 2.03.6 ARMOURING

- a) Armouring shall be of Galvanized round steel wire.
- b) The galvanized steel wires shall comply with the requirements of IS: 3975: 1979 or latest amendments thereof.
- c) Armouring shall be applied over the inner sheath.
- d) The galvanized round steel wire of the armouring shall be applied as closely as practicable.
- e) A binder tape may be provided on the armour.
- f) **FOR PVC Cables:** The dimensions of galvanized round steel wire shall be as specified in Table 5 of **IS: 1554: 1988 (Part-I)** or latest amendment thereof.
- g) **FOR XLPE Cables:** The dimensions of galvanized round steel wire shall be as specified in Table 6 of **IS: 7098: 1988 (Part-I)** or latest amendment thereof.
- h) The joints in armour wire shall be made by brazing or welding and the surface irregularities shall be removed. A joint in any wire shall be at least 300 mm from the nearest joint in any other armour wire in the completed cable.

#### 2.03.7 OUTER SHEATH

- a) The outer sheath shall be of polyvinyl chloride (PVC) compound conforming to the requirements of Type ST2 of IS: 5831: 1984 or latest amendments thereof.
- b) The outer sheath shall be applied over the armouring.
- c) The outer sheath shall be applied by extrusion.
- d) The outer sheath shall be of black colour.
- e) The outer sheath shall be so applied that it fits closely over the armouring. It shall be possible to remove it without damage to the insulation or inner sheath.
- f) **FOR PVC Cables:** The thickness of outer sheath shall be not less than the minimum value specified in col 5 of Table 7 or latest amendments thereof of IS: 1554: (Part-I)/ 1988 Clause 14.4.2 Armoured Cables.
- g) **FOR XLPE Cables:** The thickness of outer sheath shall be not less than the minimum values specified in col 5 of Table 8 or latest amendments thereof of IS: 7098: (Part-I)/ 1988 Clause 14.3.2 Armoured Cables.
- h) **FOR PVC Cables:** The minimum thickness of PVC outer sheath shall not fall below the nominal value specified in Table 7 of **IS: 1554: 1988 (Part-I)** by more than 0.2mm + 0.2 x nominal value.
- i) **FOR XLPE Cables:** The minimum thickness of PVC outer sheath shall not fall below the nominal value specified in Table 8 of **IS: 7098: 1988 (Part-I)** by more than 0.2mm + 0.2 x nominal value.

# 2.03.8 TESTS

- a) Type Tests
- i. All cables to be supplied shall conform to type tests as per relevant standards and proven type.
- ii. The bidder shall furnish the reports of all the type tests listed hereunder carried out within last ten years of the date of bid opening. These reports should be for the tests conducted either in government approved third party laboratory or witnessed by client (such as major utilities/ industries) on identical/ similar cables to those ordered under this contract.

- iii. In case bidder is not able to submit report of type test(s) conducted in last ten years, or in case type tests report(s) are not found to be meeting the specification/ relevant standard requirements, then all such tests shall be conducted under this contract (at a third-party laboratory or witnessed by BHEL) by the bidder free of cost to BHEL, and reports shall be submitted for approval. No charges shall be paid for testing under such circumstances.
- iv. The type test of similar type higher rating cable shall be accepted for lower rating also.
- v. The report of following type test will be submitted:

| S. No. | Type Tests                                  | Requirements of tests  | Test Method                      |
|--------|---|--|----------------------------------|
| 1      | Test on Conductor                           | 1  |                                  |
| a      | Tensile test (for aluminium)                | IS: 8130: 1984   | IS: 10810: 1984 (Part-II)        |
| b      | Wrapping test (for aluminium)               | IS: 8130: 1984   | IS: 10810: 1984 (Part-III)       |
| С      | Resistance test                             | IS: 8130: 1984   | IS: 10810: 1984 (Part-V)         |
| 2      | Tests for Round steel wire (Armour)         | )  |                                  |
| a      | Dimensions                                  | 16.3 of IS: 692: 1994  | IS: 10810: 1984<br>(PartXXXVI)   |
| b      | Physical tests on round/formed wire         | e:   |                                  |
|        | i Tensile strength                          | 16.6(a) of IS: 692: 1994                                     | IS: 10810: 1984<br>(PartXXXVII)  |
| i      | Elongation at break                         | 16.6(b) of IS: 692: 1994                                     | IS: 10810: 1984<br>(PartXXXVII)  |
| ii     | Torsion test for round wires                | 16.6(c) of IS: 692: 1994                                     | IS: 10810: 1984<br>(PartXXXVIII) |
| iv     | Winding test for formed wires               | 16.6(d) of IS: 692: 1994                                     | IS: 10810: 1984<br>(PartXXXIX)   |
| \      | Uniformity of zinc coating                  | 16.6(e) of IS: 692: 1994                                     | IS: 10810: 1984 (Part-<br>XL)    |
| V      | Mass of zinc coating                        | 16.6(f) of IS: 692: 1994                                     | IS: 10810: 1984 (Part-<br>XLI)   |
| vi     | i Resistivity                               | 16.6(g) of IS: 692: 1994                                     | IS: 10810: 1984 (Part-<br>XLII)  |
| 3      | Test for thickness of insulation and sheath | Clauses 9, 12, and 14, Tables 2, 4, & 7 of IS: 1554 (Part-I) | IS: 10810: 1984 (Part-<br>VI)    |
| 4      | Physical test for insulation (PVC) an       | d outer sheath (PVC)   | 1                                |
| а      | Tensile strength and elongation at break    | IS: 5831: 1984   | IS: 10810: 1984 (Part-<br>VII)   |

| b | Ageing in air oven                       | IS: 5831: 1984                     | IS: 10810: 1984 (Part-<br>XI)    |
|---|--|------------------------------------|----------------------------------|
| С | Shrinkage test                           | IS: 5831: 1984                     | IS: 10810: 1984 (Part-<br>XII)   |
| d | Hot deformation                          | IS: 5831: 1984                     | IS: 10810: 1984 (Part-<br>XV)    |
| е | Loss of mass in air oven                 | IS: 5831: 1984                     | IS: 10810: 1984 (Part-X)         |
| f | Heat shock                               | IS: 5831: 1984                     | IS: 10810: 1984 (Part-<br>XIV)   |
| g | Thermal stability                        | IS: 5831: 1984                     | Appendix B of IS: 5831: 1984     |
| 5 | Physical tests for insulation (XLPE      | Ξ)                                 |                                  |
| a | Tensile strength and elongation at break | Table 1 of IS: 7098: 1988 (Part-I) | IS: 10810: 1984 (Part-<br>VII)   |
| b | Ageing in air oven                       | Table 1 of IS: 7098: 1988 (Part-I) | IS: 10810: 1984 (Part-<br>XI)    |
| С | Hot test                                 | Table 1 of IS: 7098: 1988 (Part-I) | IS: 10810: 1984 (Part-<br>XXX)   |
| d | Shrinkage test                           | Table 1 of IS: 7098: 1988 (Part-I) | IS: 10810: 1984 (Part-<br>XII)   |
| е | Water absorption (gravimetric)           | Table 1 of IS: 7098: 1988 (Part-I) | IS: 10810: 1984<br>(PartXXXIII)  |
| 6 | Insulation Resistance test               | IS: 5831: 1984                     | IS: 10810: 1984 (Part-<br>XLIII) |
| 7 | High voltage test (water immersion test) | 16.3 of IS: 1554: 1988 (Part-I)    | IS: 10810: 1984 (Part-<br>XLV)   |
| 8 | High voltage test                        | 16.2 of IS: 1554: 1988 (Part-I)    | IS: 10810: 1984 (Part-<br>XLV)   |
| 9 | Flammability test                        | 16.4 of IS: 1554: 1988 (Part-I)    | IS: 10810: 1984 (Part-<br>LIII)  |

# b) Routine and Acceptance Tests

- i. Routine testing shall be conducted in line with the applicable standards for every lot offered for inspection. otherwise, All the tests (mentioned below) are to be conducted for every lot of cable in Government approved third-party laboratories, Test Certificates are to be submitted to BHEL for approvals and Clearance to be taken from BHEL in writing before Dispatched the Materials.
- ii. Acceptance tests shall be conducted on every lot offered for inspection. otherwise, All the tests (mentioned below) are to be conducted for every lot of cable in Government approved third-party laboratories, Test Certificates are to be submitted to BHEL for approvals and Clearance to be taken from BHEL in writing before Dispatched the Materials

- iii. Cost of conduction of routine and acceptance testing shall be deemed to have been included in the quoted supply prices.
- iv. The following shall constitute acceptance tests:
  - Tensile test (for aluminium),
  - Wrapping test (for aluminium),
  - Conductor resistance test,
  - Test for thickness of insulation and sheath,
  - Tensile strength and elongation at break test for insulation and sheath,
  - Insulation resistance Test,
  - High voltage test, and
  - Hot set test for insulation (XLPE Cables)
- v. The following shall constitute routine tests:
  - Conductor resistance test, and
  - High Voltage test.
- c) Cost of cables consumed for testing shall be to bidder's account.

### 2.04 PACKAGING AND FORWARDING

Cables shall be supplied in non-returnable heavy construction drums as per **IS: 10418: 1982** or latest amendment thereof. The ends of the cable shall be sealed by means of non-hygroscopic sealing material. All wooden parts shall be manufactured from seasoned wood treated with copper napthenates/ zinc napthenates (**refer IS: 401**). All ferrous parts shall be treated with suitable rust protective finish or coating to avoid rusting during transit and storage. BIS certification mark shall be stamped on each cable drum.

#### 2.05 TRANSPORTATION

The transportation and freight insurance from works of the bidder to the site mentioned is in the scope of the supplier.

### 2.06 GUARANTEE

The cable supplied should be guaranteed for 12 months from the date of charging or 18 months from the date of supply at site whichever is earlier.

- **2.07 UNLOADING:** Unloading and storage at site will be in BHEL's scope.
  - i) When Vehicle carrying material is inside the plant premises, all extant safety guidelines are to be adhered to and required safety PPEs to be worn as applicable.
  - ii) Necessary supporting arrangement as applicable should be available in the vehicle for safe unloading of material.

#### 2.08 TOLERANCES:

The following tolerance shall be permitted:

a. Tolerance on the total length of cable in each Type: ±1% (one) percent.

# 2.09 Bill of Quantity: -

| S No | Item Description                                | UoM   | LOT No | QTY  |
|------|---|-------|--------|------|
| 1    | 1.1 KV 3.5CX300 sqmm<br>/Al/Armoured XLPE Cable | METER | 1      | 3000 |
| 2    | 1.1 KV 3.5CX70 sqmm /AI/Armoured XLPE Cable     | METER | 1      | 1000 |
| 3    | 1.1 KV 3.5CX25 sqmm<br>/AI/Armoured XLPE Cable  | METER | 1      | 6500 |
| 4    | 1.1 KV 5 C X2.5 sqmm<br>/Cu/Armoured XLPE Cable | METER | 1      | 1000 |
| 5    | 1.1 KV 2 CX 2.5 sqmm<br>/Cu/Armoured XLPE Cable | METER | 1      | 3500 |
| 6    | 1.1 KV 3C X2.5 sqmm<br>/Cu/Armoured XLPE Cable  | METER | 1      | 1500 |
| 7    | 1.1 KV 10C X 1.5 sqmm /Cu/Control<br>Cable      | METER | 1      | 1000 |
| 8    | 11 KV 3CX185 sqmm /Al/Armoured XLPE HT Cable    | METER | 1      | 4000 |
| 9    | 11 KV 3C X 95 sqmm /Al/Armoured XLPE HT Cable   | METER | 1      | 2000 |

Quantity Variation:- +/-10 % of individual item of PO quantity

# 3. TIME SCHEDULE

- 3.1 Total completion Period for supply at site shall be within **50 days** from the date of Purchase Order. In case of any delay beyond mentioned period, LD will be applicable as per clause no 16.
- 3.2 If the seller/contractor fails to complete the dispatch/ delivery and other schedules within the time period stipulated in the order/contract, or within any extension of time granted by the purchaser, it shall be lawful for the purchaser to recover damages for the breach of order/ contract without prejudice to any other rights

and/ or remedies provided for, in order/ contract and hereunder.

- 3.3 BHEL at its discretion may grant extension of time schedule in case the reasons are beyond the control of the contractor. Contractor shall provide every documentary evidence to prove to the satisfaction of BHEL that the reasons for delay are not in his control.
- 3.4 Definition of Work Completion: The work under the scope of the contractor will be deemed to have been completed in all respect, only when all the activities, supplies and obligations under the scope of this Tender Specification are completed satisfactorily and so certified by the BHEL site in charge. The decision of BHEL shall be final and binding on the contractor.

# 4.0 SECURITY DEPOSIT OR PEFORMANCE SECURITY: (APPLICABLE)

The successful bidder shall submit Security deposit or performance security of 5% of the total order value within 30 days of placement of PO. The Security deposit / Bank Guarantee shall be kept valid for a period of 30 (Thirty) days beyond the date of completion of all contractual obligations of the supplier, including Guarantee /warranty obligations as mentioned in Tender.

#### (A) MODE OF DEPOSIT OF SECURITY DEPOSIT OR PERFORMANCE SECURITY:

Security Deposit may be furnished in the following forms:

- (i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- (ii) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act.
- (iii) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
- (iv) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/hypothecated/ pledged, as applicable, in favour of BHEL).
- (v) Insurance Surety Bond.

#### Note:

- (i) The Bank Guarantee shall be submitted as per BHEL format only.
- (ii) BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

### **FORFEITURE OF PRFORMANCE SECURITY/SECURITY DEPOSIT:**

The security deposit will be forfeited and credited to BHEL's account in the event of a breach of contract by the supplier.

#### RELEASE OF SECURITY DEPOSIT:

Performance Security should be refunded to the contractor without interest, after he duly performs and completes the contract in all respects but not later than 30(Thirty ) days of completion of all such obligations

including the warranty under the contract.

# 4(A).CONFLICT OF INTEREST:

"A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anticompetitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- a) they have controlling partner (s) in common; or
- b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or
- c) they have the same legal representative/agent for purposes of this bid; or
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid, or
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
- 1. The principal manufacturer directly or through one Indian agent on his behalf; and
- ${\bf 2.}\ Indian/for eign\ agent\ on\ behalf\ of\ only\ one\ principal,$

or

g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid;

h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/management units in same/ similar line of business."

# 4(B).BREACH OF CONTRACT, REMEDIES AND TERMINATION:

In case of Breach of Contract, BHEL shall recover 10% of the contract value from the vendor using following instruments:

- a) Encashment of security instruments like EMD, performance security available with BHEL against the said contract.
- b) Balance amount (if value of security instruments is less than 10% of the contract value) from other financial remedies i.e. available bills of the vendor, retention amount etc. with BHEL.
- c) Balance amount from security instrument like EMD, Performance Security and other financial remedies i.e. available bills of the vendor, retention amount etc. with other units of BHEL.
- d) If Recovery is not possible then Legal Remedies shall be pursued.

# 5.EVALUATION IN CASE OF MORE THAN ONE BIDDER OCCUPY L1 STATUS:

In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss / draw of lots, in the presence of the respective L-1 bidder(s) or their

representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

#### 6.0 PAYMENT TERMS AND CONDITION

**A)** For Supply: 1. 95% of supply value, on pro-rata basis, shall be released within 90 days (45 days for MSE,60 days for Medium Enterprises) against receipt and acceptance of material at site and submission of following documents: -

- i GST compliant Invoice (1 original plus 2 copies) along with Copy of LR/ Delivery Challan
- ii Copy of Material Dispatch Clearance Certificate issued by BHEL site.
- iii Store Receipt Voucher issued by BHEL Site.
- **2.** Balance 5 % of supply value, shall be released on completion of warranty period or by submission of Performance Bank Guarantee (PBG) valid for 30 days beyond warrantee period by supplier for equivalent amount in prescribed format.
- **B)** For GST: Applicable GST shall be released upon compliance of following documents:
  - (a) The goods or services covered under the invoice must be received in full, along with the corresponding valid tax invoice by BHEL.
  - (b) Following GST compliances must be ensured within the timelines prescribed for availing Input Tax Credit (ITC) under GST law:
    - i) You declaring such invoice in FORM GSTR-1, and it being auto-populated into FORM GSTR- 2B of BHEL through the common portal.
    - ii) Confirmation of GST payment by you to the government, verified through the filing of your FORM GSTR-3B for the corresponding month or quarter.
  - (c) Notwithstanding anything contained above, GST amount may be released along with the payment against Tax Invoice, provided:
    - (i) Exposure of BHEL against such GST amount is sufficiently covered by the security deposit / Bank Guarantee / any other amount due to the vendor/contractor at the time of releasing such GST payment.
    - (ii) Such relaxation to be allowed till the subsequent month i.e. till the GST compliances are done by the vendor / contractor against the given Tax Invoice.
    - (iii) As long as the GST compliances are ensured on the part of the vendor / contractor, this practice of releasing GST payment may be continued.
  - C) Paying Authority: Site (Finance), Raghunathpur.
  - **D)** No Advance shall be paid

## 7. STANDERED APPLICABLE FOR CABLES

### 7.1 LIST OF STANDARDS APPLICABLE FOR HT CABLES

| 1  | IS: 4826: 1979                  | Specification For Hot-Dipped Galvanized Coatings On Round   |
|----|---------------------------------|---|
|    |                                 | Steel Wires   |
| 2  | IS: 8130: 1984                  | Conductors For Insulated Electric Cables And Flexible Cords   |
| 3  | IS: 7098: 2011: (Part-II)       | Cross-linked Polyethylene Insulated PVC Sheathed Cables Part 2 For Working Voltages From 3.3 kV up to And Including 33 kV               |
| 4  | IS: 5831: 1984:                 | PVC Insulation And Sheath Of Electric Cables  |
| 5  | IS: 3975: 1999                  | Mild Steel Wires, Formed Wires And Tapes For Armouring Of Cables  |
| 6  | IS: 10418: 1982                 | Drums For Electric Cables   |
| 7  | IS: 401: 2001                   | Preservation Of Timber - Code Of Practice   |
| 8  | IS: 10810: 1984 (Part- 0)       | Methods Of Test For Cables General  |
| 9  | IS: 10810: 1984 (Part- II)      | Methods Of Test For Cables Part 2 Tensile Test For Aluminium Wires  |
| 10 | IS: 10810: 1984 (Part- III)     | Methods Of Test For Cables Part 3 Wrapping Test-For Aluminum Wires  |
| 11 | IS: 10810: 1984 (Part- V)       | Methods Of Test For Cables Part 5 Conductor Resistance Test   |
| 12 | IS: 10810: 1984 (Part- XXXVI)   | Methods Of Test For Cables Part 36 Dimensions Of Armouring Material   |
| 13 | IS: 10810: 1984 (Part- XXXVII)  | Methods Of Test For Cables Part 37 Tensile Strength And Elongation At Break Of Armouring Materials                                      |
| 14 | IS: 10810: 1984 (Part- XXXVIII) | Methods Of Test For Cables Part 38 Torsion Test On Galvanized Steel Wires For Armouring   |
| 15 | IS: 10810: 1984 (Part- XXXIX)   | Methods Of Test For Cables Part 39 Winding Test On<br>Galvanized steel Strips For Armouring   |
| 16 | IS: 10810: 1984 (Part- XL)      | Methods OF Test For Cables Part 40 Uniformity Of Zinc Coating<br>On Steel Armour  |
| 17 | IS: 10810: 1984 (Part- XLI)     | Methods Of Test For Cables Part 41 Mass Of Zinc Coating On<br>Steel Armour  |
| 18 | IS: 10810: 1984 (Part- XLII)    | Methods Of Test For Cables Part 42 Resistivity Test Of Armour<br>Wires And Strips And Conductance Test Of Armour<br>(Wires/Strips)      |
| 19 | IS: 10810: 1984 (Part- VI)      | Methods Of Test For Cables Part 6 Thickness Of Thermoplastic<br>And Elastomeric Insulation And Sheath                                   |
| 20 | IS: 10810: 1984 (Part- VII)     | Methods Of Test For Cables Part 7 Tensile Strength And<br>Elongation At Break Of Thermoplastic And Elastomeric<br>Insulation And Sheath |
| 21 | IS: 10810: 1984 (Part- XI)      | Methods Of Test For Cables Part 11 Thermal Ageing In Air  |
|    | 13. 10010. 1304 (1 dit XI)      | Wethous of restror cables rait II merman Ageing in Air  |

| 22 | IS: 10810: 1984 (Part- XII)    | Methods Of Test For Cables Part 12 Shrinkage Test                      |
|----|--------------------------------|--|
| 23 | IS: 10810: 1984 (Part- XXX)    | Methods Of Test For Cables Part 30 Hot Set Test                        |
|    |                                |  |
| 24 | IS: 10810: 1984 (Part- XXXIII) | Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric) |
| 25 | IS: 10810: 1984 (Part- XV)     | Methods Of Test For Cables Part 15 Hot Deformation Test                |
| 26 | IS: 10810: 1984 (Part- X)      | Methods Of Test For Cables Part 10 Loss Of Mass Test                   |
| 27 | IS: 10810: 1984 (Part- XIV)    | Methods Of Test For Cables Part 14 Heat Shock Test                     |
| 28 | IS: 10810: 1984 (Part- XLVIII) | Methods Of Test For Cables Part 48 Partial Dischar6E Test              |
| 29 | IS: 10810: 1984 (Part- L)      | Methods Of Test For Cables Part 50 Bending Test                        |
| 30 | IS: 10810: 1984 (Part- XLIII)  | Methods Of Test For Cables Part 43 Insulation Resistance               |
| 31 | IS: 10810: 1984 (Part- XLVII)  | Methods Of Test For Cables Part 47 Impulse Test                        |
| 32 | IS: 10810: 1984 (Part- XLV)    | Methods Of Test For Cables Part 45 High Voltage Test                   |
| 33 | IS: 10810: 1984 (Part- XLIII)  | Methods Of Test For Cables Part 53 Flammability Test                   |

**NOTE:** This list of standards applicable is indicative in nature and cannot be taken as a comprehensive list. All the other standards which are applicable as per the statutory rules and regulations are applicable to this scope.

# 7.2 LIST OF STANDARDS APPLICABLE FOR LT CABLES

| 1  | IS: 4826: 1979              | Specification For Hot-Dipped Galvanized Coatings On Round<br>Steel Wires   |
|----|-----------------------------|--|
| 2  | IS: 8130: 1984              | Conductors For Insulated Electric Cables And Flexible Cords  |
| 3  | IS: 1554: 1988: (Part-I)    | Specification for PVC insulated (Heavy Duty) Electric Cables Part 1 for working voltages up to and including 1100 V. |
|    | IS: 7098: 1988: (Part-I)    | Cross-linked Polyethylene Insulated PVC Sheathed Cables Part  1 For Working Voltages up to and Including 1100V       |
| 4  | IS: 5831: 1984:             | PVC Insulation And Sheath Of Electric Cables   |
| 5  | IS: 3975: 1999              | Mild Steel Wires, Formed Wires And Tapes For Armouring Of Cables   |
| 6  | IS: 10418: 1982             | Drums For Electric Cables  |
| 7  | IS: 401: 2001               | Preservation Of Timber - Code Of Practice  |
| 8  | IS: 10810: 1984 (Part- 0)   | Methods Of Test For Cables General   |
| 9  | IS: 10810: 1984 (Part- II)  | Methods Of Test For Cables Part 2 Tensile Test For Aluminium Wires   |
| 10 | IS: 10810: 1984 (Part- III) | Methods Of Test For Cables Part 3 Wrapping Test-For Aluminium Wires  |

|  | T  |   |
|--|--|---|
| 11   | IS: 10810: 1984 (Part- V)  | Methods Of Test For Cables Part 5 Conductor Resistance Test   |
| 12   | IS: 10810: 1984 (Part- XXXVI)  | Methods Of Test For Cables Part 36 Dimensions Of Armouring Material   |
| 13   | IS: 10810: 1984 (Part- XXXVII)   | Methods Of Test For Cables Part 37 Tensile Strength And Elongation At Break Of Armouring Materials  |
| 14   | IS: 10810: 1984 (Part- XXXVIII)  | Methods Of Test For Cables Part 38 Torsion Test On Galvanized Steel Wires For Armouring   |
| 15   | IS: 10810: 1984 (Part- XXXIX)  | Methods Of Test For Cables Part 39 Winding Test On Galvanized steel Strips For Armouring  |
| 16   | IS: 10810: 1984 (Part- XL)   | Methods OF Test For Cables Part 40 Uniformity Of Zinc Coating<br>On Steel Armour  |
| 17   | IS: 10810: 1984 (Part- XLI)  | Methods Of Test For Cables Part 41 Mass Of Zinc Coating On Steel Armour   |
| 18   | IS: 10810: 1984 (Part- XLII)   | Methods Of Test For Cables Part 42 Resistivity Test Of Armour Wires And Strips And Conductance Test Of Armour (Wires/Strips)  |
| 19   | IS: 10810: 1984 (Part- VI)   | Methods Of Test For Cables Part 6 Thickness Of Thermoplastic  |
|  |  | And Elastomeric Insulation And Sheath   |
| 20   | IS: 10810: 1984 (Part- VII)  | And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  |
|  | IS: 10810: 1984 (Part- VII) IS: 10810: 1984 (Part- XI)   | Methods Of Test For Cables Part 7 Tensile Strength And<br>Elongation At Break Of Thermoplastic And Elastomeric  |
| 20   |  | Methods Of Test For Cables Part 7 Tensile Strength And<br>Elongation At Break Of Thermoplastic And Elastomeric<br>Insulation And Sheath   |
| 20   | IS: 10810: 1984 (Part- XI)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air   |
| 20<br>21<br>22   | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air Methods Of Test For Cables Part 12 Shrinkage Test   |
| 20<br>21<br>22<br>23   | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air  Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test   |
| 20<br>21<br>22<br>23<br>24                                     | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII)  | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air  Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)   |
| 20<br>21<br>22<br>23<br>24                                     | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XXXIII)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air  Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  |
| 20<br>21<br>22<br>23<br>24<br>25<br>26                         | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XV) IS: 10810: 1984 (Part- X)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  Methods Of Test For Cables Part 10 Loss Of Mass Test   |
| 20<br>21<br>22<br>23<br>24<br>25<br>26<br>27                   | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XV) IS: 10810: 1984 (Part- X) IS: 10810: 1984 (Part- XIV)   | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  Methods Of Test For Cables Part 10 Loss Of Mass Test  Methods Of Test For Cables Part 14 Heat Shock Test   |
| 20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28             | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XV) IS: 10810: 1984 (Part- X) IS: 10810: 1984 (Part- XIV) IS: 10810: 1984 (Part- XIV) IS: 10810: 1984 (Part- XLVIII)                                  | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air  Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  Methods Of Test For Cables Part 10 Loss Of Mass Test  Methods Of Test For Cables Part 14 Heat Shock Test  Methods Of Test For Cables Part 48 Partial Dischar6E Test   |
| 20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29       | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- X) IS: 10810: 1984 (Part- XIV) IS: 10810: 1984 (Part- XLVIII) IS: 10810: 1984 (Part- L)                                | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air  Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  Methods Of Test For Cables Part 10 Loss Of Mass Test  Methods Of Test For Cables Part 14 Heat Shock Test  Methods Of Test For Cables Part 48 Partial Dischar6E Test  Methods Of Test For Cables Part 50 Bending Test  |
| 20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30 | IS: 10810: 1984 (Part- XI) IS: 10810: 1984 (Part- XII) IS: 10810: 1984 (Part- XXX) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XXXIII) IS: 10810: 1984 (Part- XV) IS: 10810: 1984 (Part- XIV) IS: 10810: 1984 (Part- XLVIII) IS: 10810: 1984 (Part- L) IS: 10810: 1984 (Part- XLIII) | Methods Of Test For Cables Part 7 Tensile Strength And Elongation At Break Of Thermoplastic And Elastomeric Insulation And Sheath  Methods Of Test For Cables Part 11 Thermal Ageing In Air Methods Of Test For Cables Part 12 Shrinkage Test  Methods Of Test For Cables Part 30 Hot Set Test  Methods Of Test For Cables Part 33 Water Absorption Test (Gravimetric)  Methods Of Test For Cables Part 15 Hot Deformation Test  Methods Of Test For Cables Part 10 Loss Of Mass Test  Methods Of Test For Cables Part 14 Heat Shock Test  Methods Of Test For Cables Part 48 Partial Dischar6E Test  Methods Of Test For Cables Part 50 Bending Test  Methods Of Test For Cables Part 43 Insulation Resistance |

# 8.0 GENERAL REQUIREMENTS – COMMON TO ALL WORKS

- 8.1 The intent of specification is to provide services according to the most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for proper and efficient execution of this work shall not relieve the Contractor of the responsibility of providing such facilities to complete the work without any extra compensation.
- 8.2 All necessary certificates and licenses, permits & clearances required to carry out this work from the respective statutory/ local authorities are to be arranged by the Contractor at his cost in time to ensure smooth progress of work.
- 8.3 Supply period shall not be extended as per the requirement.
- 8.4 Quality items should be used for manufacturing the items.
- 8.5 It is not the intent to specify herein all the details of design & manufacture. However, the equipment shall conform in all respects to high standards of design, engineering and workmanship and shall be capable of performing in continuous commercial operation up to bidder's guarantee.
- 8.6 The general terms and conditions, instructions to bidders and other attachment referred to elsewhere be hereby made part of technical specification.
- 8.7 The bidders shall be responsible for and governed by all requirements stipulated hereinafter.
- 8.8 Requirements of the specification shall be agreed upon for total compliance by Bidders without any deviations.
- 8.9 Price offers of only those bidders complying with the requirements mentioned in this document shall be acceptable.
- 8.10 The documents shall be in English language and MKS system of units.

# 9.0 TECHNICAL SPECIFICATION FOR HT & LT CABLES

### 9.1 TECHNICAL SPECIFICATION FOR HT CABLE

| S. No. | Description                    | References   |
|--------|--------------------------------|--|
| 1      | Type of Cable                  | XLPE Insulated PVC sheathed Cables   |
| 2      | Standard applicable in general | IS: 7098: 2011 (Part-II)   |
| 3      | Voltage Grade 11KV(Unearthed)  |  |
|        |                                | 3C x 185 sq. mm Al (11kV Unearthed, ARMOURED) 3C x 95 sq. mm Al (11kV Unearthed, ARMOURED) |

| 5     | CONDUCTOR  |  |  |
|-------|--|--|--|
| (a)   | Material Aluminium, Grade: H2, Class 2   |  |  |
| (b)   | Standard Applicable  | IS: 8130                                       |  |
| (c)   | Shape  | Compacted Circular, stranded                   |  |
| (d)   | Min. number of strands   | As per Table-2 of IS: 8130                     |  |
| (e)   | Conductor screen   |  |  |
| (i)   | Material   | Extruded Semi-conducting compound              |  |
| (ii)  | Minimum thickness  | 0.3 mm   |  |
| 6     | INSULATION   |  |  |
| (a)   | Material   | Extruded XLPE                                  |  |
| (b)   | Standard Applicable  | IS:7098: 2011 (Part-II)                        |  |
| (c)   | Continuous withstand temperature 90 C  |  |  |
| (d)   | Short-circuit withstand temperature  | ature 250 C                                    |  |
| 7     | INSULATION SCREEN  |  |  |
| (a)   | Non-Metallic   |  |  |
| (i)   | Material  Non-metallic part shall be applied directly over the insulation of each core and shall consist of either a sen conducting tape or extruded semiconducting compour a combination of the two or either material with a sem conducting coating. |  |  |
| (ii)  | Minimum Thickness  | 0.3 mm   |  |
| (b)   | Metallic   |  |  |
| (i)   | Material Metallic screening shall be helical wrapped Copper tape.  |  |  |
| (ii)  | Туре   | Таре   |  |
| (iii) | Size   | Nominal thickness 0.1mm with tolerance (–) 10% |  |

| (iv) | Minimum Overlap                        | 10%  |
|------|--|--|
|      | 0.3kA, 2 sec.                          |  |
| (c)  | Earth fault current withstand capacity | (Screen of each core shall be rated individually for the above value). |

| 8    | EXTRUSION (Insulation and Screens) |   |  |
|------|------------------------------------|---|--|
|      |                                    | Triple Extrusion  |  |
| (a)  | Process                            | (Extruded semi-conducting compound conductor screen and insulation screen shall be applied along with XLPE insulation in a single operation by triple extrusion process). |  |
| (b)  | Method of Curing                   | Dry Curing (CCV) process using pressurized Nitrogen   |  |
| 9    | CORE IDENTIFICATION                | Core Identification as per Clause 14 of IS: 7098: 2011 (Part-II) or latest amendments   |  |
| 10   | INNER SHEATH                       |   |  |
| (a)  | Material                           | PVC Type ST1 as per IS: 5831  |  |
| (b)  | Colour                             | Black   |  |
| (c)  | Whether FRLS                       | NO  |  |
| (d)  | Fillers                            | Acceptable  |  |
| (e)  | Material of fillers (if permitted) | Same as inner sheath (Material of filler to be compatible with that of inner sheath)  |  |
| (f)  | Method of application              |   |  |
| (i)  | With fillers                       | Pressure/Vacuum extruded  |  |
| (ii) | Without fillers                    | Pressure extruded   |  |
| 11   | ARMOUR                             |   |  |
| (a)  | Material:                          | Galvanized round steel wire armour conforming to:<br>Table 6 of IS: 7098: 2011 (part-II) and IS: 3975:<br>1999  |  |
| (b)  | Minimum Coverage                   | 90%   |  |
| (c)  | Gap between armour wires           | Shall not exceed one armour wire space (No cross-over/overriding)   |  |
| (d)  | Breaking load of joint             | 95% of normal armour  |  |
| 12   | OUTER SHEATH                       |   |  |
| (a)  | Material                           | PVC Type ST2 as per IS: 5831  |  |
| (b)  | Colour                             | Black   |  |
| (c)  | Whether FRLS                       | NO  |  |
| (d)  | Method of application              | Extruded  |  |
|      |                                    |   |  |

| (e) | Marking                     | Owner's identification mark i.e. "BHEL-PSER", Manufacturer's name and /or trade mark, voltage grade, year of manufacture, Type of insulation, No. of cores and Size of cables, IS Number @ 5m throughout the cable (by embossing).  Progressive length marking @ 1m (by embossing/ printing)  |
|-----|-----------------------------|---|
| 13  | TOLERANCE ON OUTER DIAMETER | (+-) 2mm.<br>Over the declared value in Data sheet  |
| 14  | STANDARD DRUM LENGTH        | 500m or 1000m (+- 5% tolerance) and as specified in BOQ   |
| 15  | CABLE DRUM                  |   |
| (a) | Material                    | The cables shall be supplied in non-returnable packing Wooden drum.   |
| (b) | Drum Marking                | Owner's identification mark i.e. <bhel-pser=, &="" (if="" and="" approx.="" arrow),="" cable="" code,="" core="" direction="" drum="" drum,="" grade,="" gross="" iec="" insulation,="" is="" isi="" length="" manufacture,="" manufacturer's="" mark,="" mark.<="" mass,="" more="" name="" no.="" number="" of="" on="" one),="" or="" rotation(by="" size,="" td="" than="" trade="" type="" voltage="" year=""></bhel-pser=,> |

# 9.2 TECHNICAL SPECIFICATION FOR LT CABLE

| S. No. | Description  | References  |
|--------|--|---|
| 1      | Type of Cable  | PVC Insulated and PVC sheathed Cables OR XLPE Insulated PVC sheathed Cables |
| 2      | Standard applicable in general                                     | FOR PVC Cable: IS: 1554 (Part-I) FOR XLPE Cable: IS: 7098 (Part-I)          |
| 3      | Voltage Grade  | 1100 Volts  |
| 4      | Number of cores, cross sectional area of conductors and quantities | 3.5C x 300 sq. mm ALUMINIUM LT ARMOURED POWER CABLE                         |

|     |  | 3.5C x 70 sq. mm ALUMINIUM LT ARMOURED POWER CABLE  |  |
|-----|--|---|--|
|     |  | 3.5C x 25 sq. mm ALUMINIUM LT ARMOURED POWER CABLE  |  |
|     |  | 3C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE  |  |
|     |  | 5C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE  |  |
|     |  | 2C x 2.5 sq. mm COPPER LT ARMOURED POWER CABLE  |  |
|     |  | 10C x 1.5 sq. mm COPPER CONTROL CABLE   |  |
| 5   | CONDUCTOR  |   |  |
| (a) | Material   | Aluminum/ Copper  |  |
| (b) | Standard Applicable  | IS: 8130  |  |
| (c) | Shape  | Compacted Sector shaped, stranded   |  |
| (d) | Min. number of strands                                       | As per Table-2 of IS: 8130  |  |
| 6   | INSULATION   |   |  |
| (a) | Material   | FOR PVC Cable: Type –A or Type – C PVC as per clause 2.03 of TCC. FOR XLPE Cable: Extruded XLPE |  |
| (b) | Standard Applicable  | FOR PVC Cable: IS:1554 Part-I FOR XLPE Cable: IS:7098 Part-I                                    |  |
| (c) | Continuous withstand temperature                             | 85 C minimum  |  |
| (d) | Short-circuit withstand temperature (PVC/ XLPE) 160 C/ 250 C |   |  |
| 7   | EXTRUSION (Insulation)                                       |   |  |
| (a) | Process  | Extrusion   |  |
| (b) | Method of Curing   | As per relevant IS.   |  |

| 8 | CORE IDENTIFICATION | FOR PVC Cable: Core Identification as per Clause 10 of IS: 1554: 1988 (Part-I) or latest amendments. FOR XLPE Cable: Core Identification as per Clause 10 of IS: 7098: 1988 (Part-I) or latest amendments |
|---|---------------------|---|
|---|---------------------|---|

| 9    | INNER SHEATH                       |  |  |
|------|------------------------------------|--|--|
| (a)  | Material                           | As per IS: 5831  |  |
| (b)  | Colour                             | Black  |  |
| (c)  | Whether FRLS                       | NO   |  |
| (d)  | Fillers                            | Acceptable   |  |
| (e)  | Material of fillers (if permitted) | Same as inner sheath (Material of filler to be compatible with that of inner sheath)   |  |
| (f)  | Method of application              |  |  |
| (i)  | With fillers                       | Pressure/Vacuum extruded   |  |
| (ii) | Without fillers                    | Pressure extruded  |  |
| 10   | ARMOUR                             |  |  |
| (a)  | Material:                          | Galvanized round steel wire armour conforming to: FOR PVC Cable: Table 5 of IS: 1554: 1988 (part-I) and IS: 3975: 1999. FOR XLPE Cable: Table 6 of IS: 7098: 1988 (part-I) and IS: 3975: 1999.   |  |
| (b)  | Minimum Coverage                   | 90%  |  |
| (c)  | Gap between armour wires           | Shall not exceed one armour wire space (No cross-over/overriding)  |  |
| (d)  | Breaking load of joint             | 95% of normal armour   |  |
| 11   | OUTERSHEATH                        |  |  |
| (a)  | Material                           | PVC Type ST2 as per IS: 5831   |  |
| (b)  | Colour                             | Black  |  |
| (c)  | Whether FRLS                       | NO   |  |
| (d)  | Method of application              | Extruded   |  |
| (e)  | Marking                            | Owner's identification mark i.e. "BHEL-PSER", Manufacturer's name and /or trade mark, voltage grade, year of manufacture, Type of insulation, No. of cores and Size of cables, IS Number @ 5m throughout the cable (by embossing).  Progressive length marking @ 1m (by embossing/ printing) |  |

| 12  | TOLERANCE ON OUTER DIAMETER | (+-) 2mm.<br>Over the declared value in Data sheet   |
|-----|-----------------------------|--|
| 13  | STANDARD DRUM LENGTH        | 500m or 1000m (+- 5% tolerance) and as specified in BOQ  |
| 14  | CABLE DRUM                  |  |
| (a) | Material                    | The cables shall be supplied in non-returnable packing Wooden drum.  |
| (b) | Drum Marking                | Owner's identification mark i.e. "BHEL-PSER", Manufacturer's name and /or trade mark, Type of Cable & Voltage Grade, year of manufacture, Type of insulation, No. of core & Cable size, cable code, length of cable on drum, No. of length on drum (if more than one), direction of rotation (by arrow), approx. gross mass, IS/IEC number and ISI mark. |

#### 10.0 MODE OF DISPATCH & ROAD PERMIT:

Mode of dispatch: Road

E-way bill / road permit (if applicable) to be arranged by supplier.

#### 11.0 TAXES AND DUTIES:

**11.1** Bidder's quoted/ accepted rates/ price shall be inclusive of all taxes including GST, Charges, Royalties, any State or Central Levy and other taxes for materials if any obtained for the work and for execution of the contract.

Any increase of above at any stage during execution of contract, including extension of the contract, shall have to be borne by successful bidder contractor. However, any increase of GST subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extension, if the same is not attributable to you), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL.

Benefit of any decrease of taxes including GST, Charges, Royalties, any State or Central Levy and other taxes for materials if any obtained for the work and for execution of the contract; subsequent to due date of offer submission as per NIT & TCN, by statutory authority shall be passed on to BHEL.

**11.2** Successful bidder shall furnish proof of GST registration with GSTN Portal covering the services under this contract.

Registration should also bear endorsement for the premises from where the billing shall be done by

successful bidder on BHEL for this project / work.

- **11.3** Since GST on output will be paid by BHEL as enumerated above, bidder's quoted rates / price should be after considering the Input Credit under GST law at bidder's end.
- 11.4 TDS under Income Tax Act shall be deducted as per prevailing IT rules from the bills.
- 11.5 TDS under GST shall be deducted as per prevailing GST rules from the bills.
- **11.6.1** You may collect TCS under section 206C(1H) of Income Tax Act, 1961 if applicable.
- **11.6.2** In case, you collect TCS under section 206C(1H) of Income Tax Act, 1961, following compliance is required.
- **11.6.2.**1 TAN and PAN of vendor should appear in all invoices/claims. Copy of TAN /TCS registration is to be submitted.
- **11.6.2.2** Amount of TCS and Assessable value on which TCS has been calculated should be specified clearly in the invoice.
- **11.6.2.3** You shall be required to submit certificate of TCS in Form no. 27D within 15 days from the due date for furnishing the statement of tax collected at the source.
- **11.6.3** In case, you do not collect TCS under section 206C(1H) of Income Tax Act, 1961, following declaration is to be submitted along with each invoice: -

"I/We hereby declare that I/We are not required to collect TCS under section 206C(1H) of Income Tax Act, 1961, on this bill.

- **11.6.4** In event of failure to comply with the provisions of the Act, or proper certificate not issued, or if tax collected but not remitted to the Government, or for any other reason and thereby causing loss to BHEL, the same shall be recoverable from the vendor with applicable interest.
- **11.6.5** You shall comply with all statutory amendment/notifications in this respect.
- **11.7** Bidder shall note that GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred thereunder) wherein the 'Bill To' details shall encompass following.

BHEL GSTN - 19AAACB4146P1ZC

Name - BHARAT HEAVY ELECTRICALS LIMITED Address - Ref Consignee address.

Specific details of BHEL GSTN, Name and Address as stated above, have been specified elsewhere in the tender

11.8 Successful bidder to intimate immediately on the day of removal of goods (in case of any supply of goods) to BHEL along with all relevant details and send a scanned copy of Tax Invoice to BHEL through

following communication mode for enabling BHEL to meet its GST related compliances.

Portal address and Email address – Shall be intimated later.

Specific details of above shall be intimated to successful bidder by BHEL at appropriate juncture.

- **11.9** In case of delay in submission of above-mentioned documents on the date of dispatch, BHEL may incur penalty/ interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from successful bidder, in case such delay is not attributable to BHEL.
- **11.10** In case of raising any Supplementary Tax Invoice (Debit / Credit Note), successful bidder shall issue the same containing all the details as referred to in Section 34 read with Section 31 of GST Act & Rules referred there under.
- **11.11** Successful bidder shall comply with the Time Limit prescribed under the GST Law and rules thereof for raising of the Tax Invoice. If any supply of goods is applicable, successful bidder shall also ensure prompt delivery of goods after dispatch.
- **11.12** Bidder shall note that in case GST credit is delayed / denied to BHEL due to delayed / non-receipt of goods and / or Tax Invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons, not attributable to BHEL, GST amount shall be recoverable from successful bidder along with interest levied/ leviable on BHEL, as the case may be.
- **11.13** Successful bidder shall upload the invoices raised on BHEL in IFF/GSTR-1 within the prescribed time as given in the GST Act, and the same should be available to BHEL in FORM GSTR-2B electronically through the common portal; and confirmation of payment of such GST to the Government through filing of GSTR-3B of corresponding month/quarter.

Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the successful bidder along with interest levied / leviable on BHEL.

- **11.14** Successful bidder to arrange for e-waybill for any movement of goods for the execution of the contract. Successful bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit / Way Bill, if required, shall be arranged by successful bidder and BHEL will not supply any Road Permit / Way Bill for this purpose.
- **11.15** Any new taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extension, if the same is not attributable to you), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.
- 11.16 Benefits and / or abolition of all existing taxes must be passed on to BHEL against new taxes, if

any, proposed to be introduced at a later date.

**12. EVALUATION CRITERIA**: All Inclusive Total F.O.R Destination Price "(Total Basic Price for supply + Freight + transit Insurance) including GST.

Note: Evaluation shall be done on overall L1 basis for total tendered Quantities

# 13. DOCUMENTS REQUIRED ALONG WITH DISPATCH OF MATERIAL (Billing Documents):

The following documents are required with dispatch:

- 1. Original Tax Invoice.
- 2. Copy of LR.
- 3. Test Certificate.

### 14. CONSIGNEE DETAILS:

Project Director/Construction Manager, BHEL Site Office Raghunathpur Thermal Power Station Phase-II

Raghunathpur, District – Purulia,

State – West Bengal

15. INPUT DETAILS FOR INVOICE: GSTIN NO- 19AAACB4146P1ZC

## 16. LIQUIDATED DAMAGES/PENALTY:

Subject to force majeure, If vendor fails to complete the job as per aforesaid supply period, BHEL shall have the right to recover as penalty as below.

a) Penalty on delay in 'supply' will be applicable to the delays attributed to vendor:

The rate of penalty/LD shall be applicable @ 0.5% of Purchase order value per week of delay or part thereof of the total value of undelivered portion of the material subject to maximum of 10% of total PO value.

"For Purpose of Penalty for delay in supply of the goods, the duration will be reckoned from the completion date as per PO by BHEL".

17. PVC, ORC & RATE REVISION: Not applicable.

- 18. QUANTITY VARIATION: +/- 10 % of individual item of PO quantity
- 19. EARNEST MONEY DEPOSIT (EMD) :- NOT APPLICABLE
- 20.0 All participating bidders are requested to confirm the percentage of GST considered in their offer/Price bid.

# 21. Email ID/Name. of Tender Floating Officials: -

| * E-Mail         | Rajendra.prasad.yadav@bhel.in , a_sarkar@bhel.in     |
|------------------|--|
| Name/Designation | Sh.RP Yadav(Manager/pur), Sh. A SARKAR(HOS&SDGM/PUR) |

#### 22.0 ORDER OF PRECEDENCE:

In case of contradiction / conflict, the order of precedence shall be in the order as per below;

- a) Buyer specific ADDITIONAL TERMS AND CONDITIONS against GeM Bid issued
- b) GeM Bid.
- c) General Terms and Conditions of GeM.

| 23 Format(S) | BANK GLIARANTEE FOR | PERFORMANCE SECURITY   |
|--------------|---------------------|------------------------|
| Z5 FORMAUSI  | DAINK GUARANIEF FUR | PERFURIVIANUE SEUURITT |

ANNEXURE D

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

То

NAME & ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at \_\_\_\_\_\_1

| through its Unit at(name of the Unit) having awarded to ( Name of the Vendor / Contractor /  |
|--|
| Supplier) with its registered office at2 hereinafter referred to as the 'Vendor / Contractor / Supplier',                              |
| which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted                        |
| assigns), a contract Ref Nodateddated3 valued at Rs4 ( Rupees  |
| )/FC(in words) for5 (hereinafter called the 'Contract') and the Vendor /   |
| Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to% (                                 |
| Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract, we,                           |
| , (hereinafter referred to as the Bank), having registered/Head office at and inter alia a   |
| branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake                                  |
| to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs   |
| 6 ( Rupees) without any demur, immediately on first demand from the Employer and   |
| without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate                                |
| reasons for its such demand. Any such demand made on the Bank shall be conclusive as regards the amount due                            |
| and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to                       |
| an amount not exceeding Rs We undertake to pay to the Employer any money so demanded   |
| notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding                         |
| pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being                        |
| absolute and unequivocal. The payment so made by us under this Guarantee shall be a valid discharge of our                             |
| $liability\ for\ payment\ the reunder\ and\ the\ Vendor\ /\ Contractor\ /\ Supplier\ shall\ have\ no\ claim\ against\ us\ for\ making$ |
| such payment. We thebank further agree that the guarantee herein contained shall remain in full  |
| force and effect during the period that would be taken for the performance of the said Contract/satisfactory                           |
| completion of the performance guarantee period as per the terms of the Contract and that it shall continue to                          |
| be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and                      |
| its claims satisfied or discharged. WeBANK further agree with the Employer that the Employer shall                                     |
| have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to                          |
| vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor /                        |
| Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers                             |
| exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the                       |
| terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any                    |
| such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act                      |
| or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor /                            |
| Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this                         |
| provision have effect of so relieving us. The Bank also agrees that the Employer at its option shall be entitled to                    |
| enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against                        |
| the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may                           |
| have in relation to the Vendor / Contractor / Supplier 's liabilities. This Guarantee shall remain in force upto and                   |
| including 7 and shall be extended from time to time for such period as may be desired by   |
| Employer. This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or                              |
| change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all                       |
| purposes be binding and operative until payment of all money payable to the Employer in terms thereof. Unless                          |
| a demand or claim under this guarantee is made on us in writing on or before the8we shall  |

| be discharged from all liabilities under this guarantee thereafter. \ | We, BANK lastly undertake not to                |
|---|---|
| revoke this guarantee during its currency except with the previous    | s consent of the Employer in writing.           |
| Notwithstanding anything to the contrary contained hereinabove:       | a) The liability of the Bank under this         |
| Guarantee shall not exceed 6 b) This Guarantee s                      | shall be valid up to7 c) Unless the             |
| Bank is served a written claim or demand on or before                 | 8 all rights under this guarantee shall be      |
| forfeited and the Bank shall be relieved and discharged from all lia  | abilities under this guarantee irrespective of  |
| whether or not the original bank guarantee is returned to the Ban     | k. We, Bank, have power to                      |
| issue this Guarantee under law and the undersigned as a duly autl     | horized person has full powers to sign this     |
| Guarantee on behalf of the Bank. Any claim or dispute arising und     | er the terms of this Guarantee shall be subject |
| to the exclusive jurisdiction of the court at Kolkata only.           |   |
|   |   |
|   |   |
|   |   |
|   |   |
| Fo  | r and on behalf of (Name of the Bank)           |
| Г   | Dated Place of Issue                            |
| L. C.                             | /ateu r lace of 133ue                           |

- 1 NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited
- 2 NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.
- 3 DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE
- **4 CONTRACT VALUE**
- 5 PROJECT/SUPPLY DETAILS
- **6 BG AMOUNT IN FIGURES AND WORDS**
- 7 VALIDITY DATE
- 8 DATE OF EXPIRY OF CLAIM PERIOD

Note: 1. Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor.

- 2. The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Contractor/Supplier /Bank issuing the guarantee.
- 3. In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt.
- 4. In Case of Bank Guarantees submitted by Foreign Vendors
- a. From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India) can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest

branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.

b. From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)

b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by any of the Consortium Banks only will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.

b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at sl.no. b.1 will required to be followed.

b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.

#### **ANNEXURE & FORMATS**

### NOTE: - Tenderers are required to fill in the following details and no column should be left blank

| 1   | Name and Address of the Tenderer       |               |
|-----|--|---------------|
| 2   | Details about type of the Firm/Company |               |
|     |  | Name: Mr/Ms   |
|     |  | Designation:  |
| 3.a | Details of Contact person for this     | Telephone No: |
| J.a | Tender                                 | Mobile No:    |
|     |  | Email ID:     |
|     |  | Fax No:       |

|                |   |   | Name: Mr/Ms  |
|----------------|---|---|--|
|                |   |   | Designation:   |
|                |   | Details of alternate Contact  | Telephone No:  |
|                | 3.b   | person for this Tender  | Mobile No:   |
|                |   |   | Email ID:  |
|                |   |   | Fax No:  |
|                |   |   | Format - I   |
|                |   |   |  |
|                |   | DECLARATION REGARD  | DING MINIMUM LOCAL CONTENT IN LINE WITH  |
|                | REVISED PU  | BLIC PROCUREMENT (PREFERENCE TO   | MAKE IN INDIA), ORDER 2017 DATED $04^{\text{TH}}$ JUNE, 2020 AND SUBSEQUENT ORDER(S)   |
|                | (To   | be typed and submitted in the Lette   | er Head of the Entity/Firm providing certificate as applicable)  |
| <br>To         |   |   |  |
| (V             | /rite Name &                                      | t Address of Officer of BHEL inviting t   | he Tender)   |
|                |   |   |  |
| De             | ear Sir,  |   |  |
|                |   | on reg. minimum local content in line<br>d 04 <sup>th</sup> June, 2020 and subsequent ord | e with Public Procurement (Preference to Make in India), Order 2017-<br>er(s).   |
| Re             | ef: 1) Tend                                       | er Specification No:  |  |
|                | 2) All otl  | her pertinent issues till date  |  |
| he<br>su<br>Di | ere) has a loc<br>applier' ** as<br>PIIT and subs | cal content of% and this meets defined in Public Procurement (Preference).                | offered by(specify the name of the organization is the local content requirement for 'Class-I local supplier' / 'Class II local erence to Make in India), Order 2017-Revision dated 04.06.2020 issued by |
| TI             | ne details  | of the location(s) at whi   | ch the local value addition is made are as follows   |

| 3        | 4   |
|----------|---|
| Thankir  | ng you,   |
| Yours fa | aithfully,  |
|          | (Signature, Date & Seal of  |
|          | Authorized Signatory of the Bidder)   |
| ** - Str | ike out whichever is not applicable.  |
| Note:    |   |
| 1.       | Bidders to note that above format Duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.  |
| 3.       | In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies).  In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder  Format - II |
|          | <u>Declaration</u>  |
| GEM I    | Bid Ref. No.  |
| I/WE,    | M/s   |

| I/ We, M/sherel any liquidation, court receivership or similar proceedings and not bankrupt  | by confirm that we ar  | e not under              |
|--|------------------------|--------------------------|
|  |                        |                          |
|  |                        |                          |
|  |                        |                          |
|  | Si                     | gnature of Tenderer      |
|  |                        |                          |
|  |                        |                          |
| <u>Format - III</u>  |                        |                          |
| (To be submitted in the bidder's le  | tter head)             |                          |
| In-line with Department of Expenditure's (DoE) Public Procurement Division 23.07.2020 & 24.7.2020  | Order vide ref. F.No   | o.6/18/2019-PPD dated    |
| Tender No:   |                        |                          |
| "I/ we have read the clauses pertaining to Department of Expenditure's (Dol procurement no 1, 2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7 from a bidder of a country which shares a land border with India. I/We hereby | 7.2020) regarding rest | rictions on procurement  |
| the bidder> is / are  a) Not from such a country and eligible to be considered for this tender.  OR  |                        |                          |
| b) From such country, has been registered with the competent authority an (Evidence of valid registration by the competent authority shall be attached)  | nd eligible to be cons | sidered for this tender. |
| (Please select applicable option a or b)   |                        |                          |
|  |                        |                          |
|  |                        |                          |
| For and  | behalf of              | (Name of the bidder)     |

(Signature, date & seal of authorized representative of the bidder)

# Format - IV

# **CERTIFICATE OF NO DEVIATION**

| GEM Bid Ref. No.  |
|---|
| Scope: -  |
|   |
| I/WE, M/s   |
| We hereby confirm that we have not changed/ modified/materially altered any of the tender documents as downloaded from the website/ issued by BHEL and in case of such observance at any stage, it shall be treated as null and void. |
| We also hereby confirm that we have neither set any Terms and Conditions and nor have we taken any deviation from the Tender conditions together with other references applicable for the above referred NIT/Tender Specification.    |
| We further confirm our unqualified acceptance to all Terms and Conditions, unqualified compliance to Tender Conditions, Integrity Pact (if applicable) and acceptance to Reverse Auctioning process.                                  |
| We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.  |
|   |
|   |
|   |
| Signature of Tenderer   |

# Format-V

Form No: F-06 (Rev 00)

# NON-DISCLOSURE CERTIFICATE

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

# NON-DISCLOSURE CERTIFICATE

| l/We u<br>Policy. | nderstand that BHEL PS is committed to Information Security Management System as per their Information Security                             |
|-------------------|---|
| to BHI            | L/We M/s  |
|                   | a) To maintain confidentiality of documents & information which shall be used during the execution of the Contract.                         |
|                   | b) The documents & information shall not be revealed to or shared with third party which shall not be in the business interest of BHELPSER. |
| Date:             |   |
|                   | (Signature, date & seal of Authorized Signatory of the bidder)  |

# Declaration for Prevention/ Elimination of Suspected Cartel formation between Suppliers

| То   |
|--|
| Sr Dy General Manager (Purchase)   |
| Bharat Heavy Electricals Limited   |
| Power Sector Western Region  |
| KOLKATA  |
| Dear Sir/ Madam,   |
| Subject: Declaration for Prevention/ Elimination of Suspected Cartel Formation Between Suppliers   |
| Reference: GeM Tender No:  |
| I/ We hereby declare that I/We shall not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other bidder(s).  |
| This applies in particular to prices, specifications, certifications, subsidiary contract, submission or non-submission of bids of any other actions to restrict competitiveness or to introduce cartelization in the bidding process. |
| Signature & Seal of Authorized Signatory   |
| Place:   |
| Date:  |
|  |
|  |