

PROJECT:  
**1x40 MW STG FOR TATA STEEL AT JAMSHEDPUR, JHARKHAND**

ANX-10 TO PY55223

CUSTOMER:  
**M/S TATA STEEL LIMITED, JAMSHEDPUR**

Rev No. 00

BHEL ENQUIRY NO.:

PRICE OFFER NO.:

BIDDER:

DATE:

## PRICE SCHEDULE FOR LT SWITCHGEAR PACKAGE

### SECTION - 1: Common Notes

This document details the price schedule for the enquiry. Bidder shall fill up in this format only. No other format will be entertained.

- 1 No cognizance will be taken of any changes made by vendor with respect to format issued by BHEL in the description of any item in price format.

- 2a Duly signed & stamped unpriced price schedule format shall be submitted by vendor as a token of their concurrence that the price schedule is submitted in this format. If not submitted in this format or any field is left blank, the offer will be liable for rejection.

- 2b All the blank fields shall be filled irrespective of applicability of any item for this Project. If any item is not in bidder's manufacturing range or not available in market (for bought-outs) then "Not Applicable/NA" shall be mentioned in the field. If the bidder mentions "Not Applicable/ NA" against any item and if need arises during order execution for such item, then the same shall be supplied free of cost. If any item is left unfilled, it shall be deemed that the price is included in any of the other quoted items / package and hence, price will be considered as zero for evaluation/additions. Also, for such items, unit rates for deletions will be at the discretion of BHEL.

- 3 Vendor shall fill up prices of various items and submit to BHEL in separate sealed cover as commercial offer. All prices shall be submitted as ex-works. Applicable taxes and duties shall also be indicated separately.

- 4 The format contains **FOUR** sections:

- 4a Section-1: Common Notes

- 4b Section-2: Price Schedule for Main Equipment for the LT Switchgear

- 4c Section-3: Unit Rates for the Switchgear Items/ Services for Addition/ Deletion of Components

- 4d Section-4: Price Schedule for the Recommended Spares of LT Switchgear Package

- 5 Tender evaluation priority / criteria shall be as per the Landed cost to BHEL in the "Price Schedule for Main Equipment for the LT Switchgear". However, in case of any mis-match in values quoted by the bidder, final decision will be at the discretion of BHEL.

Unit rates of components would be used for affecting required additions / deletions of main equipment during order execution. The

- 6 Unit rates shall include all associated items for functional integration with the main equipment. Also, unit rates of Wall Mounted DBs in Section-2 of Price Schedule shall be used for addition /deletion of Wall mounted DBs.

- 7 Unit rates would be used for effecting required corresponding changes in the percentage for spares (due to additions / deletions of main equipment during order execution).

- 8 Components/ Items/ Spares shall be identical to the main equipment.

- 9 Billing & Payments will be as per final approved BOM.

- 10 All rates under Section-3 shall be valid up to **JUL 2018**.

- 11 BHEL reserves the right to order part quantity or short close if any item/main equipment is not needed during execution.

- 12 Under Price Format Section-4, bidder to provide list of **2-Years** Recommended O&M spares for LT Switchgear package along with unit price of each item. BHEL reserves the right to order full/partial quantity of the Recommended O & M Spares along with the main equipment or separately or not at all. The bidder will keep their prices valid till execution of order or till 18 months from the date of P.O., whichever is later.

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### SECTION - 2: Price Schedule for Main Equipment for the LT Switchgear

| S/N      | ITEM                                                                                                                                                 | QTY.  | UNIT PRICE (INR)<br>Refer Note-1 | TOTAL PRICE Ex<br>Works (INR) | REMARKS                                 |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------|-------------------------------|-----------------------------------------|
| <b>A</b> | <b>LT SWITCHBOARDS</b>                                                                                                                               |       |                                  |                               |                                         |
| <b>1</b> | PMCC                                                                                                                                                 | 1 No. |                                  |                               | Refer Note-3                            |
| <b>2</b> | TGMCC                                                                                                                                                | 1 No. |                                  |                               |                                         |
| <b>3</b> | WATER SYSTEM DB                                                                                                                                      | 1 No. |                                  |                               |                                         |
| <b>4</b> | MOV DB                                                                                                                                               | 1 No. |                                  |                               |                                         |
| <b>5</b> | PDB                                                                                                                                                  | 1 No. |                                  |                               |                                         |
| <b>6</b> | DCDB                                                                                                                                                 | 1 No. |                                  |                               |                                         |
| <b>7</b> | WMDB Type-3AC                                                                                                                                        | 1 No. |                                  |                               |                                         |
| <b>8</b> | WMDB Type-1AC                                                                                                                                        | 1 No. |                                  |                               |                                         |
| <b>B</b> | <b>SERVICES</b>                                                                                                                                      |       |                                  |                               |                                         |
| <b>9</b> | <b>MODIFICATION/ ADDITIONAL JOB ON LT SWGR PACKAGE AT SITE</b> (Refer Note-2 and Note-5)                                                             |       |                                  |                               |                                         |
| <b>a</b> | Lumpsum price for travel by LT Switchgear Package OEM to and from Site per visit.<br>(1 Set = 1 Visit)                                               | 1 Set | Unit price NA                    |                               | Quote Total Price (See Note-2 & Note-5) |
| <b>b</b> | <b>Service charges for engineers:</b><br>Lumpsum price including Lodging, Boarding etc. for LT Switchgear Package OEM at site.<br>(1 Set = 6 Days)   | 1 Set | Unit price NA                    |                               | Quote Total Price (See Note-2 & Note-5) |
| <b>c</b> | <b>Service charges for technicians:</b><br>Lumpsum price including Lodging, Boarding etc. for LT Switchgear Package OEM at site.<br>(1 Set = 6 Days) | 1 Set | Unit price NA                    |                               | Quote Total Price (See Note-2 & Note-5) |

Signature & Seal of Bidder:  
Date:

| S/N                               | ITEM                                                                                                                             | QTY.  | UNIT PRICE (INR)<br>Refer Note-1 | TOTAL PRICE Ex<br>Works (INR) | REMARKS                                        |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------|-------------------------------|------------------------------------------------|
| <b>C</b>                          | <b>INTELLIGENT SYSTEM EQUIPMENTS</b>                                                                                             |       |                                  |                               |                                                |
| <b>10</b>                         | LAPTOP WITH SOFTWARE AND ACCESSORIES<br>(FOR NR COMMISSIONING)                                                                   | 1 No. |                                  |                               |                                                |
| <b>D</b>                          | <b>SPARES &amp; ACCESSORIES</b>                                                                                                  |       |                                  |                               |                                                |
| <b>11</b>                         | COMMISSIONING SPARES AND TOOLS &<br>TACKLES AS PER PY55110 ANX12                                                                 | 1 Set |                                  |                               |                                                |
| <b>E</b>                          | <b>OPTIONAL ITEMS - REFER NOTE-4</b>                                                                                             |       |                                  |                               |                                                |
| <b>12</b>                         | MANDATORY SPARE (OPTIONAL)                                                                                                       | 1 Set |                                  |                               | <b>Refer Note-4</b>                            |
| <b>13</b>                         | <b>SERVICES (TO CHECK COMPLETENESS) FOR LT SWGR PACKAGE AT SITE (Refer Note-2, Note-4, Note-5 &amp; Note-6)</b>                  |       |                                  |                               |                                                |
| <b>a</b>                          | Lumpsum price for travel by LT Switchgear<br>Package OEM to and from Site per visit.<br><br>(1 Set = 1 Visit)                    | 1 Set | Unit price NA                    |                               | Quote Total<br>Price (See Note-<br>2 & Note-5) |
| <b>b</b>                          | Lumpsum price for Services including Lodging,<br>Boarding etc. for LT Switchgear Package OEM<br>at site.<br><br>(1 Set = 2 Days) | 1 Set | Unit price NA                    |                               | Quote Total<br>Price (See Note-<br>2 & Note-5) |
| <b>GRAND TOTAL (Refer Note-4)</b> |                                                                                                                                  | --    | --                               |                               |                                                |

**Note 1** Unit means 1 No. or 1 Set or 1 Visit or 1 Day. Accordingly Unit Prices shall be quoted.

Actual Visits, Mandays needed at site will depend on site fronts availability and amount of work involved. For quoting purpose, the Visits, Mandays are as specified above. However, number of Mandays, Visits or both may change on either side based on actual site requirements. Payment shall be made for actual services provided.

**Note 2**

The charges quoted above at item nos. 9a, 9b, 9c shall be used for deriving per visit/ per manday charges. These will be used for making payment for services offered for actual no. of visits/mandays. Also, actual visits made and services provided need to be certified by BHEL's Site Office.

**Note 3**

This includes the price of O&M Manual, As-manufactured Drawings, Lugs and Glands for the entire LT Switchgear Package.

**Note 4**

**Optional Items i.e. Mandatory spares and Services at Sl. No.13 are optional for evaluation and ordering purpose i.e. tender may be evaluated with or without the price of these items and accordingly, these items may or may not be ordered. The same will be informed before price bid opening.**

**Note 5**

In case, e-Procurement System is followed for this bid, the Bidder shall quote the value obtained by *adding* Total Prices at Sl. No. 9a, 9b and 9c against PR for Modification/ Addl. Job.

Similarly, if the price for optional services at Sl. No. 13 is to be quoted through e-Procurement System, then the value obtained by *adding* Total Prices at Sl. No. 13a and 13b shall be quoted.

**Note 6**

E&C of Switchboards is in BHEL's scope. The Services at Sl. No. 13 include vendor's visit to site to check correctness and completeness of equipment prior to commissioning of the equipment.

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### SECTION - 3: Unit Rates for the Switchgear Items/ Services for Addition/ Deletion of Components

| S/N                                                                                                                                                                                                                | DESCRIPTION                                              | RATING     | EX-WORKS PRICE (IN INR) |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------|-------------------------|--------------|
| I. FOR VERTICAL PANELS:                                                                                                                                                                                            |                                                          |            |                         |              |
| EACH VERTICAL PANEL SHALL BE COMPLETE WITH PVC INSULATED ,TPN, Al/Cu. HBB, VBB, HORIZONTAL & VERTICAL EARTH BUS, JOINT SHROUDS, AUX. BUS-BARS, PANEL SPACE HEATER SYSTEM AS PER THE ORIGINALLY SUPPLIED EQUIPMENT. |                                                          |            |                         |              |
| 1                                                                                                                                                                                                                  | DRAWOUT TYPE PCC/MCC PANELS SUITABLE FOR ACB MODULES     | BUS RATING | SINGLE FRONT            |              |
|                                                                                                                                                                                                                    |                                                          | 4000A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 3200A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1600/2500A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1000/1250A |                         |              |
|                                                                                                                                                                                                                    |                                                          | Upto 800A  |                         |              |
| 2                                                                                                                                                                                                                  | ADAPTER PANEL (part of drawout panel lineup)             | BUS RATING | SINGLE FRONT            |              |
|                                                                                                                                                                                                                    |                                                          | 4000A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 3200A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1600/2500A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1000/1250A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 800A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | Upto 630A  |                         |              |
| 3                                                                                                                                                                                                                  | DUMMY PANEL (part of drawout panel lineup)               | BUS RATING | SINGLE FRONT            |              |
|                                                                                                                                                                                                                    |                                                          | 4000A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 3200A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1600/2500A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1000/1250A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 800A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | Upto 630A  |                         |              |
| 4                                                                                                                                                                                                                  | DRAWOUT TYPE PCC/MCC PANELS SUITABLE FOR NON-ACB MODULES | BUS RATING | SINGLE FRONT            | DOUBLE FRONT |
|                                                                                                                                                                                                                    |                                                          | 4000A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 3200A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1600/2500A |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1000/1250A |                         |              |
|                                                                                                                                                                                                                    |                                                          | Upto 800A  |                         |              |
| 5                                                                                                                                                                                                                  | DRAWOUT TYPE DB PANELS                                   | BUS RATING | SINGLE FRONT            | DOUBLE FRONT |
|                                                                                                                                                                                                                    |                                                          | 100A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 200A/250A  |                         |              |
|                                                                                                                                                                                                                    |                                                          | 400A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 630A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 800A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1000A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1250A      |                         |              |
|                                                                                                                                                                                                                    |                                                          | 1600A      |                         |              |
| 6                                                                                                                                                                                                                  | FIXED TYPE DB PANELS                                     | BUS RATING | SINGLE FRONT            | DOUBLE FRONT |
|                                                                                                                                                                                                                    |                                                          | 100A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 250A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 400A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 630A       |                         |              |
|                                                                                                                                                                                                                    |                                                          | 800A       |                         |              |

Signature &amp; Seal of Bidder:

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**II. FOR FEEDER MODULES: (BOM: ALL FITMENTS EXCEPT NUMERICAL RELAY)**

|    |                                             | <b>RATING</b> | <b>DRAWOUT</b> | <b>FIXED</b> |
|----|---------------------------------------------|---------------|----------------|--------------|
| 1a | <b>INCOMERS (SFU) - AC</b>                  | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
|    |                                             | 800A          | <b>NA</b>      |              |
| 1b | <b>INCOMERS (SFU) - DC</b>                  | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
|    |                                             | 800A          | <b>NA</b>      |              |
| 1c | <b>BUS COUPLERS (SFU) - AC</b>              | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
|    |                                             | 800A          | <b>NA</b>      |              |
| 1d | <b>BUS COUPLERS (SFU) - DC</b>              | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
|    |                                             | 800A          | <b>NA</b>      |              |
| 2a | <b>INCOMERS (MCCB) - AC</b>                 | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 2b | <b>INCOMERS (MCCB) - DC</b>                 | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 2c | <b>BUS COUPLERS (MCCB) - AC</b>             | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 2d | <b>BUS COUPLERS (MCCB) - DC</b>             | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 3a | <b>INCOMERS (SFC) - AC</b>                  | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 3b | <b>INCOMERS (SFC) - DC</b>                  | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 3c | <b>BUS COUPLERS (SFC) - AC</b>              | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 3d | <b>BUS COUPLERS (SFC) - DC</b>              | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 4a | <b>INCOMERS (MCCB + CONTACTOR) - AC</b>     | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          |                |              |
| 4b | <b>INCOMERS (MCCB + CONTACTOR) - DC</b>     | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          | <b>NA</b>      |              |
| 4c | <b>BUS COUPLERS (MCCB + CONTACTOR) - AC</b> | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          |                |              |
| 4d | <b>BUS COUPLERS (MCCB + CONTACTOR) - DC</b> | Upto 250A     |                |              |
|    |                                             | 400A          |                |              |
|    |                                             | 630A          |                |              |
| 5a | <b>INCOMERS (ACB) - 3 Pole</b>              | Upto 800A     |                |              |
|    |                                             | 1000/1250A    |                |              |
|    |                                             | 1600/2500A    |                |              |
|    |                                             | 3200A         |                |              |
| 5b | <b>BUS COUPLERS (ACB) - 3 Pole</b>          | 4000A         |                |              |
|    |                                             | Upto 800A     |                |              |
|    |                                             | 1000/1250A    |                |              |
|    |                                             | 1600/2500A    |                |              |
|    |                                             | 3200A         |                |              |
|    |                                             | 4000A         |                |              |

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|    |                                             |                  |           |
|----|---------------------------------------------|------------------|-----------|
| 5c | <b>INCOMERS (ACB) - 4 Pole</b>              | Upto 800A        |           |
|    |                                             | 1000/1250A       |           |
|    |                                             | 1600/2500A       |           |
|    |                                             | 3200A            |           |
|    |                                             | 4000A            |           |
| 5d | <b>BUS COUPLERS (ACB) - 4 Pole</b>          | Upto 800A        |           |
|    |                                             | 1000/1250A       |           |
|    |                                             | 1600/2500A       |           |
|    |                                             | 3200A            |           |
|    |                                             | 4000A            |           |
| 6  | <b>ACB CONTROLLED STARTER FEEDER</b>        | 55kW to 160kW    |           |
| 7  | <b>ACB OUTGOING FEEDER</b>                  | 800A             |           |
|    |                                             | 1000A            |           |
|    |                                             | 1250A            |           |
|    |                                             | 1600A            |           |
|    |                                             |                  |           |
| 8  | <b>DOL / RDOL OUTGOING FEEDER WITH EOCR</b> | Upto 5.5kW       |           |
|    |                                             | 5.6-12kW         |           |
|    |                                             | 12.1-22kW        |           |
|    |                                             | 22.1-35kW        |           |
|    |                                             | 35.1-54.9kW      |           |
|    |                                             | 55-74.9kW        |           |
|    |                                             | 75-99.9kW        |           |
|    |                                             | 100-150kW        |           |
|    |                                             | RDOL Upto 5.5kW  |           |
|    |                                             | RDOL 5.6 to 12kW |           |
| 9  | <b>OUTGOING MCCB FEEDERS - AC</b>           | Upto 32A         |           |
|    |                                             | 63A              |           |
|    |                                             | 100A             |           |
|    |                                             | 125A             |           |
|    |                                             | 160A             |           |
|    |                                             | 250A             |           |
|    |                                             | 400A             |           |
|    |                                             | 630A             |           |
| 10 | <b>OUTGOING MCCB FEEDERS - DC</b>           | Upto 32A         |           |
|    |                                             | 63A              |           |
|    |                                             | 100A             |           |
|    |                                             | 125A             |           |
|    |                                             | 160A             |           |
|    |                                             | 250A             |           |
|    |                                             | 400A             |           |
| 11 | <b>OUTGOING SFU FEEDERS - AC</b>            | Upto 32A         |           |
|    |                                             | 63A              |           |
|    |                                             | 100A             |           |
|    |                                             | 125A             |           |
|    |                                             | 160A             |           |
|    |                                             | 250A             |           |
|    |                                             | 400A             |           |
|    |                                             | 630A             | <b>NA</b> |
| 12 | <b>OUTGOING SFU FEEDERS - DC</b>            | Upto 32A         |           |
|    |                                             | 63A              |           |
|    |                                             | 100A             |           |
|    |                                             | 125A             |           |
|    |                                             | 160A             |           |
|    |                                             | 200A             |           |
|    |                                             | 250A             |           |
|    |                                             | 400A             |           |
| 13 | <b>OUTGOING SFC FEEDERS - AC</b>            | Upto 32A         |           |
|    |                                             | 63A              |           |
|    |                                             | 100A             |           |
|    |                                             | 125A             |           |
|    |                                             | 160A             |           |
|    |                                             | 250A             |           |
|    |                                             | 400A             |           |
|    |                                             | 630A             | <b>NA</b> |

|     |                                                                                                           |                         |    |
|-----|-----------------------------------------------------------------------------------------------------------|-------------------------|----|
| 14  | <b>OUTGOING SFC FEEDERS - DC</b>                                                                          | Upto 32A                |    |
|     |                                                                                                           | 63A                     |    |
|     |                                                                                                           | 100A                    |    |
|     |                                                                                                           | 125A                    |    |
|     |                                                                                                           | 160A                    |    |
|     |                                                                                                           | 250A                    |    |
| 15  | <b>CONTROL / SUB DIST TRANSFORMER SFU FEEDERS<br/>(SFU IN DRAWOUT AND TRAFO IN FIXED)</b>                 | 400A                    |    |
|     |                                                                                                           | Upto 5kVA 415/110V 1ph  | NA |
|     |                                                                                                           | 10kVA 415/110V 1ph      | NA |
|     |                                                                                                           | 15kVA 415/110V 1ph      | NA |
|     |                                                                                                           | Upto 5 KVA 415/240V 1ph | NA |
|     |                                                                                                           | 10kVA 415/240V 1ph      | NA |
| 16  | <b>MCB MODULE (9kA MCBs)</b>                                                                              | 15kVA 415/240V 1ph      | NA |
|     |                                                                                                           | 30 Nos.                 | NA |
|     |                                                                                                           | 20 Nos.                 | NA |
| 17a | <b>LINE/BUS PT MODULE COMPRISING OF 3 Nos. of<br/>PTs (415V/√3)/(110V/√3)/(110V/√3), 200VA<br/>CL1/3P</b> | 10 Nos.                 | NA |
|     |                                                                                                           | 200VA                   |    |
|     |                                                                                                           |                         |    |
| 17b | <b>LINE/BUS PT MODULE COMPRISING OF 3 Nos. of<br/>PTs (415V/√3)/(110V/√3)/(110V/√3), 100VA<br/>CL1/3P</b> | 100VA                   |    |
|     |                                                                                                           |                         |    |
|     |                                                                                                           |                         |    |
| 17c | <b>LINE/BUS PT MODULE COMPRISING OF 3 Nos. of<br/>PTs (415V/√3)/(110V/√3)/(110V/√3), 50VA<br/>CL1/3P</b>  | 50VA                    |    |
|     |                                                                                                           |                         |    |
|     |                                                                                                           |                         |    |
| 18  | <b>VACANT MODULE / COMPT.</b>                                                                             | Upto 200 mm             | NA |
|     |                                                                                                           | 201 TO 500 mm           | NA |
|     |                                                                                                           | 501 TO 800 mm           | NA |
| 19  | <b>MARSHALLING COMPT. WITH WIRING (MTB)</b>                                                               | Upto 300 mm             | NA |
|     |                                                                                                           | Above 300 mm            | NA |
| 20  | <b>UNIT RATIO TRANSFORMER (URT) FOR UPS DBs<br/>(voltage ratio as per UPS DB)</b>                         | 0.5 kVA                 | NA |
|     |                                                                                                           | 1 kVA                   | NA |
|     |                                                                                                           | 1.5 kVA                 | NA |
|     |                                                                                                           | 2 kVA                   | NA |
|     |                                                                                                           | 2.5 kVA                 | NA |
|     |                                                                                                           | 3 kVA                   | NA |
|     |                                                                                                           | 3.5 kVA                 | NA |
|     |                                                                                                           | 5 kVA                   | NA |
|     |                                                                                                           | 7.5 kVA                 | NA |

**III. COMMON ITEMS:**

|    |                                                                                                        |                              |  |
|----|--------------------------------------------------------------------------------------------------------|------------------------------|--|
| 1  | <b>RELAYS:</b>                                                                                         |                              |  |
| a) | 80 (DC supply supervision relay)                                                                       |                              |  |
| b) | 86 (VAJH 23 or equivalent)                                                                             |                              |  |
| c) | 95 (Trip circuit supervision relay)                                                                    |                              |  |
| d) | 27 (Undervoltage relay - Numerical type)                                                               |                              |  |
| e) | 27-N (No-volt relay)                                                                                   |                              |  |
| f) | 2 (Timer)                                                                                              |                              |  |
| g) | DC Earth Fault Relay (CAEM 21 or Eequivalent)                                                          |                              |  |
| h) | CBCT + CAG12 Relay + VTT 11                                                                            |                              |  |
| i) | 25 (Check synch relay)                                                                                 |                              |  |
| j) | 94 (Antipumping relay)                                                                                 |                              |  |
| k) | 97 (PT FUSE MONITORING RELAY)                                                                          |                              |  |
| l) | VAJC or equivalent                                                                                     |                              |  |
| m) | VAA63 or equivalent                                                                                    |                              |  |
| n) | <b>Comprehensive Electronic Motor Protection Relay<br/>(MPR) <u>without</u> communication facility</b> | for overload                 |  |
|    |                                                                                                        | for overload and earth fault |  |
|    |                                                                                                        | for overload, earth fault,   |  |
|    |                                                                                                        | unbalance and locked rotor   |  |

|    |                                                                                          |                                                       |  |
|----|------------------------------------------------------------------------------------------|-------------------------------------------------------|--|
| o) | <b>Comprehensive Electronic Motor Protection Relay (MPR) with communication facility</b> | for overload                                          |  |
|    |                                                                                          | for overload and earth fault                          |  |
|    |                                                                                          | for overload, earth fault, unbalance and locked rotor |  |
| p) | <b>Interposing Relay</b>                                                                 |                                                       |  |
| q) | <b>Bimetallic Thermal Overload Relay</b>                                                 | [0.3A - 0.5A] to [1.4A - 2.3A]                        |  |
|    |                                                                                          | [2A - 3.3 A] to [3.0A - 5.0A]                         |  |
|    |                                                                                          | [4.5A - 7.5A] to [6.0A - 10.0A]                       |  |
|    |                                                                                          | 9.0A - 15A                                            |  |
|    |                                                                                          | 14A - 23A                                             |  |
|    |                                                                                          | 20A - 33A                                             |  |
|    |                                                                                          | 30A - 50A                                             |  |
|    |                                                                                          | 45A - 75A                                             |  |
|    |                                                                                          | 66A - 110A                                            |  |
|    |                                                                                          | 90A - 150A                                            |  |
|    |                                                                                          | 135A - 225A                                           |  |
| 2  | <b>NUMERICAL RELAYS:</b>                                                                 |                                                       |  |
| a) | <b>Numerical Relay for I/C &amp; B/C feeder of PCC / PMCC</b>                            |                                                       |  |
| b) | <b>Numerical Relay for ACB O/G feeder</b>                                                |                                                       |  |
| c) | <b>Numerical Relay for ACB controlled motor feeder</b>                                   |                                                       |  |
| d) | <b>Numerical Relay for Bus PT</b>                                                        |                                                       |  |
| 3  | <b>STAYPUT SELECTOR SWITCH 5-WAY, 4-POLE IN EACH WAY</b>                                 |                                                       |  |
| 4  | <b>SELECTOR SWITCH, 2-POLE, 4-WAY</b>                                                    |                                                       |  |
| 5  | <b>TNC SWITCH</b>                                                                        |                                                       |  |
| 6  | <b>PB (2 NO + 2 NC)</b>                                                                  |                                                       |  |
| 7  | <b>MCB, DP</b>                                                                           | 16A                                                   |  |
|    |                                                                                          | 32A                                                   |  |
|    |                                                                                          | 63A                                                   |  |
| 8  | <b>MCB, TPN</b>                                                                          | 16A                                                   |  |
|    |                                                                                          | 32A                                                   |  |
|    |                                                                                          | 63A                                                   |  |
| 9  | <b>MCB, 4-POLE</b>                                                                       | 16A                                                   |  |
|    |                                                                                          | 32A                                                   |  |
| 10 | <b>MCCB - 3 Pole</b>                                                                     | 16A                                                   |  |
|    |                                                                                          | 32A                                                   |  |
|    |                                                                                          | 63A                                                   |  |
|    |                                                                                          | 100A                                                  |  |
|    |                                                                                          | 250A                                                  |  |
| 11 | <b>MCCB - 4 Pole</b>                                                                     | 16A                                                   |  |
|    |                                                                                          | 32A                                                   |  |
|    |                                                                                          | 63A                                                   |  |
|    |                                                                                          | 100A                                                  |  |
|    |                                                                                          | 250A                                                  |  |
| 12 | <b>INTELLIGENT TIMER AS PROVIDED IN LIGHTING DB</b>                                      |                                                       |  |
| 13 | <b>INDICATING LAMP ASSEMBLY ( LED )</b>                                                  |                                                       |  |
| 14 | <b>INDICATING LAMP HOLDER (WITH SERIES RESISTOR, IF APPLICABLE)</b>                      |                                                       |  |
| 15 | <b>COLOURED LENS COVER FOR INDICATING LAMPS</b>                                          |                                                       |  |
| 16 | <b>SLIDE IN CONTACT (SIC) FOR D/O MODULES (Male &amp; Female)</b>                        |                                                       |  |
| 17 | <b>ELCB</b>                                                                              | 30 mA                                                 |  |
|    |                                                                                          | 100 mA                                                |  |
| 18 | <b>RCCB</b>                                                                              | 30 mA                                                 |  |
|    |                                                                                          | 100 mA                                                |  |



|    |                                |             |  |
|----|--------------------------------|-------------|--|
| 19 | <b>CURRENT TRANSFORMERS:</b>   |             |  |
|    |                                | Upto 25A/1A |  |
|    |                                | 50A/1A      |  |
|    |                                | 100A/1A     |  |
|    |                                | 150A/1A     |  |
|    |                                | 200A/1A     |  |
|    |                                | 250A/1A     |  |
| a) | <b>Metering CTs</b>            | 400A/1A     |  |
|    |                                | 600A/1A     |  |
|    |                                | 800A/1A     |  |
|    |                                | 1250A/1A    |  |
|    |                                | 2500A/1A    |  |
|    |                                | 3200A/1A    |  |
|    |                                | 4000A/1A    |  |
| b) | <b>Class-PS CTs</b>            | 2000/1A     |  |
|    |                                | 4000/1 A    |  |
|    |                                | Upto 25A/1A |  |
|    |                                | 50A/1A      |  |
|    |                                | 100A/1A     |  |
|    |                                | 150A/1A     |  |
|    |                                | 200A/1A     |  |
|    |                                | 250A/1A     |  |
| c) | <b>Protection CTs</b>          | 400A/1A     |  |
|    |                                | 600A/1A     |  |
|    |                                | 800A/1A     |  |
|    |                                | 1250A/1A    |  |
|    |                                | 2500A/1A    |  |
|    |                                | 3200A/1A    |  |
|    |                                | 4000A/1A    |  |
| d) | <b>CBCT</b>                    | 100 mA      |  |
| 20 | <b>BUS INSULATOR</b>           |             |  |
|    |                                | 16A         |  |
|    |                                | 32A         |  |
|    |                                | 63A         |  |
|    |                                | 100A        |  |
|    |                                | 125A        |  |
| 21 | <b>POWER FUSES</b>             | 160A        |  |
|    |                                | 200A        |  |
|    |                                | 250A        |  |
|    |                                | 400A        |  |
|    |                                | 630A        |  |
|    |                                | 800A        |  |
|    |                                | 2A          |  |
|    |                                | 4A          |  |
|    |                                | 6A          |  |
|    |                                | 8A          |  |
| 22 | <b>CONTROL FUSES</b>           | 10A         |  |
|    |                                | 16A         |  |
|    |                                | 20A         |  |
|    |                                | 25A         |  |
|    |                                | 32A         |  |
| 23 | <b>TERMINAL BLOCKS:</b>        |             |  |
|    |                                | 30A         |  |
|    |                                | 65A         |  |
| a) | <b>Power Terminal Blocks</b>   | 100A        |  |
|    |                                | 125A        |  |
|    |                                | 250A        |  |
|    |                                | 500A        |  |
|    |                                | 10A         |  |
| b) | <b>Control Terminal Blocks</b> | 16A         |  |
|    |                                | 25A         |  |
|    |                                | 30A         |  |

|    |                                                            |         |  |
|----|------------------------------------------------------------|---------|--|
| 24 | <b>METERS &amp; SWITCHES:</b>                              |         |  |
| a) | AC Ammeter                                                 |         |  |
| b) | AC Voltmeter                                               |         |  |
| c) | Voltmeter Selector Switch                                  |         |  |
| d) | Ammeter Selector Switch                                    |         |  |
| e) | kWh meter with Maximum Demand Indicator (MDI)              |         |  |
| f) | DC Voltmeter                                               |         |  |
| g) | DC Ammeter                                                 |         |  |
| h) | Double Voltmeter                                           |         |  |
| i) | Double Frequency Meter                                     |         |  |
| j) | Synchroscope                                               |         |  |
| k) | DC Shunt (75 mV)                                           |         |  |
| l) | kW meter                                                   |         |  |
| m) | PF meter                                                   |         |  |
| n) | kVA meter                                                  |         |  |
| p) | Power Monitor for Metering Purpose - Non-Communicable Type |         |  |
| q) | Power Monitor for Metering Purpose - Communicable Type     |         |  |
| r) | Phase Sequence Meter                                       |         |  |
| s) | Test Terminal Block                                        |         |  |
| 25 | <b>TRANSDUCERS:</b>                                        |         |  |
| a) | Current                                                    |         |  |
| b) | Voltage                                                    |         |  |
| c) | kW                                                         |         |  |
| d) | kVAR                                                       |         |  |
| 26 | <b>CONTACTORS AND ASSOCIATED ITEMS:</b>                    |         |  |
|    |                                                            | 2NO+2NC |  |
|    |                                                            | 3NO+1NC |  |
| a) | AUXILIARY RELAY (AC)                                       | 4NO+4NC |  |
|    |                                                            | 4NO     |  |
|    |                                                            | 8NO     |  |
|    |                                                            | 2NO+2NC |  |
|    |                                                            | 3NO+1NC |  |
| b) | AUXILIARY RELAY (DC)                                       | 4NO+4NC |  |
|    |                                                            | 4NO     |  |
|    |                                                            | 8NO     |  |
|    |                                                            | 16A     |  |
|    |                                                            | 32A     |  |
|    |                                                            | 63A     |  |
|    |                                                            | 100A    |  |
| c) | POWER CONTACTORS (AC WITH 2 NO + 2 NC)                     | 150A    |  |
|    |                                                            | 200A    |  |
|    |                                                            | 300A    |  |
|    |                                                            | 400A    |  |
|    |                                                            | 500A    |  |
|    |                                                            | 630A    |  |
|    |                                                            | 16A     |  |
|    |                                                            | 32A     |  |
|    |                                                            | 63A     |  |
|    |                                                            | 100A    |  |
| d) | POWER CONTACTORS (DC WITH 2 NO + 2 NC)                     | 150A    |  |
|    |                                                            | 200A    |  |
|    |                                                            | 250A    |  |
|    |                                                            | 400A    |  |

|    |                                                                        |          |  |
|----|------------------------------------------------------------------------|----------|--|
| e) | <b>COIL FOR POWER CONTACTORS (AC)</b>                                  | 16A      |  |
|    |                                                                        | 32A      |  |
|    |                                                                        | 63A      |  |
|    |                                                                        | 100A     |  |
|    |                                                                        | 150A     |  |
|    |                                                                        | 200A     |  |
|    |                                                                        | 300A     |  |
|    |                                                                        | 400A     |  |
| f) | <b>COIL FOR POWER CONTACTORS (DC)</b>                                  | 500A     |  |
|    |                                                                        | 630A     |  |
|    |                                                                        | 16A      |  |
|    |                                                                        | 32A      |  |
|    |                                                                        | 63A      |  |
|    |                                                                        | 100A     |  |
|    |                                                                        | 150A     |  |
|    |                                                                        | 200A     |  |
| g) | <b>MAIN AND AUX. CONTACT (2NO + 2NC) SET FOR POWER CONTACTORS (AC)</b> | 250A     |  |
|    |                                                                        | 400A     |  |
|    |                                                                        | 16A      |  |
|    |                                                                        | 32A      |  |
|    |                                                                        | 63A      |  |
| h) | <b>MAIN AND AUX. CONTACT (2NO + 2NC) SET FOR POWER CONTACTORS (DC)</b> | 100A     |  |
|    |                                                                        | 150A     |  |
|    |                                                                        | 200A     |  |
|    |                                                                        | 16A      |  |
| 27 | <b>LOCAL STARTERS (MK1 OR EQUIVALENT)</b>                              | 32A      |  |
| 28 | <b>DC STARTER MODULES</b>                                              | 63A      |  |
|    |                                                                        | 100A     |  |
|    |                                                                        | <5.5kW   |  |
|    |                                                                        | 22kW-D3  |  |
| 29 | <b>ACB AND ASSOCIATED ITEMS</b>                                        | 11kW-D3  |  |
|    |                                                                        | 7.5kW-D3 |  |
|    |                                                                        | 3.7kW-D3 |  |
|    |                                                                        | 4000A    |  |
|    |                                                                        | 3200A    |  |
|    |                                                                        | 2500A    |  |
|    |                                                                        | 2000A    |  |
|    |                                                                        | 1600A    |  |
|    |                                                                        | 1250A    |  |
|    |                                                                        | 1000A    |  |
|    |                                                                        | 800A     |  |
|    |                                                                        | 630A     |  |
|    |                                                                        | 4000A    |  |
|    |                                                                        | 3200A    |  |
|    |                                                                        | 2500A    |  |
| a) | <b>AIR CIRCUIT BREAKER (ACB)</b>                                       | 2000A    |  |
|    |                                                                        | 1600A    |  |
|    |                                                                        | 1250A    |  |
|    |                                                                        | 1000A    |  |
|    |                                                                        | 800A     |  |
|    |                                                                        | 630A     |  |
|    |                                                                        | 4000A    |  |
| b) | <b>MALE CONTACT OF ACB (MAIN)</b>                                      | 3200A    |  |
|    |                                                                        | 2500A    |  |
|    |                                                                        | 2000A    |  |
|    |                                                                        | 1600A    |  |
|    |                                                                        | 1250A    |  |
|    |                                                                        | 1000A    |  |
|    |                                                                        | 800A     |  |
| c) | <b>FEMALE CONTACT OF ACB (MAIN)</b>                                    | 630A     |  |
|    |                                                                        | 4000A    |  |
|    |                                                                        | 3200A    |  |
|    |                                                                        | 2500A    |  |
|    |                                                                        | 2000A    |  |
|    |                                                                        | 1600A    |  |
|    |                                                                        | 1250A    |  |
|    |                                                                        | 1000A    |  |
|    |                                                                        | 800A     |  |
|    |                                                                        | 630A     |  |
|    |                                                                        | 4000A    |  |
|    |                                                                        | 3200A    |  |

|    |                                              |       |  |
|----|----------------------------------------------|-------|--|
| d) | LIMIT SWITCH OF ACB                          | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| e) | SPRING CHARGING MOTOR OF ACB                 | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| f) | CLOSING COIL OF ACB                          | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| g) | TRIPPING COIL OF ACB                         | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| h) | AUXILIARY CONTACT BLOCKS                     | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| i) | MALE AND FEMALE SECONDARY ISOLATING CONTACTS | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |
| j) | FIXED & MOVING ARCING CONTACTS               | 4000A |  |
|    |                                              | 3200A |  |
|    |                                              | 2500A |  |
|    |                                              | 2000A |  |
|    |                                              | 1600A |  |
|    |                                              | 1250A |  |
|    |                                              | 1000A |  |
|    |                                              | 800A  |  |
|    |                                              | 630A  |  |

|    |                                                                                                                    |                      |  |
|----|--------------------------------------------------------------------------------------------------------------------|----------------------|--|
|    |                                                                                                                    | 4000A                |  |
|    |                                                                                                                    | 3200A                |  |
|    |                                                                                                                    | 2500A                |  |
|    |                                                                                                                    | 2000A                |  |
| k) | ARCING CHUTES                                                                                                      | 1600A                |  |
|    |                                                                                                                    | 1250A                |  |
|    |                                                                                                                    | 1000A                |  |
|    |                                                                                                                    | 800A                 |  |
|    |                                                                                                                    | 630A                 |  |
| 29 | ETHERNET SWITCH                                                                                                    | 1 NUMBER             |  |
| 30 | COMMUNICATION CABLES:                                                                                              |                      |  |
| a) | STP Cable                                                                                                          | 1 METER              |  |
| b) | Multi-Mode Fiber Optic (FO) Cable                                                                                  | 1 METER              |  |
| c) | Single-Mode Fiber Optic (FO) Cable                                                                                 | 1 METER              |  |
| d) | Cat-5e Cable                                                                                                       | 1 METER              |  |
| 31 | GPS SYSTEM (INCLUSIVE OF ALL CARDS, ANTENNAS, CABLES ETC.)                                                         | 1 SET                |  |
| 32 | TYPE TESTS:                                                                                                        | For 50kA Switchboard |  |
| a) | Short Time Withstand Test                                                                                          |                      |  |
| b) | Temperature Rise Test                                                                                              |                      |  |
| c) | Type II Coordination Test                                                                                          |                      |  |
| d) | Duty Cycle Test for Breaker                                                                                        |                      |  |
| e) | Degree of Protection Test                                                                                          |                      |  |
| f) | Mechanical Endurance Test for Breakers                                                                             |                      |  |
| g) | Electrical Endurance Test for Breakers                                                                             |                      |  |
| 33 | Lumpsum price including Lodging, Boarding etc.for Site Services by Switchboard OEM                                 | One Man day          |  |
| 34 | Lumpsum price including Lodging, Boarding etc.for Supervision of NR Testing and Commissioning by OEM of NR at site | One Man day          |  |

PROJECT:  
**1x40 MW STG FOR TATA STEEL AT JAMSHEDPUR, JHARKHAND**  
 CUSTOMER:  
**M/S TATA STEEL LIMITED, JAMSHEDPUR**  
 BHEL ENQUIRY NO.:

ANX-10 TO PY55223

Rev No. 00

PRICE OFFER NO.:

BIDDER:

DATE:

## RECOMMENDED SPARES FOR LT SWITCHGEAR PACKAGE

### SECTION - 4: Price Schedule of Optional 2-Years Recommended Spares for LT Switchgear Package

| S/N | DESCRIPTION | RATING | QUANTITY | UNIT PRICE<br>(EX-WORKS IN INR) | TOTAL PRICE<br>(EX-WORKS IN INR) |
|-----|-------------|--------|----------|---------------------------------|----------------------------------|
|     |             |        |          |                                 |                                  |
|     |             |        |          |                                 |                                  |
|     |             |        |          |                                 |                                  |
|     |             |        |          |                                 |                                  |
|     |             |        |          |                                 |                                  |

**NOTE:**

Under Price Format Section-4, bidder to provide list of 2-Years Recommended O&M spares for LT Switchgear package along with unit price of each item. BHEL reserves the right to order full/partial quantity of the Recommended O & M Spares along with the main equipment or separately or not at all. The bidder will keep their prices valid till execution of order or till 18 months from the date of P.O., whichever is later.