

**PART - I**  
**RATES FOR MAJOR WORKS MATERIALS / EQUIPMENTS**

| Sl. No.     | Description of Materials   | Unit                          | HSN Code   | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |                        |  |
|-------------|--|-------------------------------|--|--|--|------------------------|--|
| 1           | 1.1  | <b>POWER TRANSFORMER :</b>    |  | 8504   |  |                        |  |
|             |  | 1.1.1                         | 150 MVA, 3 Ph 220/66/11 kV , Oil forced cooling, complete with all fitting and accessories, OLTC, RTCC, FCC, first filling of oil and 10% spare oil in non-returnable drums.   | No.  |  | 64572753               |  |
|             |  | 1.1.2                         | 100 MVA, 220/66/11 kV Transformer complete with accessories as in item no. 1.1.1 above   | No.  |  | 39534500               |  |
|             |  | 1.1.3                         | 100 MVA, 220/110/11 kV Auto Transformer complete with accessories as in item no. 1.1.1 above   | No.  |  | 36829703               |  |
|             |  | 1.1.4                         | 31.5 MVA, 66/11 kV Transformer complete with accessories as in item no. 1.1.1 above  | No.  |  | 17641008               |  |
|             |  | 1.1.5                         | 16/20 MVA, 66/11 kV Transformer complete with all fittings and accessories, OLTC, RTCC first filling of oil and 10% spare oil  | No.  |  | 13604652               |  |
|             |  | 1.1.6                         | 20 MVA, 110/33/11 kV Transformer with accessories as in item no. 1.1.5   | No.  |  | 14644136               |  |
|             |  | 1.1.7                         | 12.5 MVA, 66/11 kV Transformer with accessories as in item no. 1.1.5   | No.  |  | 9184814                |  |
|             |  | 1.1.8                         | 10 MVA, 110/33/11 kV Transformer with accessories as in item no. 1.1.5   | No.  |  | 8950000                |  |
|             |  | 1.1.9                         | 8 MVA, 66/11 kV Transformer with accessories as in item no. 1.1.5  | No.  |  | 9571173                |  |
|             |  | 1.1.10                        | 3ph, 50 Hz, Core type, 2 winding Delta / Star, Vector Group : DYn11, OLTC, RTCC panel, Oil suitable terminal connectors for 63 mm Aluminium tube etc., 1 MVA, 33/0.433 kV  | No.  |  | 1846353                |  |
|             |  | 1.1.11                        | EHV Grade Transformer oil in new steel barrels of 210 litres capacity strictly confirming to IEC 60296   | kL   | 2710   | <b>Refer BESCOT SR</b> |  |
|             |  | 1.1.12                        | New uninhibited Natural Ester insulating oil conforming to IEC 62770 (Latest version) for filling of tanks, radiators & OLTC at proper level including 10% extra oil for topping up supplied in non-returnable containers suitable for outdoor storage | kL   | 2710   | 227000                 |  |
| 1.2         | 1.2.1  | <b>EHV CIRCUIT BREAKERS :</b> |  | 8536   |  |                        |  |
|             |  | 1.2.1.1                       | 220 kV   | No.  |  | 1605715                |  |
|             |  | 1.2.1.2                       | 110 kV   | No.  |  | 485858                 |  |
|             |  | 1.2.1.3                       | 66 kV  | No.  |  | 534856                 |  |
|             |  | 1.2.1.4                       | 33 kV  | No.  |  | 349225                 |  |
|             |  | 1.2.2                         | <b>11 kV SWITCH GEAR</b>   |  | 8537   |                        |  |
|             |  | 1.2.2.1                       | <b>11 kV PCVCB, 350 MVA, 20 kA, 1250 A incomer 800 A feeder</b>  |  | 8537   |                        |  |
|             |  |                               | Incomer Panel  | No.  |  | 477765                 |  |
|             |  |                               | Feeder Panel   | No.  |  | 376313                 |  |
|             |  |                               | Feeder Panel for capacitor bank  | No.  |  | 412883                 |  |
|             |  | 1.2.2.2                       | <b>11 kV MCVCB, 350 MVA, 20 kA, 1250 A incomer 800 A feeder</b>  |  | 8537   |                        |  |
|             |  |                               | Incomer Panel  | No.  |  | 605169                 |  |
|             |  |                               | Feeder Panel   | No.  |  | 529670                 |  |
|             |  |                               | Bus Coupler  | No.  |  | 515514                 |  |
|             |  | 1.2.2.3                       | <b>11 kV MCVCB, 500 MVA, 25 kA, 1600 A incomer 1250 A feeder</b>   |  | 8537   |                        |  |
|             |  |                               | Incomer Panel  | No.  |  | 616965                 |  |
|             |  |                               | Feeder Panel   | No.  |  | 537928                 |  |
|             |  |                               | Bus Coupler  | No.  |  | 532029                 |  |
|             |  | 1.2.2.4                       | <b>11 kV MCVCB, 500 MVA, 31.5 kA, 2000 A incomer 1600 A feeder</b>   |  | 8537   |                        |  |
|             |  |                               | Incomer Panel  | No.  |  | 813970                 |  |
|             |  |                               | Feeder Panel   | No.  |  | 671230                 |  |
| Bus Coupler | No.  |                               |  | 729034   |  |                        |  |
| 1.2.2.5     | <b>Adapter Panel for MCVCB</b>   |                               | 8537   |  |  |                        |  |
|             | Adapter Panel (1250 A)   | No.                           |  | 116862   |  |                        |  |
|             | Adapter Panel (2000 A)   | No.                           |  | 132444   |  |                        |  |
|             | <b>Annunciator Panel for the following combinations (Both for MCVCB &amp; PCVCB)</b> |                               | 8531   |  |  |                        |  |
|             | 11/c + 4F  | No.                           |  | 88475  |  |                        |  |
|             | 11/c + 5F  | No.                           |  | 114428   |  |                        |  |
|             | 21/c + 8F  | No.                           |  | 159255   |  |                        |  |
|             | 11/c + 4F + 1CB  | No.                           |  | 104990   |  |                        |  |
|             | 11/c + 5F + 1CB  | No.                           |  | 129763   |  |                        |  |
|             | 21/c + 8F + 2CB  | No.                           |  | 191106   |  |                        |  |

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|----------------|--|------|----------|--|--|
|                | 2I/c + 8F + 1BC  | No.  |          | 173411   |  |
|                | 2I/c + 10F + 1BC   | No.  |          | 191106   |  |
|                | 2I/c + 12F + 1BC   | No.  |          | 208801   |  |
|                | 2I/c + 14F + 1BC   | No.  |          | 225316   |  |
|                | 2I/c + 16F + 1BC   | No.  |          | 258347   |  |
| <b>1.2.2.7</b> | 11 kV Switchgear SCADA compatible  | L/s  |          | 15747212                                       |  |
|                | <b>LT Switchgear (Indoor) :</b>  |      |          |  |  |
|                | 415 V main switch board  | Set  |          | 2505999  |  |
|                | 415 V ACDB   | Set  |          | 1839513  |  |
| <b>1.2.2.8</b> | 415 V MLDB   | Set  |          | 1931240  |  |
|                | 415 V Emergency LDB  | Set  |          | 868856   |  |
|                | 11 kV HT metering cubicle  | Set  |          | 181792   |  |
|                | ETV Tariff Metering Cubicle  | No.  |          | 922123   |  |
| <b>1.3</b>     | <b>CURRENT TRANSFORMERS with 0.2 accuracy class :</b>                          |      | 8504     |  |  |
| 1.3.1          | 220 kV Class - 1200-800-600-400-300 / 1-1-1-1-1 A                              | No.  |          | 230000   |  |
| 1.3.2          | 110 kV Class - 600-400/1-1-1 A (for 100 MVA Tr.)                               | No.  |          | 115301   |  |
| 1.3.3          | 110 kV Class - 400-200/1-1-1 A   | No.  |          | 83499  |  |
| 1.3.4          | 110 kV Class - 200-100/1-1-1 A   | No.  |          | 82473  |  |
| 1.3.5          | 66 kV Class - 1600-1000/1-1-1 A  | No.  |          | 96701  |  |
| 1.3.6          | 66 kV Class - 1000-800-600/1-1-1 A   | No.  |          | 68508  |  |
| 1.3.7          | 66 kV Class - 400-200/1-1-1 A  | No.  |          | 55935  |  |
| 1.3.8          | 66 kV Class - 200-100/1-1-1 A  | No.  |          | 55460  |  |
| 1.3.9          | 33 kV Class - 400-200/1-1-1 A  | No.  |          | 26532  |  |
| 1.3.10         | 33 kV Class - 200-100/1-1-1 A  | No.  |          | 26532  |  |
| 1.3.11         | 11 kV NCTs - 2000-1200/1-1-1 A (for 31.5 kA SWG)                               | No.  |          | 26487  |  |
| 1.3.12         | 11 kV NCTs - 1200-800/1-1-1 A (for 500 MVA SWG)                                | No.  |          | 27946  |  |
| 1.3.13         | 11 kV NCTs - 800-600-400/1-1-1 A (for 350 MVA SWG )                            | No.  |          | 41713  |  |
| 1.3.14         | 11 kV NCTs - 600-300/1-1-1 A (for PCVCBs upto 10 MVA Transformer)              | No.  |          | 41481  |  |
| <b>1.3.15</b>  | <b>11 kV CTs - Indoor/Outdoor</b>  | No.  |          |  |  |
| 1.3.15.1       | 11 kV CTs - 2000-1200/1-1-1 A (for Incomer/Bus coupler for 31.5 kA SWG)        | No.  |          | 33952  |  |
| 1.3.15.2       | 11 kV CTs - 1200-800/1-1-1 A (for Incomer/Bus coupler for 500 MVA SWG)         | No.  |          | 20070  |  |
| 1.3.15.3       | 11 kV CTs - 800-400/1-1-1 A (for Incomer/Bus coupler for 350 MVA SWG )         | No.  |          | 21015  |  |
| 1.3.15.4       | 11 kV CTs - 600-400/1-1-1 A (for for feeders of 31.5 kA SWG)                   | No.  |          | 27000  |  |
| 1.3.15.5       | 11 kV CTs - 400-200/1-1-1 A (for for feeders of 500 MVA SWG)                   | No.  |          | 24426  |  |
| 1.3.15.6       | 11 kV CTs - 200-100/1-1-1 A (for feeders of 350 MVA SWG)                       | No.  |          | 24426  |  |
| <b>1.4</b>     | <b>CAPACITOR VOLTAGE TRANSFORMERS :</b>  |      | 8504     |  |  |
| 1.4.1          | 245 kV CVT, 8800 PF, one phase CVT with 3 secondaries                          | No.  |          | 325622   |  |
| 1.4.2          | 245 kV CVT, 4400 PF, one phase CVT with 3 secondaries                          | No.  |          | 143576   |  |
| <b>1.5</b>     | <b>VOLTAGE TRANSFORMERS :</b>  |      | 8504     |  |  |
| 1.5.1          | 220 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$                     | No.  |          | 185324   |  |
| 1.5.2          | 110 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ | No.  |          | 92764  |  |
| 1.5.3          | 66 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$  | No.  |          | 57234  |  |
| 1.5.4          | 33 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$                      | No.  |          | 26418  |  |
| 1.5.5          | 11 kV / 110 V - 110 V (Three Phase)  | No.  |          | 28132  |  |
| 1.5.6          | 11 kV / 110 V - 110 V (Single Phase)   | No.  |          | 20868  |  |
| <b>1.6</b>     | <b>LIGHTNING ARRESTORS (POLYMERIC) :</b>                                       |      | 8535     |  |  |
| 1.6.1          | 198 kV Metal Oxide type, with surge counter (Discharge Class - 3)              | No.  |          | 60144  |  |
| 1.6.2          | 96 kV Heavy Duty Metal oxide (Discharge Class - 2 for Lines & Transformers)    | No.  |          | 32982  |  |
| 1.6.3          | 60 kV, 10 kA Normal Duty (Discharge Class - 2 )                                | No.  |          | 19110  |  |
| 1.6.4          | 30 kV Normal Duty Metal oxide (Discharge class - 2 )                           | No.  |          | 8731   |  |

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|            | 1.6.5 96 kV Heavy Duty Metal Oxide (Discharge Class - 3 for Capacitor Bank )   | No.  |          | 34923  |  |
|            | 1.6.6 60 kV Normal Duty Metal Oxide (Discharge Class - 3 )   | No.  |          | 18431  |  |
|            | 1.6.7 30 kV Normal Duty Metal Oxide (Discharge Class - 3 )   | No.  |          | 6790   |  |
| <b>1.7</b> | <b>ISOLATORS :</b>   |      | 8536     |  |  |
|            | <b>1.7.1 220 kV, 1250 A, 31.5 kA/40 kA for three seconds short time current rating remote, electrically cum manually operated double break type Disconnects with Solid core insulators :</b> |      |          |  |  |
|            | 1.7.1.1 Upright with Earth Switch LPH 5750 mm  | Set  |          | 521898   |  |
|            | 1.7.1.2 Upright without Earth Switch (Live Point Height 5750 mm)   | Set  |          | 452053   |  |
|            | 1.7.1.3 Upright without Earth Switch (Live Point Height 8250 mm)   | Set  |          | 464664   |  |
|            | 1.7.1.4 Underhung without Earth Switch (12850 mm Mounting Height)  | Set  |          | 482125   |  |
|            | <b>1.7.2 110 kV, 1250 A, 31.5 kA double break Electrically cum manually operated isolators as detailed in item no. 1.7.1.</b>  |      |          |  |  |
|            | 1.7.2.1 Upright with Earth Switch LPH 4600 mm  | Set  |          | 231245   |  |
|            | 1.7.2.2 Upright without Earth Switch (Live Point Height 4600 mm)   | Set  |          | 229907   |  |
|            | 1.7.2.3 Upright without Earth Switch (Live Point Height 6350 mm)   | Set  |          | 229907   |  |
|            | 1.7.2.4 Underhung without Earth Switch (10000 mm Mounting Height)  | Set  |          | 255129   |  |
|            | <b>1.7.3 110 kV, 1250 A, 31.5 kA double break Manually operated isoators as detailed in item no. 1.7.1.</b>  |      |          |  |  |
|            | 1.7.3.1 Upright with Earth Switch LPH 4600 mm  | Set  |          | 259979   |  |
|            | 1.7.3.2 Upright without Earth Switch (Live Point Height 4600 mm)   | Set  |          | 222146   |  |
|            | 1.7.3.3 Upright without Earth Switch (Live Point Height 6350 mm)   | Set  |          | 223116   |  |
|            | <b>1.7.4 66 kV, 1250 A/800 A, 31.5 kA double break Electrically cum Manually operated isolators as detailed in item no. 1.7.1.</b>   |      |          |  |  |
|            | 1.7.4.1 Upright with Earth Switch LPH 4250 mm  | Set  |          | 246398   |  |
|            | 1.7.4.2 Upright without Earth Switch (Live Point Height 4250 mm)   | Set  |          | 214386   |  |
|            | 1.7.4.3 Upright without Earth Switch (Live Point Height 5500 mm)   | Set  |          | 197813   |  |
|            | 1.7.4.4 Underhung without Earth Switch   | Set  |          | 227066   |  |
|            | <b>1.7.5 66 kV, 1250 A/800 A, 31.5 kA double break Manually operated isolators as detailed in item no. 1.7.1.</b>  |      |          |  |  |
|            | 1.7.5.1 Upright with Earth Switch LPH 4600 mm  | Set  |          | 217296   |  |
|            | 1.7.5.2 Upright without Earth Switch (Live Point Height 4600 mm)   | Set  |          | 183343   |  |
|            | 1.7.5.3 Upright without Earth Switch (Live Point Height 5500 mm)   | Set  |          | 172673   |  |
|            | <b>1.7.6 66 kV, 2000 A, 31.5 kA double break Electrically cum Manually operated as detailed in item no. 1.7.1.</b>   |      |          |  |  |
|            | 1.7.6.1 Upright with Earth Switch  | Set  |          | 191104   |  |
|            | 1.7.6.2 Upright without Earth Switch 4250 mm   | Set  |          | 194984   |  |
|            | 1.7.6.3 Upright without Earth Switch 5500 mm   | Set  |          | 199835   |  |
|            | 1.7.6.4 Underhung without Earth Switch   | Set  |          | 191104   |  |
|            | <b>1.7.7 33 kV Isolators with electrically cum motor operating mechanism</b>   |      |          |  |  |
|            | 1.7.7.1 33 kV, 800 A, 25 kA Upright with Earth Switch complete metallic portion with insulator   | Set  |          | 75666  |  |
|            | 1.7.7.2 33 kV, 800 A, 25 kA Upright without Earth Switch (Live Point Height 3750 mm)   | Set  |          | 64025  |  |
|            | 1.7.7.3 33 kV, 800 A, 25 kA Upright without Earth Switch (Live Point Height 4750 mm)   | Set  |          | 73725  |  |
|            | <b>1.7.8 33 kV, Isolators :</b>  |      |          |  |  |
|            | 1.7.8.1 33 kV, 800 A, 25 kA Upright with Earth Switch complete metallic portion with insulator   | Set  |          | 68875  |  |
|            | 1.7.8.2 33 kV, 800 A, 25 kA Upright without Earth Switch (Live Point Height 3750 mm)   | Set  |          | 57234  |  |
|            | 1.7.8.3 33 kV, 800 A, 25 kA Upright without Earth Switch (Live Point Height 4750 mm)   | Set  |          | 77606  |  |
| <b>1.8</b> | <b>BATTERY SETS :</b>  |      | 8507     |  |  |
|            | <b>1.8.1 Tubular type :</b>  |      |          |  |  |
|            | 1.8.1.1 110 V, 100 AH  | Set  |          | 279860   |  |
|            | 1.8.1.2 220 V, 300 AH  | Set  |          | 1453900  |  |
|            | <b>1.8.2 Plante Type :</b>   |      | 8507     |  |  |
|            | 1.8.2.1 48 V, 100 AH   | Set  |          | 1246560  |  |
|            | 1.8.2.2 48 V, 200 AH   | Set  |          | 235200   |  |
|            | 1.8.2.3 48 V, 300 AH   | Set  |          | 338688   |  |
|            | 1.8.2.4 48 V, 400 AH   | Set  |          | 573888   |  |
|            | 1.8.2.5 110 V, 100 AH  | Set  |          | 326200   |  |
|            | 1.8.2.6 220 V, 300 AH  | Set  |          | 1578190  |  |
|            | 1.8.2.7 220 V, 645 AH for GIS  | Set  |          | 4564508  |  |
| <b>1.9</b> | <b>BATTERY CHARGER :</b>   |      | 8504     |  |  |

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| 1.9.1         | 48 V, 200 AH  | Set  |          | 225104   |  |
| 1.9.2         | Suitable for 200 AH (75 A)  | No.  | 8507     | 436532   |  |
| 1.9.3         | Suitable for 400 AH (100 A)   | No.  | 8507     | 582042   |  |
| 1.9.4         | 110 V, 100 AH (with float cum boost battery charger working on 230 V, 1 Ph AC supply as per specifications)   | Set  |          | 95995  |  |
| 1.9.5         | <b>Station Battery &amp; Battery charger :</b><br>2 x 220 V, 300 AH (with 2 nos. of float and 2 nos. of boost battery charger including control panels, change over arrangement etc., complete along with 2 separate DC Distribution Panel (Indoor) 1I/C + 20 O/G SFU 60A + 20 O/G SFU 30A  | Set  | 8507     | 549060   |  |
| 1.9.6         | 2 x 220 V, 645 AH (with 2 nos. of float and 2 nos. of float cum boost including control panel, change over arrangements etc., complete along with separate DC Distribution Panel (Indoor))  | Set  |          | 1035314  |  |
| <b>1.10</b>   | <b>LTAC Panels and ACDBs</b>  |      | 8537     |  |  |
| <b>1.10.1</b> | <b>For 400 kV and 220 kV Stations :</b>   |      |          |  |  |
| 1.10.1.1      | AC distribution Box Single front (outdoor type) 6 Terminal 1200 x 1350 x 300 mm, one I/C of 100A MCCB 20kA + 6 O/G MCB 16A + 1 O/G of 100A, HRC fuse  | No.  |          | 42683  |  |
| 1.10.1.2      | AC distribution Box Double front (outdoor type) 24 Terminal 1200 x 1350 x 600 mm, two I/C of 100A MCCB 20kA + 24 O/G MCB 16A + 2 O/G of 100A, HRC fuse  | No.  |          | 98947  |  |
| 1.10.1.3      | LTAC panel (indoor), 415V as per technical specification comprising of voltmeter and ammeter, 2 I/C ACB 800A + 2 O/G SFU, 200A + 8 O/G SFU 100A + 14 O/G SFU, 63A + 12 O/G, 32A + 1B/C SFU, 800A + 1DG change over switch 300 A etc.  | No.  |          | 840000   |  |
| 1.10.1.4      | DC distribution panel (Indoor) 1 I/C SFU 200 A + 10 O/G SFU 63A + 10 O/G SFU 32A with relays for DC failure & DC Bus earth fault as per technical specification.  | No.  |          | 78000  |  |
| <b>1.10.2</b> | <b>For 110 kV and 66 kV Stations :</b>  |      |          | 0  |  |
| 1.10.2.1      | AC distribution Box Single front (outdoor type) 6 Terminal 1200 x 1350 x 300 mm, one I/C of 100A MCCB 20kA + 6 O/G MCB 16 A + 1 O/G of 100A, HRC fuse   | No.  |          | 59174  |  |
| 1.10.2.2      | LTAC panel (indoor), 415V as per technical specification comprising of voltmeter and ammeter, 1 I/C MCCB 200A + 2 nos. 3-Phase 63A O/G SFU, + 2 nos. 3 Phase 32A O/G SFU 100A + 14 O/G SFU, 6 nos. 3 Phase 16A SFU etc. complete  | No.  |          | 69750  |  |
| 1.10.2.3      | DC distribution panel (Indoor) as per technical specification comprising of earth fault indicator, indication circuit for AC mains failure, 1 no. 100A SFU for I/C + 12 nos. 32A SFU for O/G  | No.  |          | 42570  |  |
| <b>1.11</b>   | <b>CAPACITOR BANK with 0.2 % Series Reactor &amp; NCT :</b>   |      | 8532     |  |  |
|               | Design, Engineering, supply, erection, testing & commissioning of Capacitor Banks with internal fuses, terminal connector suitable capacity Neutral CTs, & 0.2% series reactors on neutral side with elevating/mounting structure and with 10% spare capacitors complete (This does not include breaker, panel, civil works like excavation and foundation concreting works). |      |          |  |  |
| 1.11.1        | 123 kV, 24 MVar (Double star, double Bank of 4 x 6 MVar)  | Set  |          | 3348684  |  |
| 1.11.2        | 123 kV, 20 MVar (Double star, double Bank of 4 x 5 MVar)  | Set  |          | 2789923  |  |
| 1.11.3        | 123 kV, 24 MVar (Double star connected Bank of 2 x 12 MVar)   | Set  |          | 2730749  |  |
| 1.11.4        | 72.5 kV, 20 MVar (Double star connected Bank of 4 x 5 MVar)   | Set  |          | 2702617  |  |
| 1.11.5        | 72.5 kV, 20 MVar (Double star connected Bank of 2 x 10 MVar)  | Set  |          | 3265258  |  |
| 1.11.6        | 12.1 kV, 2.9 MVar star connected Capacitor Bank   | Set  |          | 371537   |  |
| 1.11.7        | 12.1 kV, 5.8 MVar star connected Capacitor Bank   | Set  |          | 771206   |  |
| <b>1.12</b>   | <b>Copper Control Cables :</b>  |      | 8544     |  |  |
| 1.12.1        | 2 Core 2.5 Sq mm  | km   |          | 62336  |  |
| 1.12.2        | 2 Core 6 Sq mm  | km   |          | 101970   |  |
| 1.12.3        | 2 Core 10 Sq mm   | km   |          | 133870   |  |
| 1.12.4        | 2 Core 70 Sq mm   | km   |          | 1690939  |  |
| 1.12.5        | 2 Core 150 Sq mm  | km   |          | 2155158  |  |
| 1.12.6        | 4 Core 2.5 Sq mm  | km   |          | 93857  |  |
| 1.12.7        | 4 Core 4 Sq mm  | km   |          | 116820   |  |
| 1.12.8        | 4 Core 6 Sq mm  | km   |          | 163350   |  |
| 1.12.9        | 4 Core 10 Sq mm   | km   |          | 267250   |  |
| 1.12.10       | 4 Core 16 Sq mm   | km   |          | 371000   |  |
| 1.12.11       | 4 Core 25 Sq mm   | km   |          | 615025   |  |
| 1.12.12       | 5 Core 2.5 Sq mm  | km   |          | 165124   |  |
| 1.12.13       | 7 Core 2.5 Sq mm  | km   |          | 209122   |  |

| Sl. No. | Description of Materials   | Unit   | HSN Code  | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |  |
|---------|--|--|---|--|--|--|
| 1.13    | 1.12.14  | 10 Core 2.5 Sq mm  | km  | 189164   |  |  |
|         | 1.12.15  | 14 Core 2.5 Sq mm  | km  | 275833   |  |  |
|         | 1.12.16  | 19 Core 2.5 Sq mm  | km  | 347047   |  |  |
|         |  | <b>1.1 kV class Armoured Aluminium / Copper Cables :</b>   |   | 8544   |  |  |
|         | 1.13.1   | 4 x 240 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | 1300865  |  |  |
|         | 1.13.2   | 4 x 95 Sq mm Aluminium cable with glands/lugs/ferrules   | km  | 504333   |  |  |
|         | 1.13.3   | 4 x 70 Sq mm Aluminium cable with glands/lugs/ferrules   | km  | 358699   |  |  |
|         | 1.13.4   | 4 x 25 Sq mm Aluminium cable with glands/lugs/ferrules   | km  | Refer BESCO SR                                 |  |  |
|         | 1.13.5   | 4 x 16 Sq mm Aluminium cable with glands/lugs/ferrules   | km  | Refer BESCO SR                                 |  |  |
|         | 1.13.6   | 4 x 6 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | 92215  |  |  |
|         | 1.13.7   | 3.5 x 300 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | Refer BESCO SR                                 |  |  |
|         | 1.13.8   | 3.5 x 240 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | Refer BESCO SR                                 |  |  |
|         | 1.13.9   | 1.13.9   | 3.5 x 70 Sq mm Aluminium cable with glands/lugs/ferrules  | km   | Refer BESCO SR                               |  |
|         |  | 1.13.10  | 3.5 x 35 Sq mm Aluminium cable with glands/lugs/ferrules  | km   | Refer BESCO SR                               |  |
|         |  | 1.13.11  | 2 x 10 Sq mm Aluminium cable with glands/lugs/ferrules  | km   | Refer BESCO SR                               |  |
| 1.13.12 |  | 2 x 6 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | Refer BESCO SR                                 |  |  |
| 1.13.13 |  | 1 x 630 Sq mm Aluminium cable with glands/lugs/ferrules  | km  | 826357   |  |  |
| 1.13.14 |  | 4 Core 25 Sq mm Copper cable with glands/lugs/ferrules   | km  | 533539   |  |  |
| 1.13.15 |  | 4 Core 10 Sq mm Copper cable with glands/lugs/ferrules   | km  | 240166   |  |  |
| 2       |  | <b>CONTROL AND RELAY PANELS :</b>  |   | 8536   |  |  |
|         | 2.1  | 2.1.1  | <b>110 kV / 66 kV / 33 kV Station - Simplex 110 V DC compatible to SCADA</b>                                    |  |  |  |
|         |  | 2.1.1.1  | 110 kV Line panel   | No.  | 441000                                       |  |
|         |  | 2.1.1.2  | 66 kV Line panel  | No.  | 565551                                       |  |
|         |  | 2.1.1.3  | 110/33 kV Tr. panel   | No.  | 630140                                       |  |
|         |  | 2.1.1.4  | 110/11 kV Tr. panel   | No.  | 511560                                       |  |
|         |  | 2.1.1.5  | 66/11 kV Tr. panel  | No.  | 590000                                       |  |
|         |  | 2.1.1.6  | 33 kV Line panel  | No.  | 173460                                       |  |
|         |  | 2.1.1.7  | Marshalling bay kiosks (as per technical specifications, along with Air conditioning system)<br>For 66 kV Panel | No.  | 838764                                       |  |
|         | 2.2  | 2.1.2  | <b>220 V DC Simplex type</b>  |  |  |  |
|         |  | 2.1.2.1  | 33 kV Line panel  | No.  | 417415                                       |  |
|         |  |  | <b>C&amp;R Panels compatible to SCADA for installation in 220 kV Sub-stations - Duplex type :</b>               |  |  |  |
|         |  | 2.2.1  | 220 kV Line panel - Type 2L   | No.  | 1265942                                      |  |
|         |  | 2.2.2  | 220/66/11 kV Transformer panel - Type 2T6   | No.  | 1703444                                      |  |
|         |  | 2.2.3  | 220/110/11 kV Transformer panel - Type 2T1  | No.  | 1703444                                      |  |
|         |  | 2.2.4  | 220 kV Bus Coupler panel - Type 2BC   | No.  | 825530                                       |  |
|         |  | 2.2.5  | 220 kV Bus Bar Protection panel - Type 2BBA   | No.  | 2630832                                      |  |
| 2.2.6   |  | 110 kV Line panel - Type 1L  | No.   | 693360   |  |  |
| 2.2.7   |  | 110 kV Bus Coupler panel - Type 1BC  | No.   | 825530   |  |  |
| 2.3     | 2.2.8  | 110/11 kV Transformer panel - Type 1T1   | No.   | 889555   |  |  |
|         | 2.2.9  | 66 kV Line panel - Type 6L   | No.   | 706211   |  |  |
|         | 2.2.10   | 66 kV Bus Coupler panel - Type 6BC   | No.   | 686810   |  |  |
|         | 2.2.11   | 66/11 kV Transformer panel - Type 6T1  | No.   | 889555   |  |  |
|         |  | <b>C&amp;R Panels compatible to IEC 61850, communication protocol for Station automation system in 220 kV Sub-stations :</b> |   |  |  |  |
|         | 2.3.1  | 220 kV Line Type 2L  | No.   | 1282433  |  |  |
|         | 2.3.2  | 220/66/11 kV Transformer Type 2T6  | No.   | 2527787  |  |  |
|         | 2.3.3  | 220/110/11 kV Transformer Type 2T1   | No.   | 1704414  |  |  |
|         | 2.3.4  | 220 kV Bus Coupler Type 2BC  | No.   | 899256   |  |  |
|         | 2.3.5  | 220 kV Bus Bar Protection Type 2BBA  | No.   | 2492742  |  |  |
|         | 2.3.6  | 110 kV Line panel - Type 1L  | No.   | 1088419  |  |  |
|         | 2.3.7  | 110 kV Bus Coupler panel - Type 1BC  | No.   | 621000   |  |  |
|         | 2.3.8  | 110/11 kV Transformer panel - Type 1T1   | No.   | 2080802  |  |  |
| 2.3.9   | 66 kV Line - Type 6L   | No.  | 1161175   |  |  |  |
| 2.3.10  | 66 kV Bus Coupler - Type 6BC   | No.  | 775086  |  |  |  |
| 2.3.11  | 66/11 kV Transformer - Type 6T1  | No.  | 1838839   |  |  |  |
| 2.3.12  | 33/0.433 kV Transformer  | No.  | 922123  |  |  |  |
| 2.3.13  | 11 kV Line type - 1L - Provision for 2 feeders to be made in one panel | No.  | 702331  |  |  |  |

| Sl. No.  | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--|--|------|----------|--|--|
| 2.4  | Sub-station Automation System  | No.  |          | 10752263                                       |  |
| 3  | <b>TOWERS :</b>  |      | 7308     |  |  |
|  | 3.1 Fabrication, galvanising and supply of High tensile steel tower materials  | MT   |          | 91187  |  |
|  | 3.2 Fabrication, galvanising and supply of mild steel tower materials  | MT   |          | 82456  |  |
|  | 3.3 Supply of galvanised Bolts & Nuts  | MT   |          | 115438   |  |
| 4  | Fabrication, Proto testing and supply of galvanised DC Monopoles (including cross arms, base plate with anchor bolts, anticlimbing device, step bolts and bolt & nuts/ladder and all other equipments complete as per technical specification) | MT   |          | 296692   |  |
| 5  | <b>ACCESSORIES :</b>   |      | 7308     |  |  |
|  | 5.1 Phase Plates (Set of 6 per tower)  | Set  |          | 397.77   |  |
|  | 5.2 Number Plates/Circuit Plates   | No.  |          | 150.79   |  |
|  | 5.3 Danger Plates/Caution Plates (1 no. per tower)   | No.  |          | 167.69   |  |
|  | 5.4 Earth Bond 300 mm Long   | No.  |          | 360.07   |  |
|  | 5.5 Earth Bond 450 mm Long   | No.  |          | 413.37   |  |
| 6  | <b>RCC POLES :</b>   |      | 6810     |  |  |
|  | 6.1 8 metre Long 145 kg for DPS  | No.  |          | Refer BESCO SR                                 |  |
|  | 6.2 9 metre Long 150 kg working load   | No.  |          | Refer BESCO SR                                 |  |
|  | 6.3 9.5 metre Long 300 kg working load for ODS   | No.  |          | Refer BESCO SR                                 |  |
| 7  | <b>RIGID BUS WITH TAPS &amp; CLAMPS</b>  |      |          |  |  |
|  | <b>RIGID BUS :</b>   |      | 8537     |  |  |
|  | <b>7.1.1 Aluminium Tube Conforming to 6340 WP of IS-5082/1969 (BS1600 - Sch. 40) of following sizes:</b>   |      |          |  |  |
|  | 7.1.1.1 75 mm size - 220 kV side   | m    |          | 1285.34  |  |
|  | 7.1.1.2 75 mm size - 110 kV side   | m    |          | 1285.34  |  |
|  | 7.1.1.3 63 mm size - 66 kV side  | m    |          | 1176.70  |  |
|  | 7.1.1.4 50 mm size - 33 kV side  | m    |          | 995.29   |  |
|  | 7.1.1.5 50 mm size connecting isolator to vertical tap - 66 kV side  | m    |          | 793.44   |  |
|  | 7.1.1.6 38 mm size connecting isolator to vertical tap - 33 kV side  | m    |          | 526.75   |  |
|  | <b>7.1.2 Aluminium Tube Conforming to 6340 WP of IS-5082/1969 (BS1600 - Sch. 80) of following sizes :</b>  |      |          |  |  |
|  | 7.1.2.1 100 mm size - 220 kV side  | m    |          | 2839.89  |  |
|  | 7.1.2.2 75 mm size - 66 kV side  | m    |          | 973.22   |  |
|  | 7.1.2.3 50 mm size - 66 kV side  | m    |          | 903.70   |  |
|  | 7.1.2.4 63 mm size connecting isolator to vertical tap - 220 kV side   | m    |          | 835.07   |  |
|  | 7.1.2.5 63 mm size connecting isolator to vertical tap - 66 kV side  | m    |          | 973.22   |  |
|  | 7.1.2.6 63 mm size - 33 kV side  | m    |          | 1622.00  |  |
| 7.1.2.7 125 mm (5") - 220 kV side main bus interconnection   | m  |      | 4131.00  |  |  |
| 7.1.2.8 100 mm (4") - 400 kV side equipment interconnection  | m  |      | 2987.00  |  |  |
| <b>7.2 Taps :</b>  |  | 8481 |          |  |  |
| 7.2.1 Inverted 'V' taps made of 75 mm Aluminium Tube (BS-1600) of 1250 mm vertical height for vertical portion and auxiliary bus on 66 kV side with rounded off end. | No.  |      | 973.22   |  |  |
| 7.2.2 Inverted 'V' taps made of 63 mm Aluminium Tube (BS-1600) of 2500 mm vertical height for vertical portion and cross bus on 220 kV side with rounded off end.    | No.  |      | 7225.09  |  |  |
| 7.2.3 Straight taps made of 63 mm Aluminium Tube (BS-1600) of 1750 mm vertical height for vertical portion and cross bus on 110 kV side with rounded off end.        | No.  |      | 4724.00  |  |  |
| 7.2.4 Straight taps made of 50 mm Aluminium Tube (BS-1600) of 1250 mm vertical height for vertical portion and cross bus on 66 kV side with rounded off end.         | No.  |      | 3337.04  |  |  |
| 7.2.5 Straight taps made of 38 mm Aluminium Tube (BS-1600) of 1000 mm vertical height for vertical portion and cross bus on 33 kV side with rounded off end.         | No.  |      | 4042.67  |  |  |
| 7.3  | <b>CLAMPS :</b>  |      | 7318     |  |  |
|  | <b>7.3.1 Post insulator Clamp suitable for 100 mm Aluminium pipe and post insulators Solid core type - 220 kV side</b>   |      |          |  |  |
|  | 7.3.1.1 Rigid Type   | No.  |          | 1537.83  |  |
|  | 7.3.1.2 Expansion Type   | No.  |          | 3074.69  |  |
|  | 7.3.1.3 Sliding Type   | No.  |          | 1230.26  |  |
|  | <b>7.3.2 Post insulator Clamp suitable for 75 mm Aluminium pipe and post insulators Solid core type</b>  |      | 7318     |  |  |
|  | 7.3.2.1 Rigid Type   | No.  |          | 1235.60  |  |
| 7.3.2.2 Expansion Type   | No.  |      | 3520.39  |  |  |

| Sl. No.     | Description of Materials  | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|-------------|---|------|----------|--|--|
|             | 7.3.2.3 Sliding Type  | No.  |          | 1395.66  |  |
|             | <b>7.3.3 Post insulator Clamp suitable for 63 mm Aluminium pipe and post insulators Solid core type</b>   |      | 7318     |  |  |
|             | 7.3.3.1 Rigid Type  | No.  |          | 1160.20  |  |
|             | 7.3.3.2 Expansion Type  | No.  |          | 3273.02  |  |
|             | 7.3.3.3 Sliding Type  | No.  |          | 979.99   |  |
|             | <b>7.3.4 Post insulator Clamp suitable for 50 mm Aluminium pipe and post insulators Solid core type</b>   |      | 7318     |  |  |
|             | 7.3.4.1 Rigid Type  | No.  |          | 1077.61  |  |
|             | 7.3.4.2 Expansion Type  | No.  |          | 2941.66  |  |
|             | 7.3.4.3 Sliding Type  | No.  |          | 1128.31  |  |
|             | <b>7.3.5 Corona Bell Suitable for Aluminium pipe of Size</b>  |      | 7318     |  |  |
|             | 7.3.5.1 75 mm   | No.  |          | 731.43   |  |
|             | 7.3.5.2 63 mm   | No.  |          | 522.87   |  |
|             | 7.3.5.3 50 mm   | No.  |          | 402.97   |  |
| <b>8</b>    | <b>CONDUCTORS :</b>   |      | 7604     |  |  |
|             | 8.1 Coyote ACSR   | km   |          | <b>Refer BESCO SR</b>                          |  |
|             | 8.2 Lynx ACSR   | km   |          | 1.02   |  |
|             | 8.3 Drake ACSR  | km   |          | 2.05   |  |
|             | 8.4 Moose ACSR  | km   |          | 3.56   |  |
|             | 8.5 AAAC - Moose  | km   |          | 2.61   |  |
|             | 8.6 Bersimis  | km   |          | 6.00   |  |
|             | 8.7 7/3.15 mm G.I. Wire for ground conductor  | km   |          | 0.58   |  |
|             | 8.8 7/3.65 mm G.I. Wire for ground conductor  | km   |          | 0.80   |  |
| <b>9</b>    | <b>INSULATORS :</b>   |      | 8546     |  |  |
|             | 9.1 Solid Core Insulators 220 kV  | No.  |          | 22203.61                                       |  |
|             | 9.2 Solid Core Insulators 110 kV  | No.  |          | 9767.17  |  |
|             | 9.3 Solid Core Insulators 66 kV   | No.  |          | 4403.36  |  |
|             | 9.4 Solid Core Insulators 33 kV   | No.  |          | 2959.54  |  |
|             | 9.5 Disc Insulator 70 kN  | No.  |          | 391.02   |  |
|             | 9.6 Disc Insulator 90 kN  | No.  |          | 447.54   |  |
|             | 9.7 Disc Insulator 120 kN   | No.  |          | 550.00   |  |
|             | 9.8 Disc Insulator 160 kN   | No.  |          | 779.11   |  |
|             | 9.9 Antifog Disc Insulators 120 kN  | No.  |          | 810.00   |  |
|             | 9.10 Antifog Disc Insulators 160 kN   | No.  |          | 945.00   |  |
|             | 9.11 33 kV Pin Insulator Shell with pin   | No.  |          | 488.64   |  |
|             | 9.12 Pins for above   | No.  |          | 195.21   |  |
|             | 9.13 Solid Core Long Rod Insulators 90 kN   | No.  |          | 4098.85  |  |
|             | 9.14 Solid Core Long Rod Insulators 120 kN  | No.  |          | 17409.89                                       |  |
|             | 9.15 Solid Core Long Rod Insulators 160 kN  | No.  |          | 23285.62                                       |  |
|             | 9.16 220 kV Polymer Disc Insulator  | Set  |          | 6771.51  |  |
|             | 9.17 110 kV Polymer Disc Insulator  | Set  |          | 3227.34  |  |
|             | 9.18 66 kV Polymer Disc Insulator   | Set  |          | 2609.14  |  |
|             | 9.19 Silicon Rubber Composite Insulator 120 kN - Tension Strings for Moose ACSR (16 nos. for Single tension)  | Set  |          | 789.12   |  |
|             | 9.20 Silicon Rubber Composite Insulator 90 kN - Suspension Strings for Moose ACSR (14 nos. for Single suspension & 2x14 nos. for Double suspension) | Set  |          | 7891.98  |  |
|             | 9.21 Silicon Rubber Composite Insulator 120 kN - Tension Strings for Drake ACSR (16 nos. for Single tension & 2x16 nos. for Double tension)         | Set  |          | 2873.42  |  |
|             | 9.22 Silicon Rubber Composite Insulator 90 kN - Suspension Strings for Drake ACSR (14 nos. for Single suspension & 2x14 nos. for Double suspension) | Set  |          | 1537.18  |  |
|             | 9.23 Silicon Rubber composite Insulator 90 kN - Tension strings (5 nos. of Disc for Coyote conductor)   | Set  |          | 2070.33  |  |
|             | 9.24 Silicon Rubber composite Insulator 90 kN - Suspension strings (4 nos. of Disc for Coyote conductor)  | Set  |          | 4418.72  |  |
| <b>10</b>   | <b>TELECOMMUNICATION EQUIPMENTS :</b>   |      | 8517     |  |  |
| <b>10.1</b> | <b>Wave Trap :</b>  |      | 8517     |  |  |
|             | 10.1.1 0.5 mH, 1250 A, 31 kA  | Set  |          | 383825   |  |
|             | 10.1.2 1.0 mH, 2000 A, 31 kA  | Set  |          | 654798   |  |
|             | 10.1.3 1.0 mH, 2000 A, 40 kA  | Set  |          | 679049   |  |
|             | 10.1.4 1.0 mH, 3150 A, 63 kA  | Set  |          | 999844   |  |
| <b>10.2</b> | <b>PLCC Terminals (Carrier cabinets) :</b>  |      | 8517     |  |  |
|             | 10.2.1 Twin Channel   | Set  |          | 727553   |  |
|             | 10.2.2 Single Channel   | Set  |          | 613602   |  |

| Sl. No. | Description of Materials   | Unit     | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------|--|----------|----------|--|--|
| 10.3    | <b>Coupling Device with protective device :</b>  |          |          |  |  |
| 0       | 10.3.1 Coupling Ph/Ph  | Set      |          | 165331   |  |
| 10.4    | <b>HF Co-axial Cable :</b>   |          |          |  |  |
|         | 10.4.1 75 ohm  | km       |          | 194014   |  |
| 10.5    | <b>EPAX for PLCC :</b>   |          |          |  |  |
|         | 10.5.1 Trunk/E&M/Line 8/8/16   | No.      |          | 485035   |  |
|         | 10.5.2 Trunk/E&M/Line 8/8/8  | No.      |          | 485035   |  |
| 10.6    | <b>Protection couplers :</b>   |          | 8517     |  |  |
|         | 10.6.1 4 commands  | No.      |          | 266769   |  |
|         | 10.6.2 Digital Protection Coupler  | No.      |          | 339525   |  |
| 10.7    | <b>Over Head Cables (Unshielded)</b>   |          | 8517     |  |  |
|         | 10.7.1 20 Pair PVC/OH Telephone Cable 0.51 mm dia conductor  | m        |          | 72.76  |  |
|         | 10.7.2 10 Pair PVC/OH Telephone Cable 0.51 mm dia conductor  | m        |          | 38.80  |  |
|         | 10.7.3 5 Pair PVC/OH Telephone Cable 0.51 mm dia conductor   | m        |          | 19.40  |  |
| 10.8    | <b>5 Pair PVC Telephone Cable 0.51 mm dia conductor with shield</b>  | m        | 8517     | 38.80  |  |
| 10.9    | <b>0.91 mm Copper drop wire</b>  | m        | 8517     | 14.55  |  |
| 10.10   | <b>Telephone Instruments :</b>   |          | 8517     |  |  |
|         | 10.10.1 Push Button Telephone  | Per Unit |          | 485.04   |  |
|         | 10.10.2 Plan 103 P.B. Telephone (1 Main & 1 Extn) with caller ID   | No.      |          | 3589.26  |  |
|         | 10.10.3 Plan 103 P.B. Telephone (1 Main & 1 Extn) without caller ID  | No.      |          | 2716.20  |  |
| 10.11   | <b>KRONE BOX :</b>   |          | 8517     |  |  |
|         | 10.11.1 10 pairs   | No.      |          | 242.52   |  |
|         | 10.11.2 20 pairs   | No.      |          | 291.02   |  |
|         | 10.11.3 50 pairs   | No.      |          | 436.53   |  |
|         | 10.11.4 100 pairs  | No.      |          | 582.04   |  |
| 10.12   | 10.12.1 Krone modules for 10 pairs isolation type  | No.      | 8517     | 169.76   |  |
|         | 10.12.2 Krone modules for 100 pairs (10 nos. each row)   | No.      | 8517     | 388.03   |  |
| 10.13   | <b>J.F. Telephone Cable (0.63 mm conductor dia with Armour) of following pairs (UG cable)</b>  |          | 8517     |  |  |
|         | 10.13.1 20 pairs   | m        |          | 97.01  |  |
| 10.14   | <b>Straight through joint kit for J.F. U.G Cable of 0.63 mm dia Conductor, TSF (Thermo Shrink Filled Closure type)</b>   |          | 8517     |  |  |
|         | 10.14.1 20 pairs TSF-1   | Per kit  |          | 741.13   |  |
| 11      | <b>Equipments for establishing SCADA Communication :</b>   |          |          |  |  |
| 11.1    | <b>Remote Terminal Unit (RTU)</b>  |          | 8517     |  |  |
|         | 11.1.1 64 (I/O) Port   | No.      |          | 799076   |  |
|         | 11.1.2 34 (I/O) Port   | No.      |          | 824560   |  |
| 11.2    | <b>Data Concentrator Unit (DCU)</b>  | No.      | 8517     | 29849  |  |
| 11.3    | <b>2 kVA Online UPS (230 V AC, 1 phase, 50 Hz)</b><br>UPS with Battery conforming to KPTCL Specifications  | No.      | 8517     | 152039   |  |
| 11.4    | <b>Cables :</b>  |          | 8544     |  |  |
|         | 11.4.1 Current cable - Copper core with c/s 4 Sq mm multistrand 7 core   | m        |          | 280.74   |  |
|         | 11.4.2 Voltage cable - Copper core with c/s 2.5 Sq mm multistrand 4 core   | m        |          | 111.59   |  |
|         | 11.4.3 Signal cable - Armoured copper core 0.5 Sq mm multistrand 10 core   | m        |          | 127.75   |  |
| 11.5    | Integration of RTU, DCU, UPS with field equipments   | No.      |          | 22322.63                                       |  |
| 11.6    | Supply of Control cables copper core 1.5 Sq mm multistrand 10 core, conforming to KPTCL specifications (160m/Station)  | m        | 8544     | 127.45   |  |
| 11.7    | Supply of Control cables copper core 4 Sq mm multistrand 3 core for AC input to UPS and UPS to RTU, conforming to KPTCL specifications (15m/Station)                                 | m        | 8544     | 142.08   |  |
| 11.8    | Supply of Control cables copper core 32 Sq mm multistrand for battery conforming to KPTCL specifications (15 m x 2 runs/Station)   | m        | 8544     | 304.58   |  |
| 11.9    | Site survey, wiring, installation, testing and commissioning of RTU, DCU (DCU installation to be done in RTU panel)  | No.      |          | 31147.86                                       |  |
| 11.10   | <b>C&amp;R Panels compatible to IEC 61850, communication protocol for Station automation system in 220 kV Sub-stations :</b>   |          |          |  |  |
|         | <b>11.10.1 Installation, integration, testing &amp; commissioning of C&amp;R panels with SAS supplied by a company for new bay extensions with their existing Automation System.</b> |          | 8537     |  |  |
|         | 11.10.1.1 All types of 220 kV feeder C&R panels with BCUs including integration with existing bus bar scheme   | No.      |          | 200000   |  |
|         | 11.10.1.2 220/110 kV or 220/66 kV Power Transformer C&R panels with BCUs including integration with existing bus bar scheme  | No.      |          | 200000   |  |
|         | 11.10.1.3 All types of 110 kV or 66 kV feeder C&R panels with BCUs   | No.      |          | 175000   |  |
|         | 11.10.1.4 110/11 kV or 66/11 kV Power Transformer C&R panels with BCUs   | No.      |          | 175000   |  |



| Sl. No.        | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|----------------|--|------|----------|--|--|
| 11.10.1.5      | 11 kV twin feeder C&R panels with BCUs   | No.  |          | 200000<br>(100000/feeder)                      |  |
| <b>11.10.2</b> | <b>Installation, integration, testing &amp; commissioning of C&amp;R panels with SAS supplied by other SAS supplier for new bay extensions with different Automation System.</b> |      | 8537     |  |  |
| 11.10.2.1      | All types of 220 kV feeder C&R panels with BCUs including integration with existing bus bar scheme   | No.  |          | 350000   |  |
| 11.10.2.2      | 220/110 kV or 220/66 kV Power Transformer C&R panels with BCUs including integration with existing bus bar scheme  | No.  |          | 350000   |  |
| 11.10.2.3      | All types of 110 kV or 66 kV feeder C&R panels with BCUs   | No.  |          | 300000   |  |
| 11.10.2.4      | 110/11 kV or 66/11 kV Power Transformer C&R panels with BCUs   | No.  |          | 300000   |  |
| 11.10.2.5      | 11 kV twin feeder C&R panels with BCUs   | No.  |          | 250000<br>(125000/feeder)                      |  |
| <b>11.11</b>   | <b>OPGW - Optical Ground Wire (Supply Package only) Cable &amp; Accessories (24 Fibre)</b>   |      | 8544     |  |  |
| 11.11.1        | 24 Fibre (DWSM) OPGW fibre optic cable   | km   |          | 79674  |  |
| 11.11.2        | Suspension Clamp assembly for 24 Fibre OPGW  | No.  |          | 2294   |  |
| 11.11.3        | Tension Assembly for Dead End for 24 Fibre OPGW  | Set  |          | 2313   |  |
| 11.11.4        | Tension Fitting assembly for 24 Fibre OPGW including all accessories for joint box (splicing location)   | No.  |          | 4443   |  |
| 11.11.5        | Tension assembly - Double Tension Pass through for 24 Fibre OPGW   | No.  |          | 4370   |  |
| 11.11.6        | Tension Fitting assembly on Suspension Tower for 24 Fibre OPGW including all accessories for joint box (splicing) location   | No.  |          | 5854   |  |
| 11.11.7        | Vibration Damper for 24 Fibre OPGW   | No.  |          | 607  |  |
| 11.11.8        | Down Lead Clamp assembly for Fibre OPGW  | No.  |          | 255  |  |
| 11.11.9        | Joint Box for 24 Fibre OPGW  | No.  |          | 4402   |  |
| <b>11.12</b>   | <b>FODP - Fibre Optic Distribution Panel</b>   |      | 8537     |  |  |
| 11.12.1        | FODP 48F : Indoor type   | No.  |          | 53515  |  |
| 11.12.2        | FODP 96F : Indoor type   | No.  |          | 67835  |  |
| <b>11.13</b>   | <b>Fibre Optic Approach Cable</b>  |      | 8544     |  |  |
| 11.13.1        | 24 Fibre (DWSM) - Including accessories  | km   |          | 60397  |  |
| 11.13.2        | Installation Hardware set for above 24 Fibre, Fibre Optic Approach Cable   | km   |          | 55661  |  |
| <b>11.14</b>   | <b>Underground Fibre Optic Cable Accessories</b>   |      | 8544     |  |  |
| 11.14.1        | Unarmoured Underground FO Cable (24 Fibre DWSM)  | km   |          | 178175   |  |
| 11.14.2        | Joint Box (24 Fibres)  | No.  |          | 5955   |  |
| 11.14.3        | GI pipe 100 mm (Nominal bore), medium class (including accessories)  | m    |          | <b>Refer BESCO SR</b>                          |  |
| 11.14.4        | PLB HDPE pipe O D 40 mm  | m    |          | 93   |  |
| <b>11.15</b>   | <b>Test Equipment for Fibre Optic Cabling</b>  |      | 8544     |  |  |
| 11.15.1        | OTDR (Optical Time Domain Reflectometer) for 1310/1550 nm with laser source  | No.  |          | 269328   |  |
| 11.15.2        | Optical Attenuators (Variable 1310/1550 nm)  | No.  |          | 197211   |  |
| 11.15.3        | Optical Power meter (1310/1550 nm)   | No.  |          | 38991  |  |
| 11.15.4        | Optical Talk set   | No.  |          | 193534   |  |
| 11.15.5        | Optical Fibre Fusion Splicer including Fibre cleaver   | No.  |          | 247781   |  |
| 11.15.6        | Calibrated Fibre   | No.  |          | 8828   |  |
| 11.15.7        | Connectorization kit   | No.  |          | 70805  |  |
| 11.15.8        | Splice kit   | No.  |          | 56396  |  |
| 11.15.9        | Optical test accessory kit including all necessary connectors, adaptors, cables, terminators and other items required for testing  | No.  |          | 133663   |  |
| 11.15.10       | Light source 1310/1550 nm  | No.  |          | 62089  |  |
| <b>12</b>      | <b>TOOLS AND PLANT :</b>   |      |          |  |  |
| 12.1           | Portable (mobile) Oil Pump (1/2 HP Air Pump 500 to 1000 gallons)   | No.  | 8413     | 13395.41                                       |  |
| 12.2           | Telescopic Ladder aluminium 6 m height   | No.  | 7306     | 29024.05                                       |  |
| 12.3           | Ring spanners - 12 nos. per set  | Set  | 8207     | 582.04   |  |
| 12.4           | Tube Spanners - 12 nos. per set  | Set  | 8207     | 949.81   |  |
| 12.5           | Pipe wrench 24 inches size   | No.  | 8207     | 1028.22  |  |
| 12.6           | Pipe wrench 18 inches size   | No.  | 8207     | 596.65   |  |
| 12.7           | Double end spanner - 12 nos. per set   | Set  | 8207     | 548.56   |  |
| 12.8           | Hack saw frames +B185  | No.  | 8207     | 240.48   |  |
| 12.9           | Hydraulic crimping tool upto 1000 Sq mm  | No.  | 8203     | 46139.76                                       |  |
| 12.10          | Rubber hand gloves 15 kV tested  | Pair | 4015     | 193.68   |  |
| 12.11          | Rechargeable 5 W LED Hand Torch  | No.  | 8513     | 1500.00  |  |
| 12.12          | Insulated cutting pliers 12 inches size  | No.  | 8203     | 259.98   |  |
| 12.13          | Insulated cutting pliers 8 inches size   | No.  | 8203     | 183.47   |  |
| 12.14          | Line live tester   | No.  | 9024     | 205.38   |  |

| Sl. No.   | Description of Materials   | Unit                                    | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |  |
|-----------|--|---|----------|--|--|--|
| 12.15     | Screw driver 18 inches size  | No.                                     | 8207     | 192.38   |  |  |
| 12.16     | Screw driver 12 inches size  | No.                                     | 8207     | 49.52  |  |  |
| 12.17     | Hammer 8 Lbs.  | No.                                     | 8205     | 328.87   |  |  |
| 12.18     | Hammer 2 Lbs.  | No.                                     | 8205     | 165.09   |  |  |
| 12.19     | Chain pulley block 5 Ton Capacity  | No.                                     | 8483     | 32000.81                                       |  |  |
| 12.20     | Open Pulley (Fibre/metallic, single) 1", Capacity 2 Ton  | No.                                     | 8483     | 779.33   |  |  |
| 12.21     | Double Pulley (Fibre/metallic, single) 1", Capacity 3 Ton  | No.                                     | 8483     | 8929.80  |  |  |
| 12.22     | Hydraulic Jack 5 Ton Capacity  | No.                                     | 8425     | 4662.72  |  |  |
| 12.23     | Pipe derrick   | No.                                     | 8426     | 18514.40                                       |  |  |
| 12.24     | Allen keys   | Set                                     | 8204     | 315.87   |  |  |
| 12.25     | Box spanners - 12 nos. per set   | Set                                     | 8204     | 3271.55  |  |  |
| 12.26     | Transil Oil Dielectric Breakdown testkit   | No.                                     | 9024     | 96744.66                                       |  |  |
| 12.27     | Insulation Tester Digital type (Megger) 2.5 kV - 5 kV  | No.                                     | 8207     | 50604.90                                       |  |  |
| 12.28     | Insulation Tester (Megger) 500 V rating  | No.                                     | 8207     | 11647.65                                       |  |  |
| 12.29     | AC Leakage Clamp meter (mA) (DCM 10 A)   | No.                                     | 8204     | 15600.00                                       |  |  |
| 12.30     | 1000 A AC Clamp Meter (DCM 39 A)   | No.                                     | 8204     | 8050.00  |  |  |
| 12.31     | SF6 gas leak detector  | No.                                     | 8543     | 43163.00                                       |  |  |
| 12.32     | SF6 Gas filled in 50 kg Cylinders (including non returnable carbon steel cylinders)  | No.                                     | 8543     | 44863.00                                       |  |  |
| 12.33     | SF6 Gas filled in 25 kg Cylinders (including non returnable carbon steel cylinders)  | No.                                     | 8543     | 24012.00                                       |  |  |
| 12.34     | Multimeter electromechanical type  | No.                                     | 9030     | 2976.76  |  |  |
| 12.35     | Multimeter electronic type   | No.                                     | 9030     | 6474.78  |  |  |
| 12.36     | Hydrometer   | No.                                     | 9025     | 595.35   |  |  |
| 12.37     | D.C. Volt meter range - 3V to + 5V   | No.                                     | 9030     | 1786.06  |  |  |
| 12.38     | Hydrometer syringe suitable for vent holes   | No.                                     | 9033     | 595.35   |  |  |
| 12.39     | Specific gravity correction chart  | No.                                     | 4911     | 595.35   |  |  |
| 12.40     | Wall mounting type holder for Hydrometer   | No.                                     | 9033     | 1786.06  |  |  |
| 12.41     | Earth resistance tester  | No.                                     | 9030     | 18605.39                                       |  |  |
| 12.42     | Arc welding machine (9/10 kVA)   | No.                                     | 8515     | 18452.00                                       |  |  |
| 12.43     | Thermometer with wall mounting holder  | No.                                     | 9025     | 1786.06  |  |  |
| 12.44     | Rubber apron   | No.                                     | 4015     | 1264.80  |  |  |
| 12.45     | Pipette  | No.                                     | 7017     | 521.26   |  |  |
| 12.46     | Protective Goggle  | No.                                     | 9004     | 595.35   |  |  |
| 12.47     | Acid Resisting jars (4 print capacity)   | No.                                     | 7010     | 595.35   |  |  |
| 12.48     | Rubber shoes knee height   | Pair                                    | 6403     | 1414.29  |  |  |
| 12.49     | Glass Funnel   | No.                                     | 7017     | 447.16   |  |  |
| 12.50     | Hickery rods   | No.                                     | 7227     | 3572.11  |  |  |
| 12.51     | Grounding sticks extendable upto 18 ft - 3 nos. of each 6 ft Sticks of 3 phase R, Y, B (3 nos. of 1 set)   | Set                                     | 7215     | 1161.12  |  |  |
| 12.52     | Manilla rope 1" (One bundle of 100 m)  | Bundle                                  | 5608     | 14437.93                                       |  |  |
| 12.53     | Manilla rope 3/4" (One bundle of 100 m)  | Bundle                                  | 5608     | 14437.93                                       |  |  |
| 12.54     | Files of sizes (One set of 6 nos.)   | Set                                     | 8203     | 5729.94  |  |  |
| 12.55     | Portable drilling machine with stand (heavy duty)  | No.                                     | 8459     | 28279.21                                       |  |  |
| 12.56     | Hand drilling machine  | No.                                     | 8459     | 14140.25                                       |  |  |
| 12.57     | Safety belts   | No.                                     | 4015     | 803.33   |  |  |
| 12.58     | Safety belt, minimum 2 m rope length along with scaffold hook - Class-A material suitable for EHV Transmission Line maintenance staff (PN56 & 351) | No.                                     | 6506     | 6900.00  |  |  |
| 12.59     | Safety helmet with ratchet   | No.                                     | 6506     | 219.19   |  |  |
| 12.60     | Steel Measuring tape 30 m  | No.                                     | 9017     | 818.93   |  |  |
| 12.61     | Steel Measuring tape 15 m  | No.                                     | 9017     | 587.55   |  |  |
| 12.62     | Manual crimping tool upto 400 Sq mm  | No.                                     | 8203     | 2962.46  |  |  |
| 12.63     | Rain coat with dick back   | No.                                     | 6201     | 890.00   |  |  |
| 12.64     | Gum Boots  | Pair                                    | 6402     | 2069.43  |  |  |
| 12.65     | Hydraulic Bolt Cutter / Wire Cutter upto Drake ACSR conductor with bits for cuttings   | No.                                     | 8203     | 48372.98                                       |  |  |
| 12.66     | Cast Iron Pipe Electrode   | No.                                     | 7213     | 5799.00  |  |  |
| <b>13</b> | <b>13.1</b>  | <b>HARDWARE</b>                         |          |  |  |  |
|           | 13.1.1   | Single Tension Clamps with arcing horns | No.      | 7318   |  |  |
|           |  | Bersimis/AAAC/ACSR Moose                |          |  | 2735   |  |
|           |  | Drake ACSR                              |          |  | 2487   |  |
|           |  | Lynx ACSR                               |          |  | 1085   |  |
|           |  | Coyote ACSR                             |          |  | 993  |  |
|           |  | Rabbit ACSR                             |          |  | 780  |  |
|           |  | Ground Conductor                        |          |  | 816  |  |

| Sl. No. | Description of Materials                        | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------|---|------|----------|--|--|
| 13.1.2  | Double Tension Clamps with arcing horns         | No.  | 7318     |  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 4872   |  |
|         | Drake ACSR                                      |      |          | 4429   |  |
|         | Lynx ACSR                                       |      |          | 3090   |  |
|         | Coyote ACSR                                     |      |          | 2870   |  |
|         | Rabbit ACSR                                     |      |          | 2554   |  |
| 13.1.3  | Single Suspension Clamps with arcing horns      | No.  | 7318     |  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 1709   |  |
|         | Drake ACSR                                      |      |          | 1553   |  |
|         | Lynx ACSR                                       |      |          | 1318   |  |
|         | Coyote ACSR                                     |      |          | 1219   |  |
|         | Rabbit ACSR                                     |      |          | 812  |  |
|         | Ground Conductor                                |      |          | 861  |  |
| 13.1.4  | Double Suspension Clamps with arcing horns      | No.  | 7318     |  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 3243   |  |
|         | Drake ACSR                                      |      |          | 2948   |  |
|         | Lynx ACSR                                       |      |          | 2515   |  |
|         | Coyote ACSR                                     |      |          | 2487   |  |
|         | Rabbit ACSR                                     |      |          | 2231   |  |
| 13.1.5  | P.G. Clamps                                     | No.  | 7318     |  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 941  |  |
|         | Drake ACSR                                      |      |          | 535  |  |
|         | Lynx ACSR                                       |      |          | 513  |  |
|         | Coyote ACSR                                     |      |          | 210  |  |
|         | Rabbit ACSR                                     |      |          | 91   |  |
|         | Ground Conductor                                |      |          | 266  |  |
| 13.1.6  | M.S.C. Joints                                   | No.  | 8538     | 836  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 836  |  |
|         | Drake ACSR                                      |      |          | 760  |  |
|         | Lynx ACSR                                       |      |          | 442  |  |
|         | Coyote ACSR                                     |      |          | 411  |  |
|         | Rabbit ACSR                                     |      |          | 273  |  |
|         | Ground Conductor                                |      |          | 303  |  |
| 13.1.7  | Pre-formed Armour Rods                          | No.  | 7221     | 2434   |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 2434   |  |
|         | Drake ACSR                                      |      |          | 2212   |  |
|         | Lynx ACSR                                       |      |          | 836  |  |
|         | Coyote ACSR                                     |      |          | 716  |  |
|         | Rabbit ACSR                                     |      |          | 578  |  |
| 13.1.8  | Repair Sleeves                                  | No.  | 7609     | 643  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 643  |  |
|         | Drake ACSR                                      |      |          | 585  |  |
|         | Lynx ACSR                                       |      |          | 391  |  |
|         | Coyote ACSR                                     |      |          | 199  |  |
|         | Rabbit ACSR                                     |      |          | 146  |  |
|         | Ground Conductor                                |      |          | 204  |  |
| 13.1.9  | Vibration Damper                                | No.  | 7308     | 1122   |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 1122   |  |
|         | Drake ACSR                                      |      |          | 1020   |  |
|         | Lynx ACSR                                       |      |          | 671  |  |
|         | Coyote ACSR                                     |      |          | 564  |  |
|         | Rabbit ACSR                                     |      |          | 606  |  |
| 13.1.10 | Automatic Come - along Clamp                    | No.  | 7318     | 5760   |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 5760   |  |
|         | Drake ACSR                                      |      |          | 5236   |  |
|         | Lynx ACSR                                       |      |          | 5031   |  |
|         | Coyote ACSR                                     |      |          | 5031   |  |
|         | Rabbit ACSR                                     |      |          | 5031   |  |
|         | Ground Conductor                                |      |          | 2757   |  |
| 13.1.11 | Pad Clamps                                      | No.  | 7318     | 818  |  |
|         | Bersimis/AAAC/ACSR Moose                        |      |          | 818  |  |
|         | Drake ACSR                                      |      |          | 535  |  |
|         | Lynx ACSR                                       |      |          | 738  |  |
|         | Coyote ACSR                                     |      |          | 210  |  |
|         | Rabbit ACSR                                     |      |          | 534  |  |
| 13      | <b>13.2 Bolted Type Tension Clamp</b>           |      | 7318     |  |  |
|         | 13.2.1 Twin Falcon ACSR Conductor 120 kN, 20 mm | No.  |          | 3371   |  |

| Sl. No.      | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|--|------|----------|--|--|
|              | 13.2.2 Twin Drake ACSR Conductor 120 kN, 20 mm   | No.  |          | 2900   |  |
|              | 13.2.3 Twin Moose ACSR Conductor 120 kN, 20 mm   | No.  |          | 3020   |  |
|              | 13.2.4 Twin Falcon ACSR Conductor 90 kN, 16 mm   | No.  |          | 2732   |  |
|              | 13.2.5 Single Falcon ACSR Conductor 120 kN, 20 mm  | No.  |          | 1776   |  |
|              | 13.2.6 Twin Drake ACSR Conductor 90 kN, 16 mm  | No.  |          | 2635   |  |
|              | 13.2.7 Single Falcon ACSR Conductor 90 kN, 16 mm   | No.  |          | 1721   |  |
|              | 13.2.8 Single Drake ACSR Conductor 120 kN, 20 mm   | No.  |          | 1664   |  |
|              | 13.2.9 Single Drake ACSR Conductor 70/90 kN, 16 mm                                       | No.  |          | 1605   |  |
|              | 13.2.10 Single Lynx ACSR Conductor 70/90 kN, 16 mm                                       | No.  |          | 935  |  |
|              | 13.2.11 Single Coyote ACSR Conductor 70/90 kN, 16 mm                                     | No.  |          | 877  |  |
|              | 13.2.12 Single Rabbit ACSR Conductor 70/90 kN, 16 mm                                     | No.  |          | 660  |  |
| <b>13.3</b>  | <b>Wedged Clamps</b>   |      | 7318     |  |  |
|              | 13.3.1 Single Tension Clamp Compression type Drake ACSR                                  | No.  |          | 2527   |  |
|              | 13.3.2 Single Tension Clamp Compression type Moose ACSR                                  | No.  |          | 2527   |  |
| <b>13.4</b>  | <b>Bolted Type Suspension Clamp</b>  |      | 7318     |  |  |
|              | 13.4.1 Twin Falcon ACSR Conductor 90 kN, 16 mm   | No.  |          | 3113   |  |
|              | 13.4.2 Twin Moose ACSR Conductor 90 kN, 16 mm  | No.  |          | 2879   |  |
|              | 13.4.3 Twin Drake ACSR Conductor 90 kN, 16 mm  | No.  |          | 2108   |  |
|              | 13.4.4 Single Falcon ACSR Conductor 90 kN, 16 mm   | No.  |          | 1271   |  |
|              | 13.4.5 Single Drake ACSR Conductor 70/90 kN, 16 mm                                       | No.  |          | 1114   |  |
|              | 13.4.6 Single Lynx ACSR Conductor 70/90 kN, 16 mm  | No.  |          | 835  |  |
|              | 13.4.7 Single Coyote ACSR Conductor 70/90 kN, 16 mm                                      | No.  |          | 757  |  |
|              | 13.4.8 Single Rabbit ACSR Conductor 70/90 kN, 16 mm                                      | No.  |          | 606  |  |
| <b>13.5</b>  | <b>Hardware Clamps for Station Materials</b>   |      | 7318     |  |  |
|              | 13.5.1 Ground Wire Clamp 7/3.15 mm, 2 bolt   | No.  |          | 855  |  |
| <b>13.6</b>  | <b>Post Insulator Clamps</b>   |      | 7318     |  |  |
|              | 13.6.1 Twin Falcon ACSR Conductor 127 mm, 220 kV   | No.  |          | 1263   |  |
|              | 13.6.2 Twin Moose ACSR Conductor 127 mm, 220 kV  | No.  |          | 1080   |  |
|              | 13.6.3 Twin Drake ACSR Conductor 127 mm, 220/110/66 kV                                   | No.  |          | 1013   |  |
|              | 13.6.4 Single Falcon ACSR Conductor 127/76 mm, 220/110/66 kV                             | No.  |          | 729  |  |
|              | 13.6.5 Single Drake ACSR Conductor 127/76 mm, 220/110/66/33 kV                           | No.  |          | 668  |  |
|              | 13.6.6 Single Lynx ACSR Conductor 127/76 mm, 110/66/33 kV                                | No.  |          | 624  |  |
|              | 13.6.7 Single Coyote ACSR Conductor 127/76 mm, 66/33 kV                                  | No.  |          | 577  |  |
|              | 13.6.8 Single Rabbit ACSR Conductor 76 mm, 33 kV   | No.  |          | 529  |  |
| <b>13.7</b>  | <b>Spacer Clamp for ACSR Conductors</b>  |      | 7318     |  |  |
|              | 13.7.1 Twin Falcon 220 kV  | No.  |          | 467  |  |
|              | 13.7.2 Twin Moose 220 kV   | No.  |          | 439  |  |
|              | 13.7.3 Twin Drake 220/110/66 kV  | No.  |          | 419  |  |
| <b>13.8</b>  | <b>Requirement of Power Connectors 'T' Clamps for ACSR Conductors</b>                    |      | 7318     |  |  |
|              | 13.8.1 Twin Falcon to Single Drake   | No.  |          | 1348   |  |
|              | 13.8.2 Twin Moose to Single Drake  | No.  |          | 1015   |  |
|              | 13.8.3 Twin Drake to Single Drake  | No.  |          | 870  |  |
|              | 13.8.4 Single Falcon to Single Drake   | No.  |          | 547  |  |
|              | 13.8.5 Single Drake to Single Drake  | No.  |          | 481  |  |
|              | 13.8.6 Single Drake to Single Lynx   | No.  |          | 450  |  |
|              | 13.8.7 Single Drake to Single Coyote   | No.  |          | 422  |  |
|              | 13.8.8 Single Lynx to Single Lynx  | No.  |          | 355  |  |
|              | 13.8.9 Single Coyote to Single Drake   | No.  |          | 422  |  |
|              | 13.8.10 Single Lynx to Single Drake  | No.  |          | 450  |  |
|              | 13.8.11 Single Coyote to Single Coyote   | No.  |          | 337  |  |
| <b>13.9</b>  | <b>Power Connectors, Terminal Connector Clamps for ACSR Conductor</b>                    |      | 7318     |  |  |
|              | 13.9.1 Twin Drake  | No.  |          | 1222   |  |
|              | 13.9.2 Single Drake  | No.  |          | 737  |  |
|              | 13.9.3 Single Lynx   | No.  |          | 564  |  |
|              | 13.9.4 Single Coyote   | No.  |          | 489  |  |
| <b>13.10</b> | <b>Power Connectors, Expansion Type Terminal Connectors suitable for Aluminium pipes</b> |      | 8544     |  |  |
|              | 13.10.1 63 mm nominal diameter x 73.03 mm  | No.  |          | 1312   |  |
|              | 13.10.2 50 mm nominal diameter x 60.03 mm  | No.  |          | 1118   |  |
| <b>13.11</b> | <b>C - Type Wedge Connectors</b>   |      | 7318     |  |  |
|              | 13.11.1 Rabbit to Coyote ACSR Conductor  | No.  |          | 531  |  |
|              | 13.11.2 Rabbit to Lynx ACSR Conductor  | No.  |          | 1491   |  |

| Sl. No.      | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|--|------|----------|--|--|
|              | 13.11.3 Rabbit to Drake ACSR Conductor   | No.  |          | 2561   |  |
|              | 13.11.4 Coyote to Coyote ACSR Conductor  | No.  |          | 531  |  |
|              | 13.11.5 Coyote to Lynx ACSR Conductor  | No.  |          | 1639   |  |
|              | 13.11.6 Coyote to Drake ACSR Conductor   | No.  |          | 1771   |  |
|              | 13.11.7 Lynx to Lynx ACSR Conductor  | No.  |          | 1111   |  |
|              | 13.11.8 Lynx to Drake ACSR Conductor   | No.  |          | 1556   |  |
|              | 13.11.9 Drake to Drake ACSR Conductor  | No.  |          | 1868   |  |
|              | 13.11.10 Double Drake to Single Drake  | No.  |          | 4998   |  |
|              | 13.11.11 Rabbit to 2 hole paddle ACSR Conductor - 610 A  | No.  |          | 1546   |  |
|              | 13.11.12 Rabbit to 2 hole paddle ACSR conductor - 895 A  | No.  |          | 1694   |  |
|              | 13.11.13 Coyote 2 hole paddle ACSR Conductor - 610 A   | No.  |          | 1546   |  |
|              | 13.11.14 Coyote 2 hole paddle ACSR Conductor - 895 A   | No.  |          | 1932   |  |
|              | 13.11.15 Coyote 2 hole paddle ACSR Conductor - 1400 A  | No.  |          | 4959   |  |
|              | 13.11.16 Coyote 4 hole Paddle ACSR Conductor - 610 A   | No.  |          | 1642   |  |
|              | 13.11.17 Coyote 4 hole paddle ACSR Conductor - 895 A   | No.  |          | 2250   |  |
|              | 13.11.18 Coyote 4 hole paddle ACSR Conductor - 1400 A  | No.  |          | 4811   |  |
|              | 13.11.19 Lynx 2 hole paddle ACSR Conductor - 610 A   | No.  |          | 2683   |  |
|              | 13.11.20 Lynx 2 hole paddle ACSR Conductor - 895 A   | No.  |          | 1868   |  |
|              | 13.11.21 Lynx 2 hole paddle ACSR Conductor - 1400 A  | No.  |          | 5081   |  |
|              | 13.11.22 Lynx 4 hole paddle ACSR Conductor - 610 A   | No.  |          | 3050   |  |
|              | 13.11.23 Lynx 4 hole paddle ACSR Conductor - 895 A   | No.  |          | 1932   |  |
|              | 13.11.24 Lynx 4 hole paddle ACSR Conductor - 1400 A  | No.  |          | 3381   |  |
|              | 13.11.25 Drake 2 hole paddle ACSR Conductor - 610 A  | No.  |          | 4879   |  |
|              | 13.11.26 Drake 2 hole paddle ACSR Conductor - 895 A  | No.  |          | 2483   |  |
|              | 13.11.27 Drake 2 hole paddle ACSR Conductor - 1400 A   | No.  |          | 2585   |  |
|              | 13.11.28 Drake 4 hole paddle ACSR Conductor - 610 A  | No.  |          | 3388   |  |
|              | 13.11.29 Drake 4 hole paddle ACSR Conductor - 895 A  | No.  |          | 2585   |  |
|              | 13.11.30 Drake 4 hole paddle ACSR Conductor - 1400 A   | No.  |          | 5406   |  |
|              | 13.11.31 Rabbit to Rabbit ACSR Conductor   | No.  |          | <b>Refer BESCO SR</b>                          |  |
|              | 13.11.32 Drake to Moose ACSR Conductor   | No.  |          | 2737   |  |
|              | 13.11.33 Drake to Falcon ACSR Conductor  | No.  |          | 7777   |  |
|              | 13.11.34 Moose to Moose ACSR Conductor   | No.  |          | 2737   |  |
|              | 13.11.35 Moose to Falcon ACSR Conductor  | No.  |          | 7777   |  |
|              | 13.11.36 Falcon to Falcon ACSR Conductor   | No.  |          | 7728   |  |
|              | 13.11.37 Moose 2 hole paddle ACSR Conductor & 2 hole paddle - 895 A  | No.  |          | 7114   |  |
|              | 13.11.38 Moose 2 hole paddle ACSR Conductor & 2 hole paddle - 1400 A   | No.  |          | 7114   |  |
|              | 13.11.39 Moose 4 hole paddle ACSR Conductor & 4 hole paddle - 895 A  | No.  |          | 7114   |  |
|              | 13.11.40 Moose 4 hole paddle ACSR Conductor & 4 hole paddle - 1400 A   | No.  |          | 7114   |  |
|              | 13.11.41 Falcon 2 hole paddle ACSR Conductor & 2 hole paddle - 1400 A  | No.  |          | 18430  |  |
|              | 13.11.42 Falcon 4 hole paddle ACSR Conductor & 4 hole paddle - 1400 A  | No.  |          | 18430  |  |
| <b>13.12</b> | 13.12.1 CT Clamps for Single Drake   | No.  |          | 850  |  |
|              | 13.12.2 PG Clamps for Coyote to Rabbit   | No.  |          | 210  |  |
|              | 13.12.3 NCT Pad Clamp  | No.  |          | 700  |  |
| <b>14</b>    | <b>Relays :</b>  |      | 8536     |  |  |
| 14.1         | <b>Numerical Distance Relay for 220 kV system/110 kV/66 kV</b>   | No.  |          |  |  |
| 14.1.1       | Numerical Distance Relay for 220 kV system/110 kV/66 kV compatible to IEC 60870-5-103 communication protocol | No.  |          | 157140   |  |
| 14.1.2       | Numerical Distance Relay for 220 kV system/110 kV/66 kV compatible to IEC 61850 communication protocol       | No.  |          | 157140   |  |
| 14.2         | Static/Digital/Numerical Differential Relay for Transformer protection for SAS Station - IEC61850 compatible | No.  |          | 164900   |  |
| 14.3         | Single pole Directional Over Current/ Earth Fault Relay  | No.  |          | 12125  |  |
| 14.4         | Restricted Earth Fault Relay   | No.  |          | 15209  |  |
| 14.5         | Single pole Over Current / Earth Fault Relay   | No.  |          | 9262   |  |
| 14.6         | Trip Circuit Supervision Relay   | No.  |          | 5335   |  |
| 14.7         | Auxillary Relay - 2 element  | No.  |          | 3929   |  |
| 14.8         | Master Trip Relay  | No.  |          | 11184  |  |
| 14.9         | Single pole Non-directional Over Current / Earth Fault Relay with HS   | No.  |          | 8730   |  |
| 14.10        | Auxillary Relay - 3 element  | No.  |          | 5335   |  |
| 14.11        | Under Frequency Relay  | No.  |          | 91253  |  |
| 14.12        | Line Differential Relay  | No.  |          | 286150   |  |
| 14.13        | Numerical Relay with df/dt features  | No.  |          | 83868  |  |
| 14.14        | Single Phase Trip Relay - 220 kV Station   | No.  |          | 6790   |  |
| 14.15        | Three Phase Trip Relay - 220 kV, 110 kV & 66 kV Stations   | No.  |          | 8730   |  |
| 14.16        | Numerical REF Relay for 110 kV & 66 kV Power Transformers  | No.  |          | 48500  |  |

| Sl. No.  | Description of Materials  | Unit | HSN Code       | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--|---|------|----------------|--|--|
| 14.17  | High Speed Trip Relay for 11 kV Feeders                                 | No.  |                | 7566   |  |
| 15   | <b>15.1 MISCELLANEOUS ITEMS</b>   |      |                |  |  |
|  | 15.1.1 11 kV GOS - D/B 1200 A   | Set  | 8536           | 44638  |  |
|  | 15.1.2 11 kV GOS - D/B 800 A  | Set  | 8536           | 27706  |  |
|  | 15.1.3 11 kV GOS - D/B 400 A  | Set  | 8536           | 23253  |  |
|  | 15.1.4 11 kV GOS - S/B 400 A  | Set  | 8536           | 13104  |  |
|  | 15.1.5 11 kV GOS - S/B 200 A  | Set  | 8536           | 16060  |  |
|  | 15.1.6 11 kV, 400 A Special Roster GOS                                  | Set  | 8536           | 20076  |  |
|  | 15.1.7 11 kV HG Fuse unit   | No.  | 8535           | Refer BESCO SR                                 |  |
|  | 15.1.8 9 kV, 5 kA Lightning Arrestor (Metal oxide type)                 | No.  | 8535           | Refer BESCO SR                                 |  |
|  | 15.1.9 9 kV, 10 kA Lightning Arrestor (Metal oxide type)                | No.  | 8535           | Refer BESCO SR                                 |  |
|  | <b>15.2 11 kV GOS Contact Blade :</b>                                   |      | 8536           |  |  |
|  | 15.2.1 11 kV, 800 A Male contact Blade suitable for Double Break GOS    | No.  |                | 1940   |  |
|  | 15.2.2 11 kV, 800 A Female contact Blade suitable for Double Break GOS  | No.  |                | 1552   |  |
|  | 15.2.3 11 kV, 400 A Male contact Blade suitable for Double Break GOS    | No.  |                | 1164   |  |
|  | 15.2.4 11 kV, 400 A Female contact Blade suitable for Double Break GOS  | No.  |                | 776  |  |
|  | 15.2.5 11 kV, 200 A Male contact Blade suitable for Single Break GOS    | No.  |                | Refer BESCO SR                                 |  |
|  | 15.2.6 11 kV, 200 A Female contact Blade suitable for Single Break GOS  | No.  |                | Refer BESCO SR                                 |  |
|  | <b>15.3 HV Cables :</b>   |      | 8544           |  |  |
|  | 15.3.1 11 kV UG Cable 1 Core 1000 Sq mm                                 | km   |                | 810200   |  |
|  | 15.3.2 11 kV UG Cable 3 Core 400 Sq mm                                  | km   |                | Refer BESCO SR                                 |  |
|  | 15.3.3 11 kV UG Cable 3 Core 240 Sq mm                                  | km   |                | Refer BESCO SR                                 |  |
| 15.3.4 11 kV UG Cable 3 Core 95 Sq mm                                  | km  |      | Refer BESCO SR |  |  |
| 16   | <b>16.1 11 kV Joints and Pot heads</b>                                  |      |                |  |  |
|  | <b>Heat Shrinkable type transition jointing kit for XLPE Cable</b>      |      | 8538           |  |  |
|  | 16.1.1 3 x 95 Sq mm   | No.  |                | Refer BESCO SR                                 |  |
|  | 16.1.2 3 x 240 Sq mm  | No.  |                | Refer BESCO SR                                 |  |
|  | 16.1.3 3 x 400 Sq mm  | No.  |                | Refer BESCO SR                                 |  |
|  | 16.1.4 1 x 1000 Sq mm   | No.  |                | 9848   |  |
|  | <b>16.2 Cold Shrinkable type termination kit for XLPE Cable</b>         |      | 8538           |  |  |
|  | <b>16.2.1 Indoor</b>  |      |                |  |  |
|  | 16.2.1.1 3 x 95 Sq mm   | No.  |                | 4518   |  |
|  | 16.2.1.2 3 x 240 Sq mm  | No.  |                | 5548   |  |
|  | 16.2.1.3 3 x 400 Sq mm  | No.  |                | 6376   |  |
|  | 16.2.1.4 1 x 1000 Sq mm   | No.  |                | 4985   |  |
|  | <b>16.2.2 Outdoor</b>   |      |                |  |  |
|  | 16.2.2.1 3 x 95 Sq mm   | No.  |                | 5528   |  |
|  | 16.2.2.2 3 x 240 Sq mm  | No.  |                | 5548   |  |
|  | 16.2.2.3 3 x 400 Sq mm  | No.  |                | 6546   |  |
|  | 16.2.2.4 1 x 1000 Sq mm   | No.  |                | 5629   |  |
|  | <b>16.3 Cold Shrinkable type transition jointing kit for XLPE Cable</b> |      | 8538           |  |  |
|  | 16.3.1 3 x 95 Sq mm   | No.  |                | 23393  |  |
|  | 16.3.2 3 x 240 Sq mm  | No.  |                | 21739  |  |
|  | 16.3.3 3 x 400 Sq mm  | No.  |                | 22578  |  |
| 16.3.4 1 x 1000 Sq mm  | No.   |      | 10066          |  |  |
| <b>16.4 11 kV Heat Shrinkable Cable termination kit for XLPE Cable</b> |   | 8538 |                |  |  |
| <b>16.4.1 Indoor</b>   |   |      |                |  |  |
| 16.4.1.1 3 x 95 Sq mm  | No.   |      | Refer BESCO SR |  |  |
| 16.4.1.2 3 x 240 Sq mm   | No.   |      | Refer BESCO SR |  |  |
| 16.4.1.3 3 x 400 Sq mm   | No.   |      | Refer BESCO SR |  |  |
| 16.4.1.4 1 x 1000 Sq mm  | No.   |      | 2910           |  |  |
| <b>16.4.2 Out door</b>   |   |      |                |  |  |
| 16.4.2.1 3 x 95 Sq mm  | No.   |      | Refer BESCO SR |  |  |
| 16.4.2.2 3 x 240 Sq mm   | No.   |      | Refer BESCO SR |  |  |
| 16.4.2.3 3 x 400 Sq mm   | No.   |      | Refer BESCO SR |  |  |

| Sl. No.  | Description of Materials                            |  | Unit  | HSN Code       | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |  |
|----------|---|--|---|----------------|--|--|--|
| 16.5     | 16.4.2.4  | 1 x 1000 Sq mm   | No.   |                | 3000   |  |  |
|          |   | <b>11 kV Heat Shrinkable Straight through jointing kit for XLPE Cable with Copper Lugs &amp; Aluminium Ferrules</b>  |   | 8538           |  |  |  |
|          | 16.5.1  | 3 x 95 Sq mm   | No.   |                | Refer BESCO SR                                 |  |  |
|          | 16.5.2  | 3 x 240 Sq mm  | No.   |                | Refer BESCO SR                                 |  |  |
|          | 16.5.3  | 3 x 400 Sq mm  | No.   |                | Refer BESCO SR                                 |  |  |
|          | 16.5.4  | 1 x 1000 Sq mm   | No.   |                | 7200   |  |  |
| 17       |   | <b>Fire Fighting equipments with necessary mounting stands</b>   |   | 8424           |  |  |  |
|          | 17.1  |  | <b>Foam extinguishing type</b>  |                |  |  |  |
|          |   | 17.1.1   | 50 litre capacity   | No.            |  | 8467   |  |
|          |   | 17.1.2   | 9 litre capacity  | No.            |  | 2802   |  |
|          | 17.2  | <b>Water type (Gas pressure type) 9 litre capacity</b>   | No.   |                | 1656   |  |  |
|          | 17.3  |  | <b>Carbondioxide type</b>   |                |  |  |  |
|          |   | 17.3.1   | 4.5 kg  | No.            |  | 5397   |  |
|          |   | 17.3.2   | 22.5 kg   | No.            |  | 23360  |  |
|          | 17.4  |  | <b>DCP Type</b>   |                |  |  |  |
|          |   | 17.4.1   | 4.5 kg  | No.            |  | 3381   |  |
|          |   | 17.4.2   | 22.5 kg   | No.            |  | 28126  |  |
|          | 17.5  |  | <b>Sand type</b>  |                |  |  |  |
|          |   | 17.5.1   | G.I. Buckets 9 litre capacity   | No.            |  | 399  |  |
|          | 17.5.2  | Steel stands   | No.   |                | 1563   |  |  |
| 17.6     |   | <b>Nitrogen Injection fire extinguishing system for 100 MVA and above Power Transformers</b>   | Set   |                | 1300000  |  |  |
| 17.7     |   | <b>Nitrogen Injection fire extinguishing system for Power Transformers below 100 MVA</b>   | Set   |                | 776057   |  |  |
| 17.8     |   | Fire Alarm / detection system using smoke detectors, heat detectors etc., as per specification for GIS hall control room, relay panel room, LTAC room, office room, monitoring room etc.,  | Set or L/s  |                | 1112280  |  |  |
| 18       | 18.1  | <b>Electric Generating Set Comprising of :</b><br>50 kW/62.5 kVA Diesel Generating Set rated at 50 kW/62.5 kVA, 415V, 0.8 PF, mounted on a base frame, complete with inbuilt fuel tank and battery 1 no. 12 V & inbuilt standard manual Control Panel with acoustic enclosure - NAL Approved D.G. Set 63 kVA capacity with AMF panel | No.   | 8501           | 1016572  |  |  |
|          |   | 18.2   | <b>DG Set : 3 Ph, 50 Hz, 415 V, 0.8 PF, 250 kVA capacity DG set with required foundation for 400 kV</b> | No.            |  | 3349497                                      |  |
| 19       | 19.1  | Auxiliary Transformer with oil, cable termination type on both HT & LT outdoor type with off load tap changer in steps of 2.5 % :<br><b>630 kVA, 11 kV/433 V, 3 phase Delta Star, Dyn11</b>  | No.   |                | 866412   |  |  |
|          | 19.2  | Station Auxiliary Transformer with oil, cable termination type on both HT & LT outdoor type<br><b>100 kVA, 11 kV/433 V, 3 phase Dy11</b>   | No.   | 8504           | Refer BESCO SR                                 |  |  |
|          |   | Erection   |   |                | Refer BESCO SR                                 |  |  |
|          | 19.2.1  | <b>Supply and erection of 3 Ph 11 kV/433 V Distribution Transformer with copper windings</b>   |   | 8504           |  |  |  |
|          | 19.2.1.1  | 250 kVA - Supply   | No.   |                | 280150   |  |  |
|          |   | 250 kVA - Erection   |   |                | 32509  |  |  |
|          | 19.2.1.2  | 100 kVA - Supply   | No.   |                | 222785   |  |  |
|          |   | 100 kVA - Erection   |   |                | 13813  |  |  |
|          | 19.2.2  | <b>Supply &amp; Fixing LT Distribution box</b>   |   | 8535           |  |  |  |
|          | 19.2.2.1  | 250 kVA - Supply   | No.   |                | Refer BESCO SR                                 |  |  |
|          |   | 250 kVA - Erection   |   |                | Refer BESCO SR                                 |  |  |
| 19.2.2.2 | 100 kVA - Supply                                    | No.  |   | Refer BESCO SR |  |  |  |
|          | 100 kVA - Erection                                  |  |   | Refer BESCO SR |  |  |  |
| 20       | 20.1  | <b>11 kV Insulation Tapes (HV BT Tapes)</b>  |   | 8547           |  |  |  |
|          |   | 20.1.1   | 25 mm width   | m              |  | 498  |  |
|          |   | 20.1.2   | 50 mm width   | m              |  | 996  |  |
|          |   | 20.1.3   | 75 mm width   | m              |  | 1492   |  |
|          |   | 20.1.4   | 100 mm width  | m              |  | 1990   |  |
| 20.2     | <b>Epoxy shrouds suitable for 11 kV outdoor bus</b> | m  |   | 2631           |  |  |  |
| Sl. No   | Description of Materials                            |  | Unit  | HSN Code       | Supply rates in Rs. Lakhs                      |  |  |

| Sl. No. | Description of Materials                  | Unit  | HSN Code  | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |           |  |
|---------|---|---|---|--|--|-----------|--|
| 21      | <b>400 kV Sub-station main equipments</b> |   |   |  |  |           |  |
|         | 21.1                                      | 21.1.1  | 167 MVA, 400/220/33 kV single phase Inter - Connecting Transformer (ICT)  | Set  | 8504   | 42785000  | As per the weight of the Transformer (rate / MT indicated in labour portion) |
|         |   | 21.1.2  | 315 MVA, 400/220/33 kV three phase Inter-Connecting Transformer   | Set  | 8504   | 118009096 | As per the weight of the Transformer   |
|         |   | 21.1.3  | 500 MVA, 400/220/33 kV three phase Inter-Connecting Transformer   | Set  | 8504   | 126251282 | As per the weight of the Transformer   |
|         | 21.2                                      | 21.2.1  | 420 kV Class, 125 MVar Bus Reactor along with Neutral Ground Transformer  | Set  | 8504   | 59185951  | As per the weight of the Reactor   |
|         |   | 21.2.2  | 420 kV Class, 63 MVar Line Reactor along with Neutral Ground Transformer  | No.  | 8504   | 46427420  | As per the weight of the Reactor   |
|         | 21.3                                      |   | Circuit breaker SF6 type, with operating mechanism and marshalling box along with associated support structure and terminal connector etc., |  | 8536   |           |  |
|         |   | 21.3.1  | 420 kV Class 50 kA, 3150 A (without closing resistors)  | Set  |  | 2300000   | 53411.28   |
|         |   | 21.3.2  | 420 kV Class 50 kA, 3150 A (with closing resistors)   | Set  |  | 3300000   | 53411.28   |
|         | 21.4                                      |   | Controlled Switching device for Circuit Breaker   | Set  | 8536   | 456903    | 2750.21  |
|         | 21.5                                      |   | <b>Isolators</b> with operating mechanism and marshalling boxes, terminal connectors etc.,  |  | 8536   |           |  |
|         |   | 21.5.1  | <b>245 kV, 1600 A, 40 kA Double break</b>   |  |  |           |  |
|         |   | 21.5.1.1  | 3-Pole with one earth switch  | Set  |  | 688963    | 19635.00   |
|         |   | 21.5.1.2  | 3-Pole with two earth switch  | Set  |  | 801477    | 19635.00   |
|         |   | 21.5.1.3  | 1-Pole (3ph) Tandem operated ISO without earth switch   | Set  |  | 583574    | 19635.00   |
|         |   | 21.5.2  | <b>245 kV, 3000 A, 40 kA Double break - For BC Bay</b>  |  |  |           |  |
|         |   |   | 3-Pole with single earth switch   | Set  |  | 773349    | 19635.00   |
|         |   | 21.5.3  | <b>420 kV, 3150 kA one complete isolator including support insulator with one E/S with operating mechanism</b>                              | Set  |  | 1332536   |  |
|         |   | 21.5.4  | <b>420 kV, 50 kA, 3150 A pantograph type</b>  |  |  |           |  |
|         |   | 21.5.4.1  | 3-Pole with single earth switch   | Set  |  | 1120509   | 26469.35   |
|         |   | 21.5.4.2  | 3-Pole without earth switch   | Set  |  | 919026    | 25407.93   |
|         | 21.5.5                                    | <b>420 kV, 50 kA, 3150 A Centre break type</b>  |   |  | 0  |           |  |
|         | 21.5.5.1                                  | 3-Pole with double earth switch   | Set   |  | 913826                                       | 27525.26  |  |
|         | 21.5.6                                    | <b>420 kV, 40 kA, 2000 A Horizontal Centre break type</b>   |   |  |  |           |  |
|         | 21.5.6.1                                  | 3-Pole with single earth switch (Line Isolator)   | Set   |  | 864360                                       | 24543.75  |  |
|         | 21.5.6.2                                  | 3-Pole with double earth switch (C Isolator)  | Set   |  | 937860                                       | 24543.75  |  |
|         | 21.5.7                                    | <b>420 kV, 50 kA, 3150 A Double break type (Copper Design)</b>  |   |  |  |           |  |
|         | 21.5.7.1                                  | 3-pole with single earth switch   | Set   |  | 1635381                                      | 46734.87  |  |
|         | 21.5.7.2                                  | 3-pole with double earth switch   | Set   |  | 1834925                                      | 46734.87  |  |
| 21.6    |   | <b>Current Transformers having 5 Cores, with marshalling boxes, terminal connectors etc.,</b>           |   | 8504   |  |           |  |
|         |   | 420 kV Class, 50 kA CT with ratio 3000-2000-500/1-1-1-1-1 A   | No.   |  | 618695                                       | 10682.26  |  |
| 21.7    |   | <b>Surge Arresters with insulating base, surge monitor, terminal connectors etc.,</b>                   |   | 8535   |  |           |  |
|         | 21.7.1                                    | 390 kV Class  | No.   |  | 107800                                       | 2670.56   |  |
|         | 21.7.2                                    | 216 kV Class  | No.   |  | 62451  | 3224.11   |  |
|         | 21.7.3                                    | 145 kV Class  | No.   |  | 62570  | 1335.28   |  |
| 21.8    |   | <b>Capacitor Voltage Transformers having 5 Cores, with marshalling boxes, terminal connectors etc.,</b> |   | 8504   |  |           |  |
|         |   | 420 kV Class, 8800 PF   | No.   |  | 255000                                       | 10682.26  |  |
| 21.9    |   | <b>Control &amp; Relay Equipment</b>  |   | 8536   |  |           |  |
|         | 21.9.1                                    | Back-up control panel for 400 kV Reactor  | Set   |  | 716882                                       | 6875.53   |  |
|         | 21.9.2                                    | Relay panels for 400 kV Reactor   | Set   |  | 1359069                                      | 12640.67  |  |
|         | 21.9.3                                    | 400 kV Line - Type 4L   | No.   |  | 1510400                                      | 13751.06  |  |
|         | 21.9.4                                    | 400/220/33 kV Transformer - Type 4T   | No.   |  | 1510400                                      | 13751.06  |  |
|         | 21.9.5                                    | Bus bar protection panel  | No.   |  | 4303233                                      | 6676.41   |  |
|         | 21.9.6                                    | 400 kV Bus Coupler  | No.   | 8538   | 3869938                                      | 9860.00   |  |
|         | 21.9.7                                    | Marshalling bay kiosks (as per technical specifications, along with Air conditioning system)            |   |  |  |           |  |
|         | 21.9.7.1                                  | For 400 kV Panels   | No.   |  | 257452                                       | 2563.47   |  |
|         | 21.9.7.2                                  | For 220 kV Panels   | No.   |  | 692835                                       | 2563.47   |  |



| Sl. No.    | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|------------|--|------|----------|--|--|
| 21.10      | <b>BUS AND HARDWARE FITTINGS :</b>   |      |          |  |  |
| 21.10.1    | Aluminum tube, confirming to 6340WP of IS 5082, 1969, BS1600 Sch 40 of size 100 mm (4")  | m    | 7608     | 2756.45  |  |
| 21.10.2    | Hardware set for 400 kV Double Tension string assembly with double anchoring points including turn buckle, corona ring and tension clamp and complete set suitable for Twin Moose ACSR bundle with 450 mm sub-conductor spacing. | Set  | 7318     | 24124.75                                       |  |
| 21.10.3    | Hardware set for 400 kV Single suspension string insulators assembly including corona ring, suspension clamp and complete set etc., suitable for Twin Moose ACSR bundle with 450 mm sub-conductor spacing.                       | Set  | 7318     | 12469.89                                       |  |
| 21.10.4    | <b>Hardware set for 220 kV Double tension string assembly with double anchoring points including turn buckle arcing horn, tension clamps and complete set etc., suitable for :</b>   |      | 7318     |  |  |
| 21.10.4.1  | Quadruple Moose ACSR bundle with 250 mm sub-conductor spacing.   | Set  |          | 21427.46                                       |  |
| 21.10.4.2  | Twin Moose ACSR bundle with 250 mm sub-conductor spacing.  | Set  |          | 9395.64  |  |
| 21.10.5    | <b>Hardware set for 220 kV single suspension string insulator assembly including arcing horn, suspension clamp and complete set etc., suitable for :</b>   |      | 7318     |  |  |
| 21.10.5.1  | Quadruple Moose ACSR bundle with 250 mm sub-conductor spacing  | Set  |          | 10676.04                                       |  |
| 21.10.5.2  | Twin Moose ACSR bundle with 250 mm sub-conductor spacing   | Set  |          | 4446.00  |  |
| 21.10.6    | <b>400 kV Class Bus Post Insulators</b>  | No.  | 8546     | 46666.22                                       |  |
| 21.11      | <b>400 kV Clamps and Connectors</b>  |      |          |  |  |
| 21.11.1    | Terminal connector for CB to receive 4" IPS Al. tube flexible type   | No.  | 8535     | 4177.86  |  |
| 21.11.2    | Terminal connector for CT to receive 4" IPS Al. tube flexible type   | No.  | 8535     | 4313.05  |  |
| 21.11.3    | Terminal Connector for CVT to receive  |      | 8535     |  |  |
| 21.11.3.1  | Twin Moose ACSR  | No.  |          | 1380.00  |  |
| 21.11.3.2  | 4" IPS Al. tube flexible type  | No.  |          | 4800.00  |  |
| 21.11.3.3  | ACSR Twin Moose conductor suitable for horizontal take off 450 mm spacing  | No.  |          | 1980.00  |  |
| 21.11.4    | Terminal connector for Centre Break Isolator to receive  | No.  | 8535     |  |  |
| 21.11.4.1  | 4" IPS Al. tube flexible type  | No.  |          | 4177.86  |  |
| 21.11.4.2  | Twin Moose ACSR conductor suitable for vertical take off 450 mm spacing  | No.  |          | 2593.29  |  |
| 21.11.5    | Terminal connector for double break Isolator to receive  |      | 8535     |  |  |
| 21.11.5.1  | 4" IPS Al. Tube flexible type  | No.  |          | 4800.00  |  |
| 21.11.5.2  | ACSR Twin Moose conductor suitable for vertical take off 450 mm spacing  | No.  |          | 1980.00  |  |
| 21.11.6    | Terminal connector for Isolator  |      | 8535     |  |  |
| 21.11.6.1  | Rigid type terminal connector suitable for AAAC Moose ACSR   | No.  |          | 780.00   |  |
| 21.11.6.2  | Flexible type terminal connector suitable for 63 mm Al. tube   | No.  |          | 2700.00  |  |
| 21.11.7    | Terminal Connector for BPI to receive  |      | 8535     |  |  |
| 21.11.7.1  | 4" IPS Al. tube Expansion type   | No.  |          | 4116.77  |  |
| 21.11.7.2  | 4" IPS Al. tube Rigid type   | No.  |          | 3750.20  |  |
| 21.11.7.3  | 4" IPS Al. tube Sliding type   | No.  |          | 2159.96  |  |
| 21.11.7.4  | Twin ACSR Moose conductor  | No.  |          | 980.00   |  |
| 21.11.7.5  | Quadruple Bersimis ACSR bundle with 250 mm sub-conductor spacing   | No.  |          | 4200.00  |  |
| 21.11.7.6  | Twin Bersimis ACSR bundle with 250 mm sub-conductor spacing  | No.  |          | 1080.00  |  |
| 21.11.8    | Terminal Connector for Wave Trap   |      | 8535     |  |  |
| 21.11.8.1  | to receive 4" IPS Al. Tube flexible type   | No.  |          | 4800.00  |  |
| 21.11.8.2  | to receive ACSR Twin / Quad Bersimis   | No.  |          | 3800.00  |  |
| 21.11.9    | C' type wedge connector suitable for Moose ACSR to Moose ACSR  | No.  | 8535     | 5372.46  |  |
| 21.11.10   | <b>T' clamps</b>   |      | 8535     |  |  |
| 21.11.10.1 | T' Clamp suitable for 4" IPS Al. tube to Twin Moose ACSR conductor   | No.  |          | 3004.06  |  |
| 21.11.10.2 | T' clamp suitable for 4"Al. tube to 4" Al. tube.   | No.  |          | 2949.46  |  |
| 21.11.10.3 | T' Clamp suitable for 4" IPS Al. tube to Twin Bersimis ACSR conductor  | No.  |          | 3699.00  |  |
| 21.11.10.4 | T' clamp / Fire wedge type suitable for Bersimis ACSR on tap and Twin Moose ACSR on run  | No.  |          | 7800.00  |  |
| 21.11.10.5 | T' clamp (Fire wedge type) suitable for Twin Bersimis to Twin Bersimis   | No.  |          | 7800.00  |  |
| 21.11.10.6 | T' Clamp suitable for Moose ACSR to Moose ACSR   | No.  |          | 780.00   |  |
| 21.11.11   | Spacers for Quadruple Twin Moose ACSR conductor with 450 mm spacing  |      | 8535     |  |  |
| 21.11.11.1 | Flexible   | No.  |          | 2317.15  |  |

| Sl. No.      | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|--|------|----------|--|--|
|              | 21.11.11.2 Rigid   | No.  |          | 1514.66  |  |
|              | <b>21.11.12</b> Spacers for Quadruple Twin Bersimis ACSR conductor with 450 mm spacing                         |      | 8535     |  |  |
|              | 21.11.12.1 Flexible  | No.  |          | 1782.00  |  |
|              | 21.11.12.2 Rigid   | No.  |          | 885.00   |  |
|              | <b>21.11.13</b> Terminal connector for LA to receive   |      | 8535     |  |  |
|              | 21.11.13.1 ACSR Twin Moose conductor suitable for horizontal/vertical take off with 450 mm spacing             | No.  |          | 2449.00  |  |
|              | 21.11.13.2 Twin Bersimis ACSR conductor suitable for horizontal take off with 450 mm spacing                   | No.  |          | 2380.00  |  |
|              | 21.11.13.3 Twin Bersimis ACSR conductor suitable for 450 mm spacing (through type)                             | No.  |          | 2380.00  |  |
|              | <b>21.11.14</b> Welding sleeve suitable for 4 inch IPS Al. tube  | No.  | 7609     | 1824.28  |  |
|              | <b>21.11.15</b> Rigid type terminal connector for SF6 / Air Bushing suitable for 4" IPS Al. tube               | No.  | 8535     | 1550.00  |  |
|              | <b>21.11.16</b> Terminal connector for SF6 / Air Bushing suitable to receive Twin Bersimis ACSR Conductor      | No.  | 8535     | 2380.00  |  |
| <b>21.12</b> | <b>220 kV Clamps and Connectors</b>  |      |          |  |  |
|              | <b>21.12.1</b> Terminal connector for CB to receive 4" IPS Al. tube flexible type                              | No.  | 8535     | 3915.28  |  |
|              | <b>21.12.2</b> Terminal connector for CT to receive  |      | 8535     |  |  |
|              | 21.12.2.1 Twin Moose ACSR conductor  | No.  |          | 2287.42  |  |
|              | 21.12.2.2 4" IPS Al. tube flexible type  | No.  |          | 4071.27  |  |
|              | 21.12.2.3 Twin Bersimis ACSR conductor   | No.  |          | 2509.00  |  |
|              | <b>21.12.3</b> Terminal Connector for isolator to receive  |      | 8535     |  |  |
|              | 21.12.3.1 4" IPS Al. tube flexible type  | No.  |          | 3915.28  |  |
|              | 21.12.3.2 4" IPS Al. tube Rigid through type   | No.  |          | 1983.64  |  |
|              | 21.12.3.3 Twin Moose ACSR conductor suitable for Vertical take off 250 mm spacing                              | No.  |          | 1784.76  |  |
|              | 21.12.3.4 Twin Moose ACSR conductor suitable for horizontal take off 250 mm spacing                            | No.  |          | 1784.76  |  |
|              | 21.12.3.5 Quad Moose ACSR conductor suitable for horizontal take off 250 mm spacing                            | No.  |          | 3800.00  |  |
|              | 21.12.3.6 Twin Bersimis ACSR conductor suitable for horizontal take off 250 mm spacing                         | No.  |          | 2327.00  |  |
|              | 21.12.3.7 Twin Bersimis ACSR conductor suitable for vertical take off 250 mm spacing                           | No.  |          | 4808.00  |  |
|              | <b>21.12.4</b> Terminal connector for PT to receive  |      | 8535     |  |  |
|              | 21.12.4.1 4" IPS Al. tube rigid type   | No.  |          | 1450.00  |  |
|              | 21.12.4.2 Twin Bersimis ACSR   | No.  |          | 2663.00  |  |
|              | <b>21.12.5</b> Terminal Connector for CVT to receive   |      | 8535     |  |  |
|              | 21.12.5.1 4" IPS Al. tube Rigid type   | No.  |          | 2059.03  |  |
|              | 21.12.5.2 Twin Moose ACSR  | No.  |          | 2066.83  |  |
|              | 21.12.5.3 Twin Bersimis ACSR   | No.  |          | 2509.00  |  |
|              | <b>21.12.6</b> Clamps for BPI to receive Twin Moose ACSR (for Transformer Bay)                                 | No.  | 8535     | 1574.00  |  |
|              | <b>21.12.7</b> Clamps for Aluminium tube suitable for BPI for both main bus & interconnecting bus              |      | 8535     |  |  |
|              | 21.12.7.1 4" IPS Al. tube (od: 114.3 mm, ID:97.18 mm) Expansion type   | No.  |          | 5204.78  |  |
|              | 21.12.7.2 4" IPS Al. tube Rigid type   | No.  |          | 1504.00  |  |
|              | 21.12.7.3 4" IPS Al. tube Sliding type   | No.  |          | 2182.52  |  |
|              | <b>21.12.8</b> T clamp suitable for 4" IPS Aluminium tube to Twin Moose conductor                              | No.  | 8535     | 2267.02  |  |
|              | <b>21.12.9</b> T clamp suitable for Quadruple Moose ACSR to 4" IPS Al. tube                                    | No.  | 8535     | 3344.63  |  |
|              | <b>21.12.10</b> T clamp suitable for 4" IPS Aluminium tube to Twin Bersimis ACSR conductor                     | No.  | 8535     | 3200.00  |  |
|              | <b>21.12.11</b> T clamp suitable for Quadruple Bersimis ACSR to 4" IPS Al. tube                                | No.  | 8535     | 5172.00  |  |
|              | <b>21.12.12</b> T Clamp suitable for Moose ACSR to Moose ACSR  | No.  | 8535     | 740.00   |  |
|              | <b>21.12.13</b> T Clamp suitable for Quad Moose to Quad Moose  | No.  | 8535     | 2960.00  |  |
|              | <b>21.12.14</b> T Clamp suitable for Quad Moose to Twin Moose  | No.  | 8535     | 3800.00  |  |
|              | <b>21.12.15</b> T Clamp suitable for Twin Moose to Twin Moose  | No.  | 8535     | 1480.00  |  |
|              | <b>21.12.16</b> T Clamp (fire wedge type) suitable for Twin Bersimis ACSR on run and Twin Bersimis ACSR on tap | No.  | 8535     | 7800.00  |  |
|              | <b>21.12.17</b> T Clamp (fire wedge type) suitable for Twin Bersimis to Drake ACSR                             | No.  | 8535     | 7800.00  |  |
|              | <b>21.12.18</b> T Clamp (fire wedge type) suitable for Drake / AAAC to Bersimis ACSR                           | No.  | 8535     | 7800.00  |  |
|              | <b>21.12.19</b> PG Clamp suitable for ACSR Moose to ACSR Moose   | No.  | 8535     | 480.00   |  |
|              | <b>21.12.20</b> Post insulator clamp suitable for 5" Al tube for main rigid bus                                |      | 8535     |  |  |
|              | 21.12.20.1 Expansion type  | No.  |          | 6300.00  |  |

| Sl. No.      | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|--|------|----------|--|--|
|              | 21.12.20.2 Rigid type  | No.  |          | 2600.00  |  |
|              | <b>21.12.21</b> Post insulator clamp suitable for 5" Al tube for 220 kV interconnecting bay                                |      | 8535     |  |  |
|              | 21.12.21.1 Rigid type  | No.  |          | 2600.00  |  |
|              | 21.12.21.2 Expansion type  | No.  |          | 6300.00  |  |
|              | 21.12.21.3 Sliding type  | No.  |          | 2800.00  |  |
|              | <b>21.12.22</b> C' type wedge connector suitable for Quad Moose ACSR to Quad Moose ACSR                                    | No.  | 8535     | 5274.97  |  |
|              | <b>21.12.23</b> C' type wedge connector suitable for Quad Moose ACSR to Twin Moose ACSR                                    | No.  | 8535     | 5274.97  |  |
|              | <b>21.12.24</b> Spacers for twin ACSR Moose Conductor with 250 mm spacing  |      | 8535     |  |  |
|              | 21.12.24.1 Flexible  | No.  |          | 1419.48  |  |
|              | 21.12.24.2 Rigid   | No.  |          | 565.45   |  |
|              | <b>21.12.25</b> Spacers for Twin ACSR Bersimis Conductor with 250 mm spacing   |      | 8535     |  |  |
|              | 21.12.25.1 Flexible  | No.  |          | 1709.00  |  |
|              | 21.12.25.2 Rigid   | No.  |          | 774.00   |  |
|              | <b>21.12.26</b> Spacers for Quad ACSR Bersimis Conductor with 450 mm spacing   |      | 8535     |  |  |
|              | 21.12.26.1 Flexible  | No.  |          | 2809.00  |  |
|              | 21.12.26.2 Rigid   | No.  |          | 2109.00  |  |
|              | <b>21.12.27</b> Terminal connector for LA to receive   |      | 8535     |  |  |
|              | 21.12.27.1 ACSR Twin Moose conductor suitable for horizontal take off with 250 mm spacing                                  | No.  |          | 1784.76  |  |
|              | 21.12.27.2 ACSR Twin Bersimis conductor suitable for horizontal take off with 250 mm spacing                               | No.  |          | 1450.00  |  |
|              | <b>21.12.28</b> Welding sleeve suitable for 4 inch IPS Al. tube  | No.  | 7609     | 2094.13  |  |
|              | <b>21.12.29</b> Corona Bell suitable for 4 inch IPS Al. Tube   | No.  | 7318     | 691.54   |  |
|              | <b>21.12.30</b> Terminal connector for SF6 / Air Bushing suitable to receive Twin Bersimis ACSR Conductor                  | No.  | 8535     | 1450.00  |  |
|              | <b>21.12.31</b> Terminal Connector suitable for 220 kV UG Cable termination to Bersimis ACSR                               | No.  | 8535     | 1080.00  |  |
| <b>21.13</b> | <b>72 kV Clamps and Connectors</b>   |      |          |  |  |
|              | <b>21.13.1</b> Terminal connector for PT to receive 2.5 IPS Al. Tube rigid type  | No.  | 8535     | 1420.78  |  |
|              | <b>21.13.2</b> Terminal connector for CT to receive 2.5 IPS Al. Tube flexible type   | No.  | 8535     | 2800.00  |  |
|              | <b>21.13.3</b> Terminal connector for CB to receive 2.5 IPS Al. Tube rigid type  | No.  | 8535     | 780.00   |  |
|              | <b>21.13.4</b> Terminal connector for isolator to receive 2.5 IPS Al. Tube flexible type                                   | No.  | 8535     | 3004.06  |  |
|              | <b>21.13.5</b> Clamps for Moose ACSR suitable for BPI  | No.  | 8535     | 560.00   |  |
|              | <b>21.13.6</b> Clamps for Aluminium tube suitable for BPI for both main bus & interconnecting bus                          |      | 8535     |  |  |
|              | 21.13.6.1 2.5 IPS Al. Tube (od:114.3 mm, ID: 97.18 mm) Expansion type  | No.  |          | 4262.35  |  |
|              | 21.13.6.2 2.5 IPS Al. Tube Rigid type  | No.  |          | 1311.59  |  |
|              | 21.13.6.3 2.5 IPS Al. Tube Sliding type  | No.  |          | 1457.18  |  |
|              | <b>21.13.7</b> Welding sleeve suitable for 2.5 inch IPS Al. tube   | No.  | 7609     | 664.25   |  |
|              | <b>21.13.8</b> Corona Bell suitable for 2.5 inch IPS Al. Tube  | No.  | 7318     | 324.97   |  |
|              | <b>21.13.9</b> Straight tap suitable for connecting 2.5 inch IPS Al. tube to connect 33 kV Main bus to 33 kV equipment bus | No.  | 8535     | 1620.97  |  |
|              | <b>21.13.10</b> T' clamp suitable for connecting 2.5 IPS Al. tube of 2.5" IPS Al. tube                                     | No.  | 8535     | 3058.65  |  |
| <b>21.14</b> | <b>Insulator with hardware for Twin Moose ACSR conductor</b>   |      | 8546     |  |  |
|              | 21.14.1 Single suspension fittings with 23 nos. of 120 kN insulators and hardware set                                      | Set  |          | 33797.26                                       |  |
|              | 21.14.2 Double suspension fittings with 2 x 23 nos. of 120 kN insulators and hardware set                                  | Set  |          | 61095.05                                       |  |
|              | 21.14.3 Single Tension fittings with 24 nos. of 160 kN insulators and hardware set   | Set  |          | 40556.71                                       |  |
|              | 21.14.4 Double Tension fittings with 2 x 24 nos. of 160 kN insulators and hardware set                                     | Set  |          | 75263.90                                       |  |
|              | 21.14.5 Pilot insulators fittings with 23 nos. of 120 kN Disc insulators and hardware set                                  | Set  |          | 29247.63                                       |  |
| <b>21.15</b> | <b>Insulator with hardware for Quad Moose ACSR conductor</b>   |      | 8546     |  |  |
|              | 21.15.1 Quadruple Tension string assembly (excluding Disc Insulators) for Quad Moose ACSR conductor with arcing horn       | Set  |          | 82910.97                                       |  |
|              | 21.15.2 Suspension string assembly (excluding Disc Insulators) for Quad Moose ACSR conductor with arcing horn              | Set  |          | 35645.25                                       |  |
|              | 21.15.3 Single "I" suspension pilot isolator string suitable for Quad Moose ACSR excluding Disc Insulators                 | Set  |          | 51306.00                                       |  |
| <b>21.16</b> | <b>Hardware for Transposition Tower</b>  |      | 7308     |  |  |

| Sl. No.      | Description of Materials  | Unit   | HSN Code      | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|---|--------|---------------|--|--|
| 21.16.1      | Single Tension string assembly (excluding Disc Insulators) for Quad Moose ACSR conductor configuration  | No.    |               | 48632.55                                       |  |
| 21.16.2      | T-connectors  | No.    |               | 2289.37  |  |
| 21.16.3      | Silicon Rubber Composite Insulator 160 kN (suitable for string length of 24 nos. of Disc)   | No.    |               | 8000.00  |  |
| 21.16.4      | Silicon Rubber Composite Insulator 120 kN (suitable for string length of 23 nos. of Disc)   | No.    |               | 13892.05                                       |  |
| <b>21.17</b> | <b>Accessories for Conductors</b>   |        |               |  |  |
| 21.17.1      | Mid Span Compression Joint  | No.    | 8538          | 1686.30  |  |
| 21.17.2      | Repair Sleeves  | No.    | 7609          | 641.22   |  |
| 21.17.3      | Quadruple Spacer Dampers  | No.    | 7308          | 3215.00  |  |
| 21.17.4      | Bundle Spacers for Line   | No.    | 8537          | 875.00   |  |
| 21.17.5      | Rigid Spacers for Jumpers   | No.    | 8537          | 1027.24  |  |
| 21.17.6      | Balancing Weights   | No.    | 8423          | 25624.42                                       |  |
| 21.17.7      | T-Connectors  | No.    | 8535/<br>8536 | 1314.45  |  |
| <b>21.18</b> | <b>Hardware and Accessories for Ground Wire of size 7/3.66 mm</b>   |        |               |  |  |
| 21.18.1      | Mid Span Compression Joint  | No.    | 8538          | 383.91   |  |
| 21.18.2      | Compression Type Tension Clamp  | No.    | 7318          | 1119.93  |  |
| 21.18.3      | Suspension Clamps   | No.    | 7318          | 860.33   |  |
| 21.18.4      | Repair Sleeves  | No.    | 7609          | 181.96   |  |
| 21.18.5      | Vibration Dampers   | No.    | 7308          | 658.42   |  |
| <b>21.19</b> | <b>Check Survey &amp; Tower Spotting</b>  | km     | 9015          |  |  |
| 21.19.1      | Hilly Terrain   | per km |               |  | 5025.67                                      |
| 21.19.2      | Plain Terrain   | per km |               |  | 3354.11                                      |
| <b>21.20</b> | <b>Stringing of Conductor &amp; Ground Wire</b>   |        | 8544          |  |  |
| 21.20.1      | Stringing of ACSR Moose conductor including installing insulator strings complete with necessary hardwares and fixing of conductor accessories, tower accessories etc.,   | km     |               |  | 63865.13                                     |
| 21.20.2      | Installing and stringing of 7/3.66 mm earth wire including fixing of earth wire accessories and hardwares.  | km     |               |  | 67037.01                                     |
| <b>22</b>    | <b>Rates of EHV UG Cables</b>   |        |               |  |  |
| <b>22.1</b>  | <b>EHV UG CABLES</b>  |        | 8544          |  |  |
| 22.1.1       | <b>127/220 kV, Single core 1200 Sq mm XLPE</b> insulated, Lead Sheathed overall PE Sheathed UG cable (E) grade, 1 core, circular, stranded, playing annealed compacted copper conductor, screen on extruded semi conducting compound, XLPE insulation; inulation screen of semiconducting compound, non-woven water swellable semi conducting tape extruded lead alloy (E) sheath, semi conducting bedding tape (s) helically applied copper wires open helix copper tape, non-woven swellable tape, extruded PVC ST2 sheath conductive coating & antitermite treated high density poly-ethylene outer sheathed copper cable as per technical specifications. | km     |               | 22539010                                       |  |
| 22.1.2       | <b>127/220 kV, Single core 1000 Sq mm XLPE</b> insulated, Lead Sheathed overall PE Sheathed UG cable (E) grade, 1 core, circular, stranded, playing annealed compacted copper conductor, screen on extruded semi conducting compound, XLPE insulation; inulation screen of semiconducting compound, non-woven water swellable semi conducting tape extruded lead alloy (E) sheath, semi conducting bedding tape (s) helically applied copper wires open helix copper tape, non-woven swellable tape, extruded PVC ST2 sheath conductive coating & antitermite treated high density poly-ethylene outer sheathed copper cable as per technical specifications. | km     |               | 18782508.12                                    |  |
| 22.1.3       | <b>110 kV, 630 Sq mm XLPE UG Cable</b> - 110 kV (E) grade, 1 core, Circular, stranded, plain annealed copper condutor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification.  | km     |               | 10243170                                       |  |

| Sl. No.     | Description of Materials  | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|-------------|---|------|----------|--|--|
| 22.1.4      | <b>110 kV, 400 Sq mm XLPE UG Cable</b> - 110 kV (E) grade, 1 core, Circular, stranded, plain annealed copper conductor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification.                               | km   |          | 8579304.92                                     |  |
| 22.1.5      | <b>110 kV, 240 Sq mm XLPE UG Cable</b> - 110 kV (E) grade, 1 core, Circular, stranded, plain annealed copper conductor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification.                               | km   |          | 7279410.23                                     |  |
| 22.1.6      | <b>66 kV, 1000 Sq mm XLPE UG Cable</b> - 66 kV (E) grade, 1 core, Circular, stranded, plain annealed Segmental compact type miliken copper conductor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification. | km   |          | 11794656.67                                    |  |
| 22.1.7      | <b>66 kV, 630 Sq mm XLPE UG Cable</b> - 66 kV (E) grade, 1 core, Circular, stranded, plain annealed Segmental compact type miliken copper conductor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification.  | km   |          | 6525333.33                                     |  |
| 22.1.8      | <b>66 kV, 240 Sq mm XLPE UG Cable</b> - 66 kV (E) grade, 1 core, Circular, stranded, plain annealed Segmental compact type miliken copper conductor, conductor screen on extruded semi conducting compound, cross linked polyethylene (XLPE) insulation, core screen, semi-conducting water swellable layer, extruded lead alloy (E) sheath, semi conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded high density polyethylene sheath, coated with graphite etc., as per technical specification.  | km   |          | 4074297  |  |
| <b>22.2</b> | <b>EHV UG CABLES ACCESSORIES :</b>  |      |          |  |  |
| 22.2.1      | Out door type cable end termination Procelain design type suitable for the above 127/220 kV (E) class single 1 core 1000 Sq mm lead sheathed cable including PVC earthing cable   | No.  | 8538     | 893028   |  |
| 22.2.2      | Outdoor type cable end termination suitable for 110 kV (E) 1 - core, 630 Sq mm lead sheathed cable including PVC earthing cable   | No.  | 8538     | 384769   |  |
| 22.2.3      | Outdoor type cable end termination suitable for 110 kV (E) 1 - core, 400 Sq mm/240 Sq mm lead sheathed cable including PVC earthing cable   | No.  | 8538     | 288577   |  |
| 22.2.4      | Outdoor type cable end termination suitable for 66 kV (E) 1 - core, 1000 Sq mm, Segmental compact type miliken copper conductor, XLPE, lead sheathed cable including PVC earthing cable   | No.  | 8538     | 222282   |  |
| 22.2.5      | Outdoor type cable end termination suitable for 66 kV (E) 1 - core, 630/240 Sq mm, Segmental compact type miliken copper conductor, XLPE, lead sheathed cable including PVC earthing cable  | No.  | 8538     | 110751   |  |
| 22.2.6      | Indoor type suitable for plug in type cable termination for GIS modules conforming to IEC 62271-209 for 220 kV, 1200 Sq mm XLPE UG cable  | No.  | 8538     | 592430   |  |

| Sl. No.     | Description of Materials  | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|-------------|---|------|----------|--|--|
| 22.2.7      | Indoor type suitable for plug in type cable termination for GIS for 66 kV, 1000 Sq mm XLPE UG cable   | No.  | 8538     | 309068   |  |
| 22.2.8      | Indoor type suitable for plug in type cable termination for GIS modules confirming to IEC 62271-209 for 66 kV, 630 Sq mm XLPE UG cable  | No.  | 8538     | 309068   |  |
| 22.2.9      | Pre moulded outdoor cable termination kit for 220 kV, 1200 Sq mm XLPE cable for 220 kV lines (as per specification)   | No.  | 8538     | 859420   |  |
| 22.2.10     | Pre moulded outdoor cable termination kit for 66 kV, 1000 Sq mm XLPE cable (as per specification with necessary accessories)  | No.  | 8538     | 309068   |  |
| 22.2.11     | Pre moulded outdoor cable termination kit for 66 kV, 630 Sq mm XLPE cable (as per specification with necessary accessories)   | No.  | 8538     | 399110   |  |
| 22.2.12     | Normal Straight through joints suitable for 220 kV, 1 core pre mounted design 1000 Sq mm copper conductor, XLPE lead sheathed cable, 127/220 kV class, single core 1000 Sq mm cable as at Sl. No. 22.2.1  | No.  | 8544     | 651365   |  |
| 22.2.13     | Normal Straight Joints suitable for 110 kV(E) 1 - core 630 Sq mm copper conductor XLPE, Lead sheathed cable, complete with all accessories as per technical specifications  | No.  | 8544     | 231381   |  |
| 22.2.14     | Normal Straight Joints suitable for 110 kV(E) 1 - core 400 Sq mm / 240 Sq mm copper conductor XLPE, Lead sheathed cable, complete with all accessories as per technical specifications  | No.  | 8544     | 189785   |  |
| 22.2.15     | Normal Straight Joints suitable for 66 kV(E) 1 - core 1000 Sq mm, Segmental compact type miliken copper conductor, XLPE, Lead sheathed cable  | No.  | 8544     | 130509   |  |
| 22.2.16     | Normal Straight Joints suitable for 66 kV(E) 1 - core 630 Sq mm / 240 Sq mm, Segmental compact type miliken copper conductor, XLPE, Lead sheathed cable   | No.  | 8544     | 110751   |  |
| 22.2.17     | <b>220 kV</b> : Cross Bonding, Link Boxes, Single phase out door structure mounting type, with Temperature Transducers, Thermocouplers, SVL/CCPU and PVC earthing cable including 1C x 1000 Sq mm cable as per the technical specifications.  | No.  | 8536     | 620050   |  |
| 22.2.18     | <b>110 kV</b> : Link boxes, single phase outdoor structure mounting type with SVL/CCPU and PVC earthing cable including the cost of 1C x 400 Sq mm / 240 Sq mm copper cable   | No.  | 8536     | 61095  |  |
| 22.2.19     | <b>66 kV</b> : Link boxes, single phase outdoor structure mounting type with SVL/CCPU and PVC earthing cable including the cost of 1 x 1000 Sq mm copper cable  | No.  | 8536     | 45496  |  |
| <b>22.3</b> | <b>OPTICAL FIBRES AND ACCESSORIES</b>   |      |          |  |  |
| 22.3.1      | 12 Fibre Dual Window Mono Mode (DWMM) Optical Fibre Cable as per technical specifications   | km   | 8544     | 132589   |  |
| 22.3.2      | Polyvinyl Lubricated Bond (PLB) pipe  | km   | 3917     | 79294  |  |
| 22.3.3      | Straight Joint Kit for Optical Fibre cable  | Kit  | 8536     | 12999  |  |
| 22.3.4      | Line Interface Unit for Optical Fibre cable   | Unit | 9001     | 12999  |  |
| 22.3.5      | Collars for PLB pipe  | No.  | 3917     | 130  |  |
| <b>23</b>   | <b>Rates of Major works equipments for supply of GIS Modules</b>  |      |          |  |  |
|             | 420 kV, SF6 gas insulated ICT feeder bay module each comprising of SF6 gas insulated circuit breaker, current transformer, bus-bar disconnectors with common grounding switch, safety grounding switches, local control cubicle, SF6 gas monitoring system for complete bay, gas insulated terminal connection (SF6/Air) including gas insulated bus duct for connecting ICT with GIS to complete ICT feeder bay module                                       |      |          |  |  |
| <b>23.1</b> | <b>400 kV ICT Feeder Bay 2000 A, 40 kA</b>  |      | 8536     | 39398567                                       | 206149                                       |
|             | 420 kV, SF6 gas insulated Reactor feeder bay module each comprising of SF6 gas insulated circuit breaker with controlled switching, current transformer, bus-bar disconnectors with common grounding switch, safety grounding switches, local control cubicle, SF6 gas monitoring system for complete bay, gas insulated terminal connection (SF6/Air) including gas insulated bus duct for connecting Reactor with GIS to complete Reactor feeder bay module |      |          |  |  |
| <b>23.2</b> | <b>Bus Reactor Module 2000 A, 40 kA</b>   |      | 8536     | 39398567                                       | 206149                                       |

| Sl. No. | Description of Materials  | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------|---|------|----------|--|--|
|         | 420 kV, SF6 gas insulated Line feeder bay module each comprising of SF6 gas insulated circuit breaker, current transformer, bus-bar disconnectors with common grounding switch, safety grounding switches, high speed fault making grounding switch local control cubicle, SF6 gas monitoring system for complete bay, gas insulated terminal connection (SF6/Air) including gas insulated bus duct for connecting Overhead line with GIS to complete feeder bay module |      |          |  |  |
| 23.3    | <b>2000 A, 40 kA Line Feeder Bay Module</b>   |      | 8536     | 39309377                                       | 206149                                       |
|         | 420 kV, 3 single phase (isolated), SF6 gas insulated, metal enclosed bus bars each enclosed in three individual bus enclosures running along the length of the switchgear to interconnect each of the circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, disconnectors with grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.,   |      |          |  |  |
| 23.4    | <b>4000 A, 40 kA</b>  |      | 8536     | 27937908                                       | 93704  |
|         | 420 kV, SF6 gas insulated bus coupler bay module comprising of SF6 gas insulated circuit breaker, current transformer, disconnectors switches, safety grounding switches. Local control cubicle, SF6 gas monitoring system for the complete bay etc.  |      |          |  |  |
| 23.5    | <b>3000 A, 40 kA Bus Coupler Module</b>   |      | 8536     | 27731839                                       | 141727                                       |
|         | Metal encapsulated SF6 gas insulated Switchgear 40 kA rating suitable for indoor installation of modular design.  |      |          |  |  |
| 23.6    | <b>220 kV Line (U.G. Cable) Module :</b>  | No.  | 8544     | 21426669                                       | 161639                                       |
|         | Each Module comprising of the following :   |      |          |  |  |
| i       | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
| ii      | <b>Disconnecter:</b>  |      |          |  |  |
|         | 3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1600 A - 3 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, fast acting, fault make earthing switch complete with group operated manual & motor driven operating mechanism - 1 no.  |      | 8537     |  |  |
| iii     | <b>Current Transformer</b> : 5 Core, Multi ratio, single phase current transformer 1200-600/1-1-1 A plus additional 2 cores of 1200/1-1 A - (1 Set) 3 nos.  |      | 8504     |  |  |
| iv      | <b>Surge Arresters</b> - (1 Set) 3 nos.   |      | 8535     |  |  |
| v       | <b>Cable end unit</b> (Plug in type) : 3 Phase, Single pole, Plug in type cable termination - 1 run for 1000 Sq mm for each phase - 1 (Set)   |      | 8538     |  |  |
| vi      | <b>Bus Bar</b> - Double bus arrangement :   |      |          |  |  |
|         | Main Bus - 2500 A   |      | 8537     |  |  |
|         | Auxiliary Bus - 1600 A  |      |          |  |  |
| vii     | <b>Local Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required.<br><i>NOTE: The bus may be with single phase or 3 phase enclosure.</i>  |      | 8537     |  |  |
| 23.7    | <b>220 kV Line (O.H. Line) Module :</b>   | No.  | 7604     | 21202665                                       | 161639                                       |
|         | Each Module comprising of the following :   |      |          |  |  |
| i       | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
| ii      | <b>Disconnecter :</b>   |      |          |  |  |
|         | 3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1600 A - 3 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, fast acting, fault make earthing switch complete with group operated manual & motor driven operating mechanism - 1 no.  |      | 8537     |  |  |
| iii     | <b>Current Transformer</b> : 5 Core, Multi ratio, single phase current transformer 1200-600/1-1-1 A plus additional 2 cores of 1200/1-1 A - (1 Set) 3 nos.  |      | 8504     |  |  |
| iv      | Single Phase SF6 duct & wall mounted SF6 to air bushing for outdoor connection of conductor of overhead line - as required.   |      | 8535     |  |  |
| v       | <b>Bus Bar</b> - Double bus arrangement :   |      |          |  |  |
|         | Main Bus - 2500 A   |      | 8537     |  |  |
|         | Auxiliary Bus - 1600 A  |      |          |  |  |

| Sl. No. | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------|--|------|----------|--|--|
|         | vi<br><b>Local Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required.<br><i>NOTE: The bus may be with single phase or 3 phase enclosure</i>  |      | 8537     |  |  |
| 23.8    | <b>220 kV Bus Coupler Module :</b><br>Each module comprising of the following :  | No.  | 8536     | 15208853                                       | 119473                                       |
|         | i<br><b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
|         | ii<br><b>Disconnecter :</b><br>3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1600 A - 2 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.   |      | 8538     |  |  |
|         | iii<br><b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 1200-600/1-1-1 A plus additional 2 cores of 1200/1-1 A - (1 Set) 3 nos.  |      | 8504     |  |  |
|         | iv<br><b>Bus Bar</b> - Double bus arrangement :<br>Main Bus - 2500 A   |      | 8537     |  |  |
|         | v<br><b>Local Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required.<br><i>NOTE: The bus may be with single phase or 3 phase enclosure</i>   |      | 8537     |  |  |
| 23.9    | <b>Transformer Module (For 150 MVA - 220 kV side)</b><br>Each module comprising of the following :   | No.  | 8504     | 21108811                                       | 161639                                       |
|         | i<br><b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
|         | ii<br><b>Disconnecter :</b><br>3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1600 A - 3 nos.  |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 3 nos.   |      | 8537     |  |  |
|         | iii<br><b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 600-300/1-1-1 A plus additional 2 cores of 1200/1-1 A - (1 Set) 3 nos.   |      | 8504     |  |  |
|         | iv<br><b>Surge Arresters</b> (To be provided at the end of SF6 ducts to be connected to SF6 Air bushing for Transformer bushing connection): 3 nos. (1 set)  |      | 8535     |  |  |
|         | v<br><b>Bus Bar</b> - Double bus arrangement :<br>Main Bus - 2500 A<br>Auxiliary Bus - 1600 A  |      | 8537     |  |  |
|         | vi<br><b>Local Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required.  |      | 8537     |  |  |
|         | vii<br>Single phase SF6 ducts & SF6 to Air bushing for outdoors connections - as required<br><i>NOTE: The bus may be with single phase or 3 phase enclosure</i>  |      | 8535     |  |  |
| 23.10   | <b>245 kV , 3 single phase or three phase, SF6 gas insulated, metal enclosed bus bars each enclosed in three individual or in a three phase bus enclosures running along the length of the switchgear to interconnect each of circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, disconnectors with grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.,</b><br>4000 A, 40 kA | No.  | 8536     | 17581867                                       | 77306  |
| 23.11   | <b>Transformer Module (For 150 MVA - 66 kV side)</b><br>Each module comprising of the following :  | No.  | 8504     | 11476770                                       | 144070                                       |
|         | i<br><b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
|         | ii<br><b>Disconnecter:</b><br>3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1600 A - 3 nos.   |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 3 nos.   |      | 8537     |  |  |
|         | iii<br><b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 1600-1000/1-1-1 A - (1 Set) 3 nos.   |      | 8504     |  |  |
|         | iv<br><b>Surge Arresters</b> : To be provided at the end of SF6 ducts to be connected to SF6 Air bushing for Transformer bushing connection) - 3 nos. (1 set)  |      | 8535     |  |  |
|         | v<br><b>Bus Bar</b> - Double bus arrangement :<br>Main Bus - 2500 A  |      | 8537     |  |  |



| Sl. No.      | Description of Materials  | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|--------------|---|------|----------|--|--|
|              | Auxiliary Bus - 1600 A  |      |          |  |  |
|              | vi <b>Local Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required   |      | 8537     |  |  |
|              | vii Single phase / three phase SF6 ducts & SF6 to Air bushing for outdoors connections - as required<br><i>NOTE: The bus and the equipments may be with single phase or 3 phase enclosure</i> |      | 8535     |  |  |
| <b>23.12</b> | <b>PT Module</b>  |      | 8504     |  |  |
|              | a 400 kV (1 for each bus)   | No.  |          | 5888801  | 268691                                       |
|              | b 220 kV (1 for each bus)   | No.  |          | 4247629  | 70278  |
|              | c 66 kV (1 for each bus)  | No.  |          | 2644419  | 53880  |
|              | Each module comprising of the following :   |      |          |  |  |
|              | i <b>Disconnecter :</b>   |      |          |  |  |
|              | 3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism - 2000 A, 50 kA for 400 kV, 1600 A for 220 kV, 1250 A for 66 kV - 1 no.          |      | 8537     |  |  |
|              | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 1 no.   |      | 8537     |  |  |
|              | ii <b>Potential Transformer</b> : 3 Core, Multi ratio, single phase potential transformer   |      | 8504     |  |  |
|              | 400 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 1 Set (3 nos.)   |      |          |  |  |
|              | 3P/3P/0.2, 50/50/50 VA  |      |          |  |  |
|              | 220 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 1 Set (3 nos.)   |      |          |  |  |
|              | 66 kV/ $\sqrt{3}$ / 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 110 V/ $\sqrt{3}$ - 1 Set (3 nos.)  |      |          |  |  |
|              | iii <b>Bus Bar</b> - Double bus arrangement :   |      | 8537     |  |  |
|              | i) Main Bus - 4000A   |      |          |  |  |
|              | ii) Auxiliary Bus 2000 A - for 400 kV   |      |          |  |  |
|              | ii) Auxiliary Bus 1600 A - for 220 kV   |      |          |  |  |
|              | iii) Auxiliary Bus 1250 A - for 66 kV   |      |          |  |  |
|              | iv <b>Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required   |      | 8537     |  |  |
| <b>23.13</b> | <b>Bus Maintenance earth switch 3 Phase, Single pole, Group operated maintenance earthing switch complete with manual operating mechanism - 1600 A</b>  |      | 8537     |  |  |
|              | i 400 kV (1 for each bus)   | No.  |          | 2094356  | 107476                                       |
|              | ii 220 kV (1 for each bus)  | No.  |          | 1635268  | 70278  |
|              | iii 66 kV (1 for each bus)  | No.  |          | 1062014  | 53880  |
| <b>23.14</b> | <b>66 kV Transformer Module (For 31.5 MVA)</b>  | No.  | 8504     | 11389921                                       | 144070                                       |
|              | Each module comprising of the following :   |      |          |  |  |
|              | i <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 1600 A, 1 Phase/3Phase - 1 no.  |      | 8536     |  |  |
|              | ii <b>Disconnecter :</b>  |      |          |  |  |
|              | 3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1250 A - 2 nos.  |      | 8537     |  |  |
|              | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism 2 nos.  |      | 8537     |  |  |
|              | iii <b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 400-200/1-1-1 A (1 Set) - 3 nos.   |      | 8504     |  |  |
|              | iv <b>Bus Bar</b> - Single bus arrangement :  |      | 8537     |  |  |
|              | Main Bus - 2000 A   |      |          |  |  |
|              | Auxiliary Bus - 1250 A  |      |          |  |  |
|              | v <b>Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required  |      | 8537     |  |  |
|              | vi <b>Cable end unit</b> (Plug in type) : 3 Phase, Single pole, cable termination - 1 run for 630 Sq mm for each phase - 1 set  |      | 8504     |  |  |
| <b>23.15</b> | <b>66 kV Line (U.G.Cable) Module</b>  | No.  | 8544     | 13522371                                       | 378330                                       |
|              | Each module comprising of the following :   |      |          |  |  |
|              | i <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 1600 A, 1 Phase/3Phase - 1 no.  |      | 8536     |  |  |
|              | ii <b>Disconnecter :</b>  |      |          |  |  |
|              | 3 Phase, Single Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1250 A - 2 nos.  |      | 8537     |  |  |
|              | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.  |      | 8537     |  |  |

| Sl. No. | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------|--|------|----------|--|--|
|         | 3 Phase, Single pole, fast acting, fault make earthing switch complete with group operated manual & motor driven operating mechanism - 1 no.   |      | 8537     |  |  |
|         | iii <b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 1200-800/1-1-1 A - 1 Set (3 nos.)   |      | 8504     |  |  |
|         | iv <b>Surge Arresters</b> - 1 Set (3 nos.)   |      | 8535     |  |  |
|         | v <b>Cable end unit</b> (Plug in type) : 3 Phase, Single pole, cable termination - 1 run for 630/10000 Sq mm for each phase - 1 Set  |      | 8504     |  |  |
|         | vi <b>Bus Bar</b> - Single bus arrangement :<br>Main Bus - 2000 A  |      | 8537     |  |  |
|         | Auxiliary Bus - 1600 A   |      |          |  |  |
|         | vii <b>Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required   |      | 8537     |  |  |
| 23.16   | <b>66 kV Bus Sectionalising module comprising the following :</b>  | No.  |          | 5848599  | 144070                                       |
|         | i <b>Disconnecter</b> :<br>3 Phase, Single pole, Group operated isolator switch complete with manual & motor driven operating mechanism 2000 A - 1 no.   |      | 8537     |  |  |
|         | ii <b>Bus Bar</b> - Single bus arrangement :<br>Main Bus - 2000 A  |      | 8537     |  |  |
|         | iii <b>Control cubicle</b> for GIS module, gas monitoring device, barriers pressure switches etc., as required.<br><i>Note: The bus and the equipments may be with single phase or 3 phase enclosure</i> |      | 8537     |  |  |
| 23.17   | <b>PT Module</b><br>66 kV  | No.  | 8504     | 7082693  | 55051  |
|         | Each module comprising of the following :  |      |          |  |  |
|         | i <b>Disconnecter</b> :<br>3 Phase, Single pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1250 A - For 66 kV - 1 no.                                       |      | 8537     |  |  |
|         | 3 Phase, Single Pole, Group operated maintenance earthing switch complete with manual operating mechanism - 1 no.  |      | 8537     |  |  |
|         | ii <b>Potential Transformer</b> : 3 Core, Multi ratio, Single phase potential transformer<br>66 kV voltage class - 1 Set/3 nos.  |      | 8504     |  |  |
|         | iii <b>Bus Bar</b> - Single bus arrangement :<br>Main Bus - 2000 A<br>Auxiliary Bus - 1250 A   |      | 8537     |  |  |
|         | iv <b>Control cubicle</b> for GIS module, gas monitoring device, barriers, pressure switches etc., as required.  |      | 8537     |  |  |
| 23.18   | 400 kV SF6 gas filling evacuating filtering drying pumping and storage plant with spares for 5 yrs.  | Set  | 8421     | 8260005  | 0  |
| 23.19   | <b>66 kV Bus Coupler Module - UG Cable</b><br>Each module comprising of the following :  | No.  | 8538     | 5614540  | 225833                                       |
|         | i <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 2000 A, 1 ph/3 ph - 1 no.  |      |          |  |  |
|         | ii <b>Disconnecter</b> :<br>3 ph, Single pole, Group operated Isolator Switch complete with manual & motor driven operating mechanism 1600 A - 2 nos.  |      |          |  |  |
|         | 3 ph, Single pole, Group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.  |      |          |  |  |
|         | iii <b>Current Transformer</b> : 3 Core, Multi ratio, Single Ph current transformer, 1600-1000/1-1-1 A - 1 Set/3 nos.  |      |          |  |  |
|         | iv <b>Bus Bar</b> : Double Bus arrangement<br>Main Bus - 2500 A<br>Auxiliary Bus - 1600 A  |      |          |  |  |
|         | v <b>Local Control Cubicle</b> for GIS module for 66 kV Bus Coupler & 66 kV PTs, gas monitoring device, barrier pressure switches etc., as required.   |      |          |  |  |
| 24      | <b>Rates for supply of Hybrid Switchgear :</b>   |      |          |  |  |
| 24.1    | <b>Hybrid SF6 gas insulated switch gear 40 kA rating suitable for outdoor installation of modular design with mounting structures.</b>   |      |          |  |  |
|         | 24.1.1 <b>220 kV Line Module</b> :<br>Each Module comprising of the following :  | No.  |          | 12515276                                       | 238458                                       |
|         | i <b>SF6 Circuit Breaker</b> : Complete with operating mechanism , 1600 A, 1Phase/3phase - 1 no.   |      | 8536     |  |  |
|         | ii <b>Disconnecter</b> :   |      |          |  |  |

| Sl. No.       | Description of Materials   | Unit | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |
|---------------|--|------|----------|--|--|
|               | 3 phase, single pole, group operated isolator switch complete with manual and motor driven operating mechanism 1250 A - 2 nos.   |      | 8537     |  |  |
|               | 3 Phase, single pole, group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.   |      | 8537     |  |  |
| iii           | <b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 800-600-400-300/1-1-1 A plus additional 2 cores of 800/1-1 A - (1 Set) 3 nos.   |      | 8504     |  |  |
| iv            | Auxiliary Bus - 1250 A   |      | 8537     |  |  |
| v             | SF-6 to air bushing, 1250 A on both line side and bus bars side 2 Sets (3 nos. each) along with terminal connector suitable for 63 mm Aluminium tube   |      |          |  |  |
| vi            | <b>Local Control cubicle</b> for Hybrid Switch gear gas monitoring device pressure switches etc., as required.   |      | 8537     |  |  |
| <b>24.1.2</b> | <b>220 kV Bus Coupler Module :</b>   |      |          | 11908017                                       | 238458                                       |
|               | Each Module comprising of the following :  |      |          |  |  |
| i             | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism , 1600 A, 1Phase/3Phase - 1 no.   |      | 8536     |  |  |
| ii            | <b>Disconnecter</b> :  |      |          |  |  |
|               | 3 phase, single pole, group operated isolator switch complete with manual and motor driven operating mechanism 1250A - 2 nos.  |      | 8537     |  |  |
|               | 3 Phase, single pole, group operated maintenance earthing switch complete with manual operating mechanism - 1 no.  |      | 8538     |  |  |
| iii           | <b>Current Transformers</b> : 3 core, Multi ratio , single phase current transformer 800-600-400-300/1-1-1 A plus additional 2 cores of 800/1-1 A - (1 Set) 3 nos.   |      | 8504     |  |  |
| iv            | Auxiliary Bus - 1250A  |      | 8537     |  |  |
| v             | SF-6 to air bushing, 1250 A on both bus bars side 2 Sets (3 nos. each) along with terminal connector suitable for Drake ACSR Conductor   |      |          |  |  |
| vi            | <b>Local Control cubicle</b> for GIS module, gas monitoring device pressure switches etc., as required.  |      | 8537     |  |  |
| <b>24.1.3</b> | <b>Transformer Module (For 100/150 MVA - 220 kV side )</b>   |      |          | 15081538                                       | 238458                                       |
|               | Each Module comprising of the following :  |      |          |  |  |
| i             | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 1600 A, 1Phase/3Phase - 1 no.  |      | 8536     |  |  |
| ii            | <b>Disconnecter</b> :  |      |          |  |  |
|               | 3 phase, single pole, group operated isolator switch complete with manual and motor driven operating mechanism 1250 A - 2 nos.   |      | 8537     |  |  |
|               | 3 Phase, single pole, group operated maintenance earthing switch complete with manual operating mechanism - 2 nos.   |      | 8538     |  |  |
| iii           | <b>Current Transformer</b> : 3 Core, Multi ratio, single phase current transformer 800-600-400-300/1-1-1 A plus additional 2 cores of 800/1-1 A - (1 Set) 3 nos.   |      | 8504     |  |  |
| iv            | Auxillary Bus - 1250 A   |      | 8537     |  |  |
| v             | <b>Local Control cubicle</b> for GIS module, gas monitoring device pressure switches etc., as required   |      | 8537     |  |  |
| vi            | SF-6 to air bushing of 1250 A on both line side and bus bars side 2 Sets (3 nos. each) along with terminal connector suitable for Drake ACSR Conductor   |      |          |  |  |
| <b>24.2</b>   | <b>Hybrid SF6 gas insulated switch gear 40 kA rating suitable for outdoor installation of modular design with mounting structure - Modules for Single Breaker Scheme</b>   | No.  | 8536     | 7275530  | 87848  |
|               | Each module comprising of the following :  |      |          |  |  |
| i             | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 1600 A, 3 phase - 1 no.  |      | 8536     |  |  |
| ii            | <b>Disconnecter</b> :  |      |          |  |  |
|               | 3 Phase, three Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1250 A - 2 nos. (1 no. on Line side and 1 no. on Bus side)   |      | 8537     |  |  |
|               | 3 Phase, three Pole, Group operated maintenance earthing switch complete with manual/motor driven operating mechanism - 2 nos. (1 no. each on Line side and 1 no. on Bus side)   |      | 8537     |  |  |
|               | 3 phase, single pole, fast acting, fault make earthing switch complete with group operated manual & motor driven operating mechanism - 1 no. on line side.<br><i>Note: Combined disconnecter and earthing switch operated by means of a common driving mechanism is acceptable</i> |      | 8537     |  |  |

| Sl. No. | Description of Materials | Unit  | HSN Code | Amount in Rs. exclusive of GST and F&I charges | Labour rates in Rs. exclusive of GST charges |        |
|---------|--------------------------|---|----------|--|--|--------|
|         | iii                      | <b>Current Transformer</b> : 3 Core, Multi ratio, single phase Ring type current transformer 1200-800/1-1-1-1 A - 1 Set (3 nos.) positioned in the bushing  | 8504     |  |  |        |
|         | iv                       | SF6 to Air bushing made of Silicon Rubber, 1600 A on both Line side and Bus bar side 2 Sets (3 nos. each )  | 8535     |  |  |        |
|         | v                        | <b>Local Control cubicle</b> for Hybrid module, gas monitoring device, pressure switches etc., as required.   | 8537     |  |  |        |
| 24.3    |                          | <b>Hybrid SF6 gas insulated switch gear 40 kA rating suitable for outdoor installation of modular design of Twin Breaker type with mounting structure - Modules</b>   | No.      | 8536   | 10670777                                     | 128843 |
|         |                          | Each module comprising of the following :   |          |  |  |        |
|         | i                        | <b>SF6 Circuit Breaker</b> : Complete with operating mechanism, 1600 A, 3 phase - 2 nos.  | 8536     |  |  |        |
|         | ii                       | <b>Disconnecter</b> :   |          |  |  |        |
|         |                          | 3 Phase, three Pole, Group operated isolator switch complete with manual & motor driven operating mechanism 1250 A - 2 nos. (1 no. each on Line side)   | 8537     |  |  |        |
|         |                          | 3 Phase, three Pole, Group operated maintenance earthing switch complete with manual/motor driven operating mechanism - 2 nos. (1 no. each on Line side)  | 8537     |  |  |        |
|         |                          | 3 phase, single pole, fast acting, fault make earthing switch complete with group operated manual & motor driven operating mechanism -2 nos. (1 no. each on Line side)  | 8537     |  |  |        |
|         |                          | 3 phase, three pole, group operated isolator switch complete with manual motor driven operating mechanism 1600 A - 1 no. on Bus side (Common for both Lines)  | 8537     |  |  |        |
|         |                          | 3 phase, three pole, group operated maintenance earthing switch complete with manual/motor driven operating mechanism - 1 no. on Bus side (Common for both Lines).<br><i>Note: Combined disconnecter and earthing switch operated by means of a common driving mechanism is acceptable.</i> | 8537     |  |  |        |
|         | iii                      | <b>Current Transformer</b> : 3 Core, Multi ratio, single phase Ring type current transformer 1200-800/1-1-1-1 A - 12 Sets (6 nos.) positioned in the bushing. 3 nos. each on line side  | 8504     |  |  |        |
|         | iv                       | SF6 to Air bushing made of Silicon Rubber, 1600 A on both line side and Bus bar side 3 sets (3 nos. each on Line side and 3 nos. (Common) on Bus side)  | 8535     |  |  |        |
|         | v                        | <b>Local Control cubicle</b> for Hybrid module, gas monitoring device, pressure switches etc., as required.   | 8537     |  |  |        |
| 25      |                          | <b>HTLS Conductor with accessories</b>  |          |  |  |        |
|         | 25.1                     | <b>Conductor and Earth wire</b>   |          |  |  |        |
|         | 25.1.1                   | HTLS Conductor  | km       | 7604   | 897315                                       |        |
|         | 25.2                     | <b>Accessories for HTLS</b>   |          | 8522   |  |        |
|         | 25.2.1                   | Dead End Assembly, Single Tongue (W/Terminal)   | Each     | 7326   | 77606  |        |
|         | 25.2.2                   | Thermolign Suspension Assembly  | Each     | 7326   | 12611  |        |
|         | 25.2.3                   | Splice (MSC)  | Each     | 8538   | 87306  |        |
|         | 25.2.4                   | Repair Rod  | Each     | 7604   | 13581  |        |
|         | 25.2.5                   | Vibration Dampers   | Each     | 9015   | 6790   |        |
|         | 25.2.6                   | Bus Bar Socket  | Each     | 8536   | 24252  |        |
| 26      |                          | <b>Covered Conductor and accessories</b>  |          |  |  |        |
|         | 26.1                     | 52 kV Grade CCSX 99 ACSR Covered Conductor with 99 Sq mm cross section metres area  | km       | 7614   | 1377500                                      |        |
|         | 26.2                     | Prestressed spun pole 11.0 m long   | Set      | 6810   | 20144  |        |
|         | 26.3                     | 66 kV GI Single top support with bolt, nut and washers  | Set      | 7318   | 2685   |        |
|         | 26.4                     | 66 kV GI Horizontal cross arm with clamp, bolt, nuts and washers  | No.      | 7318   | 4834   |        |
|         | 26.5                     | 66 kV class Polymeric Post Insulator with bolt, nuts and washers  | No.      | 7318   | 10745  |        |
|         | 26.6                     | 66 kV class Polymeric Suspension Insulator with clamps and accessories  | No.      | 8547   | 6043   |        |
|         | 26.7                     | Wedge clamps for Coyote ACSR conductor  | No.      | 7318   | 3491   |        |
|         | 26.8                     | Preformed Ties for tying Covered Conductor to the Insulators  | No.      | 8544   | 872  |        |
|         | 26.9                     | Covered Conductor jointing kits   | Set      | 8544   | 14551  |        |