

PRICE FORMAT - FOR FOREIGN BIDDERS

| NAME OF PROJECT: 4X270 MW BHADRADRI TPS     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              |                                                                   |             |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------------------------------------------------|--------------------------|------------------------------------|------------------------------------------------|---------------------------------------------|----------------------|-----------------------------------------------|--------------------------------------------------|----------------------------------------------------------------|------------------------|------------------------|----------------------|-------|----------------------------------------------|-------------------------------------------------------------------|-------------|
| NAME OF PACKAGE: SEWAGE TREATMENT PLANT     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              |                                                                   |             |
| TECHNICAL SPECIFICATION: PE-TS-411-873-A001 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              |                                                                   |             |
| S. No.                                      | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | UNIT | QTY | IMPORTED ITEMS ( Supply not from Indian Territory) |                          |                                    |                                                |                                             |                      |                                               | INDIGENEOUS ITEMS (Supply from Indian Territory) |                                                                |                        |                        |                      | TOTAL | SERVICES                                     |                                                                   | GRAND TOTAL |
|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     | C&F Price (including seaworthy packing)            | Ocean / Marine Insurance | Custom Duty after availing Centvat | Inland FREIGHT CHARGES (INCLUDING SERVICE TAX) | F.O.R. site price for Imported items supply | TOTAL EX-WORKS PRICE | Excise Duty@...% (ON SELF MANUFACTURED ITEMS) | CST @ ...% Against Form & E/EZ or VAT            | FREIGHT CHARGES INCLUDING SERVICE TAX @ ...% OF TOTAL EX-WORKS | TOTAL F.O.R SITE PRICE | TOTAL SERVICES CHARGES | SERVICE TAX @ .....% |       | TOTAL SERVICES CHARGES INCLUDING SERVICE TAX |                                                                   |             |
| 1.0                                         | Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for SUPPLY PART , SERVICES PART & MANDATORY SPARES comprising of design (i.e. Preparation and submission of drawing/ documents including " As Built " drawings and O&M Manuals) , engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles (as applicable), fill of lubricants & consumables (excluding chemicals) , mandatory spares alongwith spares for erection ,start-up and commissioning as required, forwarding, proper packing, shipment and delivery at site, preparation of drawings in 3D (if applicable) and carrying out performance guarantee /Functional / Demonstration tests at site (As applicable), training of customer/ client O&M staff ( if applicable ) & final handing over to end customer in flawless condition for project and package specified above complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order. | Set  | 1   |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              | TOTAL LUMP SUM PRICE FOR SUPPLY AND E&C SERVICE WITH SERVICE TAX. |             |
| 2.0                                         | MAJOR BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              |                                                                   |             |
| 2.1                                         | Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for SUPPLY PART comprising of design (i.e. Preparation and submission of drawing/ documents including " As Built " drawings and O&M Manuals) , engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles (as applicable), fill of lubricants & consumables(excluding chemicals), alongwith spares for erection , start-up and commissioning as required, forwarding, proper packing, shipment and delivery at site, preparation of drawings in 3D (if applicable) for project and package specified above complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.                                                                                                                                                                                                                                                                            | Set  | 1   |                                                    | BY BHEL                  |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      | NA    |                                              |                                                                   |             |
| 2.2                                         | Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for the SERVICES PART comprising of unloading, handling, transportation & storage at site, in site transportation, assembly, minor civil works, erection & commissioning, final painting at site, trial run at site and carrying out performance guarantee /Functional / Demonstration tests at site (As applicable), training of customer/ client O&M staff ( if applicable ) & final handing over to end customer in flawless condition for project and package specified above complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order.                                                                                                                                                                                                                                                                                                                                                                                        | Set  | 1   | NA                                                 |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      |       |                                              |                                                                   |             |
| 2.3                                         | Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for Mandatory spares comprising of manufacture, fabrication, assembly, inspection / testing (as applicable) at vendor's & sub-vendor's works, painting, forwarding, proper packing, shipment, delivery at site & guarantee as per tender technical specification above, amendment & agreements till placement of order. (Price break up of mandatory spares is to be furnished as per Annexure-I).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Lot  | 1   |                                                    |                          |                                    |                                                |                                             |                      |                                               |                                                  |                                                                |                        |                        |                      | NA    |                                              |                                                                   |             |

Note- 1. Evaluation shall be done one the basis of total lump sum prices for complete supply and services. Total price indicated above at Column (15) minus service tax quoted at Column (13) of 1.0 shall be considered for evaluation & hence must be completed in all respect for the full scope defined & considering all terms and conditions agreed. Further Swacch Bharat Cess i.e.0.5% of Service tax rate is not cenvaible. Hence, this 0.5% component of cess shall be considered for Evaluation.  
2.Vendor to quote prices in words also.

Chandrar

95

| PRICE FORMAT - For Foreign Bidders |                                                                                                                                                                                                                                                              |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----|------------------------|----------------------------------------------------|------------------------------------------------|------------------------------------|----------------------------------|-------------------------------------------------|--------------------------------------------------|--------------------------------------|---------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------|
| ANNEXURE-I                         |                                                                                                                                                                                                                                                              |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| LIST OF MANDATORY SPARES           |                                                                                                                                                                                                                                                              |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| NAME OF PROJECT:                   |                                                                                                                                                                                                                                                              |                                                                                        |     | 4X270 MW BHADRADRI TPS |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| NAME OF PACKAGE:                   |                                                                                                                                                                                                                                                              |                                                                                        |     | SEWAGE TREATMENT PLANT |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| TECHNICAL SPECIFICATION:           |                                                                                                                                                                                                                                                              |                                                                                        |     | PE-TS-411-673-A001     |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| S. N.                              | DESCRIPTION                                                                                                                                                                                                                                                  | UNIT                                                                                   | QTY | AMOUNT (Ex-Works)      | IMPORTED ITEMS ( Supply not from Indian Territory) |                                                |                                    |                                  |                                                 | INDIGENEOUS ITEMS (Supply from Indian Territory) |                                      |                                             |                                                       |                                                                             |                                                                   | TOTAL                                       |
|                                    |                                                                                                                                                                                                                                                              |                                                                                        |     |                        | Unit C&F Price (including seaworth y packing)      | Total C&F Price (including seaworth y packing) | Ocean / Marine Insurance (by BHEL) | Custom Duty after CENVAT benefit | Inland FREIGHT CHARGE S (INCLUDING SERVICE TAX) | F.O.R. site Imported Items supply price          | UNIT EX- WORKS PRICE INCLUDING G P&F | TOTAL EX- WORKS PRICE INCLUDING G P&F (INR) | Excise Duty @.....% (ON SELF MANUFACTURED ITEMS ONLY) | CST @ .....% Against C- form & E1/E2 or VAT @.....% Whichever is applicable | FREIGHT CHARGES INCLUDING SERVICE TAX) @.....% OF TOTAL EX- WORKS | Total FOR Site IMPORTED + INDIGENOUS SUPPLY |
|                                    |                                                                                                                                                                                                                                                              |                                                                                        |     |                        | 1                                                  | 2                                              | 3                                  | 4                                | 5                                               | 6=2+4+5                                          | 7                                    | 8                                           | 9                                                     | 10                                                                          | 11                                                                | 12=8+9+10+11                                |
|                                    |                                                                                                                                                                                                                                                              |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1                                  | VERTICAL SUMP PUMPS – (FOR EACH TYPE AND SIZE)                                                                                                                                                                                                               |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Complete Casing including suction (if applicable) bell                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ii                                 | Impeller                                                                                                                                                                                                                                                     | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iii                                | Impeller key                                                                                                                                                                                                                                                 | Number                                                                                 | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iv                                 | Wearing rings (Impeller & Casing as applicable)                                                                                                                                                                                                              | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| v                                  | Impeller Shaft, Line shaft and head shaft                                                                                                                                                                                                                    | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vi                                 | Shaft Sleeves                                                                                                                                                                                                                                                | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vii                                | Stuffing box                                                                                                                                                                                                                                                 | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| viii                               | Coupling between Pump & motor, bushes, pins with all fasteners & coupling Guards                                                                                                                                                                             | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ix                                 | Line Shaft Couplings (if applicable)                                                                                                                                                                                                                         | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| x                                  | Impeller, Line and Head shaft bearings (as applicable)                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| xi                                 | Gland Packing & Gland Assembly                                                                                                                                                                                                                               | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| xii                                | Mechanical seal as applicable                                                                                                                                                                                                                                | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2                                  | HORIZONTAL CENTRIFUGAL PUMPS (FOR EACH TYPE AND SIZE)                                                                                                                                                                                                        |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Impeller for each type                                                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ii                                 | Wearing rings – Impeller for each type (if applicable)                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iii                                | Wearing rings – Casing for each type (if applicable)                                                                                                                                                                                                         | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iv                                 | Shaft for each type                                                                                                                                                                                                                                          | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| v                                  | Shaft Sleeves for each type                                                                                                                                                                                                                                  | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vi                                 | Stuffing box for each type                                                                                                                                                                                                                                   | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vii                                | Coupling between Pump & motor, bushes, pins with all fasteners & coupling Guards                                                                                                                                                                             | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| viii                               | Pump bearings for each type                                                                                                                                                                                                                                  | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ix                                 | Gland Packing & Gland Assembly for each type                                                                                                                                                                                                                 | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| x                                  | Mechanical seal as applicable                                                                                                                                                                                                                                | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| xi                                 | Impeller key                                                                                                                                                                                                                                                 | Number                                                                                 | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3                                  | AGITATORS (FOR EACH TANK AS APPLICABLE)                                                                                                                                                                                                                      |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Agitator Assembly with Gear Box                                                                                                                                                                                                                              | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 4                                  | MOTOR                                                                                                                                                                                                                                                        |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Motor bearing for each type of pump                                                                                                                                                                                                                          | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 5                                  | VALVES AND PIPING                                                                                                                                                                                                                                            |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Piping valves & traps - Complete assembly                                                                                                                                                                                                                    | 5% or min. 1 no. (whichever is more) for each size, type & rating for total population |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6                                  | MANDATORY SPARES FOR CONTROL SYSTEM AND MEASURING INSTRUMENTS                                                                                                                                                                                                |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.1                                | Mandatory Spares for Temperature Elements and Thermowells                                                                                                                                                                                                    |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.1.1                              | Thermocouple / RTD elements (10% of each type and length: 1 element, or a minimum of one number, whichever is more.)                                                                                                                                         | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.1.2                              | Thermowells for each type of temperature sensors (10% or a minimum of one for each type, whichever is more.)                                                                                                                                                 | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.2                                | Mandatory Spares for Electronic Transmitters (for pressure, DP, Flow, level, Temperature) and Electrical Transducers                                                                                                                                         |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.2.1                              | Transmitters and Electrical Transducers (10% of total number of offered for each model and type for the project or a minimum of one number, whichever is more)                                                                                               | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.3                                | Mandatory spares for Local gauges/switch (for Pressure, DP, Temperature, Flow, level, etc.)                                                                                                                                                                  |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.3.1                              | Local gauges/ Switch (for Pressure, DP, Temperature, Flow, level, etc.) (10% of total number of instruments offered for each model and type for the project or a minimum of one number, whichever is more.)                                                  | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4                                | Programmable Logical Control (PLC)                                                                                                                                                                                                                           |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.1                              | Function controller and control modules (10% of number for each type or minimum of 4 number for each type whichever is high.)                                                                                                                                | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.2                              | Process I/O cards and drive modules (10% of the number of cards offered for the project from each category.)                                                                                                                                                 | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.3                              | All other type of electronic modules like CPU of workstation, Power supply modules, communication modules, modules for Data highway / modules for LAN, controllers not covered above (10% of each type or minimum of 2 nos. of each type whichever is more.) | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.4                              | All cards, controllers, lamp and other components used in LVS.                                                                                                                                                                                               | Lot (10%)                                                                              | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.5                              | Control logic power supply fuses at each current rating (Three times the one hundred percent spare replacement).                                                                                                                                             | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.6                              | Electric to pneumatic converters (10% of each type utilized with automatic control system using pneumatic drives or a minimum of one of each type, whichever is more.)                                                                                       | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.7                              | Plug-in type keyboard                                                                                                                                                                                                                                        | 2 No. of each type                                                                     |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.8                              | Dot matrix Printer                                                                                                                                                                                                                                           | No.                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.9                              | CRT                                                                                                                                                                                                                                                          | No.                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.10                             | DVDs                                                                                                                                                                                                                                                         | Nos.                                                                                   | 40  |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.11                             | Printer ribbons /inking mechanism for colour printer.                                                                                                                                                                                                        | Nos.                                                                                   | 20  |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.12                             | Ribbons for dot matrix printer.                                                                                                                                                                                                                              | Nos.                                                                                   | 60  |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.13                             | Data highway cable with adequate connectors.                                                                                                                                                                                                                 | meters                                                                                 | 500 |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.14                             | Hard disc drive unit as offered for system complete with accessories.                                                                                                                                                                                        | No.                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.15                             | Interface cables for each type                                                                                                                                                                                                                               | Sets                                                                                   | 4   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.16                             | Power supply modules of each type and rating                                                                                                                                                                                                                 | Lot (10%)                                                                              | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.4.17                             | Interposing / coupling relays of each type.                                                                                                                                                                                                                  | 2 Lot (5% of total quantity)                                                           |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5                                | MANDATORY SPARES FOR UN-INTERRUPTIBLE POWER SUPPLY SYSTEM                                                                                                                                                                                                    |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5.1                              | Fuses (3 times, the one hundred percent spare replacement fuses shall be furnished with each panel board.)                                                                                                                                                   | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5.2                              | Electronic modules for UPS , Charger, static switch & stabilizer and DC power supply system with each set consisting of at least one number of each type of electronic module for inverters, charger, static switch, stabilizer etc.                         | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5.3                              | Battery cells                                                                                                                                                                                                                                                | Lot (10%)                                                                              | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5.4                              | Thyrister without heat sink                                                                                                                                                                                                                                  | Lot (10%)                                                                              | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.5.5                              | Semiconductor fuse                                                                                                                                                                                                                                           | 2 Lot (10%)                                                                            | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.6                                | Mandatory Spares for Control Panels / Desks                                                                                                                                                                                                                  |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.6.1                              | Crimping pins                                                                                                                                                                                                                                                | 2 Rolls                                                                                | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.6.2                              | Bulbs for indicating lights (Three times the one hundred percent spare replacement)                                                                                                                                                                          | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.6.3                              | Control circuit fuses of each current rating (Three times, the one hundred percent spare replacement)                                                                                                                                                        | Lot                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 6.6.4                              | Push buttons, electrical control switches and illuminated push buttons etc                                                                                                                                                                                   | Lot (20%)                                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 7                                  | HORIZONTAL SCREW PUMPS (FOR EACH TYPE AND SIZE)                                                                                                                                                                                                              |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Shaft for each type                                                                                                                                                                                                                                          | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ii                                 | Shaft Sleeves for each type                                                                                                                                                                                                                                  | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iii                                | Coupling between Pump & motor, bushes, pins with all fasteners & coupling Guards                                                                                                                                                                             | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iv                                 | Pump bearings for each type                                                                                                                                                                                                                                  | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| v                                  | Gland Packing & Gland Assembly for each type                                                                                                                                                                                                                 | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 8                                  | AIR BLOWER (FOR EACH TYPE AND SIZE)                                                                                                                                                                                                                          |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | V Belt                                                                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ii                                 | Oil seal                                                                                                                                                                                                                                                     | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iii                                | Filter                                                                                                                                                                                                                                                       | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iv                                 | Bearings for Blower                                                                                                                                                                                                                                          | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 9                                  | LIST OF MANDATORY SPARES FOR HOIST AND CHAIN PULLEY BLOCK                                                                                                                                                                                                    |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1                                  | ELECTRIC HOIST (for each type and rating, hoists)                                                                                                                                                                                                            |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.1                                | Mechanical Items                                                                                                                                                                                                                                             |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.1                                | Bearings for long travel wheels                                                                                                                                                                                                                              | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.2                                | Bearings for gear boxes for each type of hoist                                                                                                                                                                                                               | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.3                                | Break liners for all the brakes                                                                                                                                                                                                                              | 100% of total population of each type & size                                           |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.4                                | Oil seals                                                                                                                                                                                                                                                    | 100% of total population of each type, size rating                                     |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.5                                | Brake springs for all brakes                                                                                                                                                                                                                                 | 100% of total population of each type, size rating                                     |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.6                                | Wire ropes for hooks                                                                                                                                                                                                                                         | 100% installed on each crane and hoist                                                 |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.7                                | Solenoid coils for brakes                                                                                                                                                                                                                                    | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.8                                | Overload relay for motors                                                                                                                                                                                                                                    | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.9                                | Limit switches for hoists and travel mechanisms                                                                                                                                                                                                              | Set                                                                                    | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.10                               | Spare motors for hoists                                                                                                                                                                                                                                      | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.11                               | Long travel machinery                                                                                                                                                                                                                                        |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.12                               | i. Gear wheel                                                                                                                                                                                                                                                | Set                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.13                               | ii. Internal clip                                                                                                                                                                                                                                            | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 1.14                               | iii. Pinion                                                                                                                                                                                                                                                  | No.                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2                                  | Electrical Items                                                                                                                                                                                                                                             |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2.1                                | 415 Volt Motor (Upto 30 KW Rating)                                                                                                                                                                                                                           |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2.2                                | Driving End & Non-Driving End Bearing                                                                                                                                                                                                                        | 3 Set for each type and rating of Motor                                                |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2.3                                | Cooling Fan                                                                                                                                                                                                                                                  | 2 Nos. for each type and rating of Motor                                               |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2.4                                | Motor Terminal Block                                                                                                                                                                                                                                         | 5 Nos. for each type and rating of Motor                                               |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 2.5                                | Complete Set of Coupling                                                                                                                                                                                                                                     | 1 Set of each application                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3                                  | C&I Items                                                                                                                                                                                                                                                    |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3.1                                | Back-up panel mounted devices (Selector switches/ Push buttons/ Indicators etc.                                                                                                                                                                              | 5% of installed capacity                                                               |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3.2                                | Lamps/ LEDs                                                                                                                                                                                                                                                  | 10% of the total quantity                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3.3                                | Blank Tiles                                                                                                                                                                                                                                                  | 10% of installed capacity                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3.4                                | MCBs                                                                                                                                                                                                                                                         | 10% of each type & rating                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| 3.5                                | Fuses/ Fuse holder                                                                                                                                                                                                                                           | 10% of each type & rating                                                              |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
|                                    | Chain pulley block (for each capacity and type of chain pulley blocks)                                                                                                                                                                                       |                                                                                        |     |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| i                                  | Load chain wheel                                                                                                                                                                                                                                             | No.                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| ii                                 | Load chain stripping fork                                                                                                                                                                                                                                    | Nos.                                                                                   | 5   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iii                                | Hand chain wheel                                                                                                                                                                                                                                             | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| iv                                 | Ratchet pawl                                                                                                                                                                                                                                                 | No.                                                                                    | 1   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| v                                  | Locking ratchet wheel                                                                                                                                                                                                                                        | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vi                                 | Guide roller                                                                                                                                                                                                                                                 | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |
| vii                                | Brake disc                                                                                                                                                                                                                                                   | Nos.                                                                                   | 2   |                        |                                                    |                                                |                                    |                                  |                                                 |                                                  |                                      |                                             |                                                       |                                                                             |                                                                   |                                             |

Note: Mandatory spares listed above is bare minimum requirement. In case any additional mandatory spares requirement is covered elsewhere in the tender specification apart from specified above, same shall be deemed to have been covered in bidders scope of supply.

Gundal