

### PRICE FORMAT FOR INDIAN BIDDERS

| NAME OF PROJECT:   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1x800 TANGEDCO NORTH CHENNAI TPP |     |                                |                                 |                                  |                                      |               |                                          |                                    |                                     |                                      |                                              |
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| NAME OF PACKAGE:   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | AIR CONDITIONING SYSTEM          |     |                                |                                 |                                  |                                      |               |                                          |                                    |                                     |                                      |                                              |
| TENDER ENQUIRY No: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PE/PG/NC3/E-5784/2017            |     |                                |                                 |                                  |                                      |               |                                          |                                    |                                     |                                      |                                              |
| S. No.             | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNIT                             | QTY | HSN Code / Service Activity No | Unit Ex-works duly packed (INR) | Total Ex-works duly packed (INR) | Type of GST (IGST/CGST + SGST/UTGST) | Freight (INR) | Total FOR site price excluding GST (INR) | Unit E&C Price excluding GST (INR) | Total E&C Price excluding GST (INR) | Type of GST (IGST/CGST + SGST/UTGST) | TOTAL PRICE (SUPPLY + E&C) Excluding GST INR |
| 1                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                                | 4   | 5                              | 6                               | 7=4*6                            | 8                                    | 9             | 10=7+9                                   | 11                                 | 12=11*4                             | 13                                   | 14=10+12                                     |
| 1                  | Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for <b>Supply part, Services part and Mandatory spares (if applicable)</b> 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, mandatory spares alongwith spares for erection, startup and commissioning as required, forwarding, proper packing, shipment and delivery at site, unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site, preparation of layout drawings 3D (as applicable) and carrying out Performance guarantee / Functional / Demonstration tests at site (As applicable), training of customer/client O&M staff (if applicable) and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. | Lot                              | 1   |                                |                                 |                                  |                                      |               |                                          |                                    |                                     |                                      |                                              |
| 2                  | 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 <b>Supply part</b> 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 alongwith spares for erection as required, startup and commissioning spares as required, forwarding, proper packing, shipment and delivery at site, preparation of layout drawings 3D (as applicable) for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. <b>(Break-up as per Annexure-I)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Lot                              | 1   | 8415 82 90                     |                                 |                                  |                                      |               |                                          |                                    | NA                                  |                                      |                                              |
| 2.2                | Total lumpsum firm prices inclusive of all prevailing taxes, duties and other levies for <b>Services part</b> comprising of service part for unloading, handling, transportation & storage at site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, 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) and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. <b>(Break-up as per Annexure-I)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Lot                              | 1   | 995463                         |                                 |                                  | NA                                   |               |                                          |                                    |                                     |                                      |                                              |
| 2.3                | Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for <b>Mandatory spares</b> 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. <b>(Price break up of mandatory spares is to be furnished as per Annexure- II)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lot                              | 1   | 8415 90 00                     |                                 |                                  |                                      |               |                                          |                                    | NA                                  |                                      |                                              |
|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                  |     |                                |                                 |                                  |                                      |               |                                          |                                    |                                     |                                      |                                              |

## Notes

1. CGST/SGST/UGST/IGST shall be paid at actuals against documentary evidence subjected to the maximum of GST corresponding to above HSN/SAC code.
2. In case, any GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry to timeline prescribed in the relevant Act for availing such ITC, or any other reasons not attributable to BHEL, tax amount shall be recoverable from the vendor/contractor along with interest levied/leviable on BHEL.
3. All taxes and duties other than CGST/SGST/UGST/IGST shall be deemed to be included in the Ex-Works prices unless specified otherwise by the bidder in the price bid. No variation in other taxes and duties shall be payable by Purchaser.
4. Evaluation shall be done on the basis of total lump sum prices for complete supply and services but excluding GST.
5. Vendor to quote prices in words also.
6. Nature of GST on Services at project site shall not be allowed to change after bidding.
7. Bidder to quote Guaranteed Power Consumption for Air Conditioning System as per Annexure-III.

## Particulars of bidder / authorised representative

[illegible]

[illegible]

| PRICE FORMAT<br>ANNEXURE - I |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     |                                             |                                         |                                             |                                         |
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| NAME OF PROJECT:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     | 1x800 TANGEDCO NORTH CHENNAI TPP            |                                         |                                             |                                         |
| NAME OF PACKAGE:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     | AIR CONDITIONING SYSTEM                     |                                         |                                             |                                         |
| TENDER ENQUIRY No:           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     | PE/PG/NC3/E-5784/2017                       |                                         |                                             |                                         |
| SL NO                        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNIT | Qty | SUPPLY                                      |                                         | ERECTION AND COMMISSIONING                  |                                         |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed |
| A                            | AC-Plant-1: CENTRAL CHILLED WATER SYSTEM FOR MAIN CCR AREAS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |                                             |                                         |                                             |                                         |
| 1                            | Microprocessor controlled, water cooled chiller package each of minimum capacity <b>180 TR (ACTUAL)</b> consisting of Hermetic/ semi - Hermetically sealed Screw type refrigerant compressor operating on R134a refrigerant complete with motor, unit mounted starter, complete with suction and discharge shut off valves, HP / LP cutouts, oil pressure failure switch, gauge panel, automatic capacity control; Condenser, relief valve, chiller, controls such as thermostatic/electronic expansion valve, cooling thermostat, antifreeze thermostat, water flow switch, integral refrigerant pipes & fittings, strainer, sight glass, isolating valves, chiller drain valve, chiller insulation, refrigerant piping insulation, first charge of gas and oil, base frames, vibration isolators, integral wiring, unit mounted isolator / fuse switch and other accessories as specified. | 2    | NO  |                                             |                                         |                                             |                                         |
| 2                            | Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, VFD, drive set , filters (pre filter at the inlet), 3 way motorised mixing valve with thermostatic controls and other accessories as per specifications to meet the AC load of the main Control Room areas of <b>power house building at 17.0m and kept at 24.0 M floor level as per specification.</b> Fine filter and HEPA Filters shall be provided as per the specification.<br>Each AHU fan shall be provided with VFD driven motor alongwith VFD and other accessories as required for VFD shall also be included in the price.                                                                                                                                                                             | 3    | NO  |                                             |                                         |                                             |                                         |
| 3                            | Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, VFD, drive set , filters (pre filter at the inlet), 3 way motorised mixing valve with thermostatic controls and other accessories as per specifications to meet the AC load of the UPS & Battery charger areas at 8.5m. Fine filter and HEPA Filters shall be provided as per the specification.<br>Each AHU fan shall be provided with VFD driven motor alongwith VFD and other accessories as required for VFD shall also be included in the price.                                                                                                                                                                                                                                                             | 2    | NO  |                                             |                                         |                                             |                                         |
| 4                            | Fibreglass reinforced plastic (FRP) construction cooling towers of adequate capacity, complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, drains, piping, valves, strainers, ladder & all accessories as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2    | NO  |                                             |                                         |                                             |                                         |
| 5                            | Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2    | NO  |                                             |                                         |                                             |                                         |
| 6                            | Centrifugal pump sets for chilled water recirculation complete with TEFC motor & all accessories, as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2    | NO  |                                             |                                         |                                             |                                         |
| 7                            | Make up water cum storage tank, for cooling towers Make up, of HDPE/MS (spray galvanised from inside) with accessories as required. Capacity of each tank 8 m3 .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2    | NO  |                                             |                                         |                                             |                                         |
| 8                            | Expansion Tank HDPE/MS (spray galvanised from inside) (insulated) for chilled water with all accessories as required, capacity 1 m3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1    | NO  |                                             |                                         |                                             |                                         |
| 9                            | Online Non chemical scale preventer, with all accessories as required to meet system requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1    | NO  |                                             |                                         |                                             |                                         |
| 10                           | Condenser water piping with necessary fittings, strainers, valves including piping from make up water storage tank to humidifiers of AHU room as per specification. This shall include make up water piping with valves and fitting from terminal point upto the make up water tank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1    | LOT |                                             |                                         |                                             |                                         |
| 11                           | Insulated chilled water piping from AC plant to AHU rooms within power house building complete with valves supports, fittings, strainers, insulation with finish as per specification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1    | LOT |                                             |                                         |                                             |                                         |
| 12                           | Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1    | LOT |                                             |                                         |                                             |                                         |

| PRICE FORMAT<br>ANNEXURE - I |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                                  |                                             |                                         |                                             |                                         |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------|---------------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|
| NAME OF PROJECT:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      | 1x800 TANGEDCO NORTH CHENNAI TPP |                                             |                                         |                                             |                                         |
| NAME OF PACKAGE:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      | AIR CONDITIONING SYSTEM          |                                             |                                         |                                             |                                         |
| TENDER ENQUIRY No:           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      | PE/PG/NC3/E-5784/2017            |                                             |                                         |                                             |                                         |
| SL NO                        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | UNIT | Qty                              | SUPPLY                                      |                                         | ERECTION AND COMMISSIONING                  |                                         |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                                  | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed |
| 13                           | Pan type humidifier for each AHU room.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1    | LOT                              |                                             |                                         |                                             |                                         |
| 14                           | Fresh air fan (axial flow type), complete with motor, inlet cone, air filters as per the specification, dampers etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1    | LOT                              |                                             |                                         |                                             |                                         |
| <b>B</b>                     | <b>AC Plant -2 (ESP building)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |                                  |                                             |                                         |                                             |                                         |
| 1                            | DX type, water cooled condensing unit of <b>40 TR (ACTUAL)</b> capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), Suction and discharge valves, capacity control system, expansion valve, crank case heater etc. A control panel shall be provided to house all gauges and controls. The panel shall contain all necessary terminal strips to facilitate external wiring. The unit shall be complete with expansion valve, all necessary fittings, accessories, insulated refrigerent piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect. | 2    | NOS                              |                                             |                                         |                                             |                                         |
| 2                            | Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter at the inlet), DX- cooling coil, Electric heating coil, Electric steam humidifier and Fan section with fan & TEFC sq cage induction motor, VFD, drive set, face and bypass damper with modulating motor, condensate drain pan, thermostatic controls and other accessories to meet the AC load of control room area. Fine filter and HEPA Filters shall be provided as per the specification. Each AHU fan shall be provided with VFD driven motor alongwith VFD and other accessories as required for VFD shall also be included in the price.                                            | 2    | NOS                              |                                             |                                         |                                             |                                         |
| 3                            | Fibreglass reinforced plastic (FRP) construction cooling towers of adequate capacity, complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, drains, piping, valves, strainers, ladder & all accessories as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2    | NOS                              |                                             |                                         |                                             |                                         |
| 4                            | Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2    | NOS                              |                                             |                                         |                                             |                                         |
| 5                            | Make up cum Storage water tank HDPE/MS (spray galvanised from inside) to cooling towers with accessories as required. Capacity of each tank 8 m3 .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1    | NOS                              |                                             |                                         |                                             |                                         |
| 6                            | Online non - chemical scale preventer, with all accessories as required to meet system requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1    | NOS                              |                                             |                                         |                                             |                                         |
| 7                            | Condenser water piping with necessary fittings, strainers, valves including piping from make up water storage tank to humidifiers of AHU room as per specification. This shall include make up water piping with valves and fitting from terminal point upto the make up water tank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1    | LOT                              |                                             |                                         |                                             |                                         |
| 8                            | Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    | LOT                              |                                             |                                         |                                             |                                         |
| 9                            | Pan type humidifier for each AHU room.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1    | LOT                              |                                             |                                         |                                             |                                         |
| 10                           | Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1    | LOT                              |                                             |                                         |                                             |                                         |
| <b>C</b>                     | <b>AC Plant -3 : WATER COOLED PACKAGE UNIT (Service building building)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                  |                                             |                                         |                                             |                                         |
| 1                            | Water Cooled PAC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct heaters, pan humidifier, filters, acoustic insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                  |                                             |                                         |                                             |                                         |
| a*                           | 15TR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 8    | NO*                              |                                             |                                         |                                             |                                         |
| b*                           | 20TR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 32   | NO*                              |                                             |                                         |                                             |                                         |
| 2                            | Fibreglass reinforced plastic (FRP) construction cooling towers of adequate capacity, complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, drains, piping, valves, strainers, ladder & all accessories as specified.(Minimum 400 TR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2    | NOS                              |                                             |                                         |                                             |                                         |
| 3                            | Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2    | NOS                              |                                             |                                         |                                             |                                         |

| PRICE FORMAT<br>ANNEXURE - I |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |      |                                             |                                         |                                             |                                         |
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| NAME OF PROJECT:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | 1x800 TANGEDCO NORTH CHENNAI TPP            |                                         |                                             |                                         |
| NAME OF PACKAGE:             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | AIR CONDITIONING SYSTEM                     |                                         |                                             |                                         |
| TENDER ENQUIRY No:           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | PE/PG/NC3/E-5784/2017                       |                                         |                                             |                                         |
| SL NO                        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                     | UNIT | Qty  | SUPPLY                                      |                                         | ERECTION AND COMMISSIONING                  |                                         |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |      | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed |
| 4                            | Make up water cum storage tank, for cooling towers Make up, of HDPE/MS (spray galvanised from inside) with accessories as required. Capacity of each tank 8 m3 .                                                                                                                                                                                                                                                                                                | 2    | NOs  |                                             |                                         |                                             |                                         |
| 5                            | Online non - chemical scale preventer, with all accessories as required to meet system requirements                                                                                                                                                                                                                                                                                                                                                             | 1    | NOs  |                                             |                                         |                                             |                                         |
| 6                            | Condenser water piping with necessary fittings, strainers, valves including piping from make up water storage tank to humidifiers of AHU room as per specification. This shall include make up water piping with valves and fitting from terminal point upto the make up water tank.                                                                                                                                                                            | 1    | LOT  |                                             |                                         |                                             |                                         |
| 7                            | Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.                                                                                                                                                                                                                                                                                                        | 1    | LOT  |                                             |                                         |                                             |                                         |
| 8                            | Pan type humidifier for each AHU room.                                                                                                                                                                                                                                                                                                                                                                                                                          | 1    | LOT  |                                             |                                         |                                             |                                         |
| 9                            | Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc.                                                                                                                                                                                                                                                                                                                                                      | 1    | LOT  |                                             |                                         |                                             |                                         |
| D                            | ITEMS COMMON TO ALL AC PLANTS                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |                                             |                                         |                                             |                                         |
| 1*                           | Fan coil unit (FCU) consisting of chilled water cooling coil, blower, motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories. All accessories like vibration isolation pads, hanger rods, supporting arrangement, canvass connection, nuts, bolts, washers and other items required to make the installation complete in all respect shall be supplied in adequate quantity along with the FCUs. |      |      |                                             |                                         |                                             |                                         |
| a*                           | 3 TR                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5    | NO*  |                                             |                                         |                                             |                                         |
| b*                           | 2 TR                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1    | NO*  |                                             |                                         |                                             |                                         |
| c*                           | 1.5 TR                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1    | NO*  |                                             |                                         |                                             |                                         |
| 2*                           | Fire damper.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |      |                                             |                                         |                                             |                                         |
| a*                           | Fire damper with auto resetting, limit switches, indication lamps etc.                                                                                                                                                                                                                                                                                                                                                                                          | 30   | SQM* |                                             |                                         |                                             |                                         |
| b*                           | Motorized actuator with single phase power supply for the above fire damper.                                                                                                                                                                                                                                                                                                                                                                                    | 40   | NO*  |                                             |                                         |                                             |                                         |
| 3*                           | GSS zinc coating 275 gms/ m <sup>2</sup> ducting complete with hangers/ supports, dampers, grilles, diffusers (with & without VCD) etc.                                                                                                                                                                                                                                                                                                                         |      |      |                                             |                                         |                                             |                                         |
| a*                           | 18G.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 500  | SQM* |                                             |                                         |                                             |                                         |
| b*                           | 20G.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1500 | SQM* |                                             |                                         |                                             |                                         |
| c*                           | 22G.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2000 | SQM* |                                             |                                         |                                             |                                         |
| d*                           | 24G.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2500 | SQM* |                                             |                                         |                                             |                                         |
| e*                           | Supply air diffuser with VCD (Extruded Aluminium).                                                                                                                                                                                                                                                                                                                                                                                                              | 55   | SQM* |                                             |                                         |                                             |                                         |
| f*                           | Return air diffuser without VCD (Extruded Aluminium).                                                                                                                                                                                                                                                                                                                                                                                                           | 90   | SQM* |                                             |                                         |                                             |                                         |
| g                            | VOLUME CONTROL DAMPERS in GI construction as per specifications complete with fixing arrangement.                                                                                                                                                                                                                                                                                                                                                               | 20   | SQM* |                                             |                                         |                                             |                                         |
| 4                            | Acoustic insulation of the first 6 of ducting from AHU outlets.                                                                                                                                                                                                                                                                                                                                                                                                 | 1    | LOT  |                                             |                                         |                                             |                                         |
| 4.1*                         | Acoustic lining AHU / PU room as per specifications.                                                                                                                                                                                                                                                                                                                                                                                                            | 2000 | SQM* |                                             |                                         |                                             |                                         |
| 5*                           | Thermal insulation of supply air duct & return air duct with finish as specified.                                                                                                                                                                                                                                                                                                                                                                               | 6500 | SQM* |                                             |                                         |                                             |                                         |
| 6                            | Cable tray, conduits, junction box, Local control panel and Field instruments like pressure gauge, temperature gauge, temperature and pressure transmitters, DP transmitters, flow transmitters, flow indicator, etc. as required for the complete system                                                                                                                                                                                                       | 1    | LOT  |                                             |                                         |                                             |                                         |
| 7                            | Fiber optic cable                                                                                                                                                                                                                                                                                                                                                                                                                                               | 400  | Rmt* |                                             |                                         |                                             |                                         |
| 8*                           | Insulated MS medium class drain piping upto nearest drain point with and without insulation                                                                                                                                                                                                                                                                                                                                                                     |      |      |                                             |                                         |                                             |                                         |
| a*                           | 50mm                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 400  | M    |                                             |                                         |                                             |                                         |
| b*                           | 40mm                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 250  | M    |                                             |                                         |                                             |                                         |
| E                            | Air conditioning system for aux control rooms as specified.                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |                                             |                                         |                                             |                                         |
| 1*                           | Air Cooled PAC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct heaters, pan humidifier, filters, acoustic insulation of duct for 6m from PU, drain piping with insulation upto nearest drain, required instrumentation etc                                                                                                                                                                    |      |      |                                             |                                         |                                             |                                         |
| (a)*                         | 15 TR net capacity                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2    | No*  |                                             |                                         |                                             |                                         |
| (b)*                         | 10 TR net capacity                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2    | No*  |                                             |                                         |                                             |                                         |
| 2*                           | Air-cooled split type AC units consisting of condensing unit & evaporating unit including refrigerant pipes & fittings with insulation etc. (Minimum BEE Rating 5 Star for non ductable units).                                                                                                                                                                                                                                                                 |      |      |                                             |                                         |                                             |                                         |
| (a)*                         | 5.0 TR capacity (ductable type, 415 V, 3 phase with isolation switch).                                                                                                                                                                                                                                                                                                                                                                                          | 2    | NO*  |                                             |                                         |                                             |                                         |

| PRICE FORMAT<br>ANNEXURE - I                      |                                                                                                                                                                                                                                                                                                                   |             |           |                                             |                                         |                                             |                                         |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------|---------------------------------------------|-----------------------------------------|---------------------------------------------|-----------------------------------------|
| NAME OF PROJECT:                                  |                                                                                                                                                                                                                                                                                                                   |             |           | 1x800 TANGEDCO NORTH CHENNAI TPP            |                                         |                                             |                                         |
| NAME OF PACKAGE:                                  |                                                                                                                                                                                                                                                                                                                   |             |           | AIR CONDITIONING SYSTEM                     |                                         |                                             |                                         |
| TENDER ENQUIRY No:                                |                                                                                                                                                                                                                                                                                                                   |             |           | PE/PG/NC3/E-5784/2017                       |                                         |                                             |                                         |
| SL NO                                             | DESCRIPTION                                                                                                                                                                                                                                                                                                       | UNIT        | Qty       | SUPPLY                                      |                                         | ERECTION AND COMMISSIONING                  |                                         |
|                                                   |                                                                                                                                                                                                                                                                                                                   |             |           | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed |
| (b)*                                              | 2.0 TR capacity (non-ductable type, 240 V, 1 phase ) with isolation switch , i.e MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerent piping to suite actual site condition, drain piping upto nearest drain etc.                                           | 35          | NO*       |                                             |                                         |                                             |                                         |
| (c)*                                              | 1.5 TR capacity (non-ductable type, 240 V, 1 phase ) with isolation switch , i.e MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerent piping to suite actual site condition, drain piping upto nearest drain etc..                                          | 25          | NO*       |                                             |                                         |                                             |                                         |
| 3*                                                | Water Cooled precision-Unit complete with all accessories as specified. The precision package unit shall be complete with all accessories like duct heaters, pan humidifier, filters, acoustic insulation of duct for 6 m from PU, drain piping with insulation upto nearest drain, required instrumentation etc. |             |           |                                             |                                         |                                             |                                         |
| (a)*                                              | 20 TR net capacity                                                                                                                                                                                                                                                                                                | 2           | No*       |                                             |                                         |                                             |                                         |
| (b)*                                              | 15 TR net capacity                                                                                                                                                                                                                                                                                                | 2           | No*       |                                             |                                         |                                             |                                         |
| F*                                                | Handling arrangement as per specification                                                                                                                                                                                                                                                                         |             |           |                                             |                                         |                                             |                                         |
| a*                                                | Electric Hoist with traveling trolley of 3T capacity                                                                                                                                                                                                                                                              | 1           | No*       |                                             |                                         |                                             |                                         |
| b*                                                | Manual trolley (Manually operated, platform trolley of 1.5 Ton capacity with base area 2m x 1.5m)                                                                                                                                                                                                                 | 2           | No*       |                                             |                                         |                                             |                                         |
| c*                                                | 1T Chain pulley block                                                                                                                                                                                                                                                                                             | 2           | No*       |                                             |                                         |                                             |                                         |
| d*                                                | 1T Chain pulley block with travelling trolley                                                                                                                                                                                                                                                                     | 2           | No*       |                                             |                                         |                                             |                                         |
| G*                                                | Venetian blinds                                                                                                                                                                                                                                                                                                   | 100         | SQM*      |                                             |                                         |                                             |                                         |
| H*                                                | Air curtain along with instruments as per the specification. (for minimum door height 3 m and width 3 feet)                                                                                                                                                                                                       | 2           | No*       |                                             |                                         |                                             |                                         |
| I                                                 | Total lumpsum price for special tools & tackles for maintenance inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up as per appendix-A).                                                                                                                | 1           | LOT       |                                             |                                         | NA                                          |                                         |
| J                                                 | Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up as per appendix-B).                                                                                                                                   | 1           | LOT       |                                             |                                         | NA                                          |                                         |
| NOTES                                             |                                                                                                                                                                                                                                                                                                                   |             |           |                                             |                                         |                                             |                                         |
| 1                                                 | The bidder shall furnish unit rates for variable item (marked *) for necessary adjustment (plus or minus) variation during detailed engg. stage. The unit rates quoted above shall be considered and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract.                   |             |           |                                             |                                         |                                             |                                         |
| 2                                                 | Any other item not indicated above, but required to make the system complete in all respects, as per the technical specification, shall be supplied without any cost implication to BHEL.                                                                                                                         |             |           |                                             |                                         |                                             |                                         |
| Particulars of bidder / authorised representative |                                                                                                                                                                                                                                                                                                                   |             |           |                                             |                                         |                                             |                                         |
|                                                   |                                                                                                                                                                                                                                                                                                                   |             |           |                                             |                                         |                                             |                                         |
|                                                   | Name                                                                                                                                                                                                                                                                                                              | Designation | Signature | Date                                        | Company Seal                            |                                             |                                         |

**PRICE FORMAT**  
**APPENDIX - A**  
**Special tools & tackles for maintenance**

|                           |                                         |
|---------------------------|-----------------------------------------|
| <b>NAME OF PROJECT:</b>   | <b>1x800 TANGEDCO NORTH CHENNAI TPP</b> |
| <b>NAME OF PACKAGE:</b>   | <b>AIR CONDITIONING SYSTEM</b>          |
| <b>TENDER ENQUIRY No:</b> | <b>PE/PG/NC3/E-5784/2017</b>            |

| <b>SL NO</b> | <b>DESCRIPTION</b>                                | <b>UNIT</b> | <b>Qty</b> | <b>Unit Price (Ex-Works/C&amp;F Price) duly packed</b> | <b>Total Price (Ex-Works/ C&amp;F) duly packed</b> |
|--------------|---------------------------------------------------|-------------|------------|--------------------------------------------------------|----------------------------------------------------|
| 1            | FLAT D WRENCH - 6 MM TO 32 MM (12 Pcs)            | SET         | 1          |                                                        |                                                    |
| 2            | BOX WRENCHES - 6 MM TO 22 MM (14 Pcs)             | SET         | 1          |                                                        |                                                    |
| 3            | RING SPANNER - 6 MM TO 32 MM (12 Pcs)             | SET         | 1          |                                                        |                                                    |
| 4            | ALLEN KEYS - 2 MM TO 10 MM                        | SET         | 1          |                                                        |                                                    |
| 5            | CRESCENT SCREW SPANNER                            | NO.         | 1          |                                                        |                                                    |
| 6            | SCREW DRIVER                                      | NO.         | 1          |                                                        |                                                    |
| 7            | OFFSET SCREW DRIVER                               | NO.         | 1          |                                                        |                                                    |
| 8            | INSULATED PLIER                                   | NO.         | 1          |                                                        |                                                    |
| 9            | TORCH LIGHT ( SUITABLE FOR 2 CELL)                | NO.         | 1          |                                                        |                                                    |
| 10           | HAMMER 1 LB                                       | NO.         | 1          |                                                        |                                                    |
| 11           | OIL CAN                                           | NO.         | 1          |                                                        |                                                    |
| 12           | POCKET THERMOMETER - 0 TO 50 DEG. C               | NO.         | 1          |                                                        |                                                    |
| 13           | INSULATION TAPE ROLL                              | NO.         | 1          |                                                        |                                                    |
| 14           | STEEL FOOT RULE - 12"                             | NO.         | 1          |                                                        |                                                    |
| 15           | FEELER GAUGE 9 BLADES                             | NO.         | 1          |                                                        |                                                    |
| 16           | PIPE WRENCH                                       | NO.         | 1          |                                                        |                                                    |
| 17           | FLARE NUT (1/4")                                  | NOS.        | 6          |                                                        |                                                    |
| 18           | FLARING TOOL                                      | NO.         | 1          |                                                        |                                                    |
| 19           | TUBE CUTTER                                       | NO.         | 1          |                                                        |                                                    |
| 20           | GAS CHARGING PIPE                                 | NO.         | 1          |                                                        |                                                    |
| 21           | NITROGEN CHARGING ADAPTER                         | NO.         | 1          |                                                        |                                                    |
| 22           | PRESSURE GAUGE (2 1/2" DIA DIAL) 0 - 300 PSI      | NO.         | 1          |                                                        |                                                    |
| 23           | PRESSURE GAUGE (2 1/2" DIA DIAL) 0 - 500 PSI      | NO.         | 1          |                                                        |                                                    |
| 24           | COMPOUND GAUGE (2 1/2" DIA DIAL) (-)300to 150 PSI | NO.         | 1          |                                                        |                                                    |
| 25           | PSYCHRO METER                                     | NO.         | 1          |                                                        |                                                    |
| 26           | LOCK WITH KEY FOR TOOL BOX                        | NO.         | 1          |                                                        |                                                    |
| 27           | RATCHET 1/4"                                      | NO.         | 1          |                                                        |                                                    |
| 28           | MS TOOL BOX                                       | NO.         | 1          |                                                        |                                                    |

|              |                                                                                                                                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NOTES</b> |                                                                                                                                               |
| 1            | ABOVE IS THE MINIMUM LIST. ANY OTHER TOOL / TACKEL REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION. |

|                                                          |             |                    |                  |             |                     |
|----------------------------------------------------------|-------------|--------------------|------------------|-------------|---------------------|
| <b>Particulars of bidder / authorised representative</b> |             |                    |                  |             |                     |
|                                                          |             |                    |                  |             |                     |
|                                                          | <b>Name</b> | <b>Designation</b> | <b>Signature</b> | <b>Date</b> | <b>Company Seal</b> |

|                                                                           |                                                                                                                                                     |             |                                  |                                         |              |                    |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------|-----------------------------------------|--------------|--------------------|
| <b>PRICE FORMAT</b><br><b>APPENDIX - B</b><br><b>Commissioning spares</b> |                                                                                                                                                     |             |                                  | Doc No:                                 |              | PE-PF-423-553-A001 |
|                                                                           |                                                                                                                                                     |             |                                  | Rev No:                                 |              | 1                  |
|                                                                           |                                                                                                                                                     |             |                                  | Date of issue                           |              | NOV 2017           |
| NAME OF PROJECT:                                                          |                                                                                                                                                     |             | 1x800 TANGEDCO NORTH CHENNAI TPP |                                         |              |                    |
| NAME OF PACKAGE:                                                          |                                                                                                                                                     |             | AIR CONDITIONING SYSTEM          |                                         |              |                    |
| TENDER ENQUIRY No:                                                        |                                                                                                                                                     |             | PE/PG/NC3/E-5784/2017            |                                         |              |                    |
| SL NO                                                                     | DESCRIPTION                                                                                                                                         | UNIT        | Qty                              | Total Price (Ex-Works/ C&F) duly packed |              |                    |
| 1                                                                         | AHU FAN BELTS                                                                                                                                       | SET         | 1                                |                                         |              |                    |
| 2                                                                         | PRESSURE GAUGE                                                                                                                                      | NO.         | 1                                |                                         |              |                    |
| 3                                                                         | TEMPERATURE GAUGE                                                                                                                                   | NO.         | 1                                |                                         |              |                    |
| 4                                                                         | FILTER                                                                                                                                              | SET         | 1                                |                                         |              |                    |
| 5                                                                         | COMPRESSOR OIL                                                                                                                                      | Ltr.        | 1 Lot                            |                                         |              |                    |
| 6                                                                         | REFRIGERANT                                                                                                                                         | Kg          | 1 Lot                            |                                         |              |                    |
| NOTES                                                                     |                                                                                                                                                     |             |                                  |                                         |              |                    |
| 1                                                                         | ABOVE IS THE MINIMUM LIST. ANY OTHER COMMISSIONING SPARE REQUIRED FOR THE SYSTEM SHALL ALSO BE PROVIDED BY THE VENDOR WITHOUT ANY COST IMPLICATION. |             |                                  |                                         |              |                    |
| <b>Particulars of bidder / authorised representative</b>                  |                                                                                                                                                     |             |                                  |                                         |              |                    |
|                                                                           |                                                                                                                                                     |             |                                  |                                         |              |                    |
|                                                                           | Name                                                                                                                                                | Designation | Signature                        | Date                                    | Company Seal |                    |

| <b>PRICE FORMAT</b><br><b>ANNEXURE-II</b><br><b>LIST OF MANDATORY SPARES</b> |                                                                                                                                                                                                                             |             |                                         |                                                        |                                                    |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------|--------------------------------------------------------|----------------------------------------------------|
| <b>NAME OF PROJECT:</b>                                                      |                                                                                                                                                                                                                             |             | <b>1x800 TANGEDCO NORTH CHENNAI TPP</b> |                                                        |                                                    |
| <b>NAME OF PACKAGE: AIR CONDITIONING SYSTEM</b>                              |                                                                                                                                                                                                                             |             | <b>AIR CONDITIONING SYSTEM</b>          |                                                        |                                                    |
| <b>TENDER ENQUIRY No:</b>                                                    |                                                                                                                                                                                                                             |             | <b>PE/PG/NC3/E-5784/2017</b>            |                                                        |                                                    |
| <b>S. No.</b>                                                                | <b>DESCRIPTION</b>                                                                                                                                                                                                          | <b>UNIT</b> | <b>Qty</b>                              | <b>Unit Price (Ex-Works/C&amp;F Price) duly packed</b> | <b>Total Price (Ex-Works/ C&amp;F) duly packed</b> |
| <b>A</b>                                                                     | <b>C&amp;I portion</b>                                                                                                                                                                                                      |             |                                         |                                                        |                                                    |
|                                                                              | The quantity of following spares includes a minimum of 20 % spares for replacement of each type of lamps, PBs, ILPBs, fuse, MCB, MCCB used in the equipment/system offered by him even if this is not detailed below.       |             |                                         |                                                        |                                                    |
| i)                                                                           | Measuring Instruments and Skid Mounted Instruments                                                                                                                                                                          | Lot         | 1                                       |                                                        |                                                    |
| 1                                                                            | 10% of the number of indicators, recorders and meters offered from each model for the project or a minimum of one number per model, whichever is more. These instruments shall be supplied with three sets of blank scales. |             |                                         |                                                        |                                                    |
| 2                                                                            | For skid mounted instruments (if any) - 10% of total number of instruments for each model and type for the project or a minimum of one number for each model and type, whichever is more.                                   |             |                                         |                                                        |                                                    |
| ii)                                                                          | Temperature Elements and Thermowells                                                                                                                                                                                        | Lot         | 1                                       |                                                        |                                                    |
| 1                                                                            | 10% spare thermocouple/RTD elements, suitable for replacement for each type and length of element furnished with thermocouple/RTD assemblies, or a minimum of one number of each type & length, whichever is more.          | %           | 10%                                     |                                                        |                                                    |
| 2                                                                            | 10% thermo wells for each type of temperature sensors or a minimum of one for each type, whichever is more                                                                                                                  | %           | 10%                                     |                                                        |                                                    |
| 3                                                                            | Temperature Transmitters and Electronic Transmitters (For Pressure, DP, Temp, Flow, Level), Temperature, Pressure, Flow & Level Switch, safety switches, Gauges, meters, Transducer or any other instrument etc.            |             |                                         |                                                        |                                                    |
|                                                                              | 10% of total number of instruments/transducers offered for each model and type for the project or a minimum of one number, whichever is more.                                                                               | Lot         | 1                                       |                                                        |                                                    |
| iv)                                                                          | Distributed Control System and Other Electronic Systems/Sub- Systems/ VMS / MIS /LAN / Simulator / WAN / CAAQMS and any other system as supplied as per Tender Specification etc.                                           | Lot         | 1                                       |                                                        |                                                    |
| 1                                                                            | Electronic modules - 10% of number for each type or minimum of 2 number for each type whichever is high.                                                                                                                    | %           | 10%                                     |                                                        |                                                    |
| 2                                                                            | Auto/Manual stations, setpoint/ bias stations etc.:- 10% of the number of stations offered for the project from each type or a minimum of 2 number from each model, whichever is more.                                      |             |                                         |                                                        |                                                    |
| 3                                                                            | Twenty percent spare replacement for each type of control logic power supply fuses, MCB, MCCB, at each current rating required for the project.                                                                             | %           | 20%                                     |                                                        |                                                    |
| 4                                                                            | Ten (10) percent or 2 no. (Whichever is more) Electronic cards of each type used for Servers supplied with any control system.                                                                                              |             |                                         |                                                        |                                                    |
| 5                                                                            | 10% of electric to pneumatic converters of each type utilized with automatic control system using pneumatic drives or a minimum of one of each type, whichever is more.                                                     |             |                                         |                                                        |                                                    |
| 6                                                                            | Ten (10) percent or five no. (Whichever is more) of cubicle power supply power supply modules of each type and rating.                                                                                                      | Nos.        | 5                                       |                                                        |                                                    |

| <b>PRICE FORMAT</b><br><b>ANNEXURE-II</b><br><b>LIST OF MANDATORY SPARES</b> |                                                                                                                                                               |             |                                         |                                                        |                                                    |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------|--------------------------------------------------------|----------------------------------------------------|
| <b>NAME OF PROJECT:</b>                                                      |                                                                                                                                                               |             | <b>1x800 TANGEDCO NORTH CHENNAI TPP</b> |                                                        |                                                    |
| <b>NAME OF PACKAGE: AIR CONDITIONING SYSTEM</b>                              |                                                                                                                                                               |             | <b>AIR CONDITIONING SYSTEM</b>          |                                                        |                                                    |
| <b>TENDER ENQUIRY No:</b>                                                    |                                                                                                                                                               |             | <b>PE/PG/NC3/E-5784/2017</b>            |                                                        |                                                    |
| <b>S. No.</b>                                                                | <b>DESCRIPTION</b>                                                                                                                                            | <b>UNIT</b> | <b>Qty</b>                              | <b>Unit Price (Ex-Works/C&amp;F Price) duly packed</b> | <b>Total Price (Ex-Works/ C&amp;F) duly packed</b> |
| 7                                                                            | Ten (10) percent of the total quantity of each type of interposing/coupling relays.                                                                           | Sets        | 1                                       |                                                        |                                                    |
| 8                                                                            | Twenty (20) percent or 2 no. (Whichever is more) RJ 45 connector with box of each type.                                                                       | Nos.        | 2                                       |                                                        |                                                    |
| 9                                                                            | Ten (10) percent or 2 no. (Whichever is more) Hooters, Buzzers, Cooling fans of each type.                                                                    | %           | 10%                                     |                                                        |                                                    |
| 10                                                                           | Interface cables 2 sets of each type/model                                                                                                                    | Sets        | 1                                       |                                                        |                                                    |
| 11                                                                           | Power supply modules (AC to DC convertors) 10% or Five no. (Whichever is more) of each type/model                                                             | Nos.        | 5                                       |                                                        |                                                    |
| <b>v)</b>                                                                    | <b>Relay Based Control Panels</b>                                                                                                                             | <b>Sets</b> | <b>1</b>                                |                                                        |                                                    |
| 1                                                                            | 10% LEDs for indicating lights shall be furnished.                                                                                                            |             |                                         |                                                        |                                                    |
| 2                                                                            | Three times, the one hundred percent (300% of installed) spare replacement control circuit fuses/MCB/MCCB of each current rating required shall be furnished. |             |                                         |                                                        |                                                    |
| 3                                                                            | 20% spare replacement relays modules & contactors of each type.                                                                                               |             |                                         |                                                        |                                                    |
| <b>vi)</b>                                                                   | <b>Alarm Annunciation System</b>                                                                                                                              | <b>Sets</b> | <b>1</b>                                |                                                        |                                                    |
| 1                                                                            | 20% spares of each type installed shall be provided for logic modules, group card modules, power supply modules, Hooters and any other electronic module.     |             |                                         |                                                        |                                                    |
| 2                                                                            | 5% spares of each size shall be provided for un-engraved window boxes complete with LED etc.                                                                  |             |                                         |                                                        |                                                    |
| 3                                                                            | 20% of installed LEDs for annunciation facia windows and LEDs box assemblies offered for the project shall be provided as mandatory spares.                   |             |                                         |                                                        |                                                    |
| 4                                                                            | One (1) spare annunciator hooter of each type.                                                                                                                |             |                                         |                                                        |                                                    |
| <b>vii)</b>                                                                  | <b>Erection hardware</b>                                                                                                                                      | <b>Sets</b> | <b>1</b>                                |                                                        |                                                    |
| 1                                                                            | Ten (10) percent of each type & Size installed instrument valve, manifold for each type, rating, model number and size of devices supplied for the project.   |             |                                         |                                                        |                                                    |
| 2                                                                            | Ten (10) percent of total number of condensate pots or four numbers whichever is higher of each type & Size installed.                                        |             |                                         |                                                        |                                                    |
| 3                                                                            | Ten (10) percent of each type & Size installed Fittings                                                                                                       |             |                                         |                                                        |                                                    |
| <b>viii)</b>                                                                 | <b>Mandatory Spares for Control valves, Power Cylinder, Control Dampers, Actuators and Accessories</b>                                                        |             |                                         |                                                        |                                                    |
| a)                                                                           | Following spares shall be furnished for control valves, Power Cylinder, Control Dampers as applicable.                                                        | Lot         | 1                                       |                                                        |                                                    |
| 1                                                                            | One set of spare control valve stem packing for each control valve.                                                                                           |             |                                         |                                                        |                                                    |
| 2                                                                            | Two moulded rubber diaphragms for each control valve.                                                                                                         |             |                                         |                                                        |                                                    |
| 3                                                                            | One sets of each of O-rings and rubber gaskets for each control valve.                                                                                        |             |                                         |                                                        |                                                    |
| 4                                                                            | 100 percent qty. of lubricants for gaskets for each control valve on one year consumption basis.                                                              |             |                                         |                                                        |                                                    |
| 5                                                                            | 2 sets of limit switches and 1 set of valve positioner for each control valve.                                                                                |             |                                         |                                                        |                                                    |
| 6                                                                            | 20 percent of position transmitter (4-20mA) for total qty. of control valve.                                                                                  |             |                                         |                                                        |                                                    |

| PRICE FORMAT<br>ANNEXURE-II<br>LIST OF MANDATORY SPARES                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                                                                            |                                             |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------|
| NAME OF PROJECT:                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             | 1x800 TANGEDCO NORTH CHENNAI TPP                                           |                                             |                                         |
| NAME OF PACKAGE: AIR CONDITIONING SYSTEM                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             | AIR CONDITIONING SYSTEM                                                    |                                             |                                         |
| TENDER ENQUIRY No:                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             | PE/PG/NC3/E-5784/2017                                                      |                                             |                                         |
| S. No.                                                                                                                                                                                                                                                                  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UNIT        | Qty                                                                        | Unit Price (Ex-Works/C&F Price) duly packed | Total Price (Ex-Works/ C&F) duly packed |
| 7                                                                                                                                                                                                                                                                       | One (1) set of valve trims (such as plug, stem, seat ring / cage, guide bushing, stem lock pin, packing retaining ring, etc.) for each control valve.                                                                                                                                                                                                                                                                                                                                                                                                                                |             |                                                                            |                                             |                                         |
| 8                                                                                                                                                                                                                                                                       | One completes actuator of each type or min 10% for each type and size whichever is more.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                                                                            |                                             |                                         |
| 9                                                                                                                                                                                                                                                                       | 20 percent of Solenoid valves or min 2 no. of each type for total qty. of control valves.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |                                                                            |                                             |                                         |
| 10                                                                                                                                                                                                                                                                      | 20% of I to P converters, Pressure regulators.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |                                                                            |                                             |                                         |
| ix)                                                                                                                                                                                                                                                                     | Mandatory spares not covered above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lot         | 1                                                                          |                                             |                                         |
|                                                                                                                                                                                                                                                                         | Bidder to supply 10% or 1 no. (whichever is more) of each type of sensor/instrument, analyzers /special instruments/Electronic card, instrumentation/mechanical fittings etc. for any other electronic system, feeder control cabinets, hydra step (EWLI), Vibration Monitoring System, CCTV, C&I Lab Instruments, On line Carbon in Ash analyzer system, On line Coal mass flow/speed measurement system, On line secondary air flow measurement system Mass Flow meter, Solid flow meter, 3 D Acoustic type level transmitters, Nucleonic & non nucleonic density transmitter etc. |             |                                                                            |                                             |                                         |
| <b>B</b>                                                                                                                                                                                                                                                                | <b>Electrical portion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |                                                                            |                                             |                                         |
| 1                                                                                                                                                                                                                                                                       | 415V Motors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |                                                                            |                                             |                                         |
| 1.1                                                                                                                                                                                                                                                                     | Terminal plates                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Nos.        | 10 Nos. each for small motors upto 30 KW & 4 Nos. each for more than 30 KW |                                             |                                         |
| 1.2                                                                                                                                                                                                                                                                     | Heaters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Set         | 2 sets                                                                     |                                             |                                         |
| 1.3                                                                                                                                                                                                                                                                     | Greasing arrangements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Set         | 4 sets each type of motor                                                  |                                             |                                         |
| 1.4                                                                                                                                                                                                                                                                     | Motor of each type and rating                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nos.        | 10% of the installed quantity or minimum 1 number whichever more           |                                             |                                         |
| 1.5                                                                                                                                                                                                                                                                     | Bearings (DE and NDE) for each type and rating of motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Set         | 4 set                                                                      |                                             |                                         |
| 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. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                                                                            |                                             |                                         |
| Particulars of bidder / authorised representative                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                                                                            |                                             |                                         |
|                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                                                                            |                                             |                                         |
|                                                                                                                                                                                                                                                                         | Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Designation | Signature                                                                  | Date                                        | Company Seal                            |

**PRICE FORMAT**  
**ANNEXURE - III**  
**Guaranteed Power Consumption For Air Conditioning System**

| <b>NAME OF PROJECT:</b>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>1x800 TANGEDCO NORTH CHENNAI TPP</b> |             |                                                                                                         |             |          |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------|---------------------------------------------------------------------------------------------------------|-------------|----------|
| <b>NAME OF PACKAGE:</b>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>AIR CONDITIONING SYSTEM</b>          |             |                                                                                                         |             |          |
| <b>TENDER ENQUIRY No:</b>                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>PE/PG/NC3/E-5784/2017</b>            |             |                                                                                                         |             |          |
| S.NO.                                                    | DESCRIPTION OF EQUIPMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NO OF EQUIPMENT                         |             | TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL (IN KW) | DUTY FACTOR | TOTAL KW |
|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | WORKING                                 | STANDBY     |                                                                                                         |             |          |
|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3A                                      | 3B          | 4                                                                                                       | 5           | 6=3Ax4x5 |
| <b>1</b>                                                 | <b>AC PLANT FOR COMMON CONTROL ROOM AREAS, CER ROOM, UPS ROOM, COMPUTER ROOM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                         |             |                                                                                                         |             |          |
| 1.1                                                      | Water chilling machine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1                                       | 1           |                                                                                                         |             |          |
| 1.2                                                      | Chilled water pumps for AC plant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1                                       | 1           |                                                                                                         |             |          |
| 1.3                                                      | Condenser water pumps for AC plant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1                                       | 1           |                                                                                                         |             |          |
| 1.4                                                      | Cooling tower fans for AC plant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                                       | 1           |                                                                                                         |             |          |
| 1.5                                                      | AHUs for Common control room areas, CER, computer room etc at EL 24 M.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2                                       | 1           |                                                                                                         |             |          |
| 1.6                                                      | Fresh air fans for above AHUs room                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                                       | 0           |                                                                                                         |             |          |
| 1.7                                                      | AHUs for UPS room area at EL 8.5 M.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1                                       | 1           |                                                                                                         |             |          |
| 1.8                                                      | Fresh air fans for above AHUs room                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                                       | 0           |                                                                                                         |             |          |
| <b>2</b>                                                 | <b>ESP</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |             |                                                                                                         |             |          |
| 2.1                                                      | Water cooled condensing unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                       | 1           |                                                                                                         |             |          |
| 2.2                                                      | FRP Cooling Tower                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1                                       | 1           |                                                                                                         |             |          |
| 2.3                                                      | Condenser water pumps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1                                       | 1           |                                                                                                         |             |          |
| 2.4                                                      | AHU for above condensing unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                       | 1           |                                                                                                         |             |          |
| 2.5                                                      | Fresh air fans for above AHU room.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                                       | 0           |                                                                                                         |             |          |
|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |             | <b>TOTAL (KW)</b>                                                                                       |             |          |
| Note:                                                    | <p>Estimated power consumption (EPC) figure for the system (for working drives only) has been considered as 336 KW. So long bidder's quoted guaranteed power consumption (GPC) above remains within this EPC, there will be no technical loading of bid on power consumption for evaluation. However, if bidder's quoted GPC exceeds EPC, there shall be technical loading of bid for evaluation @ Rs 588401/- per KW of additional power over EPC.</p> <p>Bidder's guaranteed power consumption at motor input terminals (not shaft power) as furnished in relevant schedule shall be demonstrated by the successful bidder during performance testing at works/ site. In case power consumption is noted higher than EPC / bidder's quoted GPC whichever is higher, during inspection/ PG test, penalty @ Rs 588401/- per KW shall be levied on vendor.</p> |                                         |             |                                                                                                         |             |          |
| <b>Particulars of bidder / authorised representative</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |             |                                                                                                         |             |          |
|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |             |                                                                                                         |             |          |
| <b>Name</b>                                              | <b>Designation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Signature</b>                        | <b>DATE</b> | <b>Company Seal</b>                                                                                     |             |          |