# Salient Technical Features for Steam Turbine R&M Package of Vindhyachal Super Thermal Power Project Unit # 1 to 3 (3x210 MW)

**"Salient Technical Features of the equipment/systems/services covered in IFB No. 2023_NTPC_73540_1 dated 14.02.2023 are mentioned below. These Salient Technical Features are mentioned only to facilitate the prospective bidders to prima-facie understand the requirements under the tender and shall not in any way limit or alter the scope of work and technical features/specification of equipment/ systems/ services covered in the Bidding Documents. Detailed provisions in regard of scope of work and technical features/specification of equipment/systems/services, contained in the Bidding Document shall be final and binding."**

## SALIENT TECHNICAL FEATURES:

### Brief Scope of work

The scope of Steam Turbine R&M Package of Vindhyachal Super Thermal Power Project Unit # 1 to 3 (3x210 MW) includes design, manufacture, engineering, inspection, testing, packing, forwarding to site, unloading, erection, supervision, pre-commissioning, testing, commissioning and performance testing of three (3) no. steam turbine generator unit along with auxiliaries. The scope also includes disassembly of existing equipment / systems, replacement of specified equipments / systems by supplying new equipments/ systems including supply of assembly materials, with new modernized equipments / components compatible to existing facilities / layout by Re- engineering / Re-Design etc. The major work under this Renovation & modernization package is given below; however, the detail scope of work shall be as specified in the bidding documents.

Replacement of existing HP, IP and LPT with new & improved design HP, IP and LPT modules (retaining LPT outer casing), stop & control valves, Turbine governing system, Turbine control system, etc. In addition, the scope covers replacement / refurbishment / retrofitting / modernization of associated turbine and auxiliary equipment, piping, valves, Hangers & supports, Microprocessor based Distributed Digital Control, Monitoring & Information System (DDCMIS), Turbine control system and associated civil/structural, electrical, C&I works, supply of spares/tools/ consumables/ paints/quality checks/tests/related insulation works etc.

### Major Technical Features of Steam Turbine

### (a) Type

The steam turbine shall be tandem compound, single reheat, regenerative, condensing, multi cylinder design with HP, IP and LP casings directly coupled with generator suitable for indoor installation.

### (b) Rating

The steam turbine generator unit shall conform to the following design and duty conditions:

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| (i) | Output under Turbine maximum continuous rating (TMCR) at generator terminals | : | 210 MW |
| (ii) | Turbine throttle steam pressure | : | 130 $Kg/cm^2$ (abs) |
| (iii) | Turbine throttle main steam temp. | : | $535^oC$ |
| (iv) | HPT Exhaust Pressure | : | 28.7 $Kg/cm^2$ (abs) |
| (v) | Reheat steam temp. at turbine inlet | : | $535^oC$ |
| (vi) | Condenser pressure | : | 77 mm Hg (abs) |
| (vii) | Turbine speed | : | 3000 rpm |
| (viii) | Frequency variation range around rated frequency of 50 Hz | : | + 3% to - 5% (47.5 Hz to 51.5 Hz) |