



**BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
WATER TURBINE MANUFACTURING DIVISION
MAIN ASSEMBLY, GOVERNOR ASSEMBLY SECTION**

NIT No:- WTM/ASSY/ASSEMBLY/1920/001

**ANNEXURE-V
SCOPE OF WORK**

I) The work includes assembly work in various Hydro (Water) Turbines Like Pelton, Kaplan and Francis Machines and related auxiliary assemblies and sub-assemblies. Major assembly work involved in Hydro Turbine items involves work such as Spherical Valve Assembly and Testing, Kaplan Runner Assembly and Testing, Francis Runner Balancing and its Assembly with Shaft, Guide Bearing, Shaft Sealing, Servo Motor (MIV, BF Valve and GV) Assembly and Testing, HP and LP - Pressure Receiver, Stay Ring, BF valve assembly and testing, Stay Ring, Nut guard assembly, Guide Apparatus Assembly with its components, Rectification of Major turbine Assemblies, sub –assemblies and its auxiliaries, Balancing of Runners, DT Cone, Bypass Valves (MIV, BFV), Anti- Vacuum Braking Valves, Monorail, Distributor Segment etc. The scope of work may also cover some offloaded works from other product departments of BHEL Bhopal. Technological hours will be certified as per approved technology and quantum of work executed.

Some of the major activities are as follow:-

- Assy of Guide Apparatus for Francis and Kaplan Turbines
- Assy/ Dismantling of Spherical Valves (MIV) with Inlet Pipe and Outlet Pipe and its Hydro Testing
- Assy/ Dismantling of Butterfly Valves (BFV) (Single Deck, Double Deck) with Inlet Pipe and Outlet Pipe and its Hydro Testing
- Assembly and Profile Making of Kaplan Runner Blades
- Assy/ Dismantling and Testing of Kaplan Runner
- Assembly of Runner and Shaft
- Testing and Assembly of Servo (MIV, BFV and Guide Vane (GV))
- Guide Bearing Assembly and Testing
- Stay ring Assembly
- Assy and Hydraulic Testing of Distributor Segments.
- Shaft Seal Assembly
- Draft Tube (DT) Assembly
- Anti-Vacuum Breaking Valve Assembly



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- Rectification work in Assembly by welding/Grinding and scrapping
- Governor Testing
- Testing of oil pipe lines
- All stage- assemblies required for machining and testing.

Prior to assembly work, cleaning, deburring, re-tapping of holes, any rectification required on the individual components shall be done to avoid any rework.

II) Similar nature of work shall constitute experience in Assembly related work of Water Turbine or its sub - assemblies.

III) Minimum Skilled Manpower required to execute the work per day = 12 Skilled Man

Period of Contract = Up to 30 June 2020 from the date of work order commencement

Work Commencement: - Within one week from the date of issue of LOI.

Total Required Tech-hrs. = 27947 Tech-hrs.