Division of Responsibility

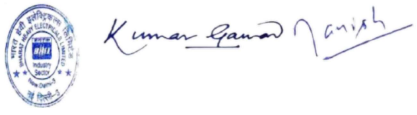
Annexure –V

Phase-III/ CPP-4

1 x 250MW TG

M/s JSW , Dolvi Works.

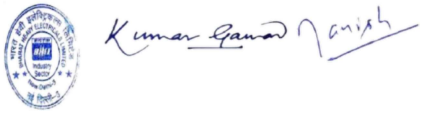
Date : 25.09.24



Division of Site Responsibilities

Sr. Nos	Job description	Responsibilities		Remarks
		By Purchaser (JSW)	By Vendor	
1.	Permission to perform the Works (electrical ,mechanical ,instrumentation ,operation)	√	√	The job applicant and holder will be of vendor and authorizer will be purchaser
2.	Office room, Office and storage furniture, Changing room, toilets and wash room, Telephone lines (international), Net access connection , Copy machines etc..		√	Land will be provided by JSW
3.	All transportation to plant/site ,loading ,unloading of equipment		√	
4.	All the required machineries for the loading and unloading of equipment's .		√	
5.	All the equipment storage and security for the supplied equipment's. Required stores , sheds ,AC arrangements for the storage (Indoor and outdoor).		√	Land will be provided by JSW
6.	Canteen	√		Charges for food paid by TG Supplier staff
7.	All the Storage for dangerous material (oil, gas,…)		√	
8.	All the erection and commissioning of supplied vendor equipment's.		√	
9.	Drinking water in a determined point		√	JSW will provide the drinking water free of cost at one point. Further distribution is in BHEL scope.
10.	Sub-boards for electric power distribution at site		√	JSW will provide the electric power free of cost at one point. Further distribution is in BHEL scope.

11.	Working machines		√	
12.	EOT crane in the machine hall	√		
13.	Operator for the operation of EOT of machine hall		√	
14.	Mobile crane + other cranes + operators		√	
15.	Special erection tools for Supplier's scope		√	
16.	Gas for welding and cutting (With all required consumable ,gas cylinders ,its transport etc..		√	
17.	Scaffolding material		√	
18.	Erection and removal of scaffolding, liability for safety of there		√	
19.	Shelters against weather		√	
20.	General guarding of site, storages		√	
21.	Transportation of machinery and equipment to site/storage		√	
22.	Transportation of tools to site		√	
23.	Reception and unloading of arrived goods from vehicle		√	
24.	Loading and dispatch of departing goods		√	
25.	Quantity survey		√	
26.	Storage and sheltering		√	
27.	Transfer from storage to the installation points		√	
28.	Road maintenance at the installation and storage areas	√		
29.	Waste removal from site		√	
30.	General lighting	√		
31.	Site cleaning		√	



Section -IV Table -1 SCOPE MATRIX FOR ELECTRICS

Project : Phase –III / CPP-4 / 1 x 250MW, M/s JSW Steel , Dolvi (STG 1 x 250MW)

Date : 21.09.24

SL.NO	ITEM DESCRIPTION	BASIC ENGINEERING	DETAIL ENGINEERING	SUPPLY	ERECTION	TESTING	COMMISSIONING	PG TEST	REMARKS	BHEL Reply
	TURBOGENERATORS & AUXILIARIES									
1	Generator and its auxiliaries	TGS	TGS	TGS	TGS	TGS	TGS	TGS		Noted
2	Automatic Voltage Regulator (AVR) panel	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
3	Generator Control and Synchronizing Panel (GCSP)	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
4	Generator protection relay panel	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
5	Lightning Arrester cum Potential Transformer (LAVT)	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
6	Neutral Grounding Transformer (NGT) and Resistor panel	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
7	Brushless Excitation system along with associated equipment	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
8	HT/LT Motors & Motorized Valves	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
9	DC EOP Motor and DC JOP Motor	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
10	DC Starter panel for EOP & JOP	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
11	DCDB / UPS requirement capacity	TGS	JSW	JSW	JSW	JSW	JSW	——	TGS Supplier will provide Electrical load details such as UPS/Non UPS & DC Equipment. Based on that JSW will do procuemnets od DC system & UPS .	Noted
12	Isolated Phase Bus duct (IPBD)	TGS	JSW	JSW	JSW	JSW	JSW	——	TGS Supplier will provide generator data shet and GA drawings. IPBD will be procured by JSW	Noted
13	HT Panels	TGS	JSW	JSW	JSW	JSW	JSW	——	Panels will be procured by JSW based on the Inputs such as load list etc furnished by TGS supplier.	Noted
14	LT Panels	TGS	JSW	JSW	JSW	JSW	JSW	——	Panels will be procured by JSW based on the Inputs such as load list, etc furnished by TG supplier.	Noted
15	VFD Drives /Panels, if applicable	TGS	JSW	JSW	JSW	JSW	JSW	——	Only CEP VFD in purchaser scope, other than CEP will be TGS scope	Noted
16	Local Starter panel/Local Push Button stations	TGS	TGS	TGS	TGS	TGS	TGS	——		Noted
17	HT/LT Power/ Control & instrument Cables (vendor panel /JB to Vendor panel/JB)	TGS	TGS	JSW	TGS	TGS	TGS	——	Cables will be procured by JSW based on the supplier inputs and will be given to TG supplier as "FREE ISSUE". Except special cables. Electrical Power Cable: Supply/ Erection/commissioning/testing will be done by JSW.	Noted
18	HT/LT Power/ Control & instrument Cables (vendor panel /JB to Purchaser panel/JB)	TGS	TGS	JSW	JSW	JSW	JSW	——	Except special cables.	Noted

Section -IV Table -1 SCOPE MATRIX FOR ELECTRICS

Project : Phase –III / CPP-4 / 1 x 250MW, M/s JSW Steel , Dolvi (STG 1 x 250MW)

Date : 21.09.24

SL.NO	ITEM DESCRIPTION	BASIC ENGINEERING	DETAIL ENGINEERING	SUPPLY	ERECTION	TESTING	COMMISSIONING	PG TEST	REMARKS	BHEL Reply
19	HT/LT Cable Schedule, Routing	TGS	TGS	----	----	----	----	----		
20	All cable trays , Earthling of cable trays	TGS	TGS	JSW	JSW	JSW	JSW	----		Cable trays support for generator auxiliaries will not be considered in BHEL scope of supplies.
21	Power/Control Junction Boxes	TGS	TGS	TGS	TGS	TGS	TGS	----	Not applicable for Electrical drives	Not applicable for Electrical drives
22	TG Building and peripheral area lighting including Emergency Lighting	JSW	JSW	JSW	JSW	JSW	JSW	----		Noted
23	Equipment Earthing, Above Ground	TGS	TGS	JSW	JSW	JSW	JSW	----		Equipment earthing above ground is not in BHEL scope.
24	Equipment Earthing, Below Ground	JSW	JSW	JSW	JSW	JSW	JSW	----		Noted
25	TG Building area Lightning protection system	JSW	JSW	JSW	JSW	JSW	JSW	----		Noted
26	TG & Its Auxiliaries - Relay Co-ordination/settings	TGS	TGS	----	----	----	TGS	----		Noted

NOTES :-

1) **Civil & Structural detailed engineering is in JSW scope of work.**
2) **Inputs drawings for Civil & Structural works to be provided by respective equipment supplier/ TGS**
3) **Performance guarantee test is in the scope of Turbine Generrator Supplier.**
4) **Free Issue item to Turbine Genertaor supplier by Purchaser will be supplied to site.**

LEGEND

TGS - Turbine Generator supplier

JSW -- Purchaser

Annexure – IV

Project : Phase -III / CPP-4 / 1 x 250 MWe , M/s JSW Steel, Dolvi

Date : 25.09.24

1. Obtain IBR approval for the design, fabrication, and erection of Turbine, Turbine-related equipment and Piping's : ***Confirmed by BHEL***

2. Approval of Drawings: All engineering drawings, (Pressure Parts) including fabrication and erection drawings, need to be approved by the IBR Inspector. These drawings should comply with IBR standards : ***Confirmed by BHEL***

3. Turbine Design: The design of the Turbine must meet IBR requirements for safety, efficiency, and compliance with relevant codes and standards : ***Confirmed by BHEL***

4. Material Selection: Use materials that conform to IBR standards and are suitable for the intended purpose. : ***Confirmed by BHEL***

5. Welding Procedures: Ensure that qualified welders perform all welding work, and the welding procedures adhere to IBR guidelines. Welding should be done in accordance with approved welding procedures and by certified welders.: ***Confirmed by BHEL***

6. Non-Destructive Testing (NDT): Conduct NDT, such as radiographic testing, ultrasonic testing, and dye penetrant testing, to check the quality of welds and material integrity. The NDT should be carried out as per IBR requirements: ***Confirmed by BHEL***

7. Quality Control: Establish a comprehensive quality control program to monitor and inspect the work at various stages of erection. This includes inspections by third-party agencies and the IBR Inspector I.e. Ground Inspection of all pressure parts, fitting, valves, piping's, weld set up inspection and Hydro test. : ***Confirmed by BHEL. However, IBR inspection for pressure parts, Hydro test is not applicable for STG.***

8. Documentation: Maintain detailed records of all activities related to Turbine erection, including material certificates, test reports, and inspection records (IBR Folder). : ***Confirmed by BHEL***

9. Inspection and Approval: The IBR Inspector will conduct inspections at various stages of erection to ensure compliance with IBR standards. Obtaining the necessary approvals is essential before the IBR can be put into operation.: ***Confirmed by BHEL***

10. Commissioning and Testing: After the Turbine is erected, it must undergo commissioning and testing to ensure that it operates safely and efficiently. This typically involves hydrostatic testing and other performance tests in presence of IBR inspector.: ***Confirmed by BHEL however this will be not applicable for STG.***

11. Provisional Approval of all pressure parts, fittings, mountings and IBR Piping drawings and after completion of work submission of as built drawings. : ***Confirmed by BHEL***

ANNEXURE-III				
TERMINAL POINTS				
Project : Phase-III/CPP-4 / 1 x 250MW , M/s JSW steel , Dolvi.				
Date : 25.09.24				
Sl. No	**Description**		**Terminal point**	**BHEL Reply**
A	**1 x 250 MWe STG**			
1	Condenser cooling water	:	Up to tapping provision on condenser.	Noted
2	Condensate line (CEP)	:	Dearator vapour tank (including final joint welding ,NDT etc)	Noted
3	Exhaust and vents	:	To atmosphere at safe elevation for steam vents	Noted
4	All drains	:	To the nearest drain trench	Noted
5	Instrument air	:	To the nearest point of Turbine building	Noted
6	Gland sealing piping	:	TG supplier terminal point will be outlet of the PRDS- Approx 50 mtr piping	Noted
7	CEP Sealing DM water	:	Up to tapping provision on CEP with isolation valve.	Noted
8	LP bypass Dump Tube	:	connedensor end and welding joint will be Turbine scope.	Noted
B	**Common services**	:		Noted
1	Auxiliary cooling water	:	At any point Approx 20 m away from A-row of respective TG 0 mtr building.	Noted
2	Instrument air	:	At any point Approx 20 m away from A-row of respective TG 0 mtr building.	Noted
3	Service air	:	From Pipe rack tower (Around 100 m away from Boiler front row column)	Noted

Noted, However if any equipments required for grouting it shall be in TG supplier scope

4	Civil	:	Base plate/ sole plate. Special and additional packing, grouting cement & grouting work and foundation bolts for all the package equipment's in contractor scope of supply.	Noted. However, All Civil work and equipment related to civil work is excluded from BHEL scope.
5	Construction power	:	At one point near power plant boundary	Noted
6	Construction water	:	At one point near power plant boundary	Noted
7	Service Water	:	At one point near power plant boundary	Noted
C	**Electrical**	:	As per electrical scope matrix	Noted

9	HP Main Steam	Upto the I/L of HP ESV will be done by purchaser with final joints and HP ESV to turbine will be TG supplier scope
10	Hot Reheat	Upto the I/L of IP ESV will be done by purchaser with final joints and HP ESV to turbine will be TG supplier scope
11	Cold Reheat	Up to root tapping from turbine CRH extraction.
12	Feed water piping from deaerator to boiler	Boiler Scope
13	HP heater normal and emergency drains	Boiler Scope
14	All extraction piping from turbine to heaters	TG vendor scope
15	Piping from desuperheater to deaerator	Both end shall be boiler scope
16	Lubrication piping, HPH oil piping	TG vendor scope