

E-Tender Ref No: BHE/PW/PUR/WNT2-STG/1675/Corr-01-Clarification date: 19/10/2016

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To

ALL BIDDERS

**Sub:** Corrigendum-01: Issue of Clarification and Extension in due date of offer submission.

**Job:** COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE; **ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF STEAM TURBINE**, GENERATOR SET, INTEGRAL PIPING, HP/LP HEATER, TANKS & VESSELS, DG SET, PUMPS & OTHER AUXILIARIES CONNECTED WITH THE SYSTEM AND OTHER BOI, INSULATION, INCLUDING SUPPLY AND APPLICATION OF FINAL PAINTING ETC FOR 1X800 MW GSECL WANAKBORI PROJECT AT 1x800 MW GSECL WANAKBORI PROJECT IN GUJARAT STATE.

**E-Tender Specification Nos:** BHE/PW/PUR/WNT2-STG/1675

Bidders to kindly take note of the following:

**AA) ISSUE OF CLARIFICATIONS**

Sl. No	Reference clause of Tender documents	Bidder's Queries	BHEL's Clarification
1.	Chapter-II: Scope of work, Item-C Condenser Optional of Vol-IA  BHEL may decide for pre-assembly of Condenser "no 2" outside TG hall besides "A" row on temporary bed. Preassembled condenser is then to be dragged onto condenser foundation with the help of special arrangement. Detail scope is given in Chapter 15.	Kindly clarify whether "no 2" denotes either 2 nos condenser or condenser number 02?	"no 2" denotes "Condenser no 2" i.e Turbine Side
2.	Chapter-XV: Condenser installation: Item-15.7 of Vol-IA  As per site conditions, condenser no 2 may be required to pre-assembled outside TG hall beside "A" row on temporary bed. Preassemble condenser is then to be dragged onto condenser foundation with the help of special arrangement.	Kindly clarify whether "no 2" denotes either 2 nos condenser or condenser number 02?	
3.	Annexure-I: SUMMARY OF WEIGHT DETAILS Clause no 1.9.1.H: PEM supplied Pumps and Motors, Approx. weight 200 MT	PEM supplied pumps and motors as shown as qty only (Page no 105/106 of Vol-IA). Please furnish the individual weight of each item.	It is not possible for PEM to give weights of motors and pumps at this stage as PO for the same has not been placed yet. Same shall be made available during execution
4.	Annexure-I: SUMMARY OF WEIGHT DETAILS Category G-2	Please clarify, the tonnage shown as 11910 Kg at page 103. The actual tonnage is	It shall be 119100 kg as mentioned in page no 84.

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Sl. No	Reference clause of Tender documents	Bidder's Queries	BHEL's Clarification
	Condensate Extraction pump total weight-11910	119100 kg as indicated in page no 84.	
5.	Annexure-I: SUMMARY OF WEIGHT DETAILS Category L DG set not indicated in summary of weight details. Page no 84	Please clarify, whether it is part of this tender.	DG set is the part of the tender. Separate line item is also mentioned in terms of payment terms for DG set(page no 74)
6.	Annexure-I: SUMMARY OF WEIGHT DETAILS Category K PEM BOI Page no 84 PEM scope of supply	PEM scope of supply indicates only items. Summary of weight indicated is approx.. 200 MT. Please furnish the individual weight of each item for PEM scope of supply.	It is not possible for PEM to give weights of motors and pumps at this stage as PO for the same has not been placed yet. Same shall be made available during execution.
7.	Annexure-I: SUMMARY OF WEIGHT DETAILS Category E Turbine integral piping BHEL Haridwar Page no 101	What are the materials involved in integral piping? Please clarify, if any P91 material is engaged in this tender	P91 material is engaged in the tender as per attached detail of Turbine integral piping. Total tonnage mentioned in attached file shall be treated as break up of E (TURBINE INTEGRAL PIPING – BHEL HARIDWAR) Sr no 1 of Annexure-I (SUMMARY OF WEIGHT DETAILS)  The turbine drainage piping, Overload piping and seal steam piping of Turbine are of SA335P91 material specification. The erection, welding, heat treatment, NDT, H&S of these are in scope of this contract only. The contractor has to arrange for the IBR requirements. Also, the consumables such as electrodes and filler wire, thermocouple, ceramic pads and insulation, induction coil etc. for SA335P91 welding has to be arranged by the contractor. The contractor has also to arrange for spot welding of the thermocouples. BHEL will only provide induction heating Machine. For other integral piping of this contract scope of Haridwar and

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Sl. No	Reference clause of Tender documents	Bidder's Queries	BHEL's Clarification
			Hyderabad scope, all the consumables have to be supplied by contractor at no extra cost. BHEL may only supply any consumables which are supplied by the MU"s and vendors as part of the package. BHEL will not supply any electrode / filler for P91/T91. All the welding consumable such as electrodes/filler wires to be used in welding has to be of BHEL approved brand. Before procuring contractor shall ensure the same with BHEL.
8.	Chapter-XXIII LINING AND INSULATION of Vol-IA  Application of thermal insulation, finishing cladding....etc. 2. feed water storage tank	Erection of feedback water tank is not specified in this tender. Please clarify, whether feed back water storage tank is included or not in scope of work?	Feed water storage tank is NOT included in the scope.
9.	Chapter-XXIV: Painting of Vol-IA Scope of contractor/BHEL regarding supply of paint & Paint application Page no 146	Please clarify the quantum of work in painting?	Please find attached painting schedule to derive quantity of and quantum of paints
10.	Refer Chapter – IV: T&Ps and MMEs to be deployed by Contractor of Vol-IA:  Item no 23,24 and 25 i.e. SLINGS FOR LP TURBINE ROTOR, SLINGS FOR HP TURBINE MODULE and SLINGS FOR GENERATOR ROTOR <b><u>may please be deleted.</u></b>  Above T&P shall be provided by BHEL free of cost.		

### **BB) Extension of Last Date**

The last date for submission of Tender has been re scheduled to 25/10/2016, 15.00 hrs.

Technical Bid shall be opened on 25/10/2016 at 16.00 Hrs.

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All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing.

Bidders are requested to submit as a part of their offer, a copy of this corrigendum duly Digitally countersigned by the authorized signatory as a token of Bidder's unqualified acceptance of this corrigendum.

**BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL <https://bheleps.buyjunction>**

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**BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.**

Thanking you,

Yours faithfully,

AGM (Purchase)

Encl: **PAINTING SCHEME**

**PAINTING SCHEME  
FOR  
TURBOGENERATOR AND AUXILIARY SYSTEMS  
PROJECT/CUSTOMER: 1x800 MW WANAKBORI STPP/ GSECL**

Rev No.	SI No									
	01	<b>The following are the details of painting scheme :</b>								
		<b>Paint (Coat)</b>	<b>Paint Type</b>	<b>No. of coat</b>					<b>DFT*</b>	
		Primer Paint	: Epoxy based Zinc rich primer paint	2 Coats					70	
		Intermediate Paint	: Epoxy TiO <sub>2</sub> Pigmented Polyamide Cured Paint	1 Coat					70	
		Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	1 Coat					60	
		-----							Total DFT	
		-----							200	
		-----							-----	
		* DFT – Dry Film Thickness (final) in microns.								
	02	<b>Details of Color Scheme :</b>								
		<b>(Legend : W-at BHEL works; S-at site; V-at vendor's works; NA- Not Applicable)</b>								
		<b>No</b>	<b>Assembly</b>	<b>Shade as per IS-5 or Eq.</b>	<b>Primer</b>	<b>Int. Paint</b>	<b>Final Paint</b>	<b>Touch-up</b>	<b>Identification Band Colour (For Piping)</b>	<b>Remarks</b>
		A	Turbogenerator (Stator, end-shields etc.)	Blue RAL 5012	W	S	S	NA		
		B	Exciter	NA	W	NA	NA	NA		
		C	Exciter Cover	Blue RAL 5012	W	S	S	NA		
		D	S.O. Unit	Grey RAL 9002	W	W	W	S		
		E	S.O. Storage Tank	Grey RAL 9002	W	W	W	S		
		F	Liquid Detector Rack	Grey RAL 9002	W	W	W	S		
		G	S.O. Piping	Grey RAL 9002	V/ W	S	S	NA	Light Brown ISC 410	Legend - SO
		H	Gas Unit	Grey RAL 9002	W	W	W	S		
		I	H2 Distributor	Grey RAL 9002	W	W	W	S		
		J	CO2 Distributor	Grey RAL 9002	W	W	W	S		
		K	N2 Distributor	Grey RAL 9002	W	W	W	S		
		L	CO2 Vapouriser	Grey RAL 9002	W	W	W	S		
		M	H2 Gas Dryer	Grey RAL 9002	V	V	V	S		
		N	H2 Piping	Grey RAL 9002	V/ W	S	S	NA	Canary Yellow ISC 309	Legend - H
		O	CO2 Piping	Grey RAL 9002	V/ W	S	S	NA	Canary Yellow ISC 309	Legend – CO2

**PAINTING SCHEME  
FOR  
TURBOGENERATOR AND AUXILIARY SYSTEMS  
PROJECT/CUSTOMER: 1x800 MW WANAKBORI STPP/ GSECL**

	P	ACW Piping for H2 coolers	Grey RAL 9002	V/ W	S	S	NA	Sea Green ISC 217	Legend - ACW
	Q	Bearing Vapour Exhauster	Grey RAL 9002	V	V	V	S		
	R	PW pump & filter unit	Grey RAL 9002	W	W	W	S		
	S	PW coolers	Grey RAL 9002	V	V	V	S		
	U	PW Piping & impulse piping	Grey RAL 9002	V/ W	S	S	NA	Sea Green ISC 217	Legend - DMW
	V	PW tank	Grey RAL 9002	W	W	W	S		
	W	Hanger & Pipe supports	Black RAL 9011	V/ W	S	S	NA		
03	For painting work at Site and for touch-up paints (if required), paint & painting materials are to be arranged at site by BHEL-Site office (PS).								



**PAINTING SCHEME FOR GENERATOR, STEAM TURBINE,  
CONDENSOR & AUXILIARIES**  
**PROJECT: WANAKBORI 1X800 MW**

**TURBINE INTEGRAL PIPING & AUXILIARIES**

**Painting Scheme**

<b>Paint (Coat)</b>	<b>Paint Type</b>	<b>No. of coat</b>	<b>DFT*</b>
Primer Paint	: Epoxy base Zinc rich primer paint	1 Coat	35
Intermediate Paint	: Epoxy TiO <sub>2</sub> Pigmented Polyamide Cured Paint	1 Coat	70
Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2 Coats	75

\* DFT – Dry Film Thickness (final) in microns.

**Details of Color Scheme :**

**(Legend : W-at BHEL works; V- at vendor's works; S-at site; NA-Not applicable)**

No	Assembly	Shade as per RAL	Primer	Int. Paint	Final Paint	Touch-up	Remarks
P1	Turbine Integral Piping for Control Fluid System	Grey 9002	V	V	V	S	
P2	Turbine Integral Piping for Lube Oil System	Grey 9002	V	V	V	S	
P3	Turbine Integral Piping for Condensate Spray System	Grey 9002	V	V	V	S	
P4	Turbine Integral Piping for CW to Lub Oil Coolers.	Grey 9002	V	V	V	S	
P5	Turbine Integral Piping for CW to HPSU	Grey 9002	V	V	V	S	
P6	Turbine Integral Piping for Turbine Drainage System	Grey 9002	V	V	V	S	Pipes are insulated at site.

## Painting Scheme

Paint (Coat)	Paint Type	No. of coat	DFT*
Primer Paint	: Epoxy base Zinc rich primer paint	1 Coat	35
Intermediate Paint	: Epoxy TiO <sub>2</sub> Pigmented Polyamide Cured Paint	1 Coat	70
Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2 Coats	75

\* DFT – Dry Film Thickness (final) in microns.

### Details of Color Scheme :

(Legend : W-at BHEL works; V- at vendor's works; S-at site; NA-Not applicable)

No	Assembly	Shade as per RAL	Primer	Int. Paint	Final Paint	Touch-up	Remarks
P7	Turbine Integral Piping for Seal Steam System	Grey 9002	V	V	V	S	Pipes are insulated at site.
P8	Turbine Flash Tank	Grey 9002	V	V	V	S	
P9	Spring Cages	Black 9011	V	V	V	S	
P10	Hangers and supports for turbine integral piping	Black 9011	V	V	V	S	
P11	Dampers	Black 9011	V	V	V	S	
P12	Valves of Turbine Integral Piping	Grey 9002	V	V	V	S	Identification Tag/Band of White 9010 colour. Legend in black letters.
P13	3-way Temperature Control Valve (Motorised) for Lube Oil (with Actuator)	Grey 9002	V	V	V	S	Identification Tag/Band of White 9010 colour. Legend in black letters.
P14	Control Panel For Lube Oil Purifier	<u>External (Front &amp; Rear)</u> - Grey 9002 <u>External (Side)</u> - Blue 5012 <u>Internal</u> - Brilliant white glossy	V	V	V	S	

## Painting Scheme

Paint (Coat)	Paint Type	No. of coat	DFT*
Primer Paint	: Epoxy base Zinc rich primer paint	1 Coat	35
Intermediate Paint	: Epoxy TiO <sub>2</sub> Pigmented Polyamide Cured Paint	1 Coat	70
Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2 Coats	75

\* DFT – Dry Film Thickness (final) in microns.

### Details of Color Scheme :

(Legend : W-at BHEL works; V- at vendor's works; S-at site; NA-Not applicable)

No	Assembly	Shade as per RAL	Primer	Int. Paint	Final Paint	Touch-up	Remarks
P15	Lube Oil Purifier	Grey 9002	V	V	V	S	Identification Tag/Band of White 9010 colour. Legend in black letters.
P16	Gear Pump & return Pump (with motors)	<u>Pumps :</u> Grey 9002 <u>Motors :</u> Blue 5012	V	V	V	S	Identification Tag/Band of White 9010 colour. Legend in black letters.
P17	Angle Valve (For Turbine Drain)	Grey 9002	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
P18	Spray Nozzle	Grey 9002	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
P19	HPT Steam Evacuation Valve	Grey 9002	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
P20	Oil tank (MOT), Dirty oil tank , waste oil tank	Grey 9002	W	W	W	S	Identification Tag/Band of White 9010 colour. Legend in black letters.
P21	Oil Module						BOI-Imp
	Oil tank (MOT)	Grey 9002	W	W	W	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
	AOP,EOP, JOP (With Motors)	<u>Pumps :</u> Grey 9002 <u>Motors :</u> Blue 5012	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.

## Painting Scheme

Paint (Coat)	Paint Type	No. of coat	DFT*
Primer Paint	: Epoxy base Zinc rich primer paint	1 Coat	35
Intermediate Paint	: Epoxy TiO <sub>2</sub> Pigmented Polyamide Cured Paint	1 Coat	70
Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2 Coats	75

\* DFT – Dry Film Thickness (final) in microns.

### **Details of Color Scheme :**

(Legend : **W**-at BHEL works; **V**- at vendor's works; **S**-at site; **NA**-Not applicable)

No	Assembly	Shade as per RAL	<i>Primer</i>	Int. Paint	Final Paint	Touch-up	Remarks
	Oil Vapour Exhauster (including Motor)	<u>Exhauster :</u> Grey 9002 <u>Motors :</u> Blue 5012	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
	Duplex Filter (Lub oil)	Grey 9002	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.
	Duplex Filter (Jacking Oil)	Grey 9002	V	V	V	S	BOI-Imp Identification Tag/Band of White 9010 colour. Legend in black letters.

<b>TG INTEGRAL PIPING</b>			
<b>Sl</b>	<b>No Description</b>	<b>Weight (in Kgs) for Package</b>	<b>P91 Piping Details (in Kgs) per Unit</b>
1	Seal Steam System	19850	5700
2	Overload Valve Piping	10015	10015
3	Lube Oil Piping	7350	
4	Turbine Drainage Piping	12000	4500
5	Cooling Water	1320	
6	Control Fluid System	1360	
7	Condensate Spray System	2570	
8	Overload Valve Piping (Flushing)	125	
9	Control Fluid System (LP Bypass Valves)	610	
10	Lube Oil Flushing	275	
		<b>55475</b>	<b>20215</b>