

Bharat Heavy Electricals Ltd
Electronics Division
Mysore Road, Bangalore – 560026

**ADDENDUM TO RFQ No: HBSBOS006 (SUPPLY,
COMMISSIONING SUPPORT, TEMPERATURE RISE TEST &
PWBDM OF TRANSFORMERS) WITH RESPECT TO
EVALUATION CRITERIA & EXTENSION OF DUE DATE**

EVALUATION CRITERIA:
ALL THE 2 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total No's of 2 Winding Transformer is 6 Nos.)
ALL THE 3 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total No's of 3 Winding Transformer is 15 Nos.)
TECHNICAL BID OPENING DATE: 05.09.2014 (FRIDAY), 13:00 Hrs.

Please make a note that Technical & Price Bid (Annexure-B, B1 & B2) has to be submitted in the Revised Formats only.

If you have already submitted, kindly re-send the Tender documents in Revised formats only.

This Tender Addendum Contains:
Revised Commercial Compliance (Annexure-B), Revised Unpriced Bid Formats (Annexure-B1) & Revised Price Bid Formats (Annexure-B2)

Note: Part – I: To be submitted in a separate sealed cover

Part – II: To be submitted in a separate sealed cover.

And Part-I & Part-II sealed covers should be put in outer envelope and super scribing the Name of work and Name & Address of the tenderer. Tender document should be dropped in Tender drop box super scribed "SC&PV-MM, Friday" kept in reception area of

BHEL – EDN, Bangalore.

Contact Person at BHEL:

1. **Mr. H.B. Srinivasa : Sr. Manager (SC&PV-MM)**
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TRANSFORMER RFQ ITEM WISE ACCOUNTING						
For 3 WINDING TRANSFORMER (PS-439-885)						
FOR KPCL, DIU & DADR & NAGAR HAVELLI:						
ITEM	TRF RATING	TRF QTY	RFQ SL NO FROM	RFQ SL NO TO	PROJ	
TRANSFORMER	1.6MVA/11KV PS 885	8+2+2	1	1	KPCL+DIU+DNH	
SPARES			2	13	KPCL+DIU+DNH	
COMN SUPPORT		8+2+2	14	14	KPCL+DIU+DNH	
PW BDM		0+3+3	15	17	KPCL+DIU+DNH	
TEMP RISE TEST			1	18	18	DNH
FOR R C PURAM, HYDERABAD						
TRANSFORMER	1.25MVA/33KV	1	19	19	RC PURAM	
SPARES				20		31
COMN SUPPORT		1	32	32		
PW BDM		0	NA	NA		
TEMP RISE TEST		1	33	33		
FOR OPCL:						
TRANSFORMER	1.6MVA/33KV	2	83	83	OPCL	
SPARES				84	95	OPCL
COMN SUPPORT		2	96	96		OPCL
PW BDM		0	NA	NA		OPCL
TEMP RISE TEST		1	97	97		OPCL
FREIGHT			114/i	114/i	KPCL	
			114/ii	114/ii	DIU	
			114/iii	114/iii	OPCL	
			114/iv	114/iv	DAMAN(NA)	
			114/v	114/v	RC PURAM	
			114/vi	114/vi	DNH	
INSURANCE			115/i	115/i	KPCL	
			115/ii	115/ii	DIU	
			115/iii	115/iii	OPCL	
			115/iv	115/iv	DAMAN(NA)	
			115/v	115/v	RC PURAM	
			115/vi	115/vi	DNH	
FOR 2 WINDING TRANSFORMER: (PS-439-887)						
FOR RC PURAM:						
TRANSFORMER	630KVA/33KV	1	34	34	RC PURAM	
SPARES				35		45
COMN SUPPORT		1	46	46		
PW BDM		0	NA	NA		
TEMP RISE TEST		1	47	47		
FOR DIU & DADAR & NAGAR HAVELLI:						
TRANSFORMER	800KVA/11KV	1+1	48	48	DIU+DNH	
SPARES				49	59	DIU+DNH
COMN SUPPORT		1+1	60	60		DIU+DNH
PW BDM		3+3	61	63		DIU+DNH
TEMP RISE TEST		0+1	64	64		DNH
FOR DAMAN:						
TRANSFORMER	630KVA/11KV	2	65	65	DAMAN	
SPARES				66	77	DAMAN
COMN SUPPORT		2	78	78		DAMAN
PW BDM		3+3+3	79	81		DAMAN
TEMP RISE TEST		1	82	82		DAMAN
FOR OPCL:						
TRANSFORMER	800KVA/33KV	1	98	98	OPCL	
SPARES				99	109	OPCL
COMN SUPPORT		1	110	110		OPCL
PW BDM		0	NA	NA		OPCL
TEMP RISE TEST		1	111	111		OPCL
FREIGHT			112/i	112/i	KPCL(NA)	
			112/ii	112/ii	DIU	
			112/iii	112/iii	OPCL	
			112/iv	112/iv	DAMAN	
			112/v	112/v	RC PURAM	
			112/vi	112/vi	DNH	
INSURANCE			113/i	113/i	KPCL(NA)	
			113/ii	113/ii	DIU	
			113/iii	113/iii	OPCL	
			113/iv	113/iv	DAMAN	
			113/v	113/v	RC PURAM	
			113/vi	113/vi	DNH	

AMENDMENT TO COMMERCIAL TERMS & CONDITIONS				
RFQ No.HBSBOS006 DATED : 26.07.2014 DUE DATE(TECH BID) : 05.09.2014				
Sl No.	Terms	BHEL Term	Confirmation	Deviation / Remarks
1	Bidding	(a) Bid has to be submitted as Two Part – in two sealed covers- Techno Commercial Bid(Part-1) & Price Bid (Part-II)- clearly written on each cover both put in a single sealed envelope super-scribed with RFQ No. and Due date.	Agree / Not agree	
		(b) Annexures B & B1 to be submitted along with technical bid (Part-1) & Annexure B2 to be submitted along with Price bid (Part-II).	Agree / Not agree	
		(c) Clause-wise compliance to BHEL Purchase specification along with all documents as called in Technical specification to be submitted along with technical bid(Part-1).	Agree / Not agree	
2	Price Basis	Firm i.e., from the date of PO to completion of supply if I&C is not applicable. If I&C is in supplier's scope, then the prices shall remain Firm till commissioning & handing-over of the complete system. (PVC clause not acceptable).	Agree / Not agree	
3	Terms of Delivery	Free On Road Basis to Respective sites	Agree / Not agree	
4	Delivery Period	(a) Supply : 12 Weeks from the Drawing Approval; Drawing Submission: 1 week from PO Date	Agree / Not agree	
		(b) I&C : 3 weeks from Supply Date.	Agree / Not agree	
5	Payment Terms	(a) Supply : 80% payment of Supply Value + 100% Taxes shall be made with 45 days credit from the date of receipt of material at site. 10% on completion of I&C and certification. Balance 10% on execution of PBG valid for warranty period + 6 months claim period from any of the BHEL Consortium banks.	Agree / Not agree	
		(b) I&C : 100% on completion of I&C and certification.	Agree / Not agree	
		(c) PWBDM : 100% on call basis and certification.	Agree / Not agree	
		(d) For any deviation in payment term, the offer will be liable for loading as per Clause 25A(ii) of Enquiry-General Terms & conditions (Doc Ref : SCPV/BOS/01-Rev 00)	Agree / Not agree	
6	Excise Duty	(a) To confirm whether applicable. If applicable, indicate prevailing rate of Excise duty.	Applicable / Not applicable	Prevailing rate of Excise duty : %
		(b) BHEL is trying to avail Customs Duty & Excise duty exemption. Successful bidder shall support with all relevant documents.	Agree / Not agree	
7	Sales Tax	(a) To confirm whether applicable. If applicable, indicate prevailing rate of Sales Tax against Form C.	Applicable / Not applicable	Prevailing rate of Sales Tax : %
		(b) For issue of form "C", vendor has to furnish "E1/E2" form. Please confirm that "E1/E2 Sale form" will be submitted.	Agree / Not agree	
8	Value Added Tax	Since it is inter-state movement of goods, VAT is not applicable. Only CST against form C is applicable	Applicable / Not applicable	
		OR Both are in the same State, VAT is applicable please indicate VAT applicable.	Applicable / Not applicable	Prevailing rate of VAT : %
9	Octroi	To confirm whether applicable, if applicable indicate current rate of Octroi.	Applicable / Not applicable	Octroi %

AUTHORISED SIGNATORY WITH SEAL

AMENDMENT TO COMMERCIAL TERMS & CONDITIONS				
RFQ No.HBSBOS006 DATED : 26.07.2014 DUE DATE(TECH BID) : 05.09.2014				
Sl No.	Terms	BHEL Term	Confirmation	Deviation / Remarks
10	Service Tax	To confirm whether applicable, if applicable indicate current rate of Service Tax.	Applicable / Not applicable	Prevailing rate of Service Tax %
		Furnish following : Service Tax Regn. No. Confirmation that Service Tax register is maintained.	Applicable / Not applicable	Service Tax Regn. No.....
11	Freight	If Freight is quoted extra, original money receipt from Transporter has to be submitted for payment of freight. Please indicate a lumpsum value for Freight charges in Price bid if quoted extra.	Agree / Not agree	
12	Insurance	Transit Insurance will be in vendor's scope.	Agree / Not agree	
13	Evaluation of L1 vendor	Over all L1 of Supply+Commissioning Support + PWBDM + Freight + Insurance on "FOR" basis to site will only be considered. ALL THE 2 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 2 Winding Transformer is 6 Nos.) ALL THE 3 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 3 Winding Transformer is 15 Nos.)	Agree / Not agree	
14	Warranty	Warranty for Supply : 42 months from date of supply or 36 months from I&C whichever is earlier	Agree / Not agree	
15	Pre Shipment Inspection	Pre Shipment Inspection will be carried out by BHEL/Customer for which test report shall be sent one week in advance.	Agree / Not agree	
16	Penalty	(a) Penalty of 0.5% per week at the basic price of the good for undelivered quantity of supply portion, subject to a maximum of 10%. For Supply, Pre Shipment Inspection Call Letter Date (Receipt of test report) will be treated as delivery for purpose of penalty.	Agree / Not agree	
		(b)For any deviation in penalty term, the offer will be liable for loading as per Clause 25.B of Enquiry-General Terms & conditions (Doc Ref : SCPV/BOS/01-Rev 00)	Agree / Not agree	
17	Road Permit	Road permit if applicable will be given by BHEL before Dispatch of ordered Items	BHEL	
18	Despatch Documents	Complete set of despatch documents in 3 sets shall be forwarded to BHEL directly. Despatch documents include Commercial Invoice, Excise Invoice (if ED is applicable), Lorry receipt (L/R), Packing list, Warranty certificate, Insurance intimation letter, & Original Performance Bank Guarantee (Directly from issuing bank to BHEL). One set of Invoice, Packing list and L/R shall be faxed immediately after despatch to BHEL-EDN, Bangalore.	Agree / Not agree	
19	Other terms & conditions	For any other Terms and Conditions, kindly refer to the enclosed Enquiry-General Terms & Conditions of BHEL (Doc Ref : SCPV/BOS/01-Rev 00)	Agree / Not agree	
20	Reverse Auction	BHEL reserves the right to conduct Reverse Auction. Procedure for the same will be informed by BHEL .	Agree / Not agree	
21	Annexure	Technical Specification- PS-439-883 & Annexure-1 Ref: BHEL/SCPV/COMMONPURCHASE/SMU/01 dated 05.07.2014	Read & Noted	
22	Shipment	Kindly indicate the state from where the shipment will take place	State/Place	

For R C PURAM, HYDERABAD: Two options shall be quoted with respect to Taxation only:

1. BHEL EDN, Bangalore will release formal Purchase Order & arrange payment with Non-concessional CST(VAT of Material Originating State.)
2. BHEL EDN, Bangalore will issue Letter of Intent(LOI) & BHEL RC Puram, Hyderabad will release formal PO & arrange payment with 2% CST against Form C.

AUTHORISED SIGNATORY WITH SEAL

AMENDMENT TO TECHNICAL BID ENCLOSURE FOR COMPLIANCE OF QUOTE															
RFQ No.HBSBOS006 DATED : 26.07.2014 DUE DATE(TECH BID) : 05.09.2014															
FOR 3 WINDING TRANSFORMER															
SI No.	DESCRIPTION	QUOTED	CONTRACT						UNIT	SITE	TAXES				Remarks
			KPCL	DIU	OPCL	DAMAN	RC PURAM	DADAR AND HAVELLI			ED %	CST%	VAT %	SERVICE TAX %	
1	PS0679039031: Supply for Transformer 1.6MVA/11 KV as per Tech Spec-PS-439-885	YES/NO	8	2	NA	NA	NA	2	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
2	SPARES FOR TRANSFORMER (SI No.2 to 13): PS0679041176:Supply of 1600KVA/11 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
3	PS0679041206:Supply of 1600KVA/11 KV Transformer LV Bushings (6 Nos.) as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
4	PS0679039325: Supply of 1600KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
5	PS0679041117: Supply of 1600KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-885	YES/NO	4	2	NA	NA	NA	2	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
6	PS0679040773: Supply of 1600KVA/11 KV Transformer WTI as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
7	PS0679040838: Supply of 1600KVA/11 KV Transformer OTI as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
										KPCL				NA	
										DIU				NA	

8	PS0679040951: Supply of 1600KVA/11 KV Transformer Buchholz Relay as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	NO.	OPCL	NA	NA	NA	NA	Taxes Extra
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH				NA	
9	PS0679040897: Supply of 1600KVA/11 KV Transformer Gaskets of all types as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH				NA											
10	PS0679041010: Supply of 1600KVA/11 KV Transformer MOG as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH				NA											
11	PS0679040714: Supply of 1600KVA/11 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-885	YES/NO	4	2	NA	NA	NA	2	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH				NA											
12	PS0679040650: Supply of 1600KVA/11 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-885	YES/NO	4	2	NA	NA	NA	2	NO.	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH				NA											
13	PS0679039546: Supply of 1600KVA/11 KV Transformer Oil as per Tech Spec-PS-439-885	YES/NO	400	200	NA	NA	NA	200	L	KPCL				NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH				NA											
14	PS0679039619: Commissioning Support of 3 winding Transformer as per Tech Spec-PS-439-885	YES/NO	8	2	NA	NA	NA	2	AU	KPCL	NA	NA	NA		Taxes Extra
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH	NA	NA	NA												
15	PS0679039554: Post Warranty Breakdown Maintenance of 3 winding Transformer (4th year) as per Tech Spec-PS-439-885	YES/NO	NA	3	NA	NA	NA	3	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
DNH	NA	NA	NA												
16	PS0679039562: Post Warranty Breakdown Maintenance of 3 winding Transformer (5th year) as per Tech Spec-PS-439-885	YES/NO	NA	3	NA	NA	NA	3	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	

											RC PURAM	NA	NA	NA	NA	
											DNH	NA	NA	NA		
17	PS0679039570: Post Warranty Breakdown Maintenance of 3 winding Transformer (6th year) as per Tech Spec-PS-439-885	YES/NO	NA	3	NA	NA	NA	3	AU		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA		
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM	NA	NA	NA	NA	
											DNH	NA	NA	NA		
18	PS0679041370: Temperature Rise Test for 1600KVA/11 kV as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	NA	1	AU		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM	NA	NA	NA	NA	
											DNH					
For R C PURAM, HYDERABAD:																
19	For R C PURAM, HYDERABAD: PS0679039155: Supply for Transformer 1.25MVA/33 KV as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
20	SPARES FOR TRANSFORMER (SI No.20 to 31): PS0679040315:Supply of 1250KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
21	PS0679041214:Supply of 1250KVA/33 KV Transformer LV Bushings (6 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
22	PS0679041230: Supply of 1250KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
23	PS0679041125: Supply of 1250KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
24	PS0679040781: Supply of 1250KVA/33 KV Transformer WTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH					

											DNH	NA	NA	NA	NA	
25	PS0679040846: Supply of 1250KVA/33 KV Transformer OTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
26	PS0679040960: Supply of 1250KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
27	PS0679040900: Supply of 1250KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
28	PS0679041028: Supply of 1250KVA/33 KV Transformer MOG as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
29	PS0679040722: Supply of 1250KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
30	PS0679040668: Supply of 1250KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
31	PS0679040293: Supply of 1250KVA/33 KV Transformer Oil as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	200	NA	L		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM				NA	
											DNH	NA	NA	NA	NA	
32	PS0679039619: Commissioning Support of 3 winding Transformer as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	AU		KPCL	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	
											OPCL	NA	NA	NA	NA	
											DAMAN	NA	NA	NA	NA	
											RC PURAM	NA	NA	NA		
											DNH	NA	NA	NA	NA	

33	PS0679041397: Temperature Rise Test for 1250KVA/33 kV as per Tech Spec-PS-439-885	YES/NO					1		AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM					
										DNH	NA	NA	NA	NA	
FOR OPCL:															
83	PS0679039040: Supply for Transformer 1.6MVA/33 KV as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
84	SPARES FOR TRANSFORMER (SI No.84 to 95) PS0679039422:Supply of 1600KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
85	PS0679039430:Supply of 1600KVA/33 KV Transformer LV Bushings (6 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
86	PS0679039449: Supply of 1600KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
87	PS0679039457: Supply of 1600KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
88	PS0679039465: Supply of 1600KVA/33 KV Transformer WTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
89	PS0679039473: Supply of 1600KVA/33 KV Transformer OTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	

90	PS0679039481: Supply of 1600KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
91	PS0679039490: Supply of 1600KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA		NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
92	PS0679039503: Supply of 1600KVA/33 KV Transformer MOG as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
93	PS0679039511: Supply of 1600KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
94	PS0679039520: Supply of 1600KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
95	PS0679039538: Supply of 1600KVA/33 KV Transformer Oil as per Tech Spec-PS-439-885	YES/NO	NA	NA	200	NA	NA	NA	L	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
96	PS0679039619: Commissioning Support of 3 winding Transformer as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
97	PS0679041389:Temperature Rise Test for 1600KVA/33 kV as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL					
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
114	**Freight Charge including Service Tax on Freight(12.36% on 25% of Freight Value)	YES/NO									NA	NA	NA	NA	Included/Extra
i.	KPCL	YES/NO									NA	NA	NA	NA	Included/Extra

ii.	DIU	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
iii.	OPCL	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
iv	RC PURAM	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
v.	DADAR & NAGAR HAVELLI	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
vi.	DAMAN	NA	Lumpsum						NA	NA	NA	NA	Included/Extra
115	**Insurance	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
i.	KPCL	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
ii.	DIU	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
iii.	OPCL	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
iv	RC PURAM	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
v.	DADAR & NAGAR HAVELLI	YES/NO	Lumpsum						NA	NA	NA	NA	Included/Extra
vi.	DAMAN	NA	Lumpsum						NA	NA	NA	NA	Included/Extra

FOR 2 WINDING TRANSFORMER

34	For R C PURAM, HYDERABAD: PS0679039163: Supply for Transformer 630KVA/33 KV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
35	SPARES FOR TRANSFORMER (SI No.35 to 45) PS0679040331:Supply of 630KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
36	PS0679041087:Supply of 630KVA/33 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
37	PS0679041265: Supply of 630KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
38	PS0679041150: Supply of 630KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
39	PS0679040811: Supply of 630KVA/33 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
..	PS0679040870: Supply of 630KVA/33 KV									KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	

40	Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	DAMAN	NA	NA	NA	NA	Taxes Extra
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
41	PS0679040994: Supply of 630KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
42	PS0679040935: Supply of 630KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
43	PS0679041052: Supply of 630KVA/33 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
44	PS0679040757: Supply of 630KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
45	PS0679040692: Supply of 630KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
46	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA		
										DNH	NA	NA	NA	NA	
47	PS0679041435: Temperature Rise Test for 630KVA/33 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM					
										DNH	NA	NA	NA	NA	
FOR DIU & DADAR & NAGAR HAVELLI:															
48	For DIU & DADAR & NAGAR HAVELLI: PS0679039058: Supply for Transformer 800 KVA/11 KV as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	

											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
49	SPARES FOR TRANSFORMER (SI No.49 to 59) PS0679041184:Supply of 800 KVA/11 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
50	PS0679041079:Supply of 800 KVA/11 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
51	PS0679041257: Supply of 800 KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
52	PS0679041141: Supply of 800 KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO.		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
53	PS0679040803: Supply of 800 KVA/11 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
54	PS0679040862: Supply of 800 KVA/11 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
55	PS0679040986: Supply of 800 KVA/11 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		
56	PS0679040927: Supply of 800 KVA/11 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST		KPCL	NA	NA	NA	NA	Taxes Extra	
											DIU				NA		
											OPCL	NA	NA	NA	NA		
											DAMAN	NA	NA	NA	NA		
											RC PURAM	NA	NA	NA	NA		
											DNH				NA		

57	PS0679041044: Supply of 800 KVA/11 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
58	PS0679040749: Supply of 800 KVA/11 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO.	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
59	PS0679040684: Supply of 800 KVA/11 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO.	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU				NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
60	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	AU	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
61	PS0679039589: Post Warranty Breakdown Maintenance of 2 winding Transformer (4th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
62	PS0679039597: Post Warranty Breakdown Maintenance of 3 winding Transformer (5th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
63	PS0679039600: Post Warranty Breakdown Maintenance of 3 winding Transformer (6th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
64	PS0679041400: Temperature Rise Test for 800KVA/11 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	NA	1	AU	DNH				NA	Taxes Extra
										KPCL	NA	NA	NA	NA	
										DIU	NA	NA	NA		
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	

FOR DAMAN:

65	For DAMAN: PS0679039074: Supply for Transformer 630KVA/11 KV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
66	SPARES FOR TRANSFORMER (SI No.66 to 77) PS0679041192:Supply of 630KVA/11KV Transformer HV Bushings (3 Nos.) as per Tech Spec- PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
67	PS0679041095:Supply of 630KVA/11 KV Transformer LV Bushings (3 Nos.) as per Tech Spec- PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
68	PS0679041273: Supply of 630KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS- 439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
69	PS0679041168: Supply of 630KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
70	PS0679040820: Supply of 630KVA/11 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
71	PS0679040889: Supply of 630KVA/11 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
72	PS0679041001: Supply of 630KVA/11 KV Transformer Buchholz Relay as per Tech Spec-PS- 439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
										KPCL	NA	NA	NA	NA	

73	PS0679040943: Supply of 630KVA/11 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	DIU	NA	NA	NA	NA	Taxes Extra
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
74	PS0679041060: Supply of 630KVA/11 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
75	PS0679040765: Supply of 630KVA/11 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
76	PS0679040706: Supply of 630KVA/11 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
77	PS0679040307: Supply of 630KVA/11 KV Transformer Oil as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	200	NA	NA	L	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
78	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
79	PS0679039589: Post Warranty Breakdown Maintenance of 2 winding Transformer (4th year) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	3	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
80	PS0679039597: Post Warranty Breakdown Maintenance of 3 winding Transformer (5th year) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	3	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
81	PS0679039600: Post Warranty Breakdown Maintenance of 3 winding Transformer (6th year) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	3	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	

										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
82	PS0679041427:Temperature Rise Test for 630KVA/11 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN					
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
98	For OPCL: PS0679039066: Supply for Transformer 800 KVA/33 KV as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
99	SPARES FOR TRANSFORMER (SI No.99 to 109) PS0679040323:Supply of 800 KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
100	PS0679041109:Supply of 800 KVA/33 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
101	PS0679041249: Supply of 800 KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
102	PS0679041133: Supply of 800 KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
103	PS0679040790: Supply of 800 KVA/33 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
104	PS0679040854: Supply of 800 KVA/33 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	

										DNH	NA	NA	NA	NA						
105	PS0679040978: Supply of 800 KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL				NA							
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
106	PS0679040919: Supply of 800 KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL				NA							
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
107	PS0679041036: Supply of 800 KVA/33 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL				NA							
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
108	PS0679040730: Supply of 800 KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL				NA							
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
109	PS0679040676: Supply of 800 KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL				NA							
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
110	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL	NA	NA	NA								
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
111	PS0679041419:Temperature Rise Test for 800KVA/33 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra					
									DIU	NA	NA	NA	NA							
									OPCL											
									DAMAN	NA	NA	NA	NA							
									RC PURAM	NA	NA	NA	NA							
									DNH	NA	NA	NA	NA							
112	**Freight Charge including Service Tax on Freight(12.36% on 25% of Freight Value)	YES/NO	Lumpsum								NA	NA	NA	NA	Included/Extra					
i.	DIU	YES/NO														NA	NA	NA	NA	Included/Extra
ii.	OPCL	YES/NO														NA	NA	NA	NA	Included/Extra
iii.	DAMAN	YES/NO														NA	NA	NA	NA	Included/Extra
iv.	RC PURAM	YES/NO														NA	NA	NA	NA	Included/Extra
v	DADAR & NAGAR HAVELLI	YES/NO														NA	NA	NA	NA	Included/Extra
vi.	KPCL	NA														NA	NA	NA	NA	Included/Extra
113	**Insurance	YES/NO									NA	NA	NA	NA	Included/Extra					

i.	DIU	YES/NO	Lumpsum	NA	NA	NA	NA	Included/Extra
ii.	OPCL	YES/NO		NA	NA	NA	NA	Included/Extra
iii.	DAMAN	YES/NO		NA	NA	NA	NA	Included/Extra
iv.	RC PURAM	YES/NO		NA	NA	NA	NA	Included/Extra
v	DADAR & NAGAR HAVELLI	YES/NO		NA	NA	NA	NA	Included/Extra
vi.	KPCL	NA		NA	NA	NA	NA	Included/Extra

**NOTE: ALL THE 2 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 2 Winding Transformer is 6 Nos.)-For DIU, DNH, DAMAN, OPCL & RC PURAM-PS-439-887
ALL THE 3 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 3 Winding Transformer is 15 Nos.)-For KPCL,OPCL,DIU, DNH & RC PURAM-PS-439-885**

1.YOUR QUOTED PRICES SHALL BE on "FREE ON ROAD" basis to RESPECTIVE SITE basis.

2.PL INDICATE TAXES : ED,VAT/CST,SERVICE TAX CLEARLY APPLICABLE AS ON DATE.

3.USE THIS FORMAT FOR COMPLIANCE(REPRODUCING ON YOUR LETTER HEAD IS ACCEPTABLE).

4. FOR SL NOS 1 - 111, TAXES WILL BE CONSIDERED EXTRA.PLEASE QUOTE ONLY THE BASIC RATES.

5.**INDICATE WHETHER FREIGHT CHARGE & INSURANCE CHARGE IS INCLUDED IN QUOTED RATE OR WILL BE CHARGED EXTRA.

IN ABSENCE OF CLARITY, QUOTED RATE WILL BE CONSIDERED AS INCLUSIVE OF FREIGHT & INSURANCE CHARGES.(If the offer contains the Freight Value at actuals, it will be considered as All Inclusive).If Freight is quoted extra, original money receipt from Transporter has to be submitted for payment of freight.

6.BHEL IS TRYING TO GET CONCESSION ON EXCISE DUTY UNDER SUPPLY OF SOLAR POWER PROJECT.AT THE TIME OF CLEARANCE OF GOODS WE MAY ISSUE EXEMPTION CERTIFICATE.IN SUCH CASE, ED WILL BE EXEMPTED BUT NOT REIMBURSED. At present, please quote with applicable rate without concession of ED for comparison.

7. Overall L1 of all the sites for 2 Winding & 3 Winding Transformers (Supply+Commissioning+Temperature Rise Test+PWBDM, as applicable+Freight+Insurance) will be considered. All the 2 Winding Transfromers will be procured from one Vendor only & all the 3 Winding Transfromers will be procured from one Vendor only.

8. For R C PURAM, HYDERABAD:Two options shall be quoted with respect to Taxation only:

1. BHEL EDN, Bangalore will release formal Purchase Order & arrange payment with Non-concessional CST(VAT of Material Originating State.)-As C Form will not be issued.

2. BHEL EDN, Bangalore will issue Letter of Intent(LOI) & BHEL RC Puram, Hyderabad will release formal PO & arrange payment with 2% CST against Form C.

AUTHORISED SIGNATORY WITH SEAL

AMENDMENT TO PRICE BID ENCLOSURE FOR COMPLIANCE OF QUOTE																	
RFQ No.HBSBOS006 DATED : 26.07.2014 DUE DATE(TECH BID) : 05.09.2014																	
FOR 3 WINDING TRANSFORMER																	
SI No.	DESCRIPTION	QUOTED	CONTRACT						UNIT	SITE	UNIT RATE (Rs.)	TOTAL RATE(UNIT RATE*QTY) (Rs.)	TAXES				Remarks
			KPCL	DIU	OPCL	DAMAN	RC PURAM	DADAR AND HAVELLI					ED %	CST%	VAT %	SERVICE TAX %	
1	PS0679039031: Supply for Transformer 1.6MVA/11 KV as per Tech Spec-PS-439-885	YES/NO	8	2	NA	NA	NA	2	NO.	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		
i.	For KPCL: Unit Rate in Words(Rs.)																
ii.	For DIU: Unit Rate in Words(Rs.)																
iii.	For DNH: Unit Rate in Words(Rs.)																
2	SPARES FOR TRANSFORMER (SI No.2 to 13): PS0679041176:Supply of 1600KVA/11 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		
i.	For KPCL: Unit Rate in Words(Rs.)																
ii.	For DIU: Unit Rate in Words(Rs.)																
iii.	For DNH: Unit Rate in Words(Rs.)																
3	PS0679041206:Supply of 1600KVA/11 KV Transformer LV Bushings (6 Nos.) as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		
i.	For KPCL: Unit Rate in Words(Rs.)																
ii.	For DIU: Unit Rate in Words(Rs.)																
iii.	For DNH: Unit Rate in Words(Rs.)																
4	PS0679039325: Supply of 1600KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	ST	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		
i.	For KPCL: Unit Rate in Words(Rs.)																
ii.	For DIU: Unit Rate in Words(Rs.)																
iii.	For DNH: Unit Rate in Words(Rs.)																
5	PS0679041117: Supply of 1600KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-885	YES/NO	4	2	NA	NA	NA	2	NO.	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		
i.	For KPCL: Unit Rate in Words(Rs.)																
ii.	For DIU: Unit Rate in Words(Rs.)																
iii.	For DNH: Unit Rate in Words(Rs.)																
6	PS0679040773: Supply of 1600KVA/11 KV Transformer WT1 as per Tech Spec-PS-439-885	YES/NO	2	1	NA	NA	NA	1	NO.	KPCL						NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA		
										DAMAN	NA	NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH					NA		

20	SPARES FOR TRANSFORMER (SI No.20 to 31) PS0679040315:Supply of 1250KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
21	PS0679041214:Supply of 1250KVA/33 KV Transformer LV Bushings (6 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
22	PS0679041230: Supply of 1250KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
23	PS0679041125: Supply of 1250KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
24	PS0679040781: Supply of 1250KVA/33 KV Transformer WTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
25	PS0679040846: Supply of 1250KVA/33 KV Transformer OTI as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
26	PS0679040960: Supply of 1250KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
27	PS0679040900: Supply of 1250KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														

28	PS0679041028: Supply of 1250KVA/33 KV Transformer MOG as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
29	PS0679040722: Supply of 1250KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
30	PS0679040668: Supply of 1250KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
31	PS0679040293: Supply of 1250KVA/33 KV Transformer Oil as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	200	NA	L	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM				NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
32	PS0679039619: Commissioning Support of 3 winding Transformer as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM			NA	NA	
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
33	PS0679041397: Temperature Rise Test for 1250KVA/33 kV as per Tech Spec-PS-439-885	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM					
										DNH	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)														
FOR OPCL:															
83	PS0679039040: Supply for Transformer 1.6MVA/33 KV as per Tech Spec-PS-439-885	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
84	SPARES FOR TRANSFORMER (SI No.84 to 95) PS0679039422:Supply of 1600KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-885	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	

vi.	DADAR & NAGAR HAVELLI	YES/NO	Rs.							Included/Extra									
	For DNH: Unit Rate in Words(Rs.)																		
FOR 2 WINDING TRANSFORMER																			
34	For R C PURAM, HYDERABAD: PS0679039163: Supply for Transformer 630KVA/33 KV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
35	SPARES FOR TRANSFORMER (SI No.35 to 45) PS0679040331: Supply of 630KVA/33 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
36	PS0679041087: Supply of 630KVA/33 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
37	PS0679041265: Supply of 630KVA/33 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
38	PS0679041150: Supply of 630KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
39	PS0679040811: Supply of 630KVA/33 KV Transformer WT1 as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
40	PS0679040870: Supply of 630KVA/33 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					
										RC PURAM					NA				
i.	For RC PURAM: Unit Rate in Words(Rs.)																		
41	PS0679040994: Supply of 630KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra			
										DIU	NA	NA	NA	NA					
										OPCL	NA	NA	NA	NA					
										DAMAN	NA	NA	NA	NA					

											RC PURAM						NA
											DNH	NA	NA	NA	NA	NA	NA
i.	For RC PURAM: Unit Rate in Words(Rs.)																
42	PS0679040935: Supply of 630KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	ST	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM						NA	
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
43	PS0679041052: Supply of 630KVA/33 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	NO.	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM						NA	
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
44	PS0679040757: Supply of 630KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM						NA	
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
45	PS0679040692: Supply of 630KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	2	NA	NO.	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM						NA	
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
46	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM		NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
47	PS0679041435: Temperature Rise Test for 630KVA/33 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	1	NA	AU	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM							
										DNH	NA	NA	NA	NA	NA	NA	
i.	For RC PURAM: Unit Rate in Words(Rs.)																
FOR DIU & DADAR & NAGAR HAVELLI:																	
48	For DIU & DADAR & NAGAR HAVELLI: PS0679039058: Supply for Transformer 800 KVA/11 KV as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
										DIU						NA	
										OPCL	NA	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	NA	
										DNH						NA	
i.	For DIU: Unit Rate in Words(Rs.)																
ii.	For DNH: Unit Rate in Words(Rs.)																
	SPARES FOR TRANSFORMER (SI No.49 to 59)									KPCL	NA	NA	NA	NA	NA	NA	
										DIU						NA	

49	PS0679041184:Supply of 800 KVA/11 KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST	OPCL	NA	NA	NA	NA	NA	Taxes Extra
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
50	PS0679041079:Supply of 800 KVA/11 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
51	PS0679041257: Supply of 800 KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
52	PS0679041141: Supply of 800 KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
53	PS0679040803: Supply of 800 KVA/11 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
54	PS0679040862: Supply of 800 KVA/11 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
55	PS0679040986: Supply of 800 KVA/11 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
56	PS0679040927: Supply of 800 KVA/11 KV Transformer Cables of all types as per Tech Spec-	YES/NO	NA	1	NA	NA	NA	1	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	

56	Transformer baskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO	DAMAN	NA	NA	NA	NA	NA	Taxes Extra
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
57	PS0679041044: Supply of 800 KVA/11 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	NO	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
58	PS0679040749: Supply of 800 KVA/11 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
59	PS0679040684: Supply of 800 KVA/11 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	2	NA	NA	NA	2	NO	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU					NA	
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH					NA	
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
60	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	1	NA	NA	NA	1	AU	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU		NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH		NA	NA	NA		
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
61	PS0679039589: Post Warranty Breakdown Maintenance of 2 winding Transformer (4th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU		NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH		NA	NA	NA		
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
62	PS0679039597: Post Warranty Breakdown Maintenance of 3 winding Transformer (5th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU		NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	NA	
										DNH		NA	NA	NA		
i.	For DIU: Unit Rate in Words(Rs.)															
ii.	For DNH: Unit Rate in Words(Rs.)															
63	PS0679039600: Post Warranty Breakdown Maintenance of 3 winding Transformer (6th year) as per Tech Spec-PS-439-887	YES/NO	NA	3	NA	NA	NA	3	AU	KPCL	NA	NA	NA	NA	NA	Taxes Extra
										DIU		NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA	
										DAMAN	NA	NA	NA	NA	NA	

											RC PURAM	NA	NA	NA	NA	NA	
											DNH		NA	NA	NA		
i.	For DIU: Unit Rate in Words(Rs.)																
ii.	For DNH: Unit Rate in Words(Rs.)																
64	PS0679041400:Temperature Rise Test for 800KVA/11 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	NA	NA	1	AU	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU		NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN		NA	NA	NA	NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH		NA	NA	NA			
i.	For DIU: Unit Rate in Words(Rs.)																
ii.	For DNH: Unit Rate in Words(Rs.)																
FOR DAMAN:																	
65	For DAMAN: PS0679039074: Supply for Transformer 630KVA/11 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																
66	SPARES FOR TRANSFORMER (SI No.66 to 77) PS0679041192:Supply of 630KVA/11KV Transformer HV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																
67	PS0679041095:Supply of 630KVA/11 KV Transformer LV Bushings (3 Nos.) as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																
68	PS0679041273: Supply of 630KVA/11 KV Transformer Isolating Valves as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																
69	PS0679041168: Supply of 630KVA/11 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																
70	PS0679040820: Supply of 630KVA/11 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	NA	Taxes Extra	
										DIU	NA	NA	NA	NA	NA		
										OPCL	NA	NA	NA	NA	NA		
										DAMAN					NA		
										RC PURAM	NA	NA	NA	NA	NA		
										DNH	NA	NA	NA	NA	NA		
i.	For DAMAN: Unit Rate in Words(Rs.)																

71	PS0679040889: Supply of 630KVA/11 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
72	PS0679041001: Supply of 630KVA/11 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
73	PS0679040943: Supply of 630KVA/11 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
74	PS0679041060: Supply of 630KVA/11 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	1	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
75	PS0679040765: Supply of 630KVA/11 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
76	PS0679040706: Supply of 630KVA/11 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
77	PS0679040307: Supply of 630KVA/11 KV Transformer Oil as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	200	NA	NA	L	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For DAMAN: Unit Rate in Words(Rs.)														
78	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	NA	2	NA	NA	AU	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL	NA	NA	NA	NA	
										DAMAN				NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	

102	PS0679041133: Supply of 800 KVA/33 KV Transformer PRD with trip contacts as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
103	PS0679040790: Supply of 800 KVA/33 KV Transformer WTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
104	PS0679040854: Supply of 800 KVA/33 KV Transformer OTI as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
105	PS0679040978: Supply of 800 KVA/33 KV Transformer Buchholz Relay as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
106	PS0679040919: Supply of 800 KVA/33 KV Transformer Gaskets of all types as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	ST	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
107	PS0679041036: Supply of 800 KVA/33 KV Transformer MOG as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
108	PS0679040730: Supply of 800 KVA/33 KV Transformer Silica Gel Breather as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)														
109	PS0679040676: Supply of 800 KVA/33 KV Transformer explosion Vent Diaphragm as per Tech Spec-PS-439-887	YES/NO	NA	NA	2	NA	NA	NA	NO.	KPCL	NA	NA	NA	NA	Taxes Extra
										DIU	NA	NA	NA	NA	
										OPCL				NA	
										DAMAN	NA	NA	NA	NA	
										RC PURAM	NA	NA	NA	NA	
										DNH	NA	NA	NA	NA	

i.	For OPCL: Unit Rate in Words(Rs.)																	
110	PS0679039627: Commissioning Support of 2 winding Transformer as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	NA	NA	
											OPCL							
											DAMAN	NA	NA	NA	NA	NA	NA	
											RC PURAM	NA	NA	NA	NA	NA	NA	
											DNH	NA	NA	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)																	
111	PS0679041419:Temperature Rise Test for 800KVA/33 kV as per Tech Spec-PS-439-887	YES/NO	NA	NA	1	NA	NA	NA	NA	AU	KPCL	NA	NA	NA	NA	NA	NA	Taxes Extra
											DIU	NA	NA	NA	NA	NA	NA	
											OPCL							
											DAMAN	NA	NA	NA	NA	NA	NA	
											RC PURAM	NA	NA	NA	NA	NA	NA	
											DNH	NA	NA	NA	NA	NA	NA	
i.	For OPCL: Unit Rate in Words(Rs.)																	
112	**Freight Charge including Service Tax on Freight(12.36% on 25% of Freight Value)																	
i.	KPCL	NOT APPLICABLE																Included/Extra
	For KPCL: Unit Rate in Words(Rs.)																	
ii.	DIU	YES/NO	Rs.															Included/Extra
	For DIU: Unit Rate in Words(Rs.)																	
iii.	OPCL	YES/NO	Rs.															Included/Extra
	For OPCL: Unit Rate in Words(Rs.)																	
iv.	DAMAN	YES/NO	Rs.														NA	Included/Extra
	For DAMAN: Unit Rate in Words(Rs.)																	
v.	RC PURAM	YES/NO	Rs.															Included/Extra
	For RC PURAM: Unit Rate in Words(Rs.)																	
vi.	DADAR & NAGAR HAVELLI	YES/NO	Rs.															Included/Extra
	For DNH: Unit Rate in Words(Rs.)																	
113	**Insurance																	
i.	KPCL	NOT APPLICABLE																Included/Extra
	For KPCL: Unit Rate in Words(Rs.)																	
ii.	DIU	YES/NO	Rs.															Included/Extra
	For DIU: Unit Rate in Words(Rs.)																	
iii.	OPCL	YES/NO	Rs.															Included/Extra
	For OPCL: Unit Rate in Words(Rs.)																	
iv.	DAMAN	YES/NO	Rs.														NA	Included/Extra
	For DAMAN: Unit Rate in Words(Rs.)																	
v.	RC PURAM	YES/NO	Rs.															Included/Extra
	For RC PURAM: Unit Rate in Words(Rs.)																	
vi.	DADAR & NAGAR HAVELLI	YES/NO	Rs.															Included/Extra
	For DNH: Unit Rate in Words(Rs.)																	

**NOTE: ALL THE 2 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 2 Winding Transformer is 6 Nos.)-For DIU, DNH, DAMAN, OPCL & RC PURAM-PS-439-887
ALL THE 3 WINDING TRANSFORMER WILL BE PROCURED FROM SINGLE VENDOR ONLY. (Total Nos of 3 Winding Transformer is 15 Nos.)-For KPCL,OPCL,DIU, DNH & RC PURAM-PS-439-885**

1.YOUR QUOTED PRICES SHALL BE on "FREE ON ROAD" basis to RESPECTIVE SITE basis.

2.PL INDICATE TAXES : ED,VAT/CST,SERVICE TAX CLEARLY APPLICABLE AS ON DATE.

3.USE THIS FORMAT FOR COMPLIANCE(REPRODUCING ON YOUR LETTER HEAD IS ACCEPTABLE).

4. FOR SL NOS 1 - 111, TAXES WILL BE CONSIDERED EXTRA.PLEASE QUOTE ONLY THE BASIC RATES.

5.**INDICATE WHETHER FREIGHT CHARGE & INSURANCE CHARGE IS INCLUDED IN QUOTED RATE OR WILL BE CHARGED EXTRA.

IN ABSENCE OF CLARITY, QUOTED RATE WILL BE CONSIDERED AS INCLUSIVE OF FREIGHT & INSURANCE CHARGES.(If the offer contains the Freight Value at actuals, it will be considered as All Inclusive).If Freight is quoted extra, original money receipt from Transporter has to be submitted for payment of freight.

6.BHEL IS TRYING TO GET CONCESSION ON EXCISE DUTY UNDER SUPPLY OF SOLAR POWER PROJECT.AT THE TIME OF CLEARANCE OF GOODS WE MAY ISSUE EXEMPTION CERTIFICATE.IN SUCH CASE, ED WILL BE EXEMPTED BUT NOT REIMBURSED. At present, please quote with applicable rate without concession of ED for comparison.

7. Overall L1 of all the sites for 2 Winding & 3 Winding Transformers (Supply+Commissioning+Temperature Rise Test+PWBDM, as applicable+Freight+Insurance) will be considered. All the 2 Winding Transformers will be procured from one Vendor only & all the 3 Winding Transformers will be procured from one Vendor only.

8. For R C PURAM, HYDERABAD:Two options shall be quoted with respect to Taxation only:

1. BHEL EDN, Bangalore will release formal Purchase Order & arrange payment with Non-concessional CST(VAT of Material Originating State.)-As C Form will not be issued.

2. BHEL EDN, Bangalore will issue Letter of Intent(LOI) & BHEL RC Puram, Hyderabad will release formal PO & arrange payment with 2% CST against Form C.

AUTHORISED SIGNATORY WITH SEAL



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Technical specification



for

Outdoor, Oil-immersion, 2-winding Transformer (Inverter Duty)

for

Solar Photovoltaic Grid-connected Power plant

Approved by:

Revision details :R 00	Prepared	Issued	Date
	VJ 	PR 	03-07-14



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1.0 INTRODUCTION

Bharat Heavy Electricals Limited (BHEL), Electronics Division, Bangalore is setting up Solar PV Grid-connected plants for its customers.

This document details the technical specifications, supply conditions, erection and commissioning and post-commissioning requirements for required transformers.

For project specific details please see annexure A.

1.1 PRE-QUALIFICATION CRITERIA

1.1.1) Vendor should have supplied Inverter Duty Transformers – 3 phase, 2 or more windings, oil-immersion (ONAN) type of individual transformer rating 630 KVA or above and a minimum cumulative supply of 5 MVA in the last 3 years.

Vendor shall submit evidence for the same in the form of completion certificate from the end user along with copies of Purchase Orders.

1.1.2) Transformers must be manufactured in INDIA. Address details of the manufacturing works shall be submitted along with technical offer.

2.0 SCOPE FOR VENDOR

2.1	Transformer as per annexure A, for Rating and Quantity of transformer(s) to be supplied –project wise.	Vendor shall quote unit price.
2.2	<p>Vendor shall provide assistance / supervision support at the time of Installation of the transformers at the project site. Accordingly, vendor shall depute I&C / service engineer to the site.</p> <p>The scope of support shall include supervisory guidance and assistance in following installation activities:</p> <ul style="list-style-type: none">a) Assembly of transformer parts: Cable boxes, radiators, bus bars, etc.b) Filling / topping-up of transformer oil in transformers.c) Pre-commissioning checks such as HV megger checks and other electrical inspection checks. <p>In addition, presence of service person at the site is required during</p>	Vendor shall express compliance.



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	<p>commissioning of plant to ensure that any technical problems encountered with transformer is attended to and resolved immediately.</p> <p>A single lump-sum price on 'per project' basis shall be indicated.</p>	<p>Vendor shall quote a lump-sum price per project</p>
2.3	<p>Warranty</p> <p>Vendor shall provide warranty for 36 months from the date of commissioning or 42 months from the date of supply, whichever is earlier</p>	<p>Vendor shall express compliance</p>
2.4	<p>Post-warranty breakdown maintenance call</p> <p>In case of breakdown of installed transformer(s) after warranty period, vendor shall attend to the transformer on call basis. For each project, a total of 3 calls per year shall be expected for a total period of 3 years after warranty period.</p> <p>A single lump-sum price shall be indicated per breakdown maintenance call. In addition to visit charges, this price shall include boarding, lodging and transport charges.</p>	<p>Vendor shall express compliance.</p> <p>Vendor shall quote a lump-sum price per breakdown call.</p>
2.5	<p>Spares as per Annexure-B</p>	<p>Vendor shall express compliance.</p> <p>Vendor shall quote item-wise price for spares.</p>

3.0 INSTRUCTIONS FOR BID SUBMISSION

3.1	<p>Offer shall be submitted in two-parts (Two part-bid).</p> <p>Both parts shall be in separate sealed envelopes as per instructions in tender.</p> <p>The individual envelopes shall be enclosed in a common envelope with markings (address, etc) on the envelope as per instructions in tender.</p>
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3.2 (i)	<p>First-part shall be techno-commercial bid with following details::</p> <p>(a) List of installations of 2 winding Inverter Duty oil-filled transformers of 630 KVA and above in the last three years. Client name, transformer type & rating, number of transformers installed and year of installation shall be provided for each case.</p> <p>(b) At least one certificate of commissioning and satisfactory performance of transformer 630 KVA or above from customer.</p> <p>(c) Type Test Certificates for similar type of transformer as per details in Clause 8.0 “Other type tests”</p> <p>(d) Technical offer comprising of:</p> <ul style="list-style-type: none">• Filled-up enclosures as per BHEL formats provided in the tender.• Clause-wise compliance shall be filled-up in the column provided in this specification.• Product brochure / catalogue especially of oil-immersion transformers.• General arrangement showing overall dimensions (length, width, height), oil quantity in liters and approximate total weight.• Rating plate details. <p>(e) List of spares offered (with quantity) and without prices.</p>
3.3	<p>Second part shall be price bid with filled up enclosures as per BHEL format provided in the tender. Spares shall be quoted separately with unit price and quantity for each component.</p>
3.4	<p>In addition to the above instructions, tender document provides detailed instructions for bid submission. Vendor shall submit the bid based on instructions in tender document.</p>



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4.0 Technical specification

#	Technical parameter	BHEL specification	Vendor compliance. Yes / No In case of non-compliance or deviations, vendors shall provide their comments.
1	Transformer type	Outdoor, oil-immersion type	
2	Inverter Duty Transformer	Transformer shall be capable of handling non-sinusoidal voltages. These voltages occur due to pulsed operation of Inverter output of which is connected to the LV winding of transformer.	
3	IP class	Transformer, including the cable box and marshalling box shall be of IP55. Transformer will be placed directly under sunlight without any shelter or shade. Hence, the significance for IP55 class.	
4	Type of cooling	ONAN	
5	Governing Standard	IS: 2026, IS:335, CBIP Manual and other relevant IS Standards	
6	Rating in KVA	As per Annexure- A	
7	No. of phases	3	
8	Frequency	50 Hz, +/- 3%	
9	HV winding	One 3-phase winding with Delta connection. HV voltage applicable for each project: As per Annexure A	



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10	LV windings	One 3-phase winding with Star connection. LV voltage will be a value between 270V and 385V (Refer Annex A). Exact value will be intimated to the vendor prior to opening the price bid.	
11	LV Neutral	Neutral terminal of LV winding shall be brought out separately through bushing.	
12	Winding material	Electrolytic grade copper for both HV and LV windings.	
13	Winding Insulation	Class A	
14	Vector Group	Dyn11	
15	Short circuit withstand capacity for 2 secs	---- kA for 2 sec (Vendor to indicate value).	
16	% Impedance at principal tap at 75°C	6.5 %	
17	Termination HV/LV/Orientation	Air insulated cable box with disconnecting chamber, for both HV and LV sides. Cable box / Cable box / 180°.	
18	Cable entry on HV side	Bottom entry of cables. Cable, cable lugs and glands shall be in the scope of BHEL. Vendor shall provide undrilled gland-plate on the bottom side of HV side cable box for cable entry.	
19	Cable entry on LV side	Bottom entry of cables. Cable, cable lugs and glands shall be in the scope of BHEL Cable size: 3 Runs x 1C x 300 sq.mm	



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		<p>per phase, aluminum conductor, armoured, PVC insulation, PVC sheath as per IS: 7098 shall be used.</p> <p>Similarly, vendor shall provide necessary holes in the bus bars as per BHEL instruction which will be provided at the time of manufacturing.</p> <p>Cables shall enter the cable box straight upwards and get connected to the bus bars. After entry into cable box, cables shall not undergo any bends or turns.</p>	
20	Tapping on HV winding	Off circuit tap changer (OCTC) switch with five tap positions: +5%, +2.5%, 0, -2.5%, -5%.	
21	Loading Capability	Continuous operation at rated MVA on any tap with voltage variation of +/- 10%. Transformer shall be capable of being loaded in accordance with IS: 6600 / IEC 60076-7.	
22	Ambient temperature	Max 50 deg C	
23	Temperature rise	For top oil: Max. 50 deg C by thermometer method. For winding: Max. 55 deg C, by resistance method. Both rises shall be over an ambient temperature of 50 deg C irrespective of tap position.	



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24	Flux density	Not to exceed 1.9 Wb/sq.m at any tap position with +/-10% voltage variation from voltage corresponding to the tap. Transformer shall also withstand following over-fluxing conditions due to combined voltage and frequency fluctuations: a) 110% for continuous rating b) 125% for at least one minute c) 140% for at least five seconds Vendor shall furnish over-fluxing characteristics up to 150%	
25	Current Density	3.0 Amps / sq.mm (max)	
26	Air Clearance	As per CBIP	
27	Load loss principal tap at 75 ^o C, with IS tolerance	This shall be provided by vendor.	
28	No Load loss at rated voltage on principal tapping and at rated frequency, with IS tolerance	This shall be provided by vendor.	
29	No load current at rated voltage and rated frequency	This shall be provided by vendor. To be indicated as percentage.	
30	Efficiency at 75 ^o C, UPF	Minimum 98.5% at full load (100%). Efficiencies at 75% and 50% loads to be indicated by vendor.	
31	Regulation at full load, 75 °C	< 2 % for UPF For 0.8 PF lagging, to be indicated by vendor.	
32	Harmonics	Shall be designed to suppress harmonics especially 3 rd & 5 th .	
33	Vibration & noise	Noise level shall be according to NEMA TR-1 standard	



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34	Highest system voltage	LV side: 1.1 kV HV side: As per Annexure-A	
32	Insulation levels as per IS:2026 Rated Lightning Impulse withstand voltage / Short duration power frequency withstand voltage	As per IS 2026 / CBIP	
33	Overall dimensions in mm Length x Breadth x Height	This shall be provided by vendor.	
34	Oil capacity (in Litres)	This shall be provided by vendor.	
35	Weight of transformer in Kg	This shall be provided by vendor.	
36	Painting	Light Grey Shade 631 of IS:5	
37	Constructional features	As per clause 5.0 of this specification.	
38	Fittings and accessories	As per clause 5.10 of this specification	
39	Provision of shield	<p>The electrostatic screen (connected to earth), which shall be provided to ensure correct capacitance insulation between the HV and LV winding, shall be properly insulated.</p> <p>Further, the screen shall be securely fastened to ensure that no damage occurs while shipping, transit, or operation. The method and quality of earthing connection shall be accordingly appropriate. This shield will be earthed during service.</p> <p>Copper Screen shall be suitable to withstand a fault rating of 2.5kA for 1sec</p>	



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5.0 Constructional features and details of transformer components

5.0.1	<p>Transformer shall be constructed in accordance with IS: 2026 and IS: 3639.</p> <p>All materials / components used shall be of best quality and class most suitable for working under the conditions specified.</p>	
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5.1 Tank

5.1.1	<p>The transformer tank and cover shall be fabricated from high grade low carbon plate steel of tested quality. The tank and cover shall be of welded construction and there should be provision for lifting by crane.</p>	
5.1.2	<p>Suitable inspection hole(s) with welded flange(s) and bolted cover(s) shall be provided on the tank cover. The inspection hole(s) shall be sufficient size to allow easy access to the lower ends of the bushings, terminals etc.</p>	
5.1.3	<p>The exterior of tank and other steel surfaces exposed to the weather shall be thoroughly cleaned and have a priming coat of zinc chromate applied. The second coat shall be of an oil and weather-resistant nature, preferably of distinct colour from the prime and finish coats. The final coat shall be of a glossy, oil and weather resistant non-fading paint of specified shade.</p>	
5.1.4	<p>The interior of the tank shall be cleaned by sand blasting and painted with two coats of heat resistant and oil insoluble paint.</p>	
5.1.5	<p>Steel bolts and nuts exposed to atmosphere shall be galvanized. All bolted connections to the tank shall be fitted with suitable oil-tight gaskets that shall give satisfactory service under the operating conditions for complete life of the transformer, if not opened for maintenance at site.</p>	
5.1.6	<p>The tank together with radiators, conservator, bushings and other fittings shall be designed to withstand the following conditions without permanent distortion:</p> <p>(i) Full vacuum of 760 mm of Hg, for filling with oil by vacuum. Internal gas pressure of 0.35 Kg/cm² (5 lbs/sq.in) with oil as at operating level.</p> <p>(ii) The transformer shall have conservator tank of adequate</p>	



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	<p>capacity to accommodate oil preservation system and volumetric expansion of total transformer oil. The conservator shall be bolted into position so that it can be removed for cleaning purposes.</p> <p>(iii) The conservator shall be of single compartment type. The top of the conservator shall be connected to the atmosphere through a transparent type silica gel breather.</p> <p>(iv) The tank cover shall be suitably sloped so that it does not retain rain water. The material used for gaskets shall be cork, neoprene or approved equivalent.</p>	
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5.2 Core

5.2.1	The magnetic circuit shall be of core type. The core shall be constructed from non-ageing, cold rolled, super grain oriented silicon steel laminations (CRGOS) equivalent to M4 grade steels or better.	
5.2.2	The insulation structure of the core to clamp plates shall be such that it withstands a voltage of 2kV (rms) for one minute in air.	
5.2.3	Adequate lifting lugs will be provided to enable the core & windings to be lifted.	



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5.3 Windings

5.3.1	Windings shall be of electrolytic grade copper free from scales and burrs.	
5.3.2	Windings shall be subjected to a shrinking and seasoning process so that no further shrinkage occurs during service.	
5.3.3	Windings shall have uniform insulation.	
5.3.4	Tapping shall be so arranged as to preserve the magnetic balance of the transformer at all voltage ratios.	
5.3.5	The completed core and coil assembly shall be dried in vacuum and shall be immediately impregnated with oil after the drying process to ensure elimination of air and moisture within the insulation.	
5.3.6	Windings shall be made in dust proof and conditioned atmosphere.	

5.4 Internal earthing

5.4.1	The frame work and clamping arrangements of core and coil shall be securely earthed inside the tank by copper strip connection to the tank.	
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5.5 Bushings

5.5.1	Bushings shall be designed and tested to comply with the applicable standards. If type test certificates are not available, these tests shall also be carried out in addition to the routine tests. Bushings rated for 400A and above shall have non-ferrous flanges and hardware. Bushings shall be supplied with terminal connector clamp suitable for connecting the cables.	
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5.6 Cables boxes and disconnecting chambers

5.6.1	Cable boxes shall be supplied with undrilled gland plates.	
5.6.2	Cable boxes / disconnecting chambers shall be provided with body earth terminals.	
5.6.3	LV cable boxes shall be provided with necessary LV bushings, bus bars, bus bar supports for making cable terminations.	
5.6.4	HV cable boxes shall be provided with necessary HV bushings and terminals for making cable terminations.	
5.6.5	Cable boxes shall be provided with suitable gaskets to ensure the specified protection class requirement (IP55).	
5.6.6	Cable boxes / disconnecting chambers shall be provided with necessary arrangements to prevent entry of rain water into the same.	
5.6.7	Disconnecting chambers: (1) Disconnecting chambers shall be provided to enable the transformer to be removed without unsealing the cables or draining oil from the main tank. (2) Disconnecting chamber shall be air insulated and complete with seal-off bushings, removable flexible connectors / links and removable covers. (3) Phase-to-phase and Phase-to-ground clearances within the chamber shall be such as to enable either the transformer or cable to be subject separately to HV tests. Clearances shall be subject to BHEL approval.	



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5.7 Neutral bushing

5.7.1	<p>The neutral of the star-connected LV winding shall be brought out to separate bushing terminals.</p> <p>The neutral bushing shall be provided on the tank at such a location that facilitates connecting earth conductor down to the ground level.</p> <p>Tank-mounted pin-type support insulators shall be provided for supporting the neutral earthing bar of specified section, along its run from the neutral bushing to ground level.</p>	
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5.8 Marshalling box

5.8.1	<p>Vendor shall provide a marshalling box and marshal to it all the contacts / terminals of electrical devices mounted on the transformer.</p>	
5.8.2	<p>It shall be in the vendor scope to provide the interconnection cabling between the marshalling box and all the accessory devices of transformer by either PVC insulated unarmoured cables routed through GI conduit (or) PVC insulated, armoured cables.</p>	
5.8.3	<p>Necessary cable glands shall be provided at the marshalling box for the above mentioned cables as well as for terminating the incoming cables from remote panels.</p>	
5.8.4	<p>Marshalling box shall be tank mounted, outdoor and weather/vermin/dust proof (protection class IP55), sheet-steel (2mm thick minimum) enclosure, with hinged door having padlocking facility and painted. All doors, covers and plates shall be fitted with neoprene gaskets. Bottom shall be at least 1600 mm above floor level and provided with gland plate and cable glands as required. Top surface shall be sloped to drain off water falling on the box.</p>	



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5.9 Transformer oil

5.9.1	Transformers shall be supplied complete with transformer oil. The new insulating oil before pouring into the transformer shall conform to the requirement of IS:335. No inhibitors shall be used in the oil. The oil samples taken from the transformer at site shall conform to requirements of IS:1866.	
5.9.2	10% extra oil, in non-returnable sealed containers, shall be sent along with main consignment to avoid any shortage of oil at the time of topping up of oil at the site. This oil quantity shall be over and above the specified mandatory spares requirement.	

5.10 Fittings and accessories

Following fittings per transformer shall be provided. Vendor shall indicate compliance (Yes / No) for each line item. In case of non-compliance or deviation, vendor shall indicate and provide comments.

#	Nomenclature of fitting / accessory	Qty	Vendor compliance
1	Oil conservator with equalizer pipe	1 set	
2	HV cable box	1 set	
3	HV disconnecting chamber	1 set	
4	LV cable box	1 set	
5	LV disconnecting chamber	1 set	
6	Off circuit tap changing switch (OCTC) with operating knob, tap position marking and locking facility, with warning plate "Tap switch to be operated only with the transformer de-energized"	1 set	
7	Neutral bushing for earthing of LV winding	1 No	
8	Earthing terminals with hardware suitable for connecting 50x6 GI earth strips. Separate terminals shall be provided for cable boxes, tank etc.	1 set	
9	Radiators (detachable type) with drain valve at the bottom, relief valve at the top, air plug, shut-off valves at every point of connection to the tank and lifting lugs.	4 sets	
10	Double float Buchholz relay with alarm and trip contact. The relay shall be provided with a air release test cock suitable for a flexible pipe connection for checking its operation. Buchholz relay shall be provided with 2 nos. shut-off valves (one each on conservator side and tank side) of size 50 mm.	1 set	



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11	Provision for collecting gas and oil from Buchholz relay (oil and gas sampling device)	1 set	
12	Silica gel dehydrating breather with oil cup	1 set	
13	Magnetic oil level gauge (MOG), dial type, with alarm contact, minimum and maximum filling level markings. Contact shall be suitable for 110V/220V DC as per project specific DC voltage available (Refer Annexure-A for details) . The oil level at 30 deg C shall be marked on the gauge.	1 set	
14	Prismatic / toughened glass oil level gauge for transformer and tap changer chamber with min and max markings.	1 set	
15	Spring operated Pressure relief valve with alarm/trip contacts. Location of this valve shall be such that the hot oil discharge shall not fall on the transformer or any of its parts. This shall include all necessary arrangements to facilitate proper discharge of PRV through pipes away from the transformer.	2 sets	
16	Explosion vent (double diaphragm) with sight glasses and equalizing pipe connection to conservator	1 set	
17	Thermometer pocket for OTI	1 No	
18	Temperature sensor for OTI	1 No	
19	Thermometer pocket for WTI	1 No	
20	CT for WTI	1 No	
21	Oil temperature indicator, 150 mm dial type, with alarm and trip contacts, maximum reading pointer & resetting device. Oil temperature range: 0 to 150 deg C (resolution 1 deg C) Oil temperature accuracy: +/- 2 deg C RTD PT-100 temperature sensor for OTI (IEC 751). Two analog outputs of 4-20mA for remote indication of OTI.	1 No	
22	Winding temperature indicator, 150-mm dial type, with alarm and trip contacts, maximum reading pointer & resetting device. Winding temperature range:0 to 150 deg C(resolution 1 deg C) Winding temperature accuracy: +/- 2 deg C Two analog outputs of 4-20mA for remote indication of WTI.	1 No	
23	Marshalling box (IP55) shall be provided with removable gland plates and glands for cable entry from bottom side. Marshalling box shall be provided with OTI, WTI, transmitters (for 4-20mA output of OTI and WTI), space heater, thermostat, lamp, MCBs, power socket, switch for WTI, terminal	1 set	



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	<p>connectors and all other attachments that are necessary to meet its functional aspects. Terminal connectors for the following signals / connections shall be made available. Number of terminal connectors for each case shall be as per connection requirements: PT-100 sensor from thermometer pocket</p> <ol style="list-style-type: none">1) 4-20mA output for OTI2) 4-20mA output for WTI3) WTI CT secondary4) Alarm contact of WTI5) Trip contact of WTI6) Alarm contact of OTI7) Trip contact of OTI8) Buchholz relay alarm9) Buchholz relay trip10) Magnetic oil level gauge alarm11) Pressure relief valve alarm12) 90-260V DC power supply (external source)13) 240V AC supply (external source)14) Spare connectors: Eight terminals <p>Note: Alarm and trip contacts shall be rated for 110/220V DC as per project specific DC Voltage available (Refer Annexure-A for details).</p>		
24	Inspection window with cover	1 set	
25	Cover lifting lugs / eyes	2 Nos	
26	Core and winding lifting lugs / eyes	2 Nos	
27	Tank lifting lugs / eyes for the entire transformer	2 Nos	
28	Jacking pad with hauling eyes, to enable transformer with oil to be raised or lowered using hydraulic or screw jacks.	4 sets	
29	LV cable box supports with mounting plates	2 sets	
30	HV cable box supports with mounting plates	2 sets	
31	Bi-directional flat rollers	4 sets	
32	Base channel with towing holes / lugs	2 sets	
33	Air release hole with plug	1 No	
34	Oil filling hole with cap	1 No	
35	Top filter valve with threaded male adapter (blanking plug)	1 No	
36	Bottom filter valve with threaded male adapter (blanking plug)	1 No	
37	Drain valve for the tank, with blanking plug	1 No	



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38	Drain valve for conservator, with blanking plug	1 No	
39	Shut-off valves for conservator	2 Nos	
40	Sampling valve, with blanking plug	1 No	
41	Shut-off valves for radiators, with open and close markings	8 Nos	
42	Sludge valve at bottom most point of tank to be provided for easy flush out / removal of sludge during maintenance	1 No	
43	Valve schedule plate made of stainless steel or aluminium (anodized)	1 No	
44	Rating and diagram plates made of stainless steel or anodized aluminium.	1 No	
45	Terminal marking plates	1 Set	
46	Protected type Mercury or alcohol in glass thermometer	1 No	

6.0 Inspection and testing of transformers at vendor works

6.1	Vendor shall provide inspection call to BHEL for the type and routine tests.	Vendor compliance. Yes / No
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7.0 Routine tests

7.1	All routine tests as per IS 2026 shall be carried out on 100% basis. These tests shall also necessarily include the tests listed below (if not already included under Routine Tests of IS 2026): 1) Measurement of voltage ratio and phase displacement 2) Measurement of winding resistance on all the taps 3) Vector group check 4) Polarity check 5) Magnetic balance and magnetizing current test 6) Measurement of no-load current with 415V, 50Hz AC supply 7) Measurement of no-load losses and current at 90%, 100% and 110% of rated voltage 8) Measurement of impedance voltage / short-circuit impedance, load loss on principal and extreme taps 9) Measurement of insulation resistance 10) Dielectric tests - Separate source voltage withstand test 11) Repeating the no-load current, no-load loss and IR measurements after completion of all the dielectric tests	Vendor compliance. Yes / No
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	<p>12) Oil leakage test on completely assembled transformer along with unit coolers / radiators: All tank and oil filled compartment shall be tested for oil tightness by being completely filled with oil of viscosity not greater than that of specified oil at the ambient temperature and applying pressure equal to the normal pressure plus 35 kN/sq-m measured at the base of the tank. The pressure shall be maintained for a period of not less than 6 hours during which time no sweating shall occur. This test shall be repeated as pre-commissioning test at site with test duration of 24 hours.</p> <p>13) Jacking test followed by DP test</p> <p>14) Frequency Response Analysis test</p> <p>15) Marshalling box / Cable box: IP Class test (IP55): It shall not be possible to insert a thin sheet of paper under gaskets and through enclosure joints.</p> <p>16) IR measurement on wiring of Marshalling Box.</p> <p>17) BDV test on oil as per IS:335-1993: Test certificate shall be submitted to BHEL.</p> <p>18) Capacitance and tan delta test</p> <p>BHEL / BHEL customer shall witness these tests at vendor works.</p>	
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8.0 Type Tests

<p>8.1</p>	<p>Temperature rise test as per IS: 2026 (Type test on 1 No. of transformer)</p> <p>This test shall be performed as a type test on one sample of transformer. This is a mandatory test and shall be witnessed by BHEL. In case extra charges are required, the same shall be indicated separately in the offer on per-transformer basis. Offers that do not include this specific type test are liable for rejection.</p> <p>This temperature rise test shall be carried out at a tap corresponding to maximum losses as per IS: 2026.</p> <p>Gas chromatography shall be conducted, as per relevant standard, on oil sample taken before and immediately after temperature rise test. Test report shall be furnished to BHEL.</p>	<p>Vendor compliance.</p> <p>Yes / No</p>
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8.2	Other type tests	Vendor compliance.
	List of other type tests is as below. In case the vendor has conducted the type test(s) on Inverter duty transformer of identical rating and type within last 5 years as on the date of technical bid opening, report(s) of the type test(s) shall be submitted to BHEL for waiver of conducting those particular type tests. Such report(s) should be for the test(s) conducted on transformer that is identical to this present specification. Also, the test(s) should have been either conducted at an independent laboratory (or) should have been witnessed by a client. In case the vendor is not able to submit report(s) of the type test(s) conducted within last 5 years from the date of technical bid opening (or) in case the type test reports are not found to be meeting the specification requirements, the vendor shall conduct the type test(s) as per applicable standards at no additional cost to BHEL and the type test reports shall be submitted to BHEL for approval.	Yes / No
8.2.1	Tank vacuum and pressure test as per CBIP norms. (In process inspection)	
8.2.2	Zero sequence impedance measurement test	
8.2.3	Measurement of harmonics of no load current	
8.2.4	Measurement of acoustic noise level as per NEMA TR-1	
8.2.5	Lightning impulse (full & chopped wave) test on HV & LV windings	

9.0 Documents to be submitted after receipt of purchase order

9.1	Following documents shall be submitted for BHEL approval within seven days from date of purchase order. (1) Detailed transformer drawings for (a) Overall General Arrangement (plan, elevation, end view) with overall dimensions and bill of accessories. (b) Rating plate details (c) Valve schedule plate details with elevation and side view showing valve positions (d) HV cable box with disconnecting chamber, bushings, gland plate, cable termination details etc. (e) LV cable box with disconnecting chamber, bushings, gland plate, cable termination details etc. (f) Marshalling box GA (front view, side view, bill of items) and wiring diagram	
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	<p>(g) Foundation plan (h) Bill of material of transformer (i) Untanking details (removal of core and assembly from tank)</p> <p>(2) Vendor shall submit the detailed Manufacturing Quality Plan (MQP) format for approval.</p> <p>(3) Guaranteed technical specification of transformer in line with Appendix-B (schedule of technical particulars to be furnished by manufacturer) of IS: 2026 (part-1)-1977.</p> <p>(4) Quality assurance plan (routine tests, type tests, test certificates) covering incoming materials, stage-wise inspection during manufacturing, finished goods, packing and forwarding. Witness by BHEL shall be included for stage inspection / final inspection as required.</p> <p>(5) Detailed Test Procedure for all routine, type and special tests.</p> <p>(6) Manufacturing clearance shall be subject to approval of the above documents by BHEL</p>	
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10.0 REFERENCE STANDARDS

10.1	Following shall be the list of standards to be adopted:																							
	<table border="1"><tr><td>Power Transformer</td><td>IS: 2026 IS: 6600 IEC: 60076</td></tr><tr><td>Fittings and Accessories</td><td>IS: 3639</td></tr><tr><td>Loading of oil immersed transformer</td><td>IS: 6600</td></tr><tr><td>Oil</td><td>IS: 335</td></tr><tr><td>Bushing for >1000 V AC</td><td>IS: 2099</td></tr><tr><td>Bushing for <1000 V AC</td><td>IS: 7421</td></tr><tr><td>Degree of protection</td><td>IS: 2147</td></tr><tr><td>Tests and tolerance of guaranteed particulars</td><td>IS: 2147</td></tr><tr><td>Buchholz relay</td><td>IS: 3637</td></tr><tr><td>Electrical insulation classified by thermal stability</td><td>IS: 1271</td></tr><tr><td>Climate proofing</td><td>IS: 3202</td></tr></table>	Power Transformer	IS: 2026 IS: 6600 IEC: 60076	Fittings and Accessories	IS: 3639	Loading of oil immersed transformer	IS: 6600	Oil	IS: 335	Bushing for >1000 V AC	IS: 2099	Bushing for <1000 V AC	IS: 7421	Degree of protection	IS: 2147	Tests and tolerance of guaranteed particulars	IS: 2147	Buchholz relay	IS: 3637	Electrical insulation classified by thermal stability	IS: 1271	Climate proofing	IS: 3202	
Power Transformer	IS: 2026 IS: 6600 IEC: 60076																							
Fittings and Accessories	IS: 3639																							
Loading of oil immersed transformer	IS: 6600																							
Oil	IS: 335																							
Bushing for >1000 V AC	IS: 2099																							
Bushing for <1000 V AC	IS: 7421																							
Degree of protection	IS: 2147																							
Tests and tolerance of guaranteed particulars	IS: 2147																							
Buchholz relay	IS: 3637																							
Electrical insulation classified by thermal stability	IS: 1271																							
Climate proofing	IS: 3202																							

ANNEXURE-A



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#	Linked to CI.No.	Technical parameter	Project Name				
			DIU (3MW)	DNH (3MW)	DAMAN (1MW)	OPCL (3.42MW)	BHEL-RC PURAM (1.5MW)
1	2.1	Rating and Quantity required of Outdoor, Oil-immersion type, ONAN, 3-phase, 2-winding Transformer	800 kVA, 1 no	800 kVA, 1 no	630 kVA 2 nos	800 kVA, 1 no	630 kVA, 1 no.
2	4.0	HV winding voltage	11KV	11KV	11KV	33KV	33kV
3	4.0	LV Winding voltage Exact value will be intimated to the vendor prior to opening the price bid	270V-385V	270V-385V	270V-385V	270V-385V	270V-385V
4	4.0	Highest System Voltage: LV side HV side	1.1 kV 12 kV	1.1 kV 12k V	1.1 kV 12 kV	1.1 kV 36 kV	1.1 kV 36 kV
5	4.0	Insulation level as per IS:2026 LV side Lightning Impulse (kVp) Power Frequency (kVrms)	-- 3 kV	-- 3 kV	-- 3 kV	-- 3 kV	-- 3 kV
6	4.0	Insulation level as per IS:2026 HV side Lightning Impulse (kVp) Power Frequency (kVrms)	75 28	75 28	75 28	170 70	170 70



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#	Cl.No.	Technical parameter	Project Name				
			DIU (3MW)	DNH (3MW)	DAMAN (1MW)	OPCL (3.42MW)	BHEL-RC PURAM (1.5MW)
7	5.10	DC Voltage available	110V DC	110V DC	110V DC	110V DC	110V DC
8		LV Bushing rating (Vendor to indicate)					
9		HV Bushing rating (Vendor to indicate)					



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ANNEXURE-B

(SPARES)

	Item description	QUANTITY					BHEL-RC PURAM
		DIU	DNH	DAMAN	OPCL		
1	HV Bushings with metal parts and gaskets	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	
2	LV Bushings with metal parts and gaskets	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	1 set (3 Nos)	
3	Isolating valves of all types	1 Set	1 set	1 set	1 set	1 set	
4	Pressure Relief Device with trip contacts	2 Nos	2 Nos	2 Nos	2 Nos	2 Nos	
5	Winding temperature indicator with alarm & trip contacts	1 No	1 No	1 No	1 No	1 No	
6	Oil temperature indicator with alarm & trip contacts	1 No	1 No	1 No	1 No	1 No	
7	Buchholz Relay (complete unit)	1 No	1 No	1 No	1 No	1 No	
8	Gaskets of all types	1 set	1 set	1 set	1 set	1 set	
9	MOG of transformer	1 No	1 No	1 No	1 No	1 No	
10	Silica gel breather with charge	2 Nos	2 Nos	2 Nos	2 Nos	2 Nos	
11	Diaphragm of explosion vent	2 Nos	2 Nos	2 Nos	2 Nos	2 Nos	
12	Oil in sealed drums	NIL	NIL	200 Liters	NIL	NIL	

Note (Spares):

- “Population” indicates total quantity of an item as used in the total consignment for the respective project .
- Where % of total population works out to a fraction (decimal number), the same shall be rounded off to the next higher whole number.

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- c) In case population of any item is only one number, then, the spare quantity shall also be one number.
- d) Vendor shall provide a complete list of spare items showing item-wise unit price, quantity and total price.
- e) BHEL reserves the right in selection and inclusion of the spares in the final scope of supply.

Note (Makes of BOI Items):

Makes of BOI items is subject to BHEL / customer approval during drawing approval stage.



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Technical specification

for

Outdoor, Oil-immersion, 3-winding Transformer (Inverter Duty)

for

Solar Photovoltaic Grid-connected Power plant

Approved by:

Revision details :R 00

Prepared

Issued

Date

VJ

PR

03-07-14



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1.0 INTRODUCTION

Bharat Heavy Electricals Limited (BHEL), Electronics Division, Bangalore is setting up Solar PV Grid-connected plants for its customers.

This document details the technical specifications, supply conditions, erection and commissioning and post-commissioning requirements for required transformers.

For project specific details please see annexure A.

1.1 PRE-QUALIFICATION CRITERIA

1.1.1) Vendor should have supplied Inverter Duty Transformers – 3 phase, 3 or more windings, oil-immersion (ONAN) type of individual transformer rating of 1MVA or above and a minimum cumulative supply of 10MVA in the last 3 years.

Vendor shall submit evidence for the same in the form of completion certificate from the end user along with copies of Purchase Orders.

1.1.2) Transformers must be manufactured in INDIA. Address details of the manufacturing works shall be submitted along with technical offer.

2.0 SCOPE FOR VENDOR

2.1	Transformer as per annexure A, for Rating and Quantity of transformer(s) to be supplied –project wise.	Vendor shall quote unit price.
2.2	<p>Vendor shall provide assistance / supervision support at the time of Installation of the transformers at the project site. Accordingly, vendor shall depute I&C / service engineer to the site.</p> <p>The scope of support shall include supervisory guidance and assistance in following installation activities:</p> <ul style="list-style-type: none">a) Assembly of transformer parts: Cable boxes, radiators, bus bars, etc.b) Filling / topping-up of transformer oil in transformers.c) Pre-commissioning checks such as HV megger checks and other electrical inspection checks. <p>In addition, presence of service person at the site is required during</p>	Vendor shall express compliance.



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	<p>commissioning of plant to ensure that any technical problems encountered with transformer is attended to and resolved immediately.</p> <p>A single lump-sum price on 'per project' basis shall be indicated.</p>	<p>Vendor shall quote a lump-sum price per project</p>
2.3	<p>Warranty</p> <p>Vendor shall provide warranty for 36 months from the date of commissioning or 42 months from the date of supply, whichever is earlier</p>	<p>Vendor shall express compliance</p>
2.4	<p>Post-warranty breakdown maintenance call</p> <p>In case of breakdown of installed transformer(s) after warranty period, vendor shall attend to the transformer on call basis. For each project, a total of 3 calls per year shall be expected for a total period of 3 years after warranty period.</p> <p>A single lump-sum price shall be indicated per breakdown maintenance call. In addition to visit charges, this price shall include boarding, lodging and transport charges.</p>	<p>Vendor shall express compliance.</p> <p>Vendor shall quote a lump-sum price per breakdown call.</p>
2.5	<p>Spares as per Annexure-B</p>	<p>Vendor shall express compliance.</p> <p>Vendor shall quote item-wise price for spares.</p>

3.0 INSTRUCTIONS FOR BID SUBMISSION

3.1	<p>Offer shall be submitted in two-parts (Two part-bid).</p> <p>Both parts shall be in separate sealed envelopes as per instructions in tender.</p> <p>The individual envelopes shall be enclosed in a common envelope with markings (address, etc) on the envelope as per instructions in tender.</p>
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3.2 (i)	<p>First-part shall be techno-commercial bid with following details::</p> <p>(a) List of installations of 3 winding Inverter Duty oil-filled transformers of 1MVA and above in the last three years. Client name, transformer type & rating, number of transformers installed and year of installation shall be provided for each case.</p> <p>(b) At least one certificate of commissioning and satisfactory performance of transformer 1 MVA or above from customer.</p> <p>(c) Type Test Certificates for similar type of transformer as per details in Clause 8.0 “Other type tests”</p> <p>(d) Technical offer comprising of:</p> <ul style="list-style-type: none">• Filled-up enclosures as per BHEL formats provided in the tender.• Clause-wise compliance shall be filled-up in the column provided in this specification.• Product brochure / catalogue especially of oil-immersion transformers.• General arrangement showing overall dimensions (length, width, height), oil quantity in liters and approximate total weight.• Rating plate details. <p>(e) List of spares offered (with quantity) and without prices.</p>
3.3	<p>Second part shall be price bid with filled up enclosures as per BHEL format provided in the tender. Spares shall be quoted separately with unit price and quantity for each component.</p>
3.4	<p>In addition to the above instructions, tender document provides detailed instructions for bid submission. Vendor shall submit the bid based on instructions in tender document.</p>



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4.0 Technical specification

#	Technical parameter	BHEL specification	Vendor compliance. Yes / No In case of non-compliance or deviations, vendors shall provide their comments.
1	Transformer type	Outdoor, oil-immersion type	
2	Inverter Duty Transformer	Transformer shall be capable of handling non-sinusoidal voltages. These voltages occur due to pulsed operation of Inverter output of which is connected to the LV winding of transformer.	
3	IP class	Transformer, including the cable box and marshalling box shall be of IP55. Transformer will be placed directly under sunlight without any shelter or shade. Hence, the significance for IP55 class.	
4	Type of cooling	ONAN	
5	Governing Standard	IS: 2026, IS:335, CBIP Manual and other relevant IS Standards	
6	Rating in KVA	As per Annexure- A	
7	No. of phases	3	
8	Frequency	50 Hz, +/- 3%	
9	HV winding	One 3-phase winding with Delta connection. HV voltage applicable for each project: As per Annexure A	



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10	LV windings	Two independent 3-phase windings, each with Star connection. LV voltage will be a value between 270V and 385V (Refer Annex A). Exact value will be intimated to the vendor prior to opening the price bid. And, whatever be the voltage value, the same shall be applicable to both the LV windings.	
11	LV Neutral	Neutral terminals of both LV windings shall be brought out separately through bushings.	
12	Winding material	Electrolytic grade copper for both HV and LV windings.	
13	Winding Insulation	Class A	
14	Vector Group	Dyn11yn11.	
15	Short circuit withstand capacity for 2 secs	---- kA for 2 sec (Vendor to indicate value).	
16	% Impedance at principal tap at 75°C	HV to LV1, HV to LV2, HV to (LV1, LV2 combined): 6.5 % Vendor shall indicate the value for "LV1 to LV2" impedance (LV1 to LV2: Minimum 10%)	
17	Termination HV/LV/Orientation	Air insulated cable box with disconnecting chamber, for both HV and LV sides. Cable box / Cable box / 180°.	
18	Cable entry on HV side	Bottom entry of cables. Cable, cable lugs and glands shall be in the scope of BHEL. Vendor shall provide undrilled gland-plate on the bottom side of HV side cable box for cable entry.	



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19	Cable entry on LV side	<p>Bottom entry of cables.</p> <p>Cable, cable lugs and glands shall be in the scope of BHEL</p> <p>For each of the LV windings, 3 Runs x 1C x 300 sq.mm per phase, aluminum conductor, armoured, PVC insulation, PVC sheath as per IS: 7098 shall be used.</p> <p>Similarly, vendor shall provide necessary holes in the bus bars as per BHEL instruction which will be provided at the time of manufacturing.</p> <p>Cables shall enter the cable box straight upwards and get connected to the bus bars. After entry into cable box, cables shall not undergo any bends or turns.</p>	
20	Tapping on HV winding	<p>Off circuit tap changer (OCTC) switch with five tap positions: +5%, +2.5%, 0, -2.5%, -5%.</p>	
21	Loading Capability	<p>Continuous operation at rated MVA on any tap with voltage variation of +/- 10%.</p> <p>Transformer shall be capable of being loaded in accordance with IS: 6600 / IEC 60076-7.</p>	
22	Ambient temperature	<p>Max 50 deg C</p>	
23	Temperature rise	<p>For top oil: Max. 50 deg C by thermometer method.</p> <p>For winding: Max. 55 deg C, by resistance method.</p> <p>Both rises shall be over an ambient temperature of 50 deg C irrespective of tap position.</p>	



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24	Flux density	Not to exceed 1.9 Wb/sq.m at any tap position with +/-10% voltage variation from voltage corresponding to the tap. Transformer shall also withstand following over-fluxing conditions due to combined voltage and frequency fluctuations: a) 110% for continuous rating b) 125% for at least one minute c) 140% for at least five seconds Vendor shall furnish over-fluxing characteristics up to 150%	
25	Current Density	3.0 Amps / sq.mm (max)	
26	Air Clearance	As per CBIP	
27	Load loss principal tap at 75 ^o C, with IS tolerance	This shall be provided by vendor.	
28	No Load loss at rated voltage on principal tapping and at rated frequency, with IS tolerance	This shall be provided by vendor.	
29	No load current at rated voltage and rated frequency	This shall be provided by vendor. To be indicated as percentage.	
30	Efficiency at 75 ^o C, UPF	Minimum 98.5% at full load (100%). Efficiencies at 75% and 50% loads to be indicated by vendor.	
31	Regulation at full load, 75 °C	< 2 % for UPF For 0.8 PF lagging, to be indicated by vendor.	
32	Harmonics	Shall be designed to suppress harmonics especially 3 rd & 5 th .	
33	Vibration & noise	Noise level shall be according to NEMA TR-1 standard	



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34	Highest system voltage	LV side: 1.1 kV HV side: As per Annexure-A	
32	Insulation levels as per IS:2026 Rated Lightning Impulse withstand voltage / Short duration power frequency withstand voltage	As per IS 2026 / CBIP	
33	Overall dimensions in mm Length x Breadth x Height	This shall be provided by vendor.	
34	Oil capacity (in Litres)	This shall be provided by vendor.	
35	Weight of transformer in Kg	This shall be provided by vendor.	
36	Painting	Light Grey Shade 631 of IS:5	
37	Constructional features	As per clause 5.0 of this specification.	
38	Fittings and accessories	As per clause 5.10 of this specification	
39	Design requirements with respect to double winding on LV side.	<p>The application is grid-connected solar photovoltaic power plant.</p> <p>HV side of transformer is connected to already existing and operational grid supply to which the power generated by solar plant is exported.</p> <p>LV side has two windings, each of which shall have an identical and equal kVA rating depending on the transformer rating. For details see Annexure-A</p> <p>Following points shall be ensured in the design of this transformer.</p> <p>(a) Transformer shall have identical performance for both the LV windings.</p> <p>(b) Even when one LV winding is not fed from solar generation side,</p>	



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		performance of the other (operational) LV winding shall remain unaffected.	
40	Provision of shield	<p>The electrostatic screen (connected to earth), which shall be provided to ensure correct capacitance insulation between the HV and LV windings, shall be properly insulated.</p> <p>Further, the screen shall be securely fastened to ensure that no damage occurs while shipping, transit, or operation. The method and quality of earthing connection shall be accordingly appropriate. This shield will be earthed during service.</p> <p>Copper Screen shall be suitable to withstand a fault rating of 2.5kA for 1sec</p>	



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5.0 Constructional features and details of transformer components

5.0.1	<p>Transformer shall be constructed in accordance with IS: 2026 and IS: 3639.</p> <p>All materials / components used shall be of best quality and class most suitable for working under the conditions specified.</p>	
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5.1 Tank

5.1.1	<p>The transformer tank and cover shall be fabricated from high grade low carbon plate steel of tested quality. The tank and cover shall be of welded construction and there should be provision for lifting by crane.</p>	
5.1.2	<p>Suitable inspection hole(s) with welded flange(s) and bolted cover(s) shall be provided on the tank cover. The inspection hole(s) shall be sufficient size to allow easy access to the lower ends of the bushings, terminals etc.</p>	
5.1.3	<p>The exterior of tank and other steel surfaces exposed to the weather shall be thoroughly cleaned and have a priming coat of zinc chromate applied. The second coat shall be of an oil and weather-resistant nature, preferably of distinct colour from the prime and finish coats. The final coat shall be of a glossy, oil and weather resistant non-fading paint of specified shade.</p>	
5.1.4	<p>The interior of the tank shall be cleaned by sand blasting and painted with two coats of heat resistant and oil insoluble paint.</p>	
5.1.5	<p>Steel bolts and nuts exposed to atmosphere shall be galvanized. All bolted connections to the tank shall be fitted with suitable oil-tight gaskets that shall give satisfactory service under the operating conditions for complete life of the transformer, if not opened for maintenance at site.</p>	
5.1.6	<p>The tank together with radiators, conservator, bushings and other fittings shall be designed to withstand the following conditions without permanent distortion:</p> <p>(i) Full vacuum of 760 mm of Hg, for filling with oil by vacuum. Internal gas pressure of 0.35 Kg/cm² (5 lbs/sq.in) with oil as at operating level.</p> <p>(ii) The transformer shall have conservator tank of adequate</p>	



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	<p>capacity to accommodate oil preservation system and volumetric expansion of total transformer oil. The conservator shall be bolted into position so that it can be removed for cleaning purposes.</p> <p>(iii) The conservator shall be of single compartment type. The top of the conservator shall be connected to the atmosphere through a transparent type silica gel breather.</p> <p>(iv) The tank cover shall be suitably sloped so that it does not retain rain water. The material used for gaskets shall be cork, neoprene or approved equivalent.</p>	
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5.2 Core

5.2.1	The magnetic circuit shall be of core type. The core shall be constructed from non-ageing, cold rolled, super grain oriented silicon steel laminations (CRGOS) equivalent to M4 grade steels or better.	
5.2.2	The insulation structure of the core to clamp plates shall be such that it withstands a voltage of 2kV (rms) for one minute in air.	
5.2.3	Adequate lifting lugs will be provided to enable the core & windings to be lifted.	



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5.3 Windings

5.3.1	Windings shall be of electrolytic grade copper free from scales and burrs.	
5.3.2	Windings shall be subjected to a shrinking and seasoning process so that no further shrinkage occurs during service.	
5.3.3	Windings shall have uniform insulation.	
5.3.4	Tapping shall be so arranged as to preserve the magnetic balance of the transformer at all voltage ratios.	
5.3.5	The completed core and coil assembly shall be dried in vacuum and shall be immediately impregnated with oil after the drying process to ensure elimination of air and moisture within the insulation.	
5.3.6	Windings shall be made in dust proof and conditioned atmosphere.	

5.4 Internal earthing

5.4.1	The frame work and clamping arrangements of core and coil shall be securely earthed inside the tank by copper strip connection to the tank.	
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5.5 Bushings

5.5.1	Bushings shall be designed and tested to comply with the applicable standards. If type test certificates are not available, these tests shall also be carried out in addition to the routine tests. Bushings rated for 400A and above shall have non-ferrous flanges and hardware. Bushings shall be supplied with terminal connector clamp suitable for connecting the cables.	
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5.6 Cables boxes and disconnecting chambers

5.6.1	Cable boxes shall be supplied with undrilled gland plates.	
5.6.2	Cable boxes / disconnecting chambers shall be provided with body earth terminals.	
5.6.3	LV cable boxes shall be provided with necessary LV bushings, bus bars, bus bar supports for making cable terminations.	
5.6.4	HV cable boxes shall be provided with necessary HV bushings and terminals for making cable terminations.	
5.6.5	Cable boxes shall be provided with suitable gaskets to ensure the specified protection class requirement (IP55).	
5.6.6	Cable boxes / disconnecting chambers shall be provided with necessary arrangements to prevent entry of rain water into the same.	
5.6.7	Disconnecting chambers: (1) Disconnecting chambers shall be provided to enable the transformer to be removed without unsealing the cables or draining oil from the main tank. (2) Disconnecting chamber shall be air insulated and complete with seal-off bushings, removable flexible connectors / links and removable covers. (3) Phase-to-phase and Phase-to-ground clearances within the chamber shall be such as to enable either the transformer or cable to be subject separately to HV tests. Clearances shall be subject to BHEL approval.	



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5.7 Neutral bushings

5.7.1	<p>The neutrals of the star-connected LV windings shall be brought out to separate bushing terminals.</p> <p>The neutral bushings shall be provided on the tank at such a location that facilitates connecting earth conductor down to the ground level.</p> <p>Tank-mounted pin-type support insulators shall be provided for supporting the neutral earthing bar of specified section, along its run from the neutral bushing to ground level.</p>	
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5.8 Marshalling box

5.8.1	<p>Vendor shall provide a marshalling box and marshal to it all the contacts / terminals of electrical devices mounted on the transformer.</p>	
5.8.2	<p>It shall be in the vendor scope to provide the interconnection cabling between the marshalling box and all the accessory devices of transformer by either PVC insulated unarmoured cables routed through GI conduit (or) PVC insulated, armoured cables.</p>	
5.8.3	<p>Necessary cable glands shall be provided at the marshalling box for the above mentioned cables as well as for terminating the incoming cables from remote panels.</p>	
5.8.4	<p>Marshalling box shall be tank mounted, outdoor and weather/vermin/dust proof (protection class IP55), sheet-steel (2mm thick minimum) enclosure, with hinged door having padlocking facility and painted. All doors, covers and plates shall be fitted with neoprene gaskets. Bottom shall be at least 1600 mm above floor level and provided with gland plate and cable glands as required. Top surface shall be sloped to drain off water falling on the box.</p>	



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5.9 Transformer oil

5.9.1	Transformers shall be supplied complete with transformer oil. The new insulating oil before pouring into the transformer shall conform to the requirement of IS:335. No inhibitors shall be used in the oil. The oil samples taken from the transformer at site shall conform to requirements of IS:1866.	
5.9.2	10% extra oil, in non-returnable sealed containers, shall be sent along with main consignment to avoid any shortage of oil at the time of topping up of oil at the site. This oil quantity shall be over and above the specified mandatory spares requirement.	

5.10 Fittings and accessories

Following fittings per transformer shall be provided. Vendor shall indicate compliance (Yes / No) for each line item. In case of non-compliance or deviation, vendor shall indicate and provide comments.

#	Nomenclature of fitting / accessory	Qty	Vendor compliance
1	Oil conservator with equalizer pipe	1 set	
2	HV cable box	1 set	
3	HV disconnecting chamber	1 set	
4	LV cable box	1 set	
5	LV disconnecting chamber	1 set	
6	Off circuit tap changing switch (OCTC) with operating knob, tap position marking and locking facility, with warning plate "Tap switch to be operated only with the transformer de-energized"	1 set	
7	Neutral bushings for earthing of LV windings	2 Nos	
8	Earthing terminals with hardware suitable for connecting 50x6 GI earth strips. Separate terminals shall be provided for cable boxes, tank etc.	1 set	
9	Radiators (detachable type) with drain valve at the bottom, relief valve at the top, air plug, shut-off valves at every point of connection to the tank and lifting lugs.	4 sets	
10	Double float Buchholz relay with alarm and trip contact. The relay shall be provided with a air release test cock suitable for a flexible pipe connection for checking its operation. Buchholz relay shall be provided with 2 nos. shut-off valves (one each on conservator side and tank side) of size 50 mm.	1 set	



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11	Provision for collecting gas and oil from Buchholz relay (oil and sampling device)	1 set	
12	Silica gel dehydrating breather with oil cup	1 set	
13	Magnetic oil level gauge (MOG), dial type, with alarm contact, minimum and maximum filling level markings. Contact shall be suitable for 110V/220V DC as per project specific DC voltage available (Refer Annexure-A for details) . The oil level at 30 deg C shall be marked on the gauge.	1 set	
14	Prismatic / toughened glass oil level gauge for transformer and tap changer chamber with min and max markings.	1 set	
15	Spring operated Pressure relief valve with alarm/trip contacts. Location of this valve shall be such that the hot oil discharge shall not fall on the transformer or any of its parts. This shall include all necessary arrangements to facilitate proper discharge of PRV through pipes away from the transformer.	2 sets	
16	Explosion vent (double diaphragm) with sight glasses and equalizing pipe connection to conservator	1 set	
17	Thermometer pocket for OTI	1 No	
18	Temperature sensor for OTI	1 No	
19	Thermometer pocket for WTI	1 No	
20	CT for WTI	1 No	
21	Oil temperature indicator, 150 mm dial type, with alarm and trip contacts, maximum reading pointer & resetting device. Oil temperature range: 0 to 150 deg C (resolution 1 deg C) Oil temperature accuracy: +/- 2 deg C RTD PT-100 temperature sensor for OTI (IEC 751). Two analog outputs of 4-20mA for remote indication of OTI.	1 No	
22	Winding temperature indicator, 150-mm dial type, with alarm and trip contacts, maximum reading pointer & resetting device. Winding temperature range:0 to 150 deg C(resolution 1 deg C) Winding temperature accuracy: +/- 2 deg C Two analog outputs of 4-20mA for remote indication of WTI.	1 No	
23	Marshalling box (IP55) shall be provided with removable gland plates and glands for cable entry from bottom side. Marshalling box shall be provided with OTI, WTI, transmitters (for 4-20mA output of OTI and WTI), space heater, thermostat, lamp, MCBs, power socket, switch for WTI, terminal	1 set	



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	<p>connectors and all other attachments that are necessary to meet its functional aspects. Terminal connectors for the following signals / connections shall be made available. Number of terminal connectors for each case shall be as per connection requirements: PT-100 sensor from thermometer pocket</p> <ol style="list-style-type: none">1) 4-20mA output for OTI2) 4-20mA output for WTI3) WTI CT secondary4) Alarm contact of WTI5) Trip contact of WTI6) Alarm contact of OTI7) Trip contact of OTI8) Buchholz relay alarm9) Buchholz relay trip10) Magnetic oil level gauge alarm11) Pressure relief valve alarm12) 90-260V DC power supply (external source)13) 240V AC supply (external source)14) Spare connectors: Eight terminals <p>Note: Alarm and trip contacts shall be rated for 110/220V DC as per project specific DC Voltage available (Refer Annexure-A for details).</p>		
24	Inspection window with cover	1 set	
25	Cover lifting lugs / eyes	2 Nos	
26	Core and winding lifting lugs / eyes	2 Nos	
27	Tank lifting lugs / eyes for the entire transformer	2 Nos	
28	Jacking pad with hauling eyes, to enable transformer with oil to be raised or lowered using hydraulic or screw jacks.	4 sets	
29	LV cable box supports with mounting plates	2 sets	
30	HV cable box supports with mounting plates	2 sets	
31	Bi-directional flat rollers	4 sets	
32	Base channel with towing holes / lugs	2 sets	
33	Air release hole with plug	1 No	
34	Oil filling hole with cap	1 No	
35	Top filter valve with threaded male adapter (blanking plug)	1 No	
36	Bottom filter valve with threaded male adapter (blanking plug)	1 No	
37	Drain valve for the tank, with blanking plug	1 No	



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38	Drain valve for conservator, with blanking plug	1 No	
39	Shut-off valves for conservator	2 Nos	
40	Sampling valve, with blanking plug	1 No	
41	Shut-off valves for radiators, with open and close markings	8 Nos	
42	Sludge valve at bottom most point of tank to be provided for easy flush out / removal of sludge during maintenance	1 No	
43	Valve schedule plate made of stainless steel or aluminium (anodized)	1 No	
44	Rating and diagram plates made of stainless steel or anodized aluminium.	1 No	
45	Terminal marking plates	1 Set	
46	Protected type Mercury or alcohol in glass thermometer	1 No	

6.0 Inspection and testing of transformers at vendor works

6.1	Vendor shall provide inspection call to BHEL for the type and routine tests.	Vendor compliance. Yes / No
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7.0 Routine tests

7.1	All routine tests as per IS 2026 shall be carried out on 100% basis. These tests shall also necessarily include the tests listed below (if not already included under Routine Tests of IS 2026): 1) Measurement of voltage ratio and phase displacement 2) Measurement of winding resistance on all the taps 3) Vector group check 4) Polarity check 5) Magnetic balance and magnetizing current test 6) Measurement of no-load current with 415V, 50Hz AC supply 7) Measurement of no-load losses and current at 90%, 100% and 110% of rated voltage 8) Measurement of impedance voltage / short-circuit impedance, load loss on principal and extreme taps 9) Measurement of insulation resistance 10) Dielectric tests - Separate source voltage withstand test 11) Repeating the no-load current, no-load loss and IR measurements after completion of all the dielectric tests	Vendor compliance. Yes / No
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	<p>12) Oil leakage test on completely assembled transformer along with unit coolers / radiators: All tank and oil filled compartment shall be tested for oil tightness by being completely filled with oil of viscosity not greater than that of specified oil at the ambient temperature and applying pressure equal to the normal pressure plus 35 kN/sq-m measured at the base of the tank. The pressure shall be maintained for a period of not less than 6 hours during which time no sweating shall occur. This test shall be repeated as pre-commissioning test at site with test duration of 24 hours.</p> <p>13) Jacking test followed by DP test</p> <p>14) Frequency Response Analysis test</p> <p>15) Marshalling box / Cable box: IP Class test (IP55): It shall not be possible to insert a thin sheet of paper under gaskets and through enclosure joints.</p> <p>16) IR measurement on wiring of Marshalling Box.</p> <p>17) BDV test on oil as per IS:335-1993: Test certificate shall be submitted to BHEL.</p> <p>18) Capacitance and tan delta test</p> <p>BHEL / BHEL customer shall witness these tests at vendor works.</p>	
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8.0 Type Tests

<p>8.1</p>	<p>Temperature rise test as per IS: 2026 (Type test on 1 No. of transformer)</p> <p>This test shall be performed as a type test on one sample of transformer. This is a mandatory test and shall be witnessed by BHEL. In case extra charges are required, the same shall be indicated separately in the offer on per-transformer basis. Offers that do not include this specific type test are liable for rejection.</p> <p>This temperature rise test shall be carried out at a tap corresponding to maximum losses as per IS: 2026.</p> <p>Gas chromatography shall be conducted, as per relevant standard, on oil sample taken before and immediately after temperature rise test. Test report shall be furnished to BHEL.</p>	<p>Vendor compliance.</p> <p>Yes / No</p>
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8.2	Other type tests	Vendor compliance.
	List of other type tests is as below. In case the vendor has conducted the type test(s) on Inverter duty transformer of identical rating and type within last 5 years as on the date of technical bid opening, report(s) of the type test(s) shall be submitted to BHEL for waiver of conducting those particular type tests. Such report(s) should be for the test(s) conducted on transformer that is identical to this present specification. Also, the test(s) should have been either conducted at an independent laboratory (or) should have been witnessed by a client. In case the vendor is not able to submit report(s) of the type test(s) conducted within last 5 years from the date of technical bid opening (or) in case the type test reports are not found to be meeting the specification requirements, the vendor shall conduct the type test(s) as per applicable standards at no additional cost to BHEL and the type test reports shall be submitted to BHEL for approval.	Yes / No
8.2.1	Tank vacuum and pressure test as per CBIP norms. (In process inspection)	
8.2.2	Zero sequence impedance measurement test	
8.2.3	Measurement of harmonics of no load current	
8.2.4	Measurement of acoustic noise level as per NEMA TR-1	
8.2.5	Lightning impulse (full & chopped wave) test on HV & LV windings	

9.0 Documents to be submitted after receipt of purchase order

9.1	Following documents shall be submitted for BHEL approval within seven days from date of purchase order. (1) Detailed transformer drawings for (a) Overall General Arrangement (plan, elevation, end view) with overall dimensions and bill of accessories. (b) Rating plate details (c) Valve schedule plate details with elevation and side view showing valve positions (d) HV cable box with disconnecting chamber, bushings, gland plate, cable termination details etc. (e) LV cable box with disconnecting chamber, bushings, gland plate, cable termination details etc. (f) Marshalling box GA (front view, side view, bill of items) and wiring diagram	
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	<p>(g) Foundation plan (h) Bill of material of transformer (i) Untanking details (removal of core and assembly from tank)</p> <p>(2) Vendor shall submit the detailed Manufacturing Quality Plan (MQP) format for approval.</p> <p>(3) Guaranteed technical specification of transformer in line with Appendix-B (schedule of technical particulars to be furnished by manufacturer) of IS: 2026 (part-1)-1977.</p> <p>(4) Quality assurance plan (routine tests, type tests, test certificates) covering incoming materials, stage-wise inspection during manufacturing, finished goods, packing and forwarding. Witness by BHEL shall be included for stage inspection / final inspection as required.</p> <p>(5) Detailed Test Procedure for all routine, type and special tests.</p> <p>(6) Manufacturing clearance shall be subject to approval of the above documents by BHEL</p>	
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10.0 REFERENCE STANDARDS

10.1	Following shall be the list of standards to be adopted:																							
	<table border="1"><tr><td>Power Transformer</td><td>IS: 2026 IS: 6600 IEC: 60076</td></tr><tr><td>Fittings and Accessories</td><td>IS: 3639</td></tr><tr><td>Loading of oil immersed transformer</td><td>IS: 6600</td></tr><tr><td>Oil</td><td>IS: 335</td></tr><tr><td>Bushing for >1000 V AC</td><td>IS: 2099</td></tr><tr><td>Bushing for <1000 V AC</td><td>IS: 7421</td></tr><tr><td>Degree of protection</td><td>IS: 2147</td></tr><tr><td>Tests and tolerance of guaranteed particulars</td><td>IS: 2147</td></tr><tr><td>Buchholz relay</td><td>IS: 3637</td></tr><tr><td>Electrical insulation classified by thermal stability</td><td>IS: 1271</td></tr><tr><td>Climate proofing</td><td>IS: 3202</td></tr></table>	Power Transformer	IS: 2026 IS: 6600 IEC: 60076	Fittings and Accessories	IS: 3639	Loading of oil immersed transformer	IS: 6600	Oil	IS: 335	Bushing for >1000 V AC	IS: 2099	Bushing for <1000 V AC	IS: 7421	Degree of protection	IS: 2147	Tests and tolerance of guaranteed particulars	IS: 2147	Buchholz relay	IS: 3637	Electrical insulation classified by thermal stability	IS: 1271	Climate proofing	IS: 3202	
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Electrical insulation classified by thermal stability	IS: 1271																							
Climate proofing	IS: 3202																							

ANNEXURE-A



**PURCHASE SPECIFICATION / GROUP : PHOTOVOLTAICS
ONAN TYPE 3-PHASE, 3-WINDING INVERTER TRANSFORMER**

PS-439-885

REV NO: 00

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#	Linked to CI.No.	Technical parameter	Project Name				
			DIU (3MW)	DNH (3MW)	KPCL (10MW)	OPCL (3.42MW)	BHEL-RC PURAM (1.5MW)
1	2.1	Rating and Quantity required of Outdoor, Oil-immersion type, ONAN, 3-phase, 3-winding transformer with two identical LV windings and one HV winding.	1600 kVA, 2 nos	1600 kVA, 2 nos	1600kVA 8 nos	1600 kVA, 2 nos	1250 kVA, 1 no.
2	4.0	HV winding voltage	11KV	11KV	11KV	33KV	33kV
3	4.0	LV Winding voltage Exact value will be intimated to the vendor prior to opening the price bid	270V-385V	270V-385V	270V-385V	270V-385V	270V-385V
4	4.0	Highest System Voltage: LV side HV side	1.1 kV 12 kV	1.1 kV 12k V	1.1 kV 12 kV	1.1 kV 36 kV	1.1 kV 36 kV
5	4.0	Insulation level as per IS:2026 LV side Lightning Impulse (kVp) Power Frequency (kVrms)	-- 3 kV	-- 3 kV	-- 3 kV	-- 3 kV	-- 3 kV
6	4.0	Insulation level as per IS:2026 HV side Lightning Impulse (kVp) Power Frequency (kVrms)	75 28	75 28	75 28	170 70	170 70



**PURCHASE SPECIFICATION / GROUP : PHOTOVOLTAICS
ONAN TYPE 3-PHASE, 3-WINDING INVERTER TRANSFORMER**

PS-439-885

REV NO: 00

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#	Cl.No.	Technical parameter	Project Name				
			DIU (3MW)	DNH (3MW)	KPCL (10MW)	OPCL (3.42MW)	BHEL-RC PURAM (1.5MW)
7	5.10	DC Voltage available	110V DC	110V DC	220V DC	110V DC	110V DC
8		LV Bushing rating (Vendor to indicate)					
9		HV Bushing rating (Vendor to indicate)					



**PURCHASE SPECIFICATION / GROUP : PHOTOVOLTAICS
ONAN TYPE 3-PHASE, 3-WINDING INVERTER TRANSFORMER**

PS-439-885

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ANNEXURE-B

(SPARES)

	Item description	QUANTITY				
		DIU	DNH	KPCL	OPCL	BHEL-RC PURAM
1	HV Bushings with metal parts and gaskets	1 set (3 Nos)	1 set (3 Nos)	2 sets (6 Nos)	1 set (3 Nos)	1 set (3 Nos)
2	LV Bushings with metal parts and gaskets	1 set (6 Nos)	1 set (6 Nos)	2 set (12 Nos)	1 set (6 Nos)	1 set (6 Nos)
3	Isolating valves of all types	1 Set	1 set	2 sets	1 set	1 set
4	Pressure Relief Device with trip contacts	2 Nos	2 Nos	4 Nos	2 Nos	2 Nos
5	Winding temperature indicator with alarm & trip contacts	1 No	1 No	2 Nos	1 No	1 No
6	Oil temperature indicator with alarm & trip contacts	1 No	1 No	2 Nos	1 No	1 No
7	Buchholz Relay (complete unit)	1 No	1 No	2 Nos	1 No	1 No
8	Gaskets of all types	1 set	1 set	2 sets	1 set	1 set
9	MOG of transformer	1 No	1 No	2 Nos	1 No	1 No
10	Silica gel breather with charge	2 Nos	2 Nos	4 Nos	2 Nos	2 Nos
11	Diaphragm of explosion vent	2 Nos	2 Nos	4 Nos	2 Nos	2 Nos
12	Oil in sealed drums	200 Litres	200 Litres	400 Litres	200 Litres	200 Litres

Note (Spares):

- “Population” indicates total quantity of an item as used in the total consignment for the respective project .
- Where % of total population works out to a fraction (decimal number), the same shall be rounded off to the next higher whole number.

	PURCHASE SPECIFICATION / GROUP : PHOTOVOLTAICS ONAN TYPE 3-PHASE, 3-WINDING INVERTER TRANSFORMER	PS-439-885
		REV NO: 00
		PAGE : 26 OF 26

- c) In case population of any item is only one number, then, the spare quantity shall also be one number.
- d) Vendor shall provide a complete list of spare items showing item-wise unit price, quantity and total price.
- e) BHEL reserves the right in selection and inclusion of the spares in the final scope of supply.

Note (Makes of BOI Items):

Makes of BOI items is subject to BHEL / customer approval during drawing approval stage.

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB No.2606, Mysore Road, Bangalore-560026, India

Enquiry - General Terms & Conditions (Two part bid)

I. Enquiry / Request for Quotation (RFQ):

- (a) Any Purchase Order resulting from this enquiry shall be governed by **these general terms and conditions listed below and special terms and conditions, if any, along with this enquiry** of Bharat Heavy Electricals Limited, Electronics Division, Bangalore-560026 (**hereinafter referred to as BHEL EDN**).
- (b) Any of the terms and conditions not acceptable to vendor, shall be explicitly mentioned in the quotation. Otherwise, it will be treated as that all terms and conditions of this enquiry are acceptable.
- (c) If counter terms and conditions are offered by vendor, BHEL EDN shall not be governed by such terms and conditions, unless it is agreed and incorporated in the Purchase Order of BHEL EDN.
- (d) Any deviation to the terms and conditions not mentioned in the quotation by vendor in response to this enquiry will not be considered, if put forth subsequently or after issue of order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order of BHEL EDN.
- (e) BHEL EDN reserves the right to adopt Reverse Auction for the enquiry sent, at its discretion.
- (f) BHEL EDN shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.
- (g) Any specific terms and conditions to be complied will be mentioned in RFQ.

II. General Terms and conditions:

1. **TWO PART BID:** Quotation shall be submitted in two part bid i.e.

(a) Techno-commercial i.e., Un-priced Bid (in one sealed envelope):

Techno-commercial bid shall be submitted with complete description of the equipment, specification compliances to the enquired specification and all the commercial terms & conditions indicated in the **COMMERCIAL TERMS (ANNEXURE-A for Foreign Purchase and ANNEXURE-B for Indigenous Purchase)**. Any other enclosure, which the vendor wishes to submit like product catalogue, technical literature etc., may also be submitted in a sealed envelope super scribed clearly as **"TECHNO-COMMERCIAL BID" with RFQ No. and DUE DATE**. An un-priced copy of price bid (without price) as per **ANNEXURE A-1 for Foreign Purchase and ANNEXURE B-1 for Indigenous Purchase** shall also be enclosed with the techno-commercial bid for evaluation of commercial terms. The vendor shall not give the price in the technical bid.

Confirmation to BHEL specifications shall be indicated by the vendor in the respective columns provided in the purchase specification wherever applicable. Deviations to the specification / item description, if any shall be brought out clearly indicating **"DEVIATION TO BHEL SPECIFICATION"** without fail as a part of technical offer.

Compliance to Pre-qualification criteria (if applicable) shall also be enclosed with the Techno-commercial bid.

Manufacturer's name, their trade mark and brand, part number, alternate material to the one asked in enquiry, if any, should be mentioned in quotation and illustrative leaflets giving technical particulars etc. are to be attached to facilitate consideration and technical evaluation of the quotation. BHEL EDN material code number (as in enquiry) shall be indicated for each item quoted.

(b) Price Bid (in one sealed envelope):

Price bid should contain basic unit prices, discount if any, applicable taxes & duties, packing & forwarding charges (if applicable), Freight & insurances (if applicable), FOB charge (if applicable) etc., in a sealed envelope super scribed clearly as **"PRICE BID" with RFQ No. and DUE DATE**.

It is preferred to indicate the rates in both figures and words. In such case, if there is a difference / discrepancy

Signature of tenderer / with seal
Page 1 of 12

between the rates in figures and words, the **least of the two** rates will be considered. **Price bid shall be quoted as per ANNEXURE A-2 for Foreign Purchase and ANNEXURE B-2 for Indigenous Purchase.**

(c) Tender Offer (above two envelopes inside another sealed envelope):

Both these sealed envelopes [(a) Techno-commercial i.e., un-priced Bid and (b) Price Bid] shall be kept in a single sealed envelope and super scribed clearly with **RFQ No. and DUE DATE.**

2. The above sealed envelope (Tender) shall reach our office on or before the due date by 13:00 hrs. Quotations are to be dropped in the tender box marked for the OPENING ON respective days i.e., MONDAY / WEDNESDAY / FRIDAY kept at BHEL-EDN's Reception area of our works with caption "CE, SC & PV, DEFENCE". **Quotations also can be dispatched by Couriers / Registered post / FAX / e-mail to the Purchase Executive indicated in the RFQ at the risk of vendor / bidder.**

Quotation through courier / register post / fax / email when addressed to the specific fax number and email address given in the enquiry, to be sent well in advance to enable BHEL EDN purchase personnel to drop in the tender box before the scheduled opening date and time. Vendor is fully responsible for lack of secrecy on information of such quotations. Vendor shall confirm with the concerned purchase executive after sending the offer regarding such delivery mode to ensure participation. BHEL EDN is not responsible for any delay in receipt of quotation sent by vendor through post/fax/email.

Late Tenders i.e., Tenders received after due date & time will be rejected.

3. The rate quoted shall be in units stated in the enquiry. Where quotation is in terms of unit other than that in enquiry, relationship between the two units must be furnished in the quotation.
4. As far as possible, the quotations shall be free from corrections / overwriting. Corrections / overwriting, if any should be signed by authorized person with the company seal. Any typographical errors, totaling mistakes, currency mistakes, multiplication mistakes, summary mistakes observed in your priced bids, BHEL may consider whichever is beneficial to BHEL for evaluation. Vendor shall doubly ensure that the quote is correct and complete. The corrections / overwriting if any shall be signed with the seal.
5. Quotations are to be duly signed. Unsigned bids/offers are liable for rejection.
6. Tenders will be opened at **13:30 hrs** & the venue is New Engineering Building, 2nd floor, MM conference hall, BHEL EDN, Bangalore. All the tenderers or their authorized representatives (with authorization letter from their principals) may witness opening of techno-commercial bid on the due date.
7. After evaluation of techno-commercial bids, price bids of only those which are technically & commercially accepted, will be opened on a subsequent date, which will be intimated to the concerned in advance for witnessing of price bid opening.
8. The quantity in each item to be purchased may vary from quantity enquired according to the actual requirement at the time of placing the purchase order.

9. DUN & BRADSTREET REPORT (for Foreign purchase):

In case of foreign vendors, BHEL reserves the right to verify the Dun & Bradstreet report during techno-commercial scrutiny. Please mention DUN Number in **Techno-Commercial bid.**

10. Payment of Agency Commission to Indian Agent (for Foreign purchase):

- a. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- b. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.

Signature of tenderer / with seal
Page 2 of 12

- c. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
 - d. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
 - e. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
 - f. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
 - g. The "Guidelines for Indian Agents of Foreign Suppliers" shall apply in all such cases.
 - h. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.
- The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.
- i. **Installation & Commissioning:** Scope will be as per RFQ.E&C value should be quoted separately by bidders.
11. **TOTAL COST TO BHEL:** Purchase order will be placed on the lowest quotation (L1) only among the technically & commercially accepted quotations. Lowest quotation (L1) is determined on the basis of the total cost to BHEL.

For Foreign offers, the Exchange rate(TT selling rate of SBI) shall be taken as under.

Single part bids	Date of Tender opening
Two/Three part bid	Date of Part-1 bid opening
Reverse Auction	Date of Part-1 bid opening

If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

- (1) If Freight is quoted extra, original money receipt from Transporter shall be submitted for payment of Freight charges.
- (2) C-form : For issue of form "C", vendor has to furnish "E1/E2" form.

12. FIRM PRICE:

Rates quoted should be firm from the date of offer, till completion of supply. No enhancement in the rates and changes in the techno-commercial terms will be allowed once the quotation is accepted and order is placed.

If Installation & Commissioning is in vendor's scope, then the price shall remain FIRM till commissioning & handing over of the complete system.

13. TERMS OF PAYMENT:

1. SUPPLY

A. : FOR FOREIGN PURCHASE

Payment will be made against "SIGHT DRAFT" on presentation of documents to our bankers . Payment through LC is also made subject to loading factors as per Clause 25 (A). For LC payment bank charges within India will be borne by BHEL and outside India will be to vendor's account.

The payment terms are as follows:

SIGHT DRAFT PAYMENT (direct payment):

SUPPLY :

(a) **I&C not included in vendor's scope** : 90% payment of Supply value + 100% Taxes shall be made with 45 days credit from the date of receipt of material at site. Balance 10% on execution of PBG valid for warranty period + 6 months claim period from any of the BHEL Consortium banks.

(b) **Supply & I&C in vendor's scope** : 80% payment of Supply value + 100% Taxes shall be made with 45 days credit from the date of receipt of material at site. 10% on completion of I&C and certification line item wise on pro-rata basis. Balance 10% on execution of PBG valid for warranty period + 6 months claim period from any of the BHEL Consortium banks..

(B) FOR INDIGENOUS PURCHASE (DIRECT PAYMENT):

SUPPLY :

(a) **I&C not included in vendor's scope** : 90% payment of Supply value + 100% Taxes shall be made with 45 days credit from the date of receipt of material at site. Balance 10% on execution of PBG valid for warranty period + 6 months claim period from any of the BHEL Consortium banks.

(b) **Supply & I&C in vendor's scope** : 80% payment of Supply value + 100% Taxes shall be made with 45 days credit from the date of receipt of material at site. 10% on completion of I&C and certification line item wise on pro-rata basis. Balance 10% on execution of PBG valid for warranty period + 6 months claim period from any of the BHEL Consortium banks.

2. For I&C: 100% on completion of I&C and certification line item wise on pro-rata basis.

3. Civil Works : 90% on completion of activity milestone and certification line item wise from site-in charge. Balance 10% against PBG for 10% of basic Civil value valid warranty period + 6 months claim period from any of the BHEL Consortium banks.

4. O&M: 100% O&M charges are payable as per RFQ terms against report certified by BHEL.

If PBG cannot not be submitted, vendors can also accept for the final 10% payment, payable after the warranty period + 6 months of claim period against supplementary invoice subject to the completion of commissioning (if applicable).

For any deviation in payment term, the offer will be loaded as per Clause 25.00.

5. ADVANCE PAYMENT: Quotations with "Advance payment" shall be liable for rejection.

For Indigenous Vendors, Advance Payment/ Local LC terms will be liable for rejection.

14. PENALTY:

Failure to supply within the delivery time as per purchase order will make the vendor liable to an unconditional penalty of 0.5 % (half percent) per week at the basic price of the goods for the undelivered quantity, subject to a maximum of 10%.

Supply : Date of issue of pre-shipment inspection/ call letter with supporting documents like test reports/conformance to test carried by the vendor will be treated as date of dispatch for the purpose of penalty calculation wherever Pre-Inspection Call is carried out.

Signature of tenderer / with seal
Page 4 of 12

For all other activities, the actual date of completion of activity as certified by concerned site-incharge will be considered for the purpose of penalty calculation.

15. PBG:

Performance Bank Guarantee (PBG) to be submitted on non-judicial stamp paper as per the BHEL prescribed format given in **ANNEXURE-E for Foreign Purchase and Annexure-F for Indigenous Purchase** for 10% of the total supply value obtained from any BHEL member (consortium) banks indicated in **ANNEXURE-G**.

The Bank Guarantee shall be submitted directly to the concerned Purchase Executive by the issuing Bank with their forwarding letter. BHEL will verify independently with the bank to establish the authenticity. Alternately, standby LC issued from approved banker can also be considered.

16. TERMS OF DELIVERY:

(a) FOR IMPORTED PURCHASE:

Price offered shall be for goods packed and delivered **FOB** Seaport, /FCA International Airport including packing, forwarding, Handling, Ancillary charges like processing of Sight Draft, negotiation charges of bank, Export declaration, Certificate of origin etc.

Packing shall be Air/Sea worthy, best suitable for trans-shipment and to take care of transit damages. If containerized, no. of containers & size of container shall be mentioned. Packing weight (gross & net) Packing dimensions shall be given prior to shipment to ascertain whether the consignment can be carried on standard cargo in contract or as ODC.

Wooden packing material for all the foreign consignments should be treated as per ISPM-15 & **Fumigation / Phytosanitary certificate** to be submitted to the freight forwarders/ BHEL along with the invoice, B/L, packing list etc.

Vendors shall indicate the name of International Airport/Seaport. Approved Airports are as per **Annexure-C**. The consignment shall be handed over to BHEL approved freight forwarder as mentioned in PO.

17. DELIVERY REQUIREMENT:

Delivery date mentioned in RFQ is tentative. Actual requirement is as per RFQ terms & conditions.

18. VALIDITY:

Quotation should remain valid for a period of **90 days** from the date of technical bid opening.

19. POST-ORDER REQUISITES:

- a. Vendor shall give an Order Acknowledgement indicating the delivery date within one week of receipt of PO.
- b. Pre-shipment inspection at vendor's works, if required, will be carried out by BHEL. Required assistance will have to be provided by the vendor at the time of pre-shipment inspection.
- c. Test certificates, Calibration certificates and warranty certificates as stipulated at the time of ordering shall be furnished.
- d. Items shall be dispatched by Air worthy /Sea worthy/ Road worthy packing. Any damage and later rejection, due to poor / improper packing shall be to vendor's account.
- e. Any damage/rejection should be made good or replaced immediately without any extra cost to BHEL such as freight, duties, taxes etc. The liability is restricted to the value of the order.
- f. Wherever commissioning is involved, it shall be carried out by the vendor's qualified engineers. Scope of work includes installation, commissioning and start-up trials till satisfactory performance level is reached as certified by BHEL.
- g. BHEL will not be responsible for any loss, damage or injuries to vendor's personnel sustained during

- h. installation / commissioning / start-up trials. Vendor shall ensure compliance with all statutory requisites as laid down by local bodies, state & Central Government. Vendor shall indemnify BHEL for all damages/ losses to various personnel during their presence in BHEL"s premises for whatever purpose.
- i. Suitable markings & damage control indicating devices shall be provided where applicable.
- j. Equipment shall comply with the standard requirements of ISO 14001 & OHSAS 18001.

20. RISK PURCHASE:

The purchaser at his discretion may also make purchase of the materials NOT supplied in time at the RISK & COST of the supplier. In this event, it will be obligatory on the part of the supplier who fails to supply the goods in time to make good to BHEL any loss due to such risk purchase.

21. GENERAL TERMS AND CONDITIONS GOVERNING REVERSE AUCTION (RA):

- (a) In case of RA, BHEL will communicate business rules governing the RA to the bidders through a service provider.
- (b) BHEL EDN reserves the right to adopt Reverse Auction for the enquiry sent, at its discretion.
- (c) Confirm acceptance for RA in **ANNEXURE A/B**.

22. REGRET LETTER: In case any vendor is unable to quote, vendor shall send a regret letter.

23. Any dispute arising out of this, shall be referred to the sole arbitration of Head of Dept. Materials Management of group concerned, BHEL EDN or any other officer nominated by him and his award shall be final and binding on the parties. The venue of the arbitration in all cases shall be Bangalore, India.

24. Any legal suit in respect of this enquiry lies in the court of Jurisdiction of Bangalore (India) only.

25. LOADING FACTORS:

Loading factors as detailed below will be added to the quoted price (basic) to evaluate the lowest quote for non compliance of BHEL standard commercial term.

A (i). For non compliance of standard Terms of payment (For Foreign Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	80% against "SIGHT DRAFT" + 20% after commissioning and against PBG(where both commissioning & PBG are applicable)	Payment through Letter of Credit (LC)	10% of quoted value

In general, if the quote is through L/C, it shall be opened 30 days prior to dispatch and valid for 3 months.

A(ii).For non compliance of standard Terms of payment (For Indigenous Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	As per RFQ Terms	Any other Payment term	10% of quoted value

A(ii).For non compliance of standard Terms of Penalty

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	Penalty of 0.5% per week	Other than the above.	Loading Factor 10%-Quoted Max %
	subject to max. of 10% on the		
	basic value of the items not		
	supplied /delayed		

LIST OF INTERNATIONAL AIRPORTS

Sl. No	Country	Air Ports
1	Austria	Vienna, Linz, Graz
2	Australia	Sydney, Melbourne, Perth
3	Belgium	Antwerp, Brussels
4	Canada	Toronto, Montreal
5	China	Shanghai
6	Cyprus	Lamaca
7	Czech Republic	Prague (Via Frankfurt)
8	Denmark	Copenhagen
9	Egypt	Cairo
10	Finland	Helsinki
11	France	Paris (Rosy), Lyon
12	Germany	Darmstadt, Mannheim, Nurnberg, Hamburg, Stuttgart, Munich, Koln, Dusseldorf & Hannover, Frankfurt, Berlin
13	Hong Kong	Hong Kong
14	Italy	Rome, Milan, Turin, Bologna, Florence
15	Ireland	Dublin
16	Israel	Telaviv
17	Japan	Tokyo, Osaka
18	Malaysia	Kuala lumpur, Penang
19	Netherlands	Amsterdam, Rotterdam
20	New Zealand	Auckland
21	Norway	Oslo
22	Oman	Muscat
23	Philippines	Manila
24	Romania	Bucharest
25	Russia	Moscow
26	Saudi Arabia	Riyad
27	Singapore	Singapore
28	Slovakia	Bartislowa
29	South Africa	Johannesburg, Durban
30	South Korea	Kimpo
31	Spain	Barcelona
32	Sweden	Stockholm, Gothenburg, Milano
33	Switzerland	Basle, Zurich, Geneva
34	Taiwan	Taipei
35	U.A.E.	Dubai
36	U.K.	Landon (Heathrow), Newcastle, Oxford, Cheltham, Bristol, Welling borough, Birmingham, East Midland, Manchester, Leeds, Glasgow.
37	U.S.A.	New York, Chicago, San Francisco, Los Angeles, Atlanta
38	Ukraine	Kiev

BHEL EDN APPROVED TRANSPORTERS FOR INLAND ROAD TRANSPORTATION

1. M/s Awagaman Road Carriers ltd., Bangalore. (AWG)
2. M/s BLR India Pvt. Ltd., Bangalore. (BLR)
3. M/s Delhi Assam Roadways corporation ltd., Bangalore. (DRL)
4. M/s Indo Arya Central transport ltd., Bangalore. (IACT)
5. M/s Prakash parcel Services, Bangalore. (PPS)
6. M/s Road Carrier of India, Bangalore. (RCI)
7. M/s Union Roadways ltd., Bangalore. (URL)

PERFORMANCE BANK GUARANTEE
(FOR FOREIGN PURCHASE ORDERS)
BANK NAME AND ADDRESS

Bharat Heavy Electricals Limited (BHEL),
Electronics Division,
PB No. 2606,
Mysore Road,
BANGALORE- 560 026
INDIA

Dear Sir,
Ref: CONTRACT PERFORMANCE GUARANTEE.

WHEREAS you have entered into a contract reference No PO NO. _____

wit

h M/s

_____ having its registered office _____

at _____ for the supply of _____ as
detailed in your purchase order No. _____ which is hereinafter referred to as "the said contract" and
whereas M/s _____

has undertaken to produce a Bank Guarantee for 10% (Ten Percent) of _____ the contract price
amounting to _____ (_____

_____) to secure its obligations to Electronics Division, BHEL having its registered office at New Delhi
for the performance of the contract including the warranty of the equipment supplied, We _____
Bank, _____ hereby expressly, irrevocably and unreservedly undertake and guarantee as
principal obligors on behalf of M/s _____ that in the event Bharat Heavy Electricals Ltd. (B.H.E.L.)
declares to us in writing that M/s _____ has not fulfilled any obligation according to the
contractual obligation of the said contract, to pay you on demand and without demur to Bharat Heavy Electricals Ltd.,
Electronics Division, Mysore Road, P.B. No. 2606, Bangalore-560 026, India an amount of _____ (in words
_____) subject to as may be determined below:

- 1) Notwithstanding any right M/s. _____ may have directly against you or any disputes raised
by M/s _____, Your written demand shall be conclusive evidence to us that repayment
is due under the terms of the said contract and shall be binding on us.
- 2) We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations
made between you and M/s. _____
with or without our consent and Knowledge or by any alterations in the obligations of M/s.
_____ by any forbearance whether as to payment, time, performance or otherwise.
- 3) This guarantee shall remain valid until the end of twenty four weeks after the close of the warranty period or until
the same is reported by BHEL to us whichever is earlier.
- 4) We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you
subject to the provision of clause (7) below.
- 5) This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change
in the constitution of the Bank or M/s.
_____.
- 6) This guarantee shall be governed by and constructed in accordance with the Laws of India.
- 7) At any time _____ Bank may render this guarantee null and void by paying to Bharat Heavy
Electricals Ltd. the full amount being
_____ (in words _____)

For and on behalf of Bank
by its Authorized
Signatory

Note:

Signature of tenderer / with seal
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- (1) To be executed in Non-Judicial stamp paper by any authorized Indian Bank.
- (2) To be submitted directly by banker to concerned executive in purchase dept., Please give BHEL address to banker.
- (3) Do not enclose with Bank document.
- (4) Any Modification & omissions to this are not permitted

PERFORMANCE BANK GUARANTEE
(FOR INDIGENOUS PURCHASE ORDERS)

THIS DEED OF GUARANTEE made and executed on the _____ day of _____(year), by the _____ (Bank), registered under the Companies Act 1956/Nationalized Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the State Bank of India Act / Subsidiary Banks Act, having its registered / head office at _____ represented herein by its Branch Manager / authorized representative Sri. _____ & Sri. _____(Hereinafter called 'guarantor ' which term shall mean and include its successors and assigns)

IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED

_____ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort , New Delhi-100 049 and its Electronics Division at Mysore road, Bangalore-26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on _____ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No _____Dt _____.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order/contract.

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees _____being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except against a Bank Guarantee for the said sum of Rs _____ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees _____ being (...%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below:

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants With company is as follows :-

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs _____ (in words) _____ against any loss or damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier.
- 2) The Guarantor hereby undertakes to pay the amounts due and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by the supplier of any terms contained in the said order / contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the Contractor / supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all the supplies to be made / Works to be performed / Services to be rendered under the said order / contract / agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract / agreement have been fully and properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below, the guarantor shall be discharged from all the liability under this guarantee thereafter.
- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier from time to time or refrain from exercising the power exercisable by the company against the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part , by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said

Signature of tenderer / with seal
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supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.

- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above contained, the liability of the guarantor under these presents is restricted to Rs_____. The guarantee shall be in force till its expiry on _____ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through its authorized representative has executed this deed of Guarantee on the day, month and year first above written.

(Seal of the Bank to be affixed)

WITNESS

- 1.
- 2.

Note:

- (1) To be executed in INR 100 Non-Judicial stamp paper by any authorized Indian Bank.
- (2) To be submitted directly by banker to concerned executive in purchase dept., Please give BHEL address to banker.
- (3) Do not enclose with Bank document.
- (4) Any Modification & omissions to this are not permitted.

BHEL MEMBER BANKS (CONSORTIUM BANKS)

PBG SHALL BE ISSUED FROM THE FOLLOWING BANKS OR THEIR BRANCH OFFICES ONLY

1	STATE BANK OF INDIA
2	PUNJAB NATIONAL BANK
3	HDFC BANK
4	SYNDICATE BANK
5	CANARA BANK
6	INDIAN BANK
7	ST. BANK OF HYDERABAD
8	ICICI BANK
9	STANDARD CHARTERED BANK
10	UCO BANK
11	KOTAK MAHINDRA
12	ORIENTAL BANK OF COMMERCE
13	STATE BANK OF TRAVANCORE
14	CENTRAL BANK
15	IDBI BANK
16	FEDERAL BANK
17	HSBC LTD
18	DEUTSCHE BANK
19	CORPORATION BANK
20	CITI BANK
21	BANK OF BARODA
22	ABN AMRO BANK
23	UNITED BANK OF INDIA
24	VIJAYA BANK
25	UNION BANK OF INDIA
26	PUNJAB & SIND BANK
27	ANDHRA BANK
28	BANK OF INDIA
29	AXIS BANK