

	Project	3X200MW + 3X500MW + 1X500MW
	Document No.	2100-109-PVE-W-302
	Title	Electrical Single line Diagram for Auxiliary Power Distribution
	Reference	NTPC informed on 12.11.2020
SL. No.	NTPC Comments	BHEL Reply dated 25.09.2023
1	Vector group of 33/ 6.9 kV HT transformers need to be changed from Dyn11 to Dyn1	Updated.
2	-	Drawing updated to include final motor ratings as per motor datasheets

KORBA STPP STAGE-I, II & III

3X200MW + 3X500MW + 1X500MW
(FGD SYSTEM PACKAGE)

**ELECTRICAL SINGLE LINE DIAGRAM
FOR AUXILIARY POWER DISTRIBUTION**

BHEL Doc No.: PE-DG-466-565-E001

NTPC Doc No.: 2100-109-PVE-W-302

REVISION: 04



BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UP [INDIA]

TABLE-3 : SWITCHBOARDS[illegible]

TE PROB EXHIBIT 10000A, 400/34.8KX, Z=14.0% TRF

* KENTING SPACE FINISHES TO BE MOVED AS PER THE REQUIRED RATING OF ONLY PGD THE STAGE INCOME AND OTHERS KENTING STATION TRANSFORMER-4 (ST-4)
* KENTING FINISHES FOR OTHERS KENTING STATION TRANSFORMER-4 (ST-1) TO BE MOVED AS PER REQUIRED RATING OF ONLY PGD THE STAGE INCOME
DISCONNECTION OF KENTING CABLE, CABLE AND CABLES UP TO ST-4

LEGEND

GENERATOR		BATTERY CHARGER
TRANSFORMER		ONE OUT OF TWO OR ONE ELECTRICAL INTERLOCK
CIRCUIT BREAKER		TWO OUT OF THREE OR ELECTRICAL INTERLOCK
MOTOR		OFF CIRCUIT TAP CHANGE
DRAWOUT FACILITY		ON NATURAL AIR INFLUX
EARTHING		SEGREGATED PHASE BUS
RESISTOR		PLANNED CHARGER FAILURE REMEDIATION FACILITY
CONTRACTOR		SELF HEATING FACILITY
FUSE		AUTO SLOW C/F FACILITY
MCB		
SWITCH FUSE		
SOLAR		

S/N0	MOTOR ID	NAME PLATE RATING (KW)	TOTAL NO OF MOTORS	BUS SECTION 101A SEC A	BUS SECTION 101A SEC B	BUS SECTION 101A SEC C	BUS SECTION 101A SEC D	BUS SECTION 101A SEC E	BUS SECTION 101A SEC F
1	Booster Feeder	2900 A/B	1			2A, 3C, 5D	7A, 7D, 7E		
2	Booster Feeder	2815 A/B	2	1A					
3	EC Pump	510 A/B	16			2A, 3C, 5D, 7D, 7E	2B, 2D, 2E, 3D, 3E	3A, 3C	3B, 3D
4	Atmospheric Gasolene Oil motor - IC Pump	1610 A/B	2				2A		
5	Vacuum Pump Motor	450 A/B	2	1A	2A				
6	Pressure Transmitter	260 A/B	2	1A	2A				
7	Reversible Motor	100 A/B	2			2A, 3C, 5D	7A, 7D, 7E		
8	Overhaul Hammer	354 A/B	6			2A, 3C, 5D	7A, 7D, 7E	3A	3B

S.NO	Transformer ID	ID	SERVICES	TABLE-2: AUXILIARY TRANSFORMER	
				BATTING PARAMETERS	LOCATION OF TRANSFORMER
1	OCAT01, OCAT02	FED HT TRANSFORMER STAGE-1	25 MVA, 17.5KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	OUTSIDE FED CONTROL ROOM	
2	OCBT01, OCBT02, OCBT03	FED HT TRANSFORMER STAGE-2	25 MVA, 17.5KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	OUTSIDE FED CONTROL ROOM	
3	OCCT01, OCCT02	FED HT TRANSFORMER STAGE-3	25 MVA, 17.5KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	OUTSIDE FED CONTROL ROOM	
4	ODAT01, ODAT02	FED SERVICE TRANSFORMER STAGE-1	1.8 MVA, 11KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	
5	ODBT01, ODBT02	FED SERVICE TRANSFORMER STAGE-2	1.8 MVA, 11KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	
6	ODCT01, ODCT02	FED SERVICE TRANSFORMER STAGE-3	1.8 MVA, 11KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	
7	OCUT01, OCUT02	FED COMMON USE TRANSFORMER	250KVA, 11KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	
8	ODUT01, ODBT02	LPH-HP SBR TRANSFORMER	25 MVA, 17.5KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	
9	ODT01, ODT02	WATER SYSTEM WAC/SBR TRANSFORMER	2.5 MVA, 17.5KV/0.433KV, 50HZ AN DYN1, 1.24% IZ/0.433KV WSPR OF 2.5%	FED CONTROL ROOM	

1. BUS DUCTS ARE OF FOLLOWING TYPE :
MV SYSTEM 6.6KV SEGREGATED PHASE BUSDUCT.
LOW VOLTAGE SYSTEM 415V NON-SEGREGATED PHASE BUSDUCT.

2. MV SYSTEM IS 3PH, 3W, 50HZ; LV SYSTEM IS 3PH, 4W, 50HZ EXCEPT EMERGENCY BOARD WHICH IS 3PH 3W, 50HZ

4. TWO NO. DG SETS ARE PROVIDED. ONE DG SET FOR STAGE-I AND ONE COMMON DG SET FOR STAGE-II & III TO COVER FOR EMERGENCY LOADS OF THE SYSTEM.

8. CHANGEOVER FACILITY

(B) ALL 415V SYSTEM BUS INCOMERS ARE PROVIDED WITH MANUAL DEAD BUS CLOSING

(C) 415V EMERGENCY BOARD & OMA, #OMB & #OMC ARE NORMALLY FED FROM FGD

6. INTERLOCKING
THE 6.6 kV & 415V SWITCHBOARDS/MCCs ARE PROVIDED WITH POSITIVE ELECTRICAL

INTERLOCKING TO ENSURE THAT DIFFERENT POWER SUPPLY SOURCES ARE NOT OPERATED IN PARALLEL FOR PROLONGED DURATION TO AVOID FAULT LEVEL EXCEEDING THE DESIGNATED SWITCHBOARD CAPABILITY, EXCEPT DURING MOMENTARY PARALLELING IN CASE OF ON-LOAD LIVE CHANGEOVER, WHERE PROVIDED

7. ELECTRICAL EQUIPMENT RATINGS ARE INDICATED FOR AN AMBIENT TEMPERATURE OF 50 C

9. NUMBERS AND RATINGS OF LV SERVICE TRANSFORMERS & ASSOCIATED SWDBs/ MCCs ARE INDICATIVE AND MAY UNDERGO REVISIONS DURING DETAILED DESIGN, TO SUIT THE

10. THE RATINGS OF MY CIRCUIT BREAKERS ARE DENOTED BY AN ALPHABET ON THE

11. PERMISSIBLE VOLTAGE VARIATION AT 6.6kV VOLTAGE LEVELS SHALL BE AS FOLLOWS:

VOLTAGE : +/- 5%
FREQUENCY : +3 TO -5%

12. PERMISSIBLE VOLTAGE VARIATION AT 415V VOLTAGE LEVELS SHALL BE AS FOLLOWS:
VOLTAGE : +/- 10%

FREQUENCY : +3 TO -5%
COMBINED VOLTAGE & FREQUENCY VARIATION : 10% (ABSOLUTE SUM)

13.THE SELECTION OF LT OUTGOING FEEDERS (DRAW OUT TYPE) SHALL BE AS INDICATED

HEREUNDER:
(i) BELOW 100A : SFU
(ii) 100A-400A : MCCB
(iii) ABOVE 400A : BREAKER

15. FOR HAMMER MILL THERE ARE 2 FEEDERS PER MOTOR ONE FOR FORWARD ROTATION

16. THE RATING OF EMERGENCY MCC BOARDS OMA, OMB & OMC SHALL BE FINALIZED BASED ON THE RATING

17. CONTROL AND PROTECTION SUPPLIES FOR ALL SWITCHGEARS, DE'S, CONTROL PANEL SHALL BE FED FROM TWO DIFFERENT SOURCES/ SECTIONS.

18.20% OR MIN. 2 SPARE (WHICHEVER IS HIGHER) OF EACH TYPE SHALL BE PROVIDED IN ALL THE LT SWGRS, MCCs, AC/ DC DISTRIBUTION BOARDS IN LINE WITH TECHNICAL SPECIFICATION.

NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)

BA SUPER THERMAL POWER PROJECT

BHARAT HEAVY ELECTRICALS LTD	
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ELECTRICAL SINGLE LINE DIAGRAM FOR AUXILIARY POWER DISTRIBUTION

S NO. G-466-565-E001	DEPT.	SCALE	NTPC DRAWING NO. 2100-109-PVE-W-302
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