

SPECIAL CONDITIONS OF CONTRACT (for both parts A and B)

12.0 TERMS OF PAYMENT

12.0.1

The contractor should submit his monthly on account bills with all the details required by BHEL on specified date every month covering progress of work in all respects and areas from the 25 of previous calendar month to 24th of the current month.

12.0.2

Clause 2.6 of general conditions of contract shall be referred to as regards mode of payment, and measurement of the work completed.

12.0.3

Release of payment in each running bill will be restricted to 95% of the value of work admitted, as per the percentage break-up for the stage of work completion stipulated vide clauses hereinafter.

The 5% thus remaining shall be on account of workmanship guarantee of work executed. The same will be released after completion of the guarantee period of 12 months from the date of completion of entire work as certified by BHEL engineer. However, this amount may be released earlier on receipt and acceptance of bank guarantee (BG) of equal amount in BHEL's prescribed format. The BG shall be valid at least for one-year period and renewed if necessary to cover the entire Defect Liability period and an additional six months of claim period.

12.0.4

The payment for running bills will normally be released within 30 days of submission of running bill. Contractor shall make his own arrangement for making payment of impending labour wages and other dues in the meanwhile.

12.1 STAGES OF PROGRESSIVE PRO-RATA PAYMENTS

The progressive pro-rata payment will be released based on accepted price/item rates in following manner:

(A) Progressive payment for erection, testing and assistance for commissioning (90% of the accepted item rates on pro-rata basis as per the break up given hereinafter under the clause no. 12.1.1)

(B) Progressive payment for providing installation supervision services (10% of the accepted item rates on pro-rata basis as per the details given hereinafter under the clause no. 12.1.2)

12.1.1 STAGE-WISE BREAK UP FOR PRO-RATA PROGRESSIVE PAYMENT FOR VARIOUS ERECTION, TESTING & ASSISTANCE FOR COMMISSIONING ACTIVITIES.

Payment will be made as follows

CHAPTER 1:

EQUIPMENTS UNDER PART A: SWITCHYARD

12.1.1.1 220/ 50-VOLT BATTERY & BATTERY CHARGER (STATION & 400 KV SWITCHYARD

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	12%
02	ON COMPLETION OF ASSEMBLY OF BATTERY RACKS, PLACEMENT OF BATTERIES ON RACK, FITTING OF CELL INTERCONNECTING SHORTING LINK, NUMBER PLATES, DC FUSE BOARD ETC	50%
03	ERECTION OF BATTERY CHARGERS	18%
04	TESTING COMMISSIONING OF BATTERY CHARGER, BATTERY CHARGING /DISCHARGING, CONDUCTING THE CAPACITY TEST ETC.	15%
05	TRIAL RUN AND FULL LOADING	5%
	TOTAL	90%

12.1.1.2 SF 6 400 / 220 CIRCUIT BREAKERS, HCB ISOLATORS

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	8%
02	POSITIONING, ASSEMBLY OF ALL ACCESSORIES AS PER LAY OUT DRAWING	45%
03	ALIGNMENT, ADJUSTMENT, EQUIPMENT EARTHING CONNECTION FROM EARTH GRID & MECHANICAL CHECKS, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERECTION PROTOCOL ETC	12%
04	PRE-COMMISSIONING CHECKS, ELECTRICAL TESTS, CALIBRATION AND PROTECTION AND INTER LOCK CHECKS, PREPARATION / SUBMISSION OF COMMISSIONING PROTOCOL	15%
05	INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT, CHARGING/ OF SYSTEM	8%
06	FINAL PAINTING	2%
	TOTAL	90%

12.1.1.3 BUS SUPPORT INSULATORS, TUBULAR ALUMINIUM BUS BAR

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	ERECTION, FIXING OF CLAMPS & CONNECTOR, ALIGNMENT, PROVIDING PHASE IDENTIFICATION, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERECTION PROTOCOL ETC	50%
03	COMPLETION OF WELD JOINTS	20%
04	COMPLETION PRE-COMMISSIONING CHECKS & TESTING, PREPARATION / SUBMISSION OF COMMISSIONING PROTOCOL	5%
05	ENERGISATION OF SYSTEM FROM 400 / 220 KV SIDE (50% FOR EACH SYSTEM)	5%
	TOTAL	90%

12.1.1.4 CURRENT / POTENTIAL/ CAPICITANCE VOLTAGE TRANSFORMER, LIGHTING ARRESTOR, WAVE TRAP

SL. NO	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL AND TRANSPORTATION FROM BHEL STORE TO SITE	10%
02	PLACEMENT, ALIGNMENT, ASSEMBLY OF ACCESSORIES, OIL FILLING/ FILTRATION (AS APPLICABLE), EQUIPMENT EARTHING CONNECTION FROM EARTH GRID, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERECTION PROTOCOL ETC.	60%
03	PRE-COMMISSIONING CHECKS & TESTING, PREPARATION / SUBMISSION OF COMMISSIONING PROTOCOL	10%
04	ENGERSING THE EQUIPMENTS	8%
05	FINAL PAINTING	2%
	TOTAL	90%

12.1.1.5 ALUMINIUM BUS CONDUCTORS, TUBULAR BUS BAR & SHIELD WIRE FOR 400 / 220 KV SYSTEM

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	PRE ASSEMBLY, ERECTION, STRINGING, CLAMPING, MAKING DROPPER CONNECTION TO EQUIPMENT, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERECTION PROTOCOL	60%
03	INTERCONNECTION OF BUS TO EXSITING SWTICHYARD 400 KV/220 KV	5%

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
04	STRINGING OF CONDUCTOR FOR TRANSFORMER BAY	5%
05	COMPLETION PRE- COMMISSIONING CHECKS & TESTING, PREPARATION / SUBMISSION OF COMMISSIONING PROTOCOL	5%
06	ENERGISATION OF SYSTEM FROM 400 / 220 KV	5%
	TOTAL	90%

CHAPTER 2:

EQUIPMENTS UNDER PART B: ELECTRICALS

12.1.1.6 TRANSFORMERS, 200 MVA (GT), 63 MVA (STATION), 25 MVA (UAT), 167 MVA (ICT), 1600 KVA/ 2000 KVA/ 1000 KVA AUX. POWER TRANSFORMER

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE EXCEPT THE TRANSFORMER TANK	8%
02	POSITIONING AND ALIGNMENT TRANSFORMER TANK AS PER LAY OUT DRAWING	5%
03	INTERNAL INSPECTION OF CORE AND WINDING TAPS SWITCH OFF-LOAD/ON-LOAD, H.V./L.V. BUSHING TURRET ASSEMBLY, VACUUM PULLING, OIL FILTRATION AND FITTING OF OIL UPTO CORE AND WINDING LEVEL	15%
04	ASSEMBLY OF ALL ACCESSORIES, PIPES AND FITTINGS, CONSERVATOR TANK, COOLER BANK/RADIATOR BANK, BUSHINGS, MARSHALLING BOX, CABLING FROM MARSHALLING BOX TO FIELD DEVICES, FANS AND PUMPS ETC.	18%
05	OIL FILLING IN COMPLETE ASSEMBLED TRANSFORMERS, COMPLETION OF DRY OUT AND FILTRATION OF OIL OF COOLING BANK, ACCEPTANCE OF DRY OUT.	18%
06	PRE-COMMISSIONING CHECKS, ELECTRICAL TESTS, CALIBRATION AND PROTECTION AND INTER LOCK CHECKS	12%
07	INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT, BACK CHARGING/FORWARD CHARGING	12%
08	TRIAL RUN AND FULL LOADING	2%
	TOTAL	90%

12.1.1.7 ISOLATED PHASE BUS DUCT FOR GENERATOR TRANSFORMER

SL. NO	DESCRIPTION OF ACTIVITY	PERCENT-AGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	8%
02	ERECTION AND ALIGNMENT OF SUPPORTING STRUCTURE	8%
03	PLACEMENT OF BUS DUCT, SUB-ASSEMBLIES, LAVT CUBICLE, NG TRANSFORMER AND RESISTANCE CUBICLE, AIR PRESSURIZATION UNIT AND ITS PIPING AND ACCESSORIES, EXCITATION TRANSFORMER AND ITS TRUNKING CUBICLE, WALL FRAME ASSEMBLY, SEAL AIR BUSHINGS	23%
04	ALIGNMENT OF BUS DUCT ASSEMBLIES, WELDING OF CONDUCTORS, MAKEUP PIECES, SHUNTS, FLEXIBLES, CURRENT TRANSFORMERS AND VOLTAGE TRANSFORMER, SURGE PROTECTOR ETC. INSTALLATION, LINE, NEUTRAL TEE OFF DUCT CTs, WIRING UPTO MARSHALLING BOX, DPD TEST ON CONDUCTOR WELD JOINTS ETC.	23%
05	PRE-COMMISSIONING TESTS, HIGH VOLTAGE TEST	8%
06	COMPLETION OF AIR LEAKAGE TEST	3%
07	FINAL BOX-UP AND END TERMINATION AND MAKING READY FOR ENERGIZATION	5%
08	COMPLETION OF SHORT CIRCUIT/OPEN CIRCUIT TEST WHICH INCLUDES FIXING AND REMOVING OF CERTAIN LINK AND NORMALISATION AND SYNCHRONIZATION OF THE UNIT, INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	10%
09	TRIAL RUN AND FULL LOADING	2%
	TOTAL	90%

12.1.1.8 SEGREGATED PHASE BUS DUCT 11 & 6.6 kV / 415 VOLT LT BUS DUCT (NSP)

SL. NO	DESCRIPTION OF ACTIVITY	PERCENT-AGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	8%
02	ERECTION, ALIGNMENT, GROUTING SUPPORTING STRUCTURE	13%
03	PLACEMENT, ALIGNMENT, BOLTING OF CONDUCTOR, ENCLOSURES, COPPER FLEXIBLES, WALL FRAME ASSEMBLIES, SEAL OFF BUSHINGS, CONDUIT AND WIRING FOR ANTI-CONTAMINATION HEATERS, EARTHING INTER CONNECTING BRIDGING BUS DUCT BETWEEN THE SWITCH BOARD ETC.	45%

SL. NO	DESCRIPTION OF ACTIVITY	PERCENT-AGE
04	PRE-COMMISSIONING AND COMPLETION OF AIR LEAK	8%
05	COMPLETION OF AIR PRESSURIZATION TEST	4%
06	ENERGIZATION OF INDIVIDUAL BUS DUCT AND SWITCH BOARD, INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	10%
07	TRIAL RUN AND FULL LOADING	2%
	TOTAL	90%

12.1.1.9 VARIABLE FREQUENCY DRIVE FOR I.D. FANS

SL. NO	DESCRIPTION OF ACTIVITY	PERCENT-AGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	8%
02	PLACEMENT, ALIGNMENT, GROUTING OF LOAD CONVERTOR/INVERTOR PANELS, COMMON CONTROL PANELS, FIXING OF HOT AIR EXHAUST DUCT ETC.	12%
03	VACUUM BREAKER PLACEMENT, ALIGNMENT, SUB-ASSEMBLIES, GROUTING ETC.	13%
04	PLACEMENT, ALIGNMENT OF POWER TRANSFORMERS, ASSEMBLIES OF LOOSE ACCESSORIES AND OIL FILLING	13%
05	DRYING OUT OF TRANSFORMERS	9%
06	PLACEMENT, ALIGNMENT OF D.C. LINK REACTOR	9%
07	PRE-COMMISSIONING TESTS ON LCI, COMMON CONTROL PANEL, BREAKERS, TRANSFORMERS, REACTOR ETC.	20%
08	NO LOAD TRIAL RUN OF MOTORS	4%
09	FULL LOADING AND TRIAL RUN OF UNIT	2%
	TOTAL	90%

12.1.1.10 EXCITATION SYSTEMS & ACCESSORIES

SL. NO	DESCRIPTION OF ACTIVITY	PERCENT-AGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORE TO SITE	8%
02	PLACEMENT, ALIGNMENT, GROUTING, INTER CONNECTION OF BUS BAR AND WIRING, FIXING OF LOOSE COMPONENTS AND AIR EXHAUST OUTLET DUCT FOR REGULATION, FIELD FLUSHING AND THYRISTOR PANELS	57%
04	PRE-COMMISSIONING TESTS	12%
05	UNIT SYNCHRONIZATION AND STABILIZATION, INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	11%
06	TRIAL RUN AND FULL LOADING	2%
	TOTAL	90%

CHAPTER 3:

SIMILAR TYPE EQUIPMENTS UNDER PARTS A AND B

12.1.1.11 11 KV / 3.3KV / 415V / DCDB SWITCHGEAR BOARDS, NERATOR/ ST/UAT / 400 /220 KV SWITCH YARD CONTROL & PROTECTION PANEL & ACCESSORIES

SL. NO.	DESCRIPTION OF ACTIVITY	PERCENT-AGE
01	COLLECTION OF MATERIAL AND TRANSPORTATION FROM BHEL STORES TO SITE	8%
02	PLACEMENT ON FOUNDATION, ASSEMBLIES ETC.	18%
03	ADJUSTMENT, ALIGNMENT, GROUTING, ELECTRICAL INTER-CONNECTIONS, INTER PANEL WIRING AND BUS BAR, INSTALLATION OF LOOSE ACCESSORIES ETC.	33%
04	PRE-COMMISSIONING AND ELECTRICAL TEST, MECHANICAL/ELECTRICAL CHECKS INCLUDING PROTECTION, INTERLOCK TESTING AND MAKING THE SYSTEM READY BY ENERGIZATION	12%
05	INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	7%
05	ENERGIZATION OF SWITCH BOARD AND TRIAL OF INDIVIDUAL FEEDERS ON LOAD	10%
06	COMPLETION OF TRIAL RUN OF MAIN TG SET/FULL LOADING	2%
	TOTAL	90%

12.1.1.12 POWER & CONTROL CABLE

SL.N O.	DESCRIPTION OF ACTIVITY	PERCEN- TAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	COMPLETION OF CABLE LAYING	50%
03	GLANDING & TERMINATION	20%
04	CLAMPING & DRESSING, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERTECTION PROTOCOL ETC	5%
05	CABLE CHECKING	5%
	TOTAL	90%

12.1.1.13 ABOVEGROUND EARTHING, CABLE TRAY & SUPPORTING STRUCTURE, GI LATTICE & PIPE STUCTURE

SL. NO.	DESCRIPTION OF ACTIVITY	PERCEN- TAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	ERECTION, ASSEMBLY, ALIGNMENT, EARTHING ETC AS PER DRG, FIXING OF LEBALS, DANGER BOARD, MARKING OF TOWER & GANTRY STRUCTURE, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERTECTION PROTOCOL ETC.	78%
03	ENERGISATION OF SYSTEM FROM 400 / 220 KV SIDE SYSTEM, PREPARATION / SUBMISSION OF COMMISSIONING PROTOCOL ETC.	2%
	TOTAL	90%

12.1.1.14 MARSHALLING BOX, JUNCTION BOX, STRUCTURAL STEELFABRICATION & INSTALLATION

SL. NO.	DESCRIPTION OF ACTIVITY	PERCEN- TAGE
01	COLLECTION OF MATERIALS AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	COMPETION OF ERECTION, PREPARATION / SUBMISSION OF FQA LOG SHEET / ERTECTION PROTOCOL ETC	75%
03	FINAL PAINTING	5%
	TOTAL	90%

12.1.1.15

UNIT RATE PAYMENT SHALL BE MADE FOR OTHER SYSTEMS NOT MENTIONED ABOVE (ESP, SOOT BLOWER, ELECTRICAL HOIST & OTHER ITEMS) AS PER THE RATE SCHEDULE. PERCENTAGE BREAKUP FOR ERECTION, TESTING, COMMISSIONING SHALL BE AS BREAKUP GIVEN BELOW: -

1. 80% OF THE QUOTED UNIT RATES ON COMPLETION OF ERECTION, CALIBRATION, TESTING AND COMMISSIONING.
2. 15% AFTER COMPLETION OF THE INDIVIDUAL SYSTEM COMMISSIONING.
3. 5% AFTER TRIAL OPERATION OR UNIT HANDING OVER TO CUSTOMER WHICHEVER IS EARLIER.

12.1.1.16

FOR THE ITEMS WHERE THE PAYMENT IS TO BE MADE AGAINST UNIT OF WEIGHT, THE ACTUAL WEIGHT OF ITEMS ERECTED BY CONTRACTOR WILL BE PAID AFTER ASSESSING THE WEIGHT ON THE BASIS OF SHIPPING LIST OR STANDARD ENGINEERING PRACTICE. BHEL ENGINEER'S DECISION WILL BE FINAL AND BINDING ON CONTRACTOR IN THIS REGARD.

12.1.1.17

WHEREVER ADDITIONAL INSTRUMENTATION WORK HAS TO BE CARRIED OUT FOR PERFORMANCE GUARANTEE TEST, THE SAME HAS TO BE EXECUTED BY THE CONTRACTOR AS PER THE APPLICABLE RATES ALREADY PROVIDED IN THE RATE SCHEDULE.

12.1.2 Progressive payment for providing installation supervision services

12.1.2.1

For the purpose of payments to the contractor, 10% of the contract value shall be assigned as the amount payable towards installation supervision services. To start with contract value will be considered as the award value. Contract value will be periodically reviewed depending on the quantity being/to be executed by the contractor for completion of the contractual work in totality. Finally, the contract value for this purpose shall be arrived at by multiplying the agreed item rates of the rate schedule applied on actually executed final quantities of all the items of work.

For the purpose of release of progressive payments, month-wise break up for each of the above services will be jointly worked out by BHEL and the contractor at site at the time of start of work. This will be dynamically and regularly reviewed every month/quarter or mutually agreed periodicity and shall be re-set based on expected requirement of services keeping in view relevant aspects. On all the issues as above, BHEL engineer's decision shall be final & binding.

These services are to be rendered even during extended period (the contract extension may be due to any reason) without any additional payment/compensation. The periodical review of monthly billing/payment break up shall take this aspect in consideration. Progressive payment for the service rendered will be made on certification of BHEL accordingly.