BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS ENGINEERING MANAGEMENT
NEW DELHI

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CUSTOMER Doc. No.				NAME	RK	YLK	SKS
TYPE OF DOC.	TECHNICAL SPECIFICATION			SIGN			
TITLE	400kV Current Transformer			DATE	02/12/2021	02/12/2021	02/12/21
				GROUP	TBEM		
				W.O. No	445		

Customer	**West Bengal Power Development Corporation Limited**
Consultant	**Development Consultants Private Limited, Kolkata**
Project	**1x660MW, Sagardighi Thermal Power extension Project (Unit#5)**

List of Contents

Rev.	Date	Altered	Checked	Approved	REVISION DETAILS		
Distribution				CUSTOMER	TBMM	O/C	
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SECTION 1

SCOPE, SPECIFIC TECHNICAL REQUIREMENTS AND QUANTITIES.

1.0 SCOPE

This technical specification covers the requirements of design, manufacture, testing at works, packing and dispatch of Current transformers complete with accessories as listed in the specification.

The fitment and equipments offered shall be of approved make of WBPDCL or its subsequent approval from WBPDCL shall be bidder's responsibility with no commercial implications to BHEL. If any of the make offered by the bidder is not acceptable to M/s WBPDCL, the bidder has to supply alternate WBPDCL approved make, meeting the specification, with no commercial implications to BHEL.

The specification comprises of following sections:

Section-1: Scope, Specific Technical Requirements and Quantities
Section-2: Equipment Specification
Section-3: Project Details & General Technical Requirements
Section-4: Guaranteed Technical particulars (GTP)
Section-5: Checklist

In case of any conflict between various sections, order of precedence shall be in the same order as listed above.

1.1 The equipment is required for the following project.

Name of customer : **West Bengal Power Development Corporation Limited (WBPDCL)**

Name of the Consultant : **DCPL, Kolkata**

Name of the project : **Extension of 400kV Switchyard at 1X660MW Unit-5 Sagardighi TPP**

Refer Section - 3 for Project Details and General Specifications.

Note: The terms used in this specification namely ,"Employer/Purchaser" refers to WBPDCL , "Contractor " refers to BHEL & "Sub-contractor" refers to successful bidder.

1.2 SPECIFIC TECHNICAL PARTICULARS

a. System Parameters:

Sl No.	Parameters	Single phase, live tank, Oil filled, hermetically sealed outdoor type with silicon composite insulator.
1	Nominal voltage (Phase to Phase) [kVrms]	400
2	Max. Continuous voltage Um (Phase to Phase) [kVrms]	420
3a	1.2/ 50 micro sec Impulse withstand voltage [kVp]	1425
3b	250/2500 micro sec Switching Impulse withstand voltage (Dry and Wet) [kVp]	1050
4	One min. dry and wet power frequency withstand voltage [kVrms]	630
5	One minute power frequency withstand voltage between secondary terminal & earth [kV]	5
6	Rated frequency [Hz]	50
7	Rated Short Time current for 3 sec [kA]	50
8	Rated Dynamic current withstand [kA (peak)]	125
9	Rated Primary Current [A]	2000
10	Rated Extended Primary Current	120%
11	Rated secondary current [A]	1
12	Minimum creepage Distance (phase to ground) [mm/kV]	31
13	Max temperature rise over design ambient temp	Per IS/IEC duly adjusted for site condition
14	Type of Insulation	Class A
15	Partial Discharge level [pC max]	<10
16	Number of Terminals	All terminals of control circuits are to be wired upto terminal box plus 20% spare terminals evenly distributed on all TBs.
17	Cantilever strength of CT at the terminal [kg]	500
18	Seismic acceleration (Horizontal)	0.3g
19	Terminal Box - Ingress Protection	IP 55

b. Technical Parameters of 400 KV CT:

Please refer Section II.

c. Core Parameters:

Core No	Current Ratio	Output Burden (VA) at lowest Tap	Minimum KPV (Volts)	Max Ie (mA) at KPV	Maximum Rct (Ohms)	Accuracy Class
1	2000-1000-500/1 A	-	2000-1000-500V	30-60-120mA	10-5-2.5 Ohms	PS
2	2000-1000-500/1 A	-	2000-1000-500V	30-60-120mA	10-5-2.5 Ohms	PS
3	2000-1000-500/1 A	40	-	-	-	0.2s, ISF ≤ 5
4	2000-1000-500/1 A	40	-	-	-	0.2s, ISF ≤ 5
5	2000-1000-500/1 A	-	4000-2000-1000V	30-60-120mA	10-5-2.5 Ohms	PS
6	2000-1000-500/1 A	-	4000-2000-1000V	30-60-120mA	10-5-2.5 Ohms	PS

d. Technical Qualifying Requirement:

Please refer Annexure- TQR

1.3 QUANTITIES

S.No	Description	Main Equipment	Spares	Total Quantity
1.*	**For Extension of 400kV Sagardighi substation:** 400kV, 50kA for 3sec, 2000Amps, 6 core, single phase Current Transformer with extended current 120% along with mounting hardware.	18 Nos.	1 No.	19 Nos.

Note – 1) Total contract value may vary up to ± 10% at contract stage.
2) Hardware (Nut, Bolts and Washers) for Mounting CT on structure – 1set for each CT to be included by bidder in their offer.

1.4 MOUNTING STRUCTURE

The steel structures shall not be in scope of CT supplier. These shall be supplied by TBG/BHEL. However, equipment fixing hardware shall be included in scope of supply.

Each Current Transformer shall be furnished complete with the accessories as listed below:

1. Base frame with anchoring bolts, nuts etc. for fixing the equipment on to structure.
2. Two grounding pads with bolts and spring washers
3. Lifting Lugs.
4. Weather-proof secondary terminal box with set of terminals
5. Grading ring, if necessary.
6. Oil level gauge and pressure relief device.
7. Oil sampling valve.
8. Spark gap arrangement
9. Nitrogen sealing hole cover where inert gas cushion provided
10. Other standard accessories, which are not specifically mentioned but are usually provided with current transformers of such type and rating for efficient and trouble free operation.

1.5 TERMINAL CONNECTORS

The HV terminal connectors shall not be in scope of CT supplier. These shall be supplied by TBG/BHEL.

1.6 TYPE TESTING

Bidder shall submit valid type test reports (as per relevant IEC/IS standard) for the tests carried out within **last five years from the date of bid opening i.e. 18.03.2018**. The reports should have been conducted on identical or similar equipment/components to those offered.
In case the Bidder is not able to submit report of the type test(s) conducted within last five (5) years from the date of bid opening or in the case of type test(s) reports are not found to be meeting to specification requirement, the Bidder shall conduct all such test(s) under this contract at no additional cost to the Owner either at third party facility or in presence of Owner's representative and submit the reports for approval. The Bidder shall obtain the Owner's approval for the type test procedure before conducting the type test. The procedure shall specify the test set up, instrument to be used, acceptance norms, interval of recording etc. for the type test to be carried out.

1.7 DEVIATIONS:

The bidder shall list all the deviation from the specification separately. Offers without specific deviation will be deemed to be totally in compliance with the specification and NO DEVIATION on any account will be entertained at a later date.

1.8 INSPECTION & TESTING

Before being fitted on the equipment, all components shall be subjected to routine tests at the Contractors factory, as per the relevant IEC/IS standards. A detailed test report proving the successful passing of such tests shall be provided.
Prior to dispatch, the routine & acceptance tests shall be carried out on equipment in accordance with the applicable IEC /IS and the material shall be offered for final inspection to BHEL and WBDPCL in accordance with agreed quality plan with 3 weeks advance information.

1.9 PACKING

All equipment's shall be suitably protected, coated, covered or boxed and crated. To prevent damage or deterioration during transit, handling and outdoor storage (for a minimum period of 1 year) at site till the time of erection. While packing all the materials, the limitations from the point of view of availability of transportation facilities in India should be taken into account. The bidder shall be responsible for any loss or damage during transportation, handling and storage.

1.10 DRAWING APPROVAL:

The successful bidder shall have to extend all possible support like timely submission/re-submission of drawings, visit to end customer to facilitate documents approval without any commercial implications to BHEL. For further details, refer clause 3.18 of section-III of technical specification. Acceptance of bidder's documents shall be subject to end customer's approval. Date of Submission of first lot of drawings will be counted only from the date of submission of reasonably correct drawings.
Approval of the following will be required for technical clearance of manufacturing for Current transformer along with accessories.

- OGA & Drawings
- GTP
- Type tests

1.11 MANUFACTURING QUALITY PLAN:

The contractor shall carry out contract works in accordance with sound quality management principles which shall include such as controls which are necessary to ensure full compliance to all requirements of the specification & applicable international standards. These quality management requirements shall apply to all activities during design, procurement, manufacturing, inspection, testing, packaging, shipping, inland transportation, storage, site erection & commissioning. Contractor shall submit detailed Quality Plan for BHEL / customer's approval.

Section-II

Technical specification of 400kV Current Transformer

a) Current Transformer

The CT's shall be single phase, Live tank, Oil filled, hermetically sealed outdoor type with silicon composite insulator.

Each Current Transformer shall be furnished with a number of independent cores with ratios and other ratings as specified in the annexure. Different ratios of each core specified shall be achieved by secondary taps only and primary reconnection is not acceptable.

1) Constructional Features

i) The current transformer shall be single pole unit, designed for upright mounting on steel structure and furnished complete with fixing hardware and accessories.

ii) Insulator shall be polymer type and free from imperfections. All metal parts and hardwares shall be hot dip galvanised.

iii) The creepage distance shall correspond to the value specified in datasheet. Grading ring, if required, shall be furnished to maintain voltage gradient within permissible limit.

iv) The current transformer shall be filled up under vacuum with the insulating oil and be hermetically sealed. Current transformer shall be provided with oil level gauge, drain plug and pressure relief device. An inert gas cushion / stainless steel bellow shall be provided on top for expansion of the oil.

v) Current transformer shall be so constructed as to ensure that the oil does not flow out or leak out even when the current transformer is used continuously at the maximum allowable temperature.

vi) Core lamination shall be of cold rolled grain-oriented silicon steel or mumetal as dictated by design consideration. The cores used for protection shall be of low reluctance type and shall produce undistorted secondary current at transient condition at all ratios. Instrument saturation factor for the metering core shall be low enough to prevent damage to the instruments connected to it under maximum short circuit current specified.

vii) Current transformer characteristic shall provide satisfactory performance for burdens ranging from 25% to 100% of rated burden over a range of 10% to 100% rated current in case of metering core and up to knee point voltage in case of protection core. Instrument saturation factor for the metering core shall be low enough to prevent damage to the instruments connected to it under maximum short circuit current specified.

viii) The Instrument transformer shall have cantilever strength of not less than 500 kg for 420kV Instrument Transformers.

ix) Polarity marks shall indelibly be marked on each instrument transformer and at the lead terminals at the associated terminal block.

x) Insulating oil to be used for instrument transformers shall be of EHV grade and shall conform to IS-335/IEC-60296 (required for first filling)

xi) Name plate shall conform to the requirements of IEC incorporating the year of manufacture. The rated current & extended current rating in case of current transformers shall be clearly indicated on the name plate.

xii) Current transformers shall have single primary either ring type or hair pin type and suitably designed for bringing out the secondary terminals in a weather proof (IP-55) terminal box at the bottom. PF (Tan delta) terminal for measurement of tan delta and capacitance of the unit shall be provided. These secondary terminals shall be terminated to stud type non disconnecting terminal blocks inside the terminal box.

2) Terminals

i) Primary terminals shall be made of non-ferrous corrosion resistant material and provided with bimetallic terminal connectors.

ii) Secondary terminals shall be brought out to a terminal box and suitable for connection to 1100 V grade, steel wire unarmoured, PVC sheathed 5 x 4 mm2 stranded copper conductors. The terminal box shall be provided with a removable cable gland plate at the bottom for mounting five cable glands suitable for aforementioned cables.

iii) All primary and secondary terminals shall be clearly and indelibly identified as per relevant standard.

iv) The terminal box shall be of 3 mm thick sheet steel, IP-55, weather proof and dust-tight, complete with gasketted front access cover and removable gland plate at bottom for cable entry.

3) Grounding

i) Each current transformer shall be provided with two ground pads for connection to station ground mat.

ii) The ground pad shall comprise buffed metal surface with two holes, M10 G.I. bolts and spring washers to receive 75x10mm G.I. flat.

b) Data Sheet of 400kV Current Transformer

S.no.	Parameter	Description
1	Type	Single phase, live tank, Oil filled, hermetically sealed outdoor type with silicon composite insulator.
2	Service	Outdoor
3	Reference Standard	IEC 61869-1&2 / IS 2705
4	System Details Highest System Voltage Nos. of Phase Frequency System Neutral	 420KV 3 50Hz, +3% to -5% Effectively Earthed
5	C.T. Ratings	As per Annexure-1
6	Rated Continuous thermal current	120% of rated primary current
7	Insulation Level i) One-minute power frequency withstand a) HV terminal & earth: b) Secondary wiring: ii) 1.2/50 microsecond Lightning Impulse withstand voltage: iii) 250/2500 microsecond Switching Impulse withstand voltage:	 630 KV_{rms} 5 KV_{rms} 1425 KV_{peak} 1050 KV_{peak}
8	Short-time Current i) Rated 3-second current: ii) Rated dynamic current:	 50 KA_{rms} 125 KA_{peak}
9	Minimum Creepage distance (@31mm/kV)	13020 mm
10	Temperature rise a) Design Ambient Temperature ^{o}C: b) Limit of temperature rise:	 50 Per IS/IEC duly adjusted for site condition
11	Maximum radio interference voltage at 1.1Urated /sq.rt.3 at 1Mz :	Less than 1000 microvolt
12	Partial discharge level :	<10 Pico coulomb (max.)
13	Mounting :	Hot Dip Galvanised Steel structure
14	Degree of Ingress protection	IP 55
15	Minimum Corona extinction voltage (kVrms)	320
16	Cantilever Strength (Kg)	500
17	Seismic acceleration (Horizontal)	0.3g
18	Terminal Connector i) Type ii) Suitable for	 Bimetallic, Clamp type Al Tube/ACSR MOOSE

SECTION-3

3.0 GENERAL

This section stipulates the General Technical Requirements under the Contract and will form an integral part of the Technical Specification.
The provisions under this section are intended to supplement general requirements for the materials, equipments and services covered under other respective sections and are not exclusive. However in case of conflict between the requirements specified in this section and requirements specified under other sections, the requirements specified under respective sections shall hold good.

3.1 PROJECT INFORMATION AND SYSTEM PARAMETERS

a)	Customer/ Purchaser/ Owner	The West Bengal Power Development Corporation Ltd.
b)	Consultant/Owner's Engineer	Development Consultants Private Ltd. Kolkata
c)	Project Title	1X660MW thermal power extension project Unit-5 at Sagardighi- 400KV Switchyard
d)	Location	Site is located at Manigram village of Murshidabad district in West Bengal and around 240kM from Kolkata. 13kM north of Sagardighi town by the side of the SMGR(Sagardighi Manigram –Gankar –Raghunathganj) road at a distance of 20kM from National Highway 34 . Nearest railway station is Manigram adjacent to the site on Bandel-Barhawara branch line and 6.5kM from Sagardighi railway station on Sainthia-Azimhunj line of eastern railway. Nearest Airport –Kolkata. Nearest Seaport-Kolkata/Haldia
e)	Altitude	34 m above MSL
f)	Transport Facilities	Road/Rail
g)	Postal Address	To follow
SITE CONDITIONS		
a)	Maximum Design ambient dry bulb temperature	50°C
b)	Minimum Design ambient dry bulb temperature	5°C
c)	Average Relative humidity (for design)	73 %
d)	Maximum relative humidity	84%
e)	Pollution Severity	Heavily Polluted
f)	Seismic zone	III
g)	Wind velocity	47m/sec.
h)	Wind pressure	150kg/sq.mts

i)	Terrain category	2
j)	Risk coefficient (K1)	1.07
k)		
l)	Average rainfall	1389mm

SYSTEM PARAMETERS

Nominal system voltage	**400 kV**
Highest system voltage	420 kV
System voltage variation	-5% to +5%
Basic Impulse Level(dry /wet)	1425kVp
Power frequency withstand voltage dry/wet	630kVrms
Switching Impulse withstand voltage (Phase to Earth)	1050kVp
Switching Impulse withstand voltage (Phase to Phase)	1575kVp
Lightning impulse withstand voltage (kVp between live terminals and earth.)	1425kVp
Lightning impulse withstand voltage (kVp impulse on one terminal and other terminal earthed) (across isolating distance).	1665kVp
Maximum radio interference voltage at 320kV rms phase to ground voltage	1000 micro volts for frequency between 0.5 MHZ and 2.0 MHz
Rated short time current	50 kA for 1 sec
Frequency	50 Hz, +3% to -5%
Creepage distance	31 mm/kV
System Earthing	Effectively earthed

AUXILIARY POWER SUPPLY

3 phase A.C power supply	415V ±10%, 50 Hz±5%, 3-phase 4 wire,50kA, solidly earthed, combined voltage and frequency variation ±10%
1 phase A.C power supply	240V±10%, 50 Hz +3% to -5%, 1-phase AC supply
D.C. power supply	220V +10% to -15%, 2-wire , ungrounded 48V ±10%, 2 wire system positively earthed

3.2 GENERAL TECHNICAL REQUIREMENT

3.2.1 TYPE TESTS

All equipment/systems to be supplied shall conform to type tests as per relevant standards and proven type. The Bidder / Contractor shall furnish the reports of all the type tests carried out in within last **five years from date of techno commercial bid opening i.e. 18.03.2018.** as listed in relevant clauses in respective electrical specification and relevant standards for all components / equipment / systems. These reports should be for the tests conducted on identical/similar components/equipment/systems to those offered/proposed to be supplied under this contract.

Type tests done in an independent government laboratory or in the presence of representative of State Electricity Board or other reputed public undertakings, the type test reports of the same shall be submitted for scrutiny /approval. If these are found suitable and technically acceptable, conducting of type tests shall be waived off.

In case Contractor is not able to submit report of type test(s) conducted in last five years, or in case type test report(s) are not found to be meeting the specification/relevant standard requirements, then all such tests shall be conducted under this contract by the Bidder free of cost to Employer/Purchaser, and reports shall be submitted for approval. No charges shall be paid under this contract. All acceptance and routine tests as per relevant standards and specification shall be deemed to be included in the bid price.

3.2.2 CODES AND STANDARDS

All materials and equipment shall generally comply in all respect with the latest edition of relevant international electro-technical commission (IEC) or any other internationally accepted standard which ensure equal or better quality or relevant Indian standard(IS) mentioned against each equipment and this specification.

3.3 MATERIAL/WORKMANSHIP

3.3.1 General Requirements

Where the specification does not contain characteristics with reference to workmanship, equipment, materials and components of the covered Equipment it is understood that the same must be new, of highest grade of the best quality of their kind conforming to best engineering practice and suitable for the purpose for which they are intended.

The design of the Works shall be such that installation, future expansions, replacements and general maintenance may be undertaken with a minimum of time and expenses. Each component shall be designed to be consistent with its duty and suitable factors of safety, subject to mutual agreements and shall be used throughout the design. All joints and fastenings shall be devised, constructed and documented so that the component parts shall be accurately positioned and restrained to fulfill their required function. In general screw threads shall be standard metric threads. The use of other thread forms will only be permitted when prior approval has been obtained from purchaser.

Whenever possible, all similar part of the Works shall be made to gauge and shall also be made interchangeable with similar parts. All spare parts shall be interchangeable with, and shall be made of the same materials and workmanship as the corresponding parts of the Equipment supplied under the Specification. Where feasible, common component units shall be employed in different pieces of equipment in order to minimize spare parts stocking requirements. All equipment of the same type and rating shall be physically and electrically interchangeable.

All materials and equipment shall be installed in strict accordance with the manufacturer's recommendation(s). Only first-class work in accordance with the best modem practices will be accepted. Installation shall be constructed as being the erection of equipment at its permanent location. This, unless otherwise specified, shall include unpacking, cleaning and lifting into position, grouting, leveling, aligning, coupling of or bolting down to previously installed equipment bases/foundations, performing the alignment check and final adjustment prior to initial operation, testing and commissioning in accordance with the manufacturer's tolerances and instructions and the Specification. All factory assembled rotating machinery shall be checked for alignment and adjustments made as necessary to re-establish the manufacture’s limits suitable guards shall be provided for the protection of personal on all exposed rotating and / or moving machine parts and shall be designed for easy installation and removal for maintenance purpose. The spare equipment(s) shall be installed at designated locations and tested for healthiness.
The Contractor shall apply oil and grease of the proper specification to suit the machinery, as is necessary for the installation of the equipment. Lubricants used for installation purposes shall be drained out and the system flushed through where necessary for applying the lubricant required for operation. The Contractor shall apply all operational lubricants to the equipment installed by him. All oil, grease and other consumables used in the Works/ Equipment shall be purchased in India unless the Contractor has any special requirement for the specific application of a type of oil or grease not available in India. In such is the case he shall declare in the proposal, where such oil or grease is available. He shall help purchaser in establishing equivalent Indian make and Indian Contractor. The same shall be applicable to other consumables too.

3.3.2 Provisions For Exposure to Hot and Humid climate

Outdoor equipment supplied under the specification shall be suitable for service and storage under tropical conditions of high temperature, high humidity, heavy rainfall and environment favorable to the growth of fungi and mildew. The indoor equipments located in non-air conditioned areas shall also be of same type.

3.4 PAINTING

The painting of equipment shall be as follows:

Epoxy based with suitable additives. The thickness of finish coat shall be minimum 80 microns (minimum total DFT shall be 100 microns). However in case electrostatic process of painting is offered for any electrical equipment, minimum paint thickness of 80 microns shall be acceptable for finish coat.

Painting process shall be of powder coating type. All surface shall be cleaned , phosphated and given two coats of rust –resistant primer followed by two coats of finish paints . The interior of all panels cabinets and enclosures shall be finished with gloss white enamel. Two final powder coats of synthetic enamel paint of light grey shade(631 of IS-5) shall be given to exterior surface of all the panels. Sufficient quantities of touch paint shall be furnished for application at site. All The indoor cubicles shall be of same colour scheme and for other miscellaneous items, **colour scheme will be approved by the purchaser.**

3.5 PROTECTION

All coated surfaces shall be protected against abrasion, impact, discoloration and any other damages. All exposed threaded portions shall be suitably protected with either a metallic or a non-metallic protecting device. All ends of all valves, piping and conduit equipment connections shall be properly sealed with suitable devices to protect them from damage.

All equipment accessories and wiring shall have fungus protection, involving special treatment of insulation and metal against fungus, insects and corrosion. The parts which are likely to get rusted, due to exposure to weather should also be properly treated and protected in a suitable manner. Screens of corrosion resistant material shall be furnished on all ventilating louvers to prevent entry of insects.

3.6 FUNGISTATIC VARNISH

Besides the space heaters, special moisture and fungus resistant varnish shall be applied on the parts, which may be subjected or predisposed to the formation of fungi due to the presence or deposit of nutrient substances. The varnish shall not be applied to any surface of part where the treatment will interface with the operation or performance of the equipment. Such surfaces or parts shall be protected against the application to the varnish.

3.7 SURFACE FINISH

All interiors and exteriors of tanks, control cubicles and other metal parts shall be throughly cleaned to remove all rust, scales, corrosion, greases or other adhering foreign matter. All steel surfaces in contact with insulating oil as far as accessible, shall be painted with not less than two coats of heat resistant, oil insoluble, insulating paints.

All metal surfaces exposed to atmosphere shall be given two primer coats of zinc chromate and two coats of epoxy paint with epoxy base thinner. All metal parts not accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with a suitable preventive compound and suitably wrapped or otherwise protected. All paints shall be carefully selected to withstand tropical heat and extremes of weather within the limit specified. The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling. All external painting shall be as per shade no. 631 of IS:5.

3.8 GALVANIZING

All ferrous parts including all sizes of nuts, bolts, Plain and spring washers, support channels, structures, shall be hot dip galvanized conforming to latest version of IS:2629 or any other equivalent authoritative standard. However, hardware less than M12 size shall be electro-galvanized. Minimum weight of zinc coating shall be 610 gm/sq.m and minimum thickness of coating shall be 85 microns for all items thicker than 6mm. For items lower than 6 mm thickness, requirement of coating shall be as per relevant ASTM.

3.9 PACKING

The following details are to be clearly indicated in the material forwarding documents:

a) Name and address of the consignee.
b) Purchase order number.
c) Name of supplier/s.
d) Description of equipment / material.
e) Net weight.
f) Gross weight.

Each package shall be accompanied by a packing note (in weather proof paper).

All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at Site till the time of erection. On request of the purchaser, the Contractor shall also submit packing details/associated drawing for any equipment material under his scope of supply, to facilitate the purchaser to repack any equipment/ material at a later date, in case the need arises. Any material found short inside the packing cases shall be supplied by the supplier without any extra cost. The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbol i.e. fragile, handle with care, use no Hooks etc.

3.10 HANDLING, STORING AND INSTALLATION

Contractor may engage manufacturer's Engineers to supervise if required for unloading, transportation to site, storing, testing and commissioning of the various equipment being procured by them separately. In case of any doubt/misunderstanding as to the correct interpretation of manufacturer's drawings or instructions, necessary clarifications shall be obtained from the purchaser. Contractor shall be held responsible for any damage to the equipment consequent to not following manufacturer's drawings/instructions correctly.

Where assemblies are supplied in more than one section, contractor shall make all necessary mechanical and electrical connections between sections including the connection between buses. Contractor shall also do necessary adjustments/alignments necessary for proper operation of circuit breakers, isolators and their operating mechanisms. All components shall be protected against damage during unloading, transportation, storage, installation, testing and commissioning.

Contractor shall be responsible for examining all the shipment immediately of any damage, shortage, discrepancy etc. for the purpose of Purchaser’s information only. Any demurrage, pilferage and other such charges claimed by the transporters, railways etc. shall be to the account of the Contractor. The Contractor shall be fully responsible, for the equipment/material until the same is handed over to the purchaser in an operating condition after commissioning.

The minimum phase to earth, phase to phase and section clearance along-with other technical parameters for the various switchyard voltage levels to be maintained shall be strictly as per the approved drawings.

The design and workmanship shall be in accordance with the best engineering practices to ensure satisfactory performance throughout the service life. If at any stage during the execution of the Contract, it is observed that the erected equipment(s) do not meet the above minimum clearances, the Contractor shall immediately proceed to correct the discrepancy at his risks and costs.

3.11 DEGREE OF PROTECTION

The enclosures to be installed shall be provided with degree of protection as detailed here under:

a) Installed out door: IP-55

b) Installed indoor in air conditioned area: IP-31

c) Installed in covered area IP:52

d) Installed indoor-in non-air-conditioned area where possibilities of entry of water is limited:IP-41

e) For LT switchgear (AC & DC distribution Boards): IP-54

f) 11kV & 3.3kV Switchgears: IP4X

g) 415V MCC / DBs / Fuse Board IP52 for indoor and IP65 for outdoor.

h) Motor (Indoor/Outdoor): IP55

i) Motor Actuator: IP65

j) Control and Relay Panel in AC area: IP3X

k) Control and Relay Panel in normal area: IP42

l) Pushbutton Station/Kiosk/Panel - Indoor IP55

m) Pushbutton Station/Kiosk/Panel -Outdoor IP65

n) Indoor Junction boxes for cables / wires: IP55

o) Outdoor lighting fixtures: IPW65

p) Battery Charger Panel: IP42

The degree of protection shall be in accordance with IS:13947, (Part-1)/IEC-947(Part-1). Type test report/or degree of protection test on each type of the box shall be submitted for approval.

3.12 RATING PLATES, NAME PLATES AND LABELS

Type or serial number together with details of the loading conditions under which the item of the substation in question has designed to operate and such diagram plates as may require by the Purchaser. The rating plate of each equipment shall be according to IEC requirements.

All such nameplate instruction plates, rating plates shall be bilingual with Hindi inscription first followed by English. Alternately two separate plates one with Hindi and other with English inscriptions may be provided. All measurements shall be in M.K.S units.

3.13 EARTHING

Equipment shall be provided with two grounding pads suitable for connection to galvanized steel flat. Control panels, Relay panel, outdoor marshalling boxes, Junction boxes, lighting panels and distribution board shall be provided with two grounding pads, for connection to galvanized steel flat. The two pads shall be provided, one each at the middle of the two opposite sides of the bottom frame of the equipment. Earthling of hinged door shall be done by using a separate earth wire.

3.14 TERMINAL BLOCKS AND WIRING

Control and instrument leads from the switchboards or from other equipment will be brought to terminal boxes or control cabinets in conduits. All Inter-phase and external connections to equipment or to control cubicles will be made through terminal blocks.

Terminal blocks shall be 1100 V grade box –clamp type and have continuous rating to carry the maximum expected current on the terminals. Those shall be of molded piece complete with insulated barriers stud type terminals, washers nuts and lock nuts. Screw clamp, overall insulated, insertion type, rail mounted terminals can be used in place of stud type terminals. But preferably the terminal blocks shall be non-disconnecting stud type equivalent to Elmex type CATM4, Phoenix cage clamp type of Wedge or equivalent. The Insulating material of terminal block shall be nylon 6.6 which shall be free of halogens, fluorocarbons etc.

Terminal block for current transformer and voltage transformer secondary leads shall be provided with test links and isolating facilities. The current transformer secondary leads shall also be provided with short circuiting and earthing facilities.

The terminal shall be that maximum contact area is achieved when a cable is terminated. The terminal shall have a locking characteristic to prevent cable from escaping from the terminal clamp unless it is done intentionally. The conducting part in contact with cable shall preferably be tinned or silver plated however Nickel plated copper or zinc plated steel shall also be acceptable. The terminal blocks shall be of extensible design. The terminal blocks shall have locking arrangement to prevent its escape from the mounting rails.

The terminal blocks shall be fully enclosed with removable covers of transparent, non deteriorating type plastic material. Insulating barriers shall be provided between the terminal blocks. These barriers shall not hinder the operator from carrying out the wiring without removing the barriers.

Unless otherwise specified terminal blocks shall be suitable for connecting the following conductors on each side.

All circuits except CT circuits :	Minimum of 2 nos. of 2.5 sq.mm, copper flexible.
All CT circuits :	Minimum of 4 nos. of 2.5 sq.mm, copper flexible..

The arrangements shall be in such a manner so that it is possible to safely connect or disconnect terminals on live circuits and replace fuse links when the cabinet is live. At least 20 % spare terminals shall be provided on each panel/cubicle/box and these spare terminals shall be uniformly distributed on all terminals rows.

There shall be a minimum clearance of 250mm between the first bottom row of terminal block and the associated cable gland plate. Also the clearance between two rows of terminal blocks shall be a minimum of 150 mm. The Supplier shall furnish all wire, conduits and terminals for the necessary inter-phase electrical connection (where applicable) as well as between phases and common terminal boxes or control cabinets.

All input and output terminals of each control cubicle shall be tested for surge withstand capability in accordance with the relevant IEC Publications, in both longitudinal and transverse modes. The supplier shall also provide all necessary filtering, surge protection, interface relays and any other measures necessary to achieve an impulse withstand level at the cable interfaces of the equipment.

3.15 CONTROL CABINETS, JUNCTION BOXES, TERMINALS BOXES AND MARSHALLING BOXES FOR OUTDOOR EQUIPMENTS

All types of boxes, cabinets etc. shall generally conform to and be tested in accordance with IS-5039, IS-8623 or IEC-439, as applicable and the clause given below.

Control cabinet, Junction boxes, Marshalling boxes & Terminal boxes shall be made of **CRCA sheet** steel of minimum 2 mm thickness. The thickness of door s/covers shall not be less than 1.6 mm. The box shall be properly braced to prevent wobbling. There shall be sufficient reinforcement to provide level surfaces, resistance to vibrations and rigidity during transportation and installation. Cabinet/boxes shall be free standing floor mounting type, wall mounting type or pedestal mounting type as per requirements.

Cabinet /boxes shall be provided with double hinged doors with padlocking arrangements. The distance between two hinges shall be adequate to ensure uniform sealing pressure against atmosphere. The quality of gaskets shall be such that it does not get damaged/cracked during the operation of the equipment.

All door, removable covers and plates shall be gasketed all around with suitably profiled **Neoprene gaskets**. The gasket shall be tested in accordance with approved quality plan. The quality of gasket shall be such that it does not get damaged /cracked during the years of the equipment or its major overhaul whichever is earlier. All gasketed surfaces shall be smooth, straight and reinforced if necessary to minimize distortion and to make a tight seal. Ventilating

Louvers, if provided, shall have screen and filters. The screen shall be fine wire mesh made of brass.

All boxes/cabinets shall be designed for the entry of cables from bottom by means of weather proof and dust-proof connections. Boxes and cabinets shall be designed with generous clearances to avoid interference between the wiring entering from below and any terminal blocks or accessories mounted within the box or cabinet. Suitable cable gland plate projecting at least 150 mm above from the base of the Marshalling Kiosk/box shall be provided for this purpose along with the proper blanking plates. Necessary number of cable glands shall be supplied and fitted on this gland. The gland shall project at least 25mm above gland plate to prevent entry of moisture in cable crutch. Gland plate shall have provision for some future glands to be provided later, if required.

3.16 SPACE HEATERS

The heater shall be suitable for continuous operation at 240 V AC supply voltage and shall be provided with on – off switch and fuse shall be provided for heater.

One or more adequately rated, thermostatically connected heaters shall be supplied to prevent condensation in any compartment. The heater shall be installed in the lower portion of the compartment and electrical connections shall be made from below the heater to minimize deterioration of supply wire insulation. The heaters shall be suitable to maintain the compartment temperature to prevent condensation.

The heaters shall be suitably designed to prevent any contact between the heater wire and air and shall consist of coiled resistance wire centered in metal sheath and completely encased in a highly compacted powder of Magnesium Oxide or other material having equal heat conduction and electrical insulation properties, or they shall consist of a resistance wire wound on a ceramic and completely covered with a ceramic material to prevent any contact between the wire and air. Alternatively, they shall consist of resistance wire mounted into a tubular ceramic body built into an envelope of stainless steel or the resistance wire is wound on a tubular ceramic body and embedded in glaze the surface temperature of the heaters shall be restricted to a value which will not shorten the life of the heater sheaths or that of insulated wire or other component in the compartments.

3.17 QUALITY

BHEL quality plan to be followed subject to TBEM / customer's approval.

3.18 DOCUMENTATION

3.18.1 LIST OF DOCUMENTS

The bidder shall submit a detailed list of drawings / documents along with the bid proposal which

he intends to submit to the Employer after award of the contract.

The supplier shall necessarily submit all the drawings / documents unless any thing is waived.

All engineering data submitted by the Contractor after final process including review and approval by the Employer shall form part of the Contract Document and the entire works performed under this specification shall be performed in strict conformity, unless otherwise expressly requested by the Employer in Writing.

3.18.2 DRAWINGS

All drawings submitted by the Contractor including those submitted at the time of bid shall be in sufficient detail to indicate the type, size, arrangement, material description, Bill of Materials, weight of each component, break-up for packing and shipment, the external connections, fixing arrangement required, the dimensions required for installation and interconnections with other equipment and materials, clearances and spaces required for installation and interconnection between various portions of equipment and any other information specifically requested in the specifications.

Each drawing submitted by the Contractor shall be clearly marked with the name of the Employer, name of consultant, the unit designation, contract no., and the name of the Project. If standard catalogue pages are submitted, the applicable items shall be indicated therein. All titles, noting, markings and writings on the drawing shall be in English. All the dimensions should be in metric units.

Further work by the Contractor shall be in strict accordance with these drawings and no deviation shall be permitted without the written approval of the Employer if so required.

All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the Contractor's risk. The Contractor may make any changes in the design which are necessary to make the equipment conform to the provisions and intent of the Contract and such changes will again be subject to approval by the Employer. Approval of Contractor's drawing or work by the Employer shall not relieve the contractor of any of his responsibilities and liabilities under the Contract.

3.18.3 APPROVAL PROCEDURE

The scheduled dates for the submission of these as well as for, any data/information to be furnished by the Employer would be discussed and finalized at the time of award. The supplier shall also submit required no. of copies as mentioned in this specification of all drawings/design documents/test reports for approval by the Employer. The following schedule shall be followed generally for approval.

i.	Initial submission of drawings and data sheet	Within 2 (two) weeks from PO date.
ii.	Approval/comments/by employer on	Within 2 (two) weeks of receipt

	Initial submission	
iii.	Resubmission	Within 1 (one) weeks (whenever from date of comments required) Including both ways postal time.
iv.	Approval or comments	Within 1 week of receipt of resubmission
v.	Furnishing of distribution copies	1 week from the date of last approval.

Note: The contractor may please note that all resubmissions must incorporate, all comments given in the submission by the Employer failing which the submission of documents is likely to be returned. Every revision shall be a revision number, date and subject, in a revision block provided in the drawing, clearly marking the changes incorporated.

The title block of drawings shall contain the following information incorporated in all contract drawings. Please refer enclosed sheet for details of Title block.

3.18.4 DOCUMENTS TO BE SUBMITTED ALONGWITH OFFER

1) Drawings
2) Guaranteed Technical Particulars
3) Type Test Reports
4) Manufacturing Quality Plan

3.18.5 DOCUMENTATION SCHEDULE

. .					
			i	i	
	i				i
	i i			7	
				7	
	i			7	
	i i			7	
	i i			7	
	i i			7	
	i			7	

O & M Manuals shall be submitted 3 months prior start of unit commissioning,
The manual shall be submitted as follows-

1. 1 soft copy + 12 sets of hard copy to WBPDCL Sagardighi site.
2. 1 soft copy + 3 sets of hard copy to WBPDCL Corporate office.

Soft copies of drawings at contract stage shall also be submitted in **PDF format**.

Drawings will also be submitted in mini cartridges in AUTOCAD Release -14 package or any other CAD package along with conversion files for all major items.

Final Documentation shall be submitted in bound volumes with Customer & Project etc. written on top.

SECTION-4

GUARANTEED TECHNICAL PARTICULARS

1.0	Manufacturer's Name	:
2.0	Reference Standard	:
3.0	Type	:
4.0	Service	:
5.0	Rated Frequency Hz	:
6.0	Rated Voltage KV $_{rms}$	:
7.0	Insulation Level	
8.1	1 min 50 Hz dry & wet withstand Voltage KV $_{rms}$	
	i) HV terminal & earth	:
	ii) Secondary winding	:

8.2	Impulse withstand Voltage with 1.2 x 50 µs KV $_{peak}$	:
8.3	Switching Impulse withstand Voltage with 250/2500 µs KV $_{peak}$	:
9.0	Short-time current	
9.1	Rated 1-second current KA $_{rms}$	:
9.2	Rated dynamic current KA $_{peak}$	:
10.0	Insulation Class	:
11.0	Max Temperature rise over 50°C ambient °C	:
12.0	Max radio interference voltage at 1.1 U $_{rated}$ /√3	:
13.0	Creepage Distance mm/KV	:
14.0	Partial discharge level pC	:
15.0	Accessories furnished as per annexure	:

16.0	Approx. Dimensions mm (L x B x H)	:
17.0	Approx. Weight Kg	:
18.0	Rated terminal load	:
19.0	Mounting structure	:
20.0	Seismic Acceleration	:
21.0	C.T. ratios & parameters	
21.1	Core No	:
21.2	Description	:
21.3	Current Ratio A/A	:
21.4	Output Burden VA	:
21.5	Accuracy Class	:
21.6	ISF	:

21.7	Min. Knee-point voltage VK (volt) at highest ratio KPV	:	
21.8	Max Excitation Current Ie (mA) at KPV	:	
21.9	Max CT Sec. Resistance RCT (ohm) at highest ratio	:	

SECTION 5
CHECK LIST FOR INFORMATION TO BE FURNISHED WITH OFFER
RETURN THIS CHECKLIST AS PART OF THE OFFER DULY SIGNED

The offer may not be considered if the following information and this Checklist are not enclosed with the Offer.

BHEL ENQUIRY. NO:

BIDDER:OFFER REFERENCE:

A)

S.No	Parameters	Data	Yes / No	Remarks
1.	Applicable Standard	IEC 61869-1&2 / IS 2705	Yes	
2.	Type	Single phase, live tank, Oil filled, hermetically sealed outdoor type with silicon composite insulator.	Yes	
3	Rated Frequency	50 Hz	Yes	
4	Highest System Voltage	420kV	Yes	
5	Rated current	2000A	Yes	
6	Rated short time withstand current for 1 sec	50 kA for 3 sec.	Yes	
7	Rated extended current	120%	Yes	
8	Rated dynamic current	125kAp	Yes	
9	Type of Insulation	Class A	Yes	
10	Rated Insulation Levels: a) Rated one-minute power Frequency withstand voltage b) 1.2/50 microsecond Lightning Impulse withstand voltage c) 250/2500 microsecond Switching Impulse withstand voltage	 630 kV rms between live terminals and earth. 1425 kVp between live terminals and earth. 1050 kVp (Phase to earth)	Yes	
11	Creepage Distance @31mm/kV	13020 mm	Yes	

12	The CT Core Parameters	As per clause 1.2 (c) of Section I	Yes	
13	CT supplied Suitable for operation in the Climatic and High Altitude conditions.	Suitable for Climatic and Meteorological Data Specified in Section III	Yes	
14	Max. Temperature rise over design ambient temperature	IEC 61869-1&2 / IS 2705	Yes	
15	External Surface if steel	a. Hot Dip Galvanized b. As per section III	Yes	
16	Specific requirements for Oil CT's			
	a. Oil filled CT's:			
	i) Grade of oil	EHV grade	Yes	
	ii) Standard to which oil conforms	IS-335 / IEC-60296	Yes	
	iii) Oil filling and drain plug provided.		Yes	
	iv) Oil sight glass provided		Yes	
17.	Drawings & GTP.	Drawings / GTP of the offered CT type available	Yes,	
18.	Type Test	List of valid type test reports to be submitted with the offer.	Yes	
19	Technical Requirement	Manufacturer qualifies the Technical Requirement as per Annexure-TQR of the Technical Specification.	Yes	

B) TYPE TESTS

i)Whether type test reports of the tests as per relevant IS-2705 and IEC 60044 conducted earlier on identical or similar material are available (test reports are of the test conducted not earlier than 5 (five) years **from the date of bid opening i.e. 18.03.2018**.

(YES)

ii) If type test reports are not acceptable to BHEL/WBPDCL then above tests shall be conducted by the bidder free of cost.

(YES)

Date:

Signature of the authorized representative of Bidder

Company Seal

ANNEXURE-TQR

TECHNICAL PRE- QUALIFICATION REQUIREMENT

Name of customer: West Bengal Power Development Corporation Limited (WBPDCL)

Name of consultant: DCPL, Kolkata

Name of Project: Extension of 400kV Switchyard at 1X660MW Unit-5 Sagardighi TPP

Name of Item : 400kV, 2000 A, 50 kA/3 sec 1-ph Current Transformer

PQR Sr. No	PQR Description
01	400kV Instrument Transformers being offered should be from manufacturer who has manufactured and supplied minimum fifteen (15) nos. of single phase Instrument Transformers of offered voltage class or higher, suitable for air insulated substation/ switchyard and which must have been in successful operation # for a minimum period of two (2) years as on the date of Notice to Proceed **i.e. 01.07.2020**.

#- Successful operation means certificate issued by the customer certifying the operation without any adverse remarks.

Prepared By: Rajat 01/12/2021 **Rajat Kumar** **(Sr. Engr - TBEM)**	**Checked By:** **Y.Latha Kumari** 01/12/2021 **(Sr. Mgr - TBEM)**	**Approved By:** 01/12/2021 **SK Shukla** **(Sr. DGM - TBEM)**

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

1.	For any **technical clarification**, please contact Mr. Rajat Kumar, Sr. Engineer (TBEM). Contact No. 0120-06748524; e-mail: rajat.kumar@bhel.in
2.	For any **commercial clarification**, please contact Mr. Sandeep, Dy. Manager (TBMM). Contact No. 0120-6748540; e-mail: kumar.sandeep@bhel.in
3.	**Terms of Payment:**
(Supply & Services)	As per GeM Bidding Documents (Payment due date shall be 60 days) Supply Payment: a) 100% of payment within 60 days from the date of receipt of complete invoice along with documents in 3 sets (original + 2 copies) as follows: • LR / GR duly endorsed by BHEL Site Official. • Material Receipt Certificate issued by BHEL Site Official. • GST Compliant Tax Invoice • Packing List (Case-wise) • Copy of Transit Insurance Certificate from underwriters. • Material Inspection Clearance Certificate (MICC) issued by BHEL Quality Management • Guarantee Certificate • Copy of Performance Bank Guarantee (PBG) • Certificate of acceptance of Type Test Reports issued by BHEL Engineering Management wherever specifically mentioned in the Purchase Order ***Vendor has to submit the duly signed check-list along with Bill.***
4.	**Terms of Delivery:**
As per GeM. However, unloading at site is in the scope of BHEL. Bidders to quote price accordingly.	
5.	**Delivery Time:**
40 Weeks (280 days for Main Supply & 364 days for Spares items) from the date of PO by BHEL as per Activity schedule [For Main Supply 40 weeks (Annexure-A) & for Spares 52 Weeks (Annexure-B)]. Early Delivery is acceptable. **Note:** In case, BHEL's delivery requirement is not met by vendor(s), then a chance may be given to all such vendors to review their quoted delivery schedule in line with BHEL's delivery requirement. However, if vendor fails to meet the requisite delivery plan, then BHEL reserves the right not to consider the offer of such vendor(s). Manufacturing for spares items shall be issued separately by BHEL.	
6.	**Prices:**
The quoted prices shall be on **Firm basis including packing and forwarding charges**. Price to be quoted as inclusive of GST. i.e. Ex-Works + F&I + GST.	
7.	**Liquidated Damage of delayed Delivery:**
As per GeM terms and conditions.	
8.	**Item & BOQ:**
BOQ: As per Clause No. 1.3 of Section-1 of Technical specification.	
9.	**Technical Specification:**
Technical specification no**. TB-445-510-032- Rev 00.** No permissible Technical Deviation has been envisaged. Bidders to quote as per Technical Specification.	
10.	**Pre-Qualification Requirement:**
As specified in Technical Specifications	

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

11.	**MQP (Manufacturing Quality Plan):**
MQP format is indicative only, however inspection shall be carried out as per approved Quality Plan. Supplier has to submit Quality Plan to BHEL for Customer approval.	
12.	**Inspection:**
Inspection shall be carried out as per customer as per approved Quality Plan.	
13.	**Destination / Delivery Location**:
Dy General Manager (I/C projects) C/O BHEL-TBG, Sagardighi Thermal Power Plant, Post Office - Manigram, Dist.-Murshidabad, West Bengal, PIN. 742237, GSTN No.: 19AABCT3027C1ZQ, Site in charge: Subir Kumar Dhal- Engineer- 9434300911 - subir@bhel.in	
14.	**Bill to Address:**
Bharat Heavy Electricals Limited-TBG, 10th Floor, Plot No.C-20/1A/1, Joy Tower, Sector-62, Noida-201301, U.P. **GSTN-**09AAACB4146P2ZC	

15.	**Guarantee Clause (Defect Liability Period):**
The equipment / material supplied and services rendered (if applicable) shall be guaranteed to be free from all defects and faults in design & engineering, material, workmanship & manufacture and in full conformity with the Purchase Order / Contract, Technical Specifications & approved drawings / data sheets, if any, "Eighteen (18) months from the date of Completion of the Facilities (01.04.2024) or twelve (12) months from the date of Operation Acceptance/PG TEST (01.07.2024) (or any part thereof), whichever occurs first". ***Note: In case ordering is delayed beyond 01.07.2024 (i.e. date of completion/installations) then, guarantee clause shall be 18 months from the date of last delivery.***	
16.	**Performance Bank Guarantee:**
Performance BG to be kept valid till the completion of guarantee period with 03 months claim period is extra. "Bidder agrees to submit performance security required for execution of the contract within the time period mentioned. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms and conditions defined in NIT / Contract, from the bills along with due interest."	
17.	Bidders to ensure that Third party / customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document / certificate issuing authority such as name & designation of Issuing Authority and its organization contact number and e-mail Id etc. In case the same found not available, Purchaser has right to reject such document from evaluation.
18.	**Acceptance of Offer:**
Bidder's offer will be technically acceptable subject to final acceptance of vendor by ultimate customer as approved supplier. Price Bid will be opened only for those bidders in respect of which vendor approval is received from WBPDCL. Necessary credentials/documents to be submitted for approval by Customer as per format.	
19.	**Integrity Pact: Not Required**

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

20.	**Deviations:**
a) Technical Deviation: No Technical Deviation is envisaged. b) Commercial Deviation: No Commercial Deviation is envisaged.	
21.	All other terms & conditions shall be as per GTC of GeM

Signature & Seal of supplier

Date

Enclosure:

1. Activity Schedule (A&B)
2. Local Content Format
3. Technical & Commercial deviations sheet
4. BOQ

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

ACTIVITY SCHEDULE FOR MAIN ITEMS

Annexure-A

SL. NO.	ACTIVITY	ACTIVITY TIME IN WEEKS
1.	Submission of documents necessary for getting manufacturing clearance Drawings, data sheets (In scope of vendor)	04
2.	Review and Approval of documents and issue of manufacturing clearance (In scope of BHEL)	06
3.	Manufacturing Time (In scope of vendor)	24
4.	Inspection (In scope of BHEL)	02
5.	Issue of MICC (In scope of BHEL)	02
6.	Dispatch (In scope of vendor)	02
		40 Weeks

Note – 1 - Supplier to ensure every revised submission incorporating comments within 2 weeks from the date of comments by BHEL.

1. Inspection call to be issued 2 weeks in advance.
2. Supplier must ensure the completeness and correctness of the requisite documents before submission for approval. Delay in approval on account of incomplete / inadequate information shall be the responsibility of supplier.
3. Inspection call should be given in the prescribed format only. Inspection calls not in the prescribed format shall not be entertained.

Signature & Seal of Supplier
Date

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

ACTIVITY SCHEDULE FOR SPARES ITEMS

Annexure-B

SL. NO.	ACTIVITY	ACTIVITY TIME IN WEEKS
1.	Submission of documents necessary for getting manufacturing clearance Drawings, data sheets (In scope of vendor)	04
2.	Review and Approval of documents and issue of manufacturing clearance (In scope of BHEL)	06
3.	Manufacturing Time (In scope of vendor)	36
4.	Inspection (In scope of BHEL)	02
5.	Issue of MICC (In scope of BHEL)	02
6.	Dispatch (In scope of vendor)	02

Note – 1 - Supplier to ensure every revised submission incorporating comments within 2 weeks from the date of comments by BHEL.

1. Inspection call to be issued 2 weeks in advance.
2. Supplier must ensure the completeness and correctness of the requisite documents before submission for approval. Delay in approval on account of incomplete / inadequate information shall be the responsibility of supplier.
3. Inspection call should be given in the prescribed format only. Inspection calls not in the prescribed format shall not be entertained.

Signature & Seal of Supplier
Date

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

Annexure-V

Item/Package Name :	**Supply of 400kV Current Transformer**
Enquiry No.:	
Project:	**WBPDCL Sagardighi**
Type of project	
Percentage of Local Content	***(Bidder to enter the applicable % of local content)***

Format of Self certification regarding Local Content in line with PPP-MII order, 2017 & its revision dated 04.06.2020.

Date:……

I _____S/o, D/o, W/o, _____Resident of _____ hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Order, 2017 (*hereinafter PPP-MII order*) of Government of India issued vide Notification No: P-45021/2/2017-BE-II dated 15/06/2017, its revision dated 04/06/2020 and any subsequent modifications/Amendments**,** if any**.**

That the information furnished hereinafter is correct to the best of my knowledge and belief and I undertake to produce relevant records before the procuring entity/BHEL or any other Government authority for the purpose of assessing the local content of goods/services/works supplied by me for …… *(Enter the name of the Equipment/Item for Project)*.

That the local content for all inputs which constitute the said goods/services/works has been verified by me and I am responsible for the correctness of the claims made therein.

That the goods/services/works supplied by me for …… (Enter the name of the Equipment/Item for Project) contains…….% (mention the Local content in %age) Local Content.

That the value addition for the purpose of meeting the 'Minimum Local Content 'has been made by me at …… (*Enter the details of the location(s) at which value addition is made)*.

That in the event of the local content of the goods/services/works mentioned herein is found to be incorrect and not meeting the prescribed supplier class categorization criteria as per said order, based on the assessment of procuring agency (ies)/BHEL/Government Authorities for the purpose of assessing the local content, action shall be taken against me in line with the PPP-MII order and provisions of the Integrity pact/ Bidding Documents.

I agree to maintain the following information in the Company's record for a period of 8 years and shall make this available for verification to any statutory authority.

i. Name and details of the Local Supplier
(Registered Office, Manufacturing unit location, nature of legal entity)
ii. Date on which this certificate is issued

Annexure-V

iii. Goods/services/works for which the certificate is produced

iv. Procuring entity to whom the certificate is furnished

v. Percentage of local content claimed and whether it meets the Minimum Local Content prescribed

vi. Name and contact details of the unit of the Local Supplier (s)

vii. Sale Price of the product

viii. Ex-Factory Price of the product

ix. Freight, insurance and handling

x. Total Bill of Material

xi List and total cost value of input used to manufacture the Goods/to provide services/in construction of works

xii. List and total cost of input which are domestically sourced. Value addition certificates from suppliers, if the input is not in-house to be attached

xiii. List and cost of inputs which are imported, directly or indirectly

For and on behalf of…… (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)
<Insert Name, Designation and Contact No.>

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

SCHEDULE OF COMMERCIAL DEVIATION

The following are the deviations/ variations exception from the General Terms and Conditions:

SL. NO.	CLAUSE NO. OF TERMS AND CONDITIONS	STATEMENT OF DEVIATION
	NIL DEVIATION	NIL DEVIATION

In case, this schedule is not submitted, it will be presumed that the equipment /material to be supplied under this contract is deemed to be in compliance with the General Terms and Conditions.

If there is NIL deviation, even then the format to be filled as NIL DEVIATION.

Note : 1. Continuation Sheets of like size and format may be used as per the Bidder's Requirement and shall be annexed to this schedule.

2. Deviation mentioned in this schedule shall only be considered.

This Format is to be submitted in original duly signed by bidder. Reproduction of the same in any sort is not acceptable.

Signature of the authorized representative of

Place: é é é é é é é

Bidder's name
Date : é é é é é é é .
:é é é é é é é é é é é é é é é
Designation:é é é é é é é é é é é é é é é
..
Company
Seal:é é é é é é é é é é é é é é

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

SCHEDULE OF TECHNICAL DEVIATION

The following are the deviations/ variations exception from the Technical Specifications:

SL. NO.	CLAUSE NO. OF TERMS AND CONDITIONS	STATEMENT OF DEVIATION
	NIL DEVIATION	NIL DEVIATION

In case, this schedule is not submitted, it will be presumed that the equipment /material to be supplied under this contract is deemed to be in compliance with the Technical Specifications,

If there is NIL deviation, even then the format to be filled as NIL DEVIATION.

Note : 1. Continuation Sheets of like size and format may be used as per the Bidder's Requirement and shall be annexed to this schedule.

2. Deviation mentioned in this schedule shall only be considered.

This Format is to be submitted in original duly signed by bidder. Reproduction of the same in any sort is not acceptable.

Signature of the authorized representative of

Place: é é é é é é é .
Date : é é é é é é é .

Bidder's name :é é é é é é é é é é é é é é é
Designation:é é é é é é é é é é é é é é é ..

PROJECT:	**WBPDCL Sagardighi**
ITEM:	**Supply of 400kV Current Transformer**
SUBJECT:	**BID SPECIFIC ATC**

UNPRICED BID

Item No.	Item Description	Item Quantity	Unit of Measure	Unit Price (Inclusive of F&I & GST)	GST % Applicable
1	SUPPLY. CURRENT TRANSFORMER: 400KV, 50KA FOR 3S, 2000A 120% EXTENDED RATING 6 CORE SINGLE PHASE CURRENT TRANSFORMER	18	No	Mention as "Quoted"	Mention GST %
2	SPARES- CURRENT TRANSFORMER 40OKV, 50KA FOR 3S, 2000A 120% EXTENDED RATING 6 CORE SINGLE PHASE CURRENT TRANSFORMER	01	No	Mention as "Quoted"	Mention GST %

Signature & Seal of Supplier
Date: