

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

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Section II - Technical Specification

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Tender Enquiry No: STDS/12-1/2018-19/PUR/STL/A-1976/

Description of the Equipment/Goods/Services: Test System for Conducting Determination of Errors Test on Instrument Transformers and Calibration of Instrument Transformers.

Note : 1) The Offers should be submitted only in this format otherwise the offer will be liable to be rejected.

2) All blue fields are mandatorily to be filled in.

3) Pre-despatch Inspection & Training expenses shall be borne by CPRI. Information regarding the readiness of the equipment/machinery for the Pre-despatch Inspection should be communicated in writing by the supplier at least 70 (Seventy) days in advance, to obtain clearance from the Ministry, Government of India for deputation of nominated CPRI officers.

Name of the Vendor					
Quotation Number and Date					
Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
1)	Quantity	One Set-up			
2)	Equipment	TEST SYSTEM FOR CONDUCTING DETERMINATION OF ERRORS TEST ON INSTRUMENT TRANSFORMERS AND CALIBRATION OF INSTRUMENT TRANSFORMERS			

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
3)	Qualifying conditions	<p>1)The supplier shall have experience of supplying similar type of set-ups which are functioning successfully in the field. Proof of atleast two Nos. of such type of set-ups functioning satisfactorily shall be provided at the time of bid.</p> <p>2) The supplier shall have technical service and support facility in India and technical experts who can provide technical support immediately.</p> <p>3) The supplier shall not outsource/subcontract any of the equipment from other agencies.</p> <p>4) Equipment calibration must be from any national or international accredited laboratory traceable to ILAC as per ISO/IEC 17025</p> <p>5) All the items comprising the set-up shall be quoted seperately.</p>			
4)	Scope	<p>Design, Supply and Commissioning of Accuracy Measuring System of Instrument Transformers (Current Transformers, Inductive Voltage Transformers and Capacitor Voltage Transformers) as per IEC: 61869-1,2,3&5, IEEE std C57.13,IS:16227(Part-1,2,3 &4) (Latest) consisting of the following:</p> <p>1) Automatic Instrument Transformer Test Set</p> <p>2) Current Comparator (Standard Current Transformer)</p> <p>3) Standard High Voltage divider having capacitive high voltage divider and control unit</p> <p>4) Electronic Current Burden(programmable)</p> <p>5) Electronic Voltage Burden (programmable)</p> <p>6) Installation and commissioning of the above equipment at STDS, CPRI, Bhopal</p>			
5)	General conditions required for all the items	<p>Mains supply : 230Vac \pm 10% (Single phase)</p> <p>Frequency : 50Hz \pm 5%</p> <p>Power rating : According to the individual component comprising the system</p> <p>SERVICE CONDITIONS :</p> <p>MSL : 523m</p> <p>Ambient temperature : upto 45°C</p> <p>Humidity : 5-80%RH Non condensing</p> <p>Type of installation : Indoor</p>			

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				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
		No deviations of technical specifications on the lower side will be acceptable. If there are any deviations in technical specifications, this should be clearly specified.			
6)	Detailed specification	<p>1) Automatic Instrument Transformer Test Set The instrument shall be capable of measuring accuracy of current and voltage transformers with a single instrument. It shall be capable of fully automatic measurement and digital display of current /voltage ratio errors, phase displacement, test current and voltage for any primary and secondary current and voltage ratings. Measurements shall be possible even for different standard and test transformer ratios without using external divider. The instrument shall meet all the requirements of accuracy measurements as per IEC: 61869-1,2,3 & 5 ,IEEE std C57.13, IS:16227(Part-1,2,3 &4) (Latest)</p> <p>1.1) Current transformer measuring part Input specification (Transformer under test) a) Rated secondary current : 1-5A b) Maximum operating range :atleast 1 to 200% of rated secondary current</p> <p>Input specification (Standard Transformer) a) Rated secondary current : 1-5A b) Maximum operating range : atleast 1 to 200% of rated secondary current</p> <p>The instrument shall take the rated primary and secondary currents as inputs and match the standard transformer ratio automatically</p> <p>Limits of input values Rated primary current: 1A to 10000 A (lower limit less than 1A is acceptable) Rated secondary current: 10 mA to 5 A (Continuously adjustable) upto 200 %</p>			

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		<p>1.2) Voltage transformer measurement part (Transformer under test and standard transformer) Input specifications a) Rated secondary voltage: 140V or more with factors $x1/\sqrt{3}$, $x1/3$ b) Maximum operating range : 3 to 300V The instrument shall take the rated primary and secondary voltages as inputs and match the standard transformer ratio automatically Limits of input values: Rated primary voltage: 3 V to 300 kV Rated secondary voltage: 3 V to 300 V (Continuously adjustable) with factors $x1/\sqrt{3}$, $x1/3$</p>			
		<p>1.3) Current and voltage measurement part Resolution(Display) Current / voltage error : 1 ppm (0.0001 %) Phase angle : 0.001 min Test current : 0.001 A Test voltage : 0.1 V Measurement frequency : 0.1 Hz</p> <p>Display : 6-digit LCD display to display the values of: Ratio error (current/ voltage) Phase angle (phase displacement), Excitation (test current/voltage) Limits of error at current transformer measurements and voltage transformer measurement shall be with respect to the parameters mentioned for measurement during test.</p>			
		The values specified shall be in the same unit as mentioned in the CPRI specifications			
		Operating and test supply Frequency : 50Hz±5%			

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7)	Current comparator	<p>The instrument shall be capable of using with any other make instrument transformer test sets. The instrument shall be designed to have zero flux in the core.</p> <p>Specifications Current Rating Primary current 5 to 5000 Amps with a provision to extend upto 10000A Secondary current 1 – 5 Amps Accuracy Ratio error ± 0.001 % for currents 1 to 200 % of rated current Phase angle error ± 0.05 minutes for currents 1 to 200 % of rated current</p> <p>Protection Built in overload protection shall be provided with “overload” warning and “Temperature” warning for excess temperature. The instrument shall be provided with castor wheels for easy mobility. The instrument shall be supplied along with calibration certificate from a laboratory accredited in accordance with ISO / IEC 17025 for full range of 1 % to 200 % at both 1 A and 5 A. The values specified shall be in the same unit as mentioned in the CPRI specifications</p>			
		Operating and test supply Frequency : 50Hz \pm 5%			
8)	Standard High Voltage divider having capacitive high voltage divider and control unit	<p>The system shall comprise of capacitive high voltage divider and control unit.</p> <p>Technical Specifications for control unit Power Supply : 230V , single phase, 50Hz Maximum measurement voltage 300kV (with a Divider ratio 1:300) Input Max. direct input voltage : 1000V The control unit must be provided with an adaptor box for interface between the divider and the control unit for 1:1 ratio. The control unit shall have the provision of programmable voltage ratio setting.</p>			

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				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
		<p>System parameters</p> <p>Rated primary voltage</p> <p>- Direct input range : 0.01 to 1.0 kV</p> <p>-With capacitive divider :1kV to 300kV</p> <p>The multiplication factors $x1, x1/\sqrt{3}, x1/3$</p> <p>Rated secondary voltage</p> <p>Input range : 3 to 300 V</p> <p>Multiplication Factor : $x1, x1/\sqrt{3}, x1/3$</p> <p>Ratio 1:1 and Ratio:1:300 . The capacitance of the primary and secondary units of the divider shall be in accordance with to give a ratio of 1:300 with single combination of capacitors to measure a voltage from 1kV to 300kV.</p> <p>Interface RS 232C</p>			
		<p>Cable must be provided with appropriate connectors for connecting the primary and secondary units of the divider.</p> <p>Length of measuring cable from divider to control unit shall be 10 metres</p> <p>The capacitive high voltage divider and the control unit must be quoted seperately. If quoted seperately it should be compatible with other make system.</p> <p>The equipment shall be calibrated upto their full operating range at a laboratory accredited as per ISO/IEC 17025.</p> <p>The values specified shall be in the same unit as mentioned in the CPRI specifications</p>			
		<p>Operating and test supply Frequency : 50Hz±5%</p>			

Sl.No.	Parameters	CPRI Specification / Requirements	Qty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
9)	Specifications for Programmable Electronic Current Burden	<p>The instrument shall be capable of using with any other make instrument transformer test sets. The instrument shall have facilities for total integration in to an automatic measurement system through RS-232. The instrument shall facilitate extension of power levels upto 200 VA through combined or additional passive burdens(maximum two add on units) without change in accuracy.</p> <p>Parameter Rated Power Rated Power : 1 to 200 VA Step size/Resolution : 0.1 VA Power factor cos β Power factor cos β : 0.5 to 1(ind. & UPF) Step size/Resolution : 0.01 Rated Current Rated current : 1 and 5 A Current values with factors : 1/1 and 1/$\sqrt{3}$ Operating range 1 to 200 % of rated current Accuracy \pm 3% or better The details of the burdens provided seperately or in combination shall be given alongwith the power levels,step size and power factor. The accuracy of the burden for the whole range shall be same. The values specified shall be in the same unit as mentioned in the CPRI specifications Display : The instrument shall have large LCD display for easy operation and display of measurement results Calibration : The instrument shall be supplied along with calibration certificate from a laboratory accredited as per ISO / IEC 17025.</p>			
		Operating and test supply Frequency : 50Hz \pm 5%			

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				Guaranteed Technical Particulars (GTP)	Specify deviations/ Remarks if any
10)	Specifications for Programmable Electronic Voltage Burden	<p>The instrument shall be capable of using with any other make instrument transformer test sets. The instrument shall have facilities for total integration in to an automatic measurement system through RS-232. The instrument shall facilitate extension of power levels upto 400 VA through combined or additional passive burdens without (maximum two add on units) change in accuracy.</p> <p>Rated Power Rated Power : 1VA to 400VA Step size/resolution : 0.1 VA Power factor cos β Power factor cos β 1 to 35 VA: 0.1 to 1(ind. & UPF) 35 to 75 VA : 0.2 to 1 (ind.& UPF) 75-400VA : 0.8 and 0.85ind Step size/Resolution : 0.01 Rated Voltage Rated voltage : 100/110/200V Voltage values with factors 1/1, 1/$\sqrt{3}$ and 1/3 Voltage range 2 to 190 % of rated voltage Accuracy :\pm3% or better</p> <p>The values specified shall be in the same unit as mentioned in the CPRI specifications</p> <p>Display : The instrument shall have large LCD display for easy operation and display of measurement results</p>			
		Operating and test supply Frequency : 50Hz \pm 5%			
11)	Calibration	The instrument shall be supplied along with calibration certificate from a laboratory accredited as per ISO / IEC 17025			
12)	Manuals	<p>Two sets in English to be supplied in Hard copy</p> <ul style="list-style-type: none"> - Operation and maintenance with troubleshooting - Drawings - Copy of software -Electrical/ instrumentation -Technical/ service manual 			

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13)	Pre-Dispatch Inspection	The equipments/instruments of the test set-up will be inspected at manufacturer's works by TWO CPRI representatives before satisfactory delivery to CPRI. Further the test-system will also to be checked on actual test at CPRI Lab to prove its performance in testing as per the standards and specifications concerned to the test object intended. Any instrument with specified accuracy limits in the system should have its calibration traceability with National/International accredited laboratory. The expenditure will be done as per the CPRI rules. All expenses towards PDI will be borne by CPRI.			
14)	Other terms & conditions :	All other terms and conditions shall comply with CPRI's purchase procedure. The circuit diagram, operation manuals, maintenance instructions of the test system/equipment/instrument shall be submitted in duplicate to CPRI alongwith the set up.			
15)	Training :	Two days training at CPRI,STDS,Bhopal on operation and maintenance to CPRI engineers shall be provided.			
16)	Warranty:	The warranty period shall be 18 (Eighteen) months from the date of receipt of all the equipment / materials at CPRI, Bhopal or 12 months from the date of commissioning whichever is earlier.			
17)	Delivery :	All the instruments / equipments required for conducting determination of errors test on instrument transformers and calibration of instrument transformers shall be supplied to STDS, CPRI, Bhopal Madhya Pradesh, India. The delivery period should be 8 to 10 months from the date of clear purchase order.			

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<p>Please Note: 1) Bidder shall indicate complete details/information how the CPRI GTP are complied with against each and every specification parameters & mere statement of 'complied' do not suffice the requirement.</p> <p>2) A detailed technical/catalogue/literature/phamplet and any other technical details shall be submitted in hard copy in a sealed cover superscribing enquiry number and due date so as to reach the below mentioned address within due date and time.</p> <p>3) The Indian representative of the foreign/overseas firms shall submit the Letter of Authorization issued by their principals.</p> <p>4) The bidder shall submit the quotation / offer in the above prescribed format of Section IA , Section IB and Section II only . Informations in any other forms shall be rejected.</p> <p>Address : Joint Director (Purchase) Central Power Research Institute, Govindpura, Bhopal, Madhya Pradesh, India Pin: 462023. Telefax : 0755 - 2586283, email: khairwar@cpri.in , Website: www.cpri.in</p>					