

CENTRAL UNIVERSITY OF RAJASTHAN

NH-08 Ajmer-Jaipur Highway, Bandarsindri, Kishangarh, Ajmer-305817 Tel: 01463 – 238755; website <u>www.curaj.ac.in</u>

Expression of Interest For Conducting Energy Audit & Electrical Safety Audit at Central University of Rajasthan

Part I

Technical Bid

Name of Bidder: Address: Telephone no: Email Address:

NIT No. CURAJ/R/F.137/2022/989 dtd 16.06.2022 Last Date and time of submission of bid/tender: July 07, 2022 up to 14:00 Hrs

Note: Part I and Part II are required to be submitted in different-different envelope and both these envelope must be kept another envelope.

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PART I / TECHNICAL BID **Section-I: Commercial Conditions** Name of work: The Registrar, Central University of Rajasthan, NH-08 Ajmer-Jaipur Highway, Bandarsindri, Kishangarh, Dist.-Ajmer, Rajasthan invites sealed item rate tenders from bidders for the following works : Expression of Interest for Conducting Energy Audit & Electrical Safety Audit at 1. Central University of Rajasthan Campus. 2. NIT No.: CURAJ/R/F.137/2022/989 dtd 16.06.2022 Estimated cost : Rs. 6,49,000/-3. 4. EMD: Rs. 13,000/-Time for completion of work: Six Weeks from tenth day after the date of letter advising acceptance of 5. tender, that includes time for submission of draft & final report. 6. Date of start of tender: June 16, 2022 Last date and time of submission of tender (The tender received thereafter shall not be entertained in 7. any circumstances). : July 07, 2022 till 14:00 Hrs Date and time of opening of Part I (Technical Bid) of tender: July 07, 2022 at 15:00 Hrs 8. Date and time of opening of Part II (Financial Bid) of the tender: Date and time of opening of price bid 9. will be informed separately to all the eligible bidders later. Contact person for clarification: 10. Sultan Singh, Executive Engineer Kartik Bhati (AE - Electrical) Contact no.: 8130589977, Contact no: 8384962296, Email: ee_civil@curaj.ac.in Email: ae.elect@curaj.ac.in 11. **Eligibility Criteria:** a. The intending tenderer for Conducting Energy Audit & Electrical Safety Audit should be Certified Energy Auditor by BEE or Should have expertise Engineers having Degree in Electrical Engineering as regular employee and accredited Energy Auditors by BEE (Bureau of Energy Efficiency). (Documentary evidence to substantiate above fact must be submitted along with Part-I) No Joint Venture agreement or deed will be acceptable or entertained whatsoever. AND b. The agency/firm must submit a valid Class 'A' Electrical Contractor License for working as electrical contractor issued by Govt. of Rajasthan /Govt. of India/State administration of the state in which the contractor is working. AND c. Minimum 10 years of experience in the field of undertaking similar works viz. "Energy audit and/or Electrical Safety Audit work for large office buildings/companies(PSU's)/ educational institutes/ commercial estate" (from the date of issue of tender) [Any work order (Energy audit & Electrical safety Audit) issued from the date of issue the tender needs to be submitted] AND d. Agency/Firms must have annual minimum turnover of Rs. 10 lacs for the last three financial vears. AND e. Experience of having successfully completed works during last seven years ending on previous day of last day of submission of tender (Energy Audit /Electrical Safety Audit for large office

	 buildings/companies(PSU's)/ educational institutes/ commercial estate). Three similar works each of value not less than 40% of the estimated cost put to tender (Rs. 2,59,600/-). OR Two similar works each of value not less than 60% of the estimated cost put to tender (Rs. 3,89,400/-). OR One similar work of value not less than 80% of the estimated cost put to tender (Rs. 5,18,200/-). All amounts rounded off to a nearest convenient figure. Note: The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to previous day of last date of submission of tenders. For eligible private works of similar nature, form 16A and form 26AS (i.e. work done for private client) needs to be necessarily submitted by the bidder as a proof of actual amount of work done by the bidder and paid by the private client.
12.	 f. Agency/individual must have valid GST No., PAN No.(copy of documents to be submitted) AND g. The track record of the contracting firm/individual should be clean and should not be blacklisted or not have any involvement in illegal activities or financial misappropriation / frauds etc by any Central/State Government/Public Undertaking/Institute on any account. A self-certificate on the Non-Judicial Stamp paper shall be attached. <u>Tendering Process:</u> The tender documents shall be available on University website for free of cost. The bidder shall submit the bid in one sealed main envelope containing two separate sealed envelopes and these two envelops shall be super scribed as "Part—1(Technical Bid)" and" Part—II(Price Bid)" respectively.
13.	 Part I will be opened on the date and time mentioned above. In case the date of opening of Application/EOIs is declared as a holiday, the Application/EOIs will be opened on the next working day at the same time. No deviation will be accepted in Part I of tender. If firm put deviation in the tender, their tender will be out rightly rejected. Part II of such tender will be returned. Part II will be opened for those bidders who qualified in Part I of the tender. Lowest quoted amount in the Part II will be declared L1 bidder/successful bidder and tender will be awarded to them. Incomplete tenders are liable for rejection. No terms and conditions or any other information/ enclosures shall be included in tender Part-II. However, if the price quoted by a bidder, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price decimal point in the unit price, in this case the total price as quoted shall prevail over the unit price and the unit pric
14.	If there is an error in a total price, which has been worked out through addition and / or subtraction of subtotals, the subtotals shall prevail and the total corrected.
15. 16.	The price quoted for the work shall be firm till completion of the work and shall include charges, labour, transport, insurance, GST as applicable and cost of transportation/accommodation etc. of the equipments and persons deputed. Before tendering, the bidder shall inspect the site to fully acquaint himself about the conditions in regard to accessibility of site, nature and extent of ground working conditions of site and movement of labour etc. required for the satisfactory execution of the work contract. No claim whatsoever on such accounts shall be entertained by the University in any circumstances after award of tender. This contract is a fixed lump sum contract respectively for energy audit & electrical safety audit for entire campus of Central University of Rajasthan and to be paid as per actual, at the rates contained in the
	schedule of rates and as provided in the said conditions.

17.	The Employer reserve to itself the right of altering the items to be executed by adding to or omitting any items without prejudice to this contract. However, the auditors shall not be entitled to any payment for the works done exceeding the tender quantities unless specifically approved in writing by the Executive Engineer. The University also reserves itself the right to accept the lowest or any tender and reserves to itself the right to accept or reject any or all the tenders, either in whole or in part, without assigning any reasons for doing so.
18.	The Central University of Rajasthan does not bind itself to accept the lowest or any tender and reserves to itself the right to accept or reject any or all the tenders, either in whole or in part, without assigning any reasons for doing so.
19.	Payment terms: Payment will be made after satisfactory completion of work & submission of final reports. No advance payment will be made. Income tax and all other statutory tax deduction will be made as per Govt. of India norms.
20.	Validity of tender: The tenders shall be valid for acceptance by the University for a period of 90 days from the date of opening of Part I of tender.
21.	<u>Time Period:</u> The time for completion of the entire work is six weeks from tenth day after the date of letter advising acceptance of tender. The site survey, data collection/measurements and draft report shall be completed in 30 days and the final report shall be submitted within 12 days thereafter. The work is allowed to be carried out during office hours (10:00 AM to 5:30 PM).
22.	Extension of time: (before expiry of original date of completion)
	If the successful bidder desires any extension of time for completion of work on grounds of their having been unavoidable hindrances in execution or any other ground, they shall apply in writing immediately after the occurrence of the hindrance. Such application shall contain complete details of hindrances, which hindered the contractors in the execution of the work and reference to record of entry in the Hindrance Register. The University will grant the extension of time, without prejudice to University's right to recover liquidated damages or compensation under relevant contract clause.
23.	 <u>EMD:</u> The bidder shall be required to submit the Earnest Money Deposit (EMD) for an amount of Rs. 13,000/- (Rupees Thirty Thousand only) by way of demand draft/Fixed Deposit Receipt drawn in favour of "Central University of Rajasthan". The EMD must be enclosed in the envelope containing the Part-I. The EMD of the successful bidder shall be become part of performance Guarantee and for unsuccessful bidder(s) it would be returned after award of the contract. Bid(s) received without EMD will be rejected. <u>Note:</u> The firm who are registered with Medium Small and Micro Enterprise Management (MSME)/Small Scale Industries (SSI) are exempted to submit the EMD (copy of registration must be provided along with technical bid). No other relaxation will be allowed.
24.	Performance Guarantee: The agency/individual whose bid/offer is accepted will be required to furnish performance guarantee of 3% (Three Percent) of the quoted amount within 10 days of issue of letter of award. This guarantee shall be in the form banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any scheduled bank or Government Securities or Fixed Deposit Receipt or Guarantee Bonds of any Scheduled bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the 10 days from date of issue of letter of acceptance, including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. It should be valid for completion period plus two months beyond that.
25.	This EMD and/or Performance guarantee shall be forfeited if he/they fails to comply with any of the conditions of the contract. No interest shall be paid on the EMD and/or Performance guarantee.
26.	Penalty: Half Percent of the work order value per week of delay subject to a maximum of 10% of work order value.

- 27. Safety and statutory measures: The bidder shall take all safety measure during the execution of the work. The University will not accept any liability for any mishap / accident caused while working. The bidder shall indemnify and keep indemnified the University against all losses and claims, damages or compensation for breach of any provision of the Payment of Wages Act,1936 Minimum Wages Act 1948, Contract Labour (Regulation and Abolition) Act,1970, Payment of Bonus Act 1965 amended till date or any other labour law/statute in force in this regard. The tenderer is advised for insurance of workmen/person deployed after receipt of intimation from the University of the acceptance of his/ their tender.
- 28. On receipt of intimation from the University of the acceptance of his/ their tender, the successful tenderer shall be bound to sign the formal contract and within 10 days thereof, the successful tenderer shall sign an agreement in accordance with the draft agreement and the schedule of conditions but the written acceptance by the Central University of Rajasthan of a tender will constitute a binding contract between the CURAJ and the person so tendering, whether such formal Agreement is or is not subsequently executed. The cost of necessary stamp paper for execution of the agreement shall be borne by the successful tenderer.
- 29. During the course of evaluation of offer, if University requires any documentary evidence required for evaluation, the same shall be intimated and bidder is expected to submit within the reasonable time period. In case the documentary evidence could not be submitted within the stipulated time period, University may discard the proposal submitted by the bidder.
- 30. All relevant Environment, Health and Safety Precaution are to be taken by the bidder/ auditor while conducting the energy audit and electrical safety audit at premises of University. The bidder shall be responsible for any injuries to the work or workmen, to persons, animals or things and for all damages to structure and/or decorative part of property which may arise from the operations or negligence of himself/their employees.

31. Termination for Default:

- a. The University may without prejudice to any other remedy for breach of Contract, by Seven Days (07) days written notice of default sent to the Bidder and upon the Bidder's failure and neglect to propose and/or execute any corrective action to cure the default, terminate this Contract in whole or in part:
 - i. If the Bidder fails to Complete the work within the time period(s) specified in the Contract; or
 - ii. If the Bidder fails to perform any other obligation(s) under the Contract.
- b. On termination of the Contract for default, the EMD of the Bidder will be forfeited.
- c. On termination of the Contract for default, action will be taken to blacklist the Bidder.
- 32. <u>Jurisdiction:</u> All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen at Ajmer/Jaipur and only Courts in Ajmer/Jaipur shall have jurisdiction to determine the same.
- 33. Any clarifications sought after opening of the EOIs will not be entertained at any cost. Firm should visit the website till last date of submission for changes/ corrigendum if any.
- 34. The University reserves right to cancel or postpone the Application/EOIs at any stage without assigning any reason.

Date	:	
Plac	e:	Signature of Firm (with seal)/ Individual (By a person holding the Authority/Power of Attorney)

Section-II: Details of Tenderer

I. Particulars of the Firm/ Individual

Sr.	PARTICULARS	TO BE FILLED BY THE TENDERER
No.		
1.	Composition of the firm (Whether partnership / proprietorship /Public Ltd.)/ Name of the individual	
2.	Names of the proprietor/ Directors of the firm	
3.	Whether Certified Energy Auditor by Bureau of Energy Efficiency	(Yes/No) certificate of accreditation is to be attached
4.	GST Number	
5.	PAN Number	
6.	Address of the Firm	
7.	Contact Number	
8.	E-mail ID	
9.	Whether the firm is MSME(micro and medium small enterprise)	(Yes/No) necessary certificate needs to be attached for EMD exemption)
10	Udhyam Registration number (applicable for MSE firms only)	
11	Operating Years	
12	Yearly turnover of the organization during last 3 years (year wise).	
13	Whether any Civil Suit / litigation arisen in contracts executed / being executed during the last 10 years. If yes, please furnish the name of the project, employer, Nature of work, Contract value, work order and brief details of litigation. Give name of court, place, and status of pending litigation. Attach a separate sheet if required. Bank details	
14	Name of Bank: Account No.: IFSC: Address of Bank:	

II. Particulars of the Clients

Following are our Clients for whom we have executed "eligible" works required as per the eligibility criteria (Please submit the documentary evidence in support of)

Sr. No.	DETAILS	CLIENT (1)	CLIENT (2)	CLIENT (3)
1.	Name of the Client/organisation/institute			
2.	Address			
	Name of the Contact Person			
	E-mail Id (as per Avaibility)			
3.	Brief details of work with connected load and sanctioned load details			
4.	Work order no. and date (Attach corresponding work order)			
5.	Cost of the "eligible" work as per work order / letter of award:			
6.	Whether the Establishment is with central air-conditioning system	(Yes/No)	(Yes/No)	(Yes/No)
7.	Date of commencement			
8.	Stipulated date of completion			
9.	Actual date of completion			
10.	Amount of compensation levied by the client for delayed completion, if any:			
11.	Gross value of the work completed and paid for :			

III. Particulars of the Technical persons' and Similar experience

Sr. No.	PARTICULARS	PERSON (1)	PERSON (2)	PERSON (3)	PERSON (4)	PERSON (5)
1.	Name of the person					
2.	Age					
3.	Qualification					
4.	Nature of Experience					
5.	Nature of the works handled/executed					
6.	Name of the projects handled					
7.	Date from which employed in your organization					
8.	Years of experience					

Note: All the details must be filled in the tender documents only & no separate annexure will be accepted. Only Submit documents in support of details filled above.

Signature of the firm with seal/ Individual

Section-III: Scope of Work

1.	Central University of Rajasthan is desirous of undertaking Energy Audit & Electrical Safety Audit of the various buildings and Electrical/Electromechanical installations provided inside the campus.					
2.	 various buildings and Electrical/Electromechanical installations provided inside the campus. Objective: The objective of Energy Audit is - To have Energy Performance Assessment of equipment and utilities in the electrical sub-station, Electric power distribution, HVAC systems, Electric motors and drives, Fans and blowers, Water pumping systems, UPS systems, Lighting systems, Diesel generator sets, Solar Power Plant etc. and other associated installation & equipment of various buildings of the University including study of energy consumption pattern and management of power demand in the building. Based on the above observations, to identify opportunities for energy saving and to have recommendations for the same along with cost benefit analysis. The objective of Electrical Safety audit is to review the conditions of the existing electrical installation and to recommend measures for further strengthening the system in order to eliminate the electrical/fire hazards and to improve the safety of the personnel and University's assets. The Electrical Safety audit shall mainly focus on: Identifying the potential electrical/fire hazards Providing Safe working environment Smoothing the operation & maintenance of electrical installations. Avoiding loss of human life and University properties. Ensuring the compliance with relevant codes and practice, statutory rules and regulations. 					
	Details of Premises of University: (The details given are indicative only and are not exhaustive. The contract will cover all existing and future premises of University within the campus.) The Campus receives 33 KV power supply from AVVNL which is step down to 11KV at 33/11KV MRS and further distributed to 04 Nos 11/0.433KV ESS through U/G cable and O/H Lines connected in ring					
	 main system. Various buildings are feed electric supply through these four ESS. Additionally, diesel generator sets of 500KVA*2, 380KVA*1, 250KVA*2 ratings are provided to cater essential applications during power outages. Equipment Details: The tentative details of building & list of equipment/ electric installations, but not limited to, for which audit is to be conducted are detailed below: 					
			Central University of Rajasthan Nh-08, Bandarsindri, Ajmer-Jaipur Highway, Tehsil – Kishangarh, District – Ajmer, 305817			
3.	2)	Sanctioned Load; Contract demand	1500 KVA 1875 KVA			
	3)	Power Supply	33KV Feeder from AVVNL			
	4)	Transformers	33KV MRS - 3150KVA*2 Nos 11KV ESS 01 – 1000 KVA*2 Nos 11KV ESS 19.1 - 2000 KVA*2 Nos 11KV ESS 19.2 – 2000 KVA*2 Nos 11KV ESS 20.7 - 1000 KVA*1 Nos STP - 100 KVA*1Nos			
	5)	DG Sets	Cummins - 500KVA at ESS 19.1 Cummins - 500KVA at ESS 19.2 Cummins - 380KVA at ESS 01 Kirloskar - 250KVA at Auditorium Cummins - 250KVA at ESS 20.7			
	6)	Panels	HT Panel – 04 Nos, LT Panel – 04 Nos APFC Panel – 04 Nos VCB – 27 Nos (1250/800) ACB – 70 Nos (3200/2000/1600/1250/1000/800/630A)			

7)	Air Conditioning units	40HP (VRV Plant) 11*4 TR (Ductable Plant) 5.5*3 TR (Ductable Plant) Approx 500 Nos Split AC (1/1 5/2 0 TR capacity)					
			Approx. 500 Nos Split AC (1/1.5/2.0 TR capacity) , Approx. 50 Nos Tower AC (3/4/5.5 TR Capacity) 1KVA – 14 Nos , 2KVA – 7 Nos , 3 KVA – 3 Nos				
8)	UPS						
			5 KVA - 5 Nos, $6 KVA - 2 Nos$, $10 KVA - 2$				
			– 5 Nos , 20 KVA – 5 No				
9)	Pumps	S.NO.	NAME OF THE	KW	NO. OF		
			PLANT		MOTORS		
		1	Pump House No. 1	7.5 HP	3 Nos		
				10 HP	2 Nos		
				12.5 HP	1 Nos		
		2	Pump House No. 2	15 HP	2 Nos		
				10 HP	1 Nos		
		3	Mega Mess Air Duct	20 HP	2 Nos		
				7.5 HP	2 Nos		
		4	STP	15 HP	6 Nos		
				12.5 HP	1 Nos		
		5	Mines	5 HP	1 Nos		
		6	Nursery	3 HP	1 Nos		
		7	Pond	5 HP	1 Nos		
		8	Bore well Gate No. 2	12.5 HP	1 Nos		
		9	Bhairv Baba Well	12.5 HP	1 Nos		
		10	Fountain	2 HP	3 Nos		
				1 HP	1 Nos		
		11	Basement SP1 SP2	2 HP	4 Nos		
10)	RO Plants	Reverse	Osmosis Plant 300 LPH Osmosis Plant 50 LPH Osmosis Plant 15 LPH	– 10 Nos (È	ureka Forbes)		
		Reverse	Osmosis Plant 25 LPH	· ·	,		
11)	Lifts		Osmosis Plant 12 LPH ohnson Make Lifts insta				
11)			ration & Guest House bu				
12)	Fire Fighting System	extinguis	Iding have firefighting sy hers approx. 800 Nos a of various types.				
13)	Fire Alarm System	Fire Alar	m System and PA syste of University.	m is installe	d at various		
14)	Special Equipment		ry Equipments as install oratories.	ed at NMR,	XRD, CIF &		

University Infrastructure/Buildings Details :

S.No.	Building/Location	Description
01	Administration Buildings	G+2, BUA= 6469 sq.m.
02	Academic Building 4A3	G+3, BUA= 10993 sq.m.
03	Academic Building 4A4	G+2, BUA= 7923 sq.m.
04	Academic Building 4A5	G+2, BUA= 7925 sq.m.
05	Academic Building 4A6	G+3, BUA= 10994 sq.m.

	06	Guest House	BUA= 7836 sq.m.	
	07	VC Residence	Ground Floor, BUA= 623 sq.m.	
	08	Type B Quarters	24 Nos	
	09	Type C Quarters	12 Nos	
	10	Type D Quarters	32 Nos	
	11	KV Vidyalaya/CPWD Office	G+1, BUA= 2977 sq.m.	
	12	Girls Hostel B1	192 bedded	
	13	Girls Hostel B2	192 bedded	
	14	Girls Hostel B3	192 bedded	
	15	Girls Hostel B4	192 bedded	
	16	OBC Girls Hostel	200 bedded	
	17	Boys Hostel B5	256 bedded	
	18	Boys Hostel B6	256 bedded	
	19	Boys Hostel B7	256 bedded	
	20	Mega Mess	Ground Floor, BUA= 1663 sq.m.	
	21	ESS 01	Details mentioned above	
	22	ESS 19.1	Details mentioned above	
	23	ESS 19.2	Details mentioned above	
	24	ESS 20.7	Details mentioned above	
	25	Shopping Complex	10 Nos Shops	
	26	Bank of India	Ground Floor	
	27	Dispensary	G+1 Floor	
	28	Road Lights	Approx. 1000 Nos	
	29	STP	750 KLD Bio remedial based technology	
	30	Semi-Permanent Building 1	Ground Floor	
	31	Semi-Permanent Building 3	Ground Floor	
	32	Semi-Permanent Building 4	Ground Floor	
	33	Central Library & Auditorium	Ground Floor, SP Building 2	
	34	782 kWp Solar Rooftop Solar F	Power Plant installed in the campus.	
	35	Main Receiving Substation 33/	11kV	
	36	Cricket Ground, Football Grour	nd and other sports facility	
		Energy Audit & Electrical Safety re	n not mentioned above but necessary to conside ports are also included.	er for
			ackles required for site measurements for carr	ving out
		• •	t will have to be arranged by the firm without a	
	paym			
		5	num equipment/instruments for energy audit & e	ectrical
		/ audit: Three-phase Power analyser		
		Earth resistance tester (rod-type/cla	mp-on)	
4.		_eakage current tester	, ,	
4.		Anemometers		
		Thermometers		
		Pressure gauges Thermography camera		
		CO_2 level sensor		
	ix. I	Humidity & temperature meter		
		Manometer		
		nsulation tester		
	xii. I	Flow meter		

- d. The site measurements should be recorded in the presence of University's personnel only.
- e. The work must be carried out in normal working hours without causing inconvenience to normal working of the University. Permission/advance notice is to be provided in case of long or deviated working hours.
- f. The firm/individual should deploy only BEE certified and experienced Auditors/Engineers having requisite license to carry out such works. Utmost care shall be exercised by the firm/individual in carrying out the work to ensure that no damage is caused to persons and properties.
- g. All reports shall be in printed/typed format. Handwritten copied or photocopies are not acceptable. Also the soft copy (editable and PDF) of these reports has to be submitted.
- h. The University will not be liable for any injury or damage to persons and any such happening will be entirely the responsibility of the firm/individual. Personnel should be well trained and should have adequate knowledge in electrical safety aspects and handling electrical equipments. The equipments supplied to personnel should meet the related IS Standards/ International Standards as per prevailing rules of Central/State Government.
- i. Any damage to University Property, equipment under testing and measurement during the energy audit & electrical safety audit will be charged to service provider.
- j. **Statutory Requirements**: Electrical Audit of the Building and Electrical Installations shall be carried out with reference to applicable Indian Standard, Indian Electricity Rules(IE), PD Manual (Para 4.11), and other relevant codes of Practice to identify potential electrical hazards to prevent or minimize accidents. The Audit should be carried out using calibrated instruments and personal protective equipment during field visits for inspection and data collection. During the Audit, the audit team should ensure that in addition to other provisions of the IE rules as per IE Act, the provisions contained in para 29 of the IE act specifically listed as under are complied with: Para 29:- Construction, installation, protection, operation and maintenance of electric Supply lines and apparatus-
 - (1) All electric supply lines and apparatus shall be of sufficient ratings for power, insulation and estimated fault current and of sufficient mechanical strength, for the duty which they may be required to perform under the environmental conditions of installation, and shall be constructed, installed, protected, worked and maintained in such a manner as to ensure safety of 2[human beings, animals and property]
 - (2) Save as otherwise provided in these rules, the relevant code of practice of the 3[Bureau of Indian Standards] 4[including National Electrical Code] if any may be followed to carry out the purposes of this rule and in the event of any inconsistency, the provision of these rules shall prevail.
 - (3) The material and apparatus used shall conform to the relevant specifications of the 3[Bureau of Indian Standards] where such specifications have already been laid down.
- k. **Relevant Codes of Practices**: Some of the relevant codes of practice are enumerated below: a. Indian Electricity Rules, 1956 (as amended up to date)
 - b. IS: 5216 (Part-I) Recommendations on Safety Procedures and practices in Electrical Work.
 - c. IS: 5216 (Part-II) Recommendations on Safety Procedures and practices in Electrical Work.
 - d. IS: 1646-1961 Code of Practice for fire safety (General) : Electrical works
 - e. IS: 4770: 1968 Specifications for Rubber gloves for Electrical Purpose

f. IS: 2309 Protection of Buildings and Allied Structures against Lighting

g. Gazette Notification dated 20th September 2010 issued by Central Electricity Authority regarding Regulations for measures relating to safety and Electric Supply.

- h. National Building Code, 2005 (as amended up to date)
- i. Any other local guidelines / bylaws as applicable

Scope of Work:

5.

The Audit activities shall include the following:

- a. **Pre Audit:** Meeting with University's technical team, Visual inspection of the site & verification of various documents regarding energy consumption and electrical installation.
- b. Audit: Auditing and performance analysis to determine the condition of electrical installation as detailed below.
- c. Review of key documents and records.
- d. Submission of **Final report** to University as per discussions with the University with suggestions and recommendations for possible areas of energy conservation and cost analysis.

The energy audit of the shall cover the following, but not limited to: a. Building Energy Bills Analysis Analysis of energy consumption pattern in the building with respect to peak demand, load pattern, power factor for the last 02 years. b. Electricity Supply and Distribution network i. Distribution Transformer Study and analysis of the utility pattern of transformers, checking no load losses of the

Study and analysis of the utility pattern of transformers, checking no load losses of the transformers, including all day Efficiency of each transformer etc. Load distribution pie chart for building (lighting loads, power loads and AC load); Energy consumption by services in the building

ii. LT Distribution Panels

- 1. General inspection of the LT distribution panel(s) for its maintenance and working including checking all the meters mounted on it.
- 2. Performing Thermography for the cable termination wherever required and analysis of the observations.
- 3. Study on Metering system and suggestion for improvement.
- 4. Detailed examination of the existing energy use of the facility with break up.
- 5. Study and examination of judicial use of electric energy, cost balance with break up.
- 6. Performance evaluation of installed capacitors to ensure deliverance of desired output, level of losses, management of system power factor and operation of capacitors.

iii. Power Factor study

- 1. Running power factor in the facility at main incomers and its distribution networks.
- 2. Identify ways to maintain power factor and yield better system performance.

iv. Phase voltage and current unbalance

- 1. Measurement of input current and voltage.
- 2. Variation in current & voltage waveform between phases.
- 3. Comparison of the unbalanced system with the prescribed limits.
- 4. Analyse and calculate the line losses in the distribution system as per available data obtained and datasheet so present.

v. Harmonics Study

- 1. Identify various levels of voltage & current harmonics.
- 2. Calculation for total harmonics distortion.
- 3. Suggestions/ recommendations to improve the level of harmonics in system.

c. Air Conditioning systems

i. Centralised Air Conditioning System

Performance evaluation of existing central air conditioning system(s) in all the areas, measurement and analysis of indoor temperatures and suggest optimising the energy utilisation.

ii. Chillers

- 4. Measuring all the operating parameters such as water flow (If the actual flow found to be in variation with the designed flow, the same needs to be adjusted to match designed flow before taking observations) inlet & out water temperatures, gas suctions & discharge pressure, Power Consumption etc. after stabilising the parameters.
- 5. Calculation of operating Input KW per TR (IKW / TR) of Chillers at minimum three different available load conditions for each chiller.
- 6. Comparison of actual parameters with the design values, and suggestion for corrective actions to be implemented.

iii. Motor load & Pumps Survey

- 1. To find out efficiency and loading on motors based on the results obtained, recommend means for energy saving.
- 2. Study the effect of rewinding, phase/current unbalancing, type of starters for big size motors,

possible use of VFDs etc.

- 3. Measuring all the operating parameter such as water flow, suction & discharge head, power consumption etc.
- 4. Performance Evaluation of chilled water & Condenser water pumps and compare the same with the design or generally expected efficiency of such pumps.

iv. Package precision Air Conditioners | Split or window air conditioners

- 1. Evaluation of operating Coefficient of Performance (COP) of Precision and package Air Conditioner. Identification and suggestions for performance improvement and energy saving potential.
- 2. Calculation of actual tonnage and comparison of actual parameters with the design values and corrective actions.

d. Uninterrupted Power Supply (On-Line)

- 1. Measurement and analysis UPS loading, redundancy, operating efficiency, no load and on load losses, load pattern to suggest measures for energy cost reduction, Measurement, and analysis of Harmonics as per standards and total harmonic distortion calculations.
- 2. Numerical Values of operating load losses, no load losses, and operating efficiency of UPS

e. Lighting

- 1. Examination of the performance of existing lighting system in all the areas, measurement of illumination levels and comparison with standards, etc
- 2. To look possibilities to reduce energy use by incorporating energy efficient lighting system.
- 3. Study of operating electrical parameters like voltage, current etc in the lighting circuits.

f. Diesel Generator Sets

- 1. General Inspection of DG set.
 - i. Checking of ventilation arrangement for the DG set room.
 - ii. Checking of loading pattern of DG Sets.
 - iii. Checking adequacy of capacity of DG set w.r.t to actual requirement along with the type of load taken on DG and evaluating its necessity.
 - iv. Checking noise level of DG sets.
 - v. Checking of effectiveness of cooling system for DG
 - vi. Checking of per unit power generation w.r.t consumption.
 - vii. Specific fuel consumption (KWH/Ltr) of DG sets.
- 2. The DG sets are to be tested for operational performance and parameters including Voltage, Current, KW, KWh, KVA should be recorded during the audit

g. Fire Hydrant Pumps and Domestic water Pumps

- 1. Performance analysis of all major motors needs to be studied for possible energy savings opportunities by the application of following items.
 - i. Possibility of on /off control
 - ii. Interlocking
 - iii. Downsizing motors etc.

h. Energy Audit Report Observations with detailed Analysis

The report shall contain complete building information, inventory of all equipment. It should include the log sheet data collected/measured at site, analysis of data (Log sheet and actual measured), observations of operational performance of various equipment, findings, and recommendations for achieving energy and cost saving.

The Electric Safety Audit shall be carried out to shall cover the following, but not limited to :-

- 1. Physical inspection of the premises with reference to applicable Indian standards, Indian Electricity Rules and other relevant codes of Practice & identifying electrical hazards (shocks, fires, etc.).
- 2. Physical Inspection and review of all electrical panels, distribution boards and electrical network protection devices / system including fuses, ELCB, MCB, MCCB, ACB master electrical switch, etc. to identify the electrical hazards like shock, fire, explosion, overloading etc. and recommend electrical safety solutions. Identification of naked wires, joints, loose hanging wires, cables not

dressed properly, inadequacy of installation (glands, lugs, armoured cables, cable entry sealing), broken switches, sockets etc.

- 3. Review of adequacy size of cables, motors, etc. based on actual load current measurements and cable current carrying capacities.
- 4. Review the EPM (Electrical Preventive Maintenance) program and to examine documentation, checklists, test records, etc. and to suggest recommendations as per applicable standards.
- 5. **Preparation of Earthing layout** encompassing all the accessible and working earth pits in th premises. Each earth pit should be given a unique identification number and marked.
- 6. **To evaluate the Earthing system** (installation and maintenance) based on IS 3043 (or latest available IS standards) including availability, upkeep and testing of earth pits and to suggest recommendations. Verify continuity of earth strip/conductor from the earth pit to the earth terminal of electrical equipment.
- 7. **Identification of any unbalancing of load:** The unbalancing/overloading, if any, in the electrical installation viz. transformers, LT panels, Emergency panel, Floor Distribution Panels, Distribution Boards etc shall be identified with the help of measuring equipment.
- 8. **Identification of Hot Spots using thermal camera:** The hot spots, if any, in the electrical installation panels and distribution boards shall be identified with the help of thermal imaging/thermography
- Checking Record of test reports carried out by the OEMs or their authorized representatives for proper functioning of transformers, HT/LT switchgear and proper functioning of their protective relays, failsafe interlocking of Circuit breakers
- 10. Checking of Elevators for passenger and freight/bullion movement and passenger safety testing including testing of door safeties, alarms, overload protection and Automatic rescue devices, firemen control/switch, wiring in shaft and machine room etc. provided in the lift installations and gaps if any shall be identified and indicated in the audit report.
- 11. **Physical inspection of the sources of power supply** viz Transformers, substation equipment, DG set, UPS installations and associated power distribution electrical installations including power supply systems & wirings for server rooms, IT equipment etc shall be done with reference to applicable Indian standards, Indian Electricity Rules and other relevant codes of practice. Any leakage of oil in transformer, capacitor banks, diesel/water/oil in DG sets, leakage of oil/refrigerant in AC plant, leakage of water in lift shaft, leakage of water over any electrical equipment etc to be checked.
- 12. Checking provisions and sufficiency of AC services comprising AC units/ PAC systems and ventilation systems in areas housing electrical/IT equipment in 24x7x365 operations namely UPS systems, battery rooms, server rooms etc as per existing circulars and guidelines issued by the Bank. Checking of the alternate operation of the standby fans/AC units through timers or any OEM installed logic circuits etc for proper operation
- 13. Checking of the protection devices in upstream and downstream switchgears and their settings to ensure that the same are in the desired graded manner as designed as per the requirements of existing standards including setting/adequacy of ELCB and their ratings for earth leakage protection.
- 14. Checking of the Lightning protection system of the building and ensuring that lightning arrestors are connected to two isolated earth pits. These pits should not be connected to electrical system earth.
- 15. Checking of Illumination level in various working area as per standard and identifying gaps/shortfalls if any as per process/area requirement.
- 16. Checking of the provision of electrical shock treatment chart in Hindi and local language near electrical equipment and substation. Checking the record of the training provided to the electrical staff on electrical safety, shock treatment and to handle emergencies and artificial respiration.
- 17. Check availability of danger signboard/electric shock prevention chart.
- 18. Check availability of rubber mats, rubber gloves, etc.
- 19. Provision of identification tag of cables, cable glands, sealing of cable entry and unused holes.
- 20. Provision of inspection of indicating lamps, meters, etc. on the control panels.
- 21. Use of 3-pin plug and socket & proper arrangement of L & N inside them.
- 22. Checking of the provision of electrical shock treatment chart in Hindi and local language near electrical equipment and substation. Checking the record of the training provided to the electrical staff on electrical safety, shock treatment and to handle emergencies and artificial respiration.
- 23. To check the provision and use of proper height, strong and properly insulated ladders for the

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- maintenance work
- 24. To check the provision of proper ventilation of substation, transformer rooms, electrical panel rooms and battery rooms etc.
- 25. Arrangement for repair and maintenance of electrical installations, equipment and appliances including qualified maintenance personnel, accessibility, and maintenance practices, etc.
- 26. Adequacy of rating of electrical equipment and installation.
- 27. Adequacy of isolation of current carrying parts.
- 28. Lightning protection in building/campus.
- 29. Weather protection of outdoor electrical equipment and fittings.
- 30. Cables dressing, routing, identification tags, glands, lugs, armoured earthing, sealing of cable entry and used holes, adequacy for current carrying capacity, colour coding
- 31. UPS and battery room.
- 32. Review of the following test records, (if any) evaluating the test results and to suggest recommendations as per applicable standards.
- 33. Insulation resistance tests
- 34. Earth resistance tests.
- 35. In addition to above, checking for any shortfalls in the existing electrical systems which impact on human and fire safety

Date:

Signature of Firm (with seal)/ Individual

Place:

(By a person holding the Authority/Power of Attorney)

SECTION-IV FORM OF AGREEMENT

(To be executed on non-judicial stamp paper of Rs.500/-)

Agreement No: _____

Dated:

CONTRACT FOR EXPRESSION OF INTEREST FOR CONDUCTING ENERGY AUDIT & ELECTRICAL SAFETY AUDIT AT CENTRAL UNIVERSITY OF RAJASTHAN CAMPUS CENTRAL UNIVERSITY OF RAJASTHAN, BANDARSINDRI, KISHANGARH, DISTRICT- AJMER

..... accepted the quotation/offer submitted by the contractor for the execution,

maintenance and completion of such works at a total contract price of Rs.....

(Rupees only).

Now THIS AGREEMENT WITNESSETH as follows:

- 1. In this agreement, words and expressions shall have the same meaning as are respectively assigned to them in the conditions of contract hereinafter referred to.
- 2. The following documents shall be deemed to form and be read and construed as part of the agreement viz:
 - a) This Form of Agreement
 - b) The Letter of Award dated _____
 - c) Eol document
 - d) Price Bid / Schedule of Quantities.
 - e) Scope of work and conditions of contract.
 - f) All Annexures/Corrigendum to Eol

g) CPWD Specifications/GCC with upto date correction as applicable.

The aforesaid documents shall be taken as complementary and mutually explanatory of one another, but in the case of ambiguities or discrepancies, shall take precedence in the order set out above.

- 3. In consideration of the payment to be made by the University to the contractor as hereinafter mentioned, the contractor hereby covenants with the University to execute, complete and maintain the works in conformity in all respects within the provisions of the contract.
- 4. The University thereby covenants to pay to the contractor in consideration of the execution, completion and maintenance of the works at contract price at the time and in the manner prescribed by the contract.

In WITNESS whereof the parties hereto have caused their respective common seals to be here into affixed (or have herewith set their respective hands and seals) the day and year first above written.

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For and on behalf of	For and on behalf of
	Central University of Rajasthan
	Bandarsindri, Kishangarh
	Ajmer, Rajasthan
By:	By:
Name	
Designation	
In the presence of	In the presence of
WITNESS	WITNESS
WITNESS	WIINESS
1.	1.
2.	2.

To be signed by the bidder and same signatory competent / authorised to sign the relevant contract on behalf of Central University of Rajasthan

INTEGRITY AGREEMENT

This Integrity Agreement is made at on thisday of20.....

BETWEEN

Central University of Rajasthan through Registrar, Central University of Rajasthan, bandersindri, Dist-Ajmer. (Hereinafter referred as the 'Principal/Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

Preamble

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

- 1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - (c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code(IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or

becomes aware, during the tendering process and throughout the Negotiation or award of a contract.

- 2) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
 - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
 - b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s)into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or on-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a wilful misrepresentation or omission of facts or submission offake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.
- 5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days' notice to the Contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can bed is qualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractors deemed fit by the Principal/ Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/SubContractors

- The Bidder(s)/Contractor(s) undertake(s) to demand from all subContractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-Contractors/sub-vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority.

Article 7- Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Headquarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation

thereof shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

(For and on behalf of Principal/Owner)

(For and on behalf of Bidder/Contractor)

WITNESSES:

1.(signature, name and address)

2.(signature, name and address)

Place: Dated :