



(Premises & Estate Deptt.)
SBI LHO, Tilak Marg, C-Scheme, Jaipur-302005

Annexure II

INVITE APPLICATIONS FOR
EMPANELMENT OF
UPS MANUFACTURERS/AUTHORISED DEALERS OR
DISTRIBUTERS OF 2KVA/3KVA/ 5KVA/ 7.5KVA/ 10KVA/
15KVA/ 20KVA/25KVA AND Modular type 30KVA to 100
KVA) CAPACITIES FOR SBI OFFICES & BRANCHES IN THE
STATE OF RAJASTHAN UNDER JAIPUR CIRCLE.

Annexure II - Empanelment of UPS Manufacturers/Authorized Dealers

or Distributers

ASST. GENERAL MANAGER (PREMISES & ESTATE DEPT)
SBI LHO, Tilak Marg, C-Scheme,
Jaipur-302005

EMPANELMENT OF VENDORS FOR UPS SYSTEMS OF VARIOUS CAPACITIES

SBI invites sealed applications from Original Equipment Manufacturers (OEM)/ authorized dealers having offices and service facilities in JAIPUR/ Jodhpur/Kota/Udaipur/Bikaner/Alwar is mandatory and preferable at Ajmer, Bharatpur, & Jhalawar etc. in the Rajasthan state for the empanelment of UPS vendors for supply, installation, testing and commissioning of 2KVA/3KVA/5KVA/7.5KVA/10KVA/15KVA/20KVA/ 25KVA and Modular type 30KVA to 100 KVA capacities of ON-LINE UPSs to State Bank of India Branches and Offices in various cities across the Rajasthan state.

1.	Scope of the work	Empanelment of UPS vendors for Supply, Installation, testing and commissioning of ON-LINE UPS systems of ratings 2KVA/3KVA/5KVA/7.5KVA/10KVA/15KVA/20KV A/ 25KVA and Modular type 30KVA to 100 KVA capacities to SBI Branches and Offices in various cities across the Rajasthan state. Providing technical support during breakdowns under warranty period and through comprehensive Annual Maintenance contract for UPS, batteries and allied equipments.
2.	Last date and time of submission of Bid	06.12.2024 Up to 3:00PM
3.	Submission of application to / Contact person.	ASST. GENERAL MANAGER (Premises & Estate Deptt.) SBI LHO, Tilak Marg, C-Scheme, Jaipur-302005
4.	Validity Period of Empanelment	3 years (from the date of Finalization) subject to further extension as per the requirement of the bank. The list of UPS vendors will be reviewed once in every year to assess the Performance of the Company regarding the reliability, Promptness of delivery, customer support and compliance of Banks technical parameters.
5.	Minimum Average Annual Turnover for last 3 years	Not less than 2 Crores only for UPS sales (Proof to be attached as mentioned in the application form)

6.	The vendor should have full-fledged service setup in the state of Rajasthan as mentioned below	The OEM/ Manufacturer must submit the details of service centers at various location in the state of Rajasthan, officers and service persons list along with the tender document.
7.	Warranty	1 years from the date of commissioning for UPS and 3 years for battery and all other equipments supplied by the bidder.
In case the date of submission of Proposals is declared as a holiday, the bids can be submitted on the next working day at the same time.		
SBI has the right to accept/reject any/all Proposals without assigning any reasons.		

ASST. GENERAL MANAGER

(Premises & Estate Deptt.)

SBI LHO, Tilak Marg, C-Scheme, Jaipur-302005

CRITERIA FOR PRE-QUALIFICATION

The following are the **Mandatory** eligibility conditions:

1. Only Original Equipment Manufacturer/Authorized Dealers of UPS systems (as per the specification provided) will be considered.
2. The applicant should submit a list of employees with contact details.
3. The applicant should be registered /empanelled with other organizations like any PSU/ Govt. Dept. /Semi Govt. Dept. / Nationalized Banks, other government /reputed organizations in the field etc.
4. The firm should be minimum 3 years old as on 31st March 2024.The copy of company's certificate of registration should be enclosed.
5. **The firm must have valid ISO certification. The UPS supplied should be BIS complied up to 10KVA. For all the capacity EN 62040-1, EN 62040-2, EN 62040-3, and CE/RoHS should comply. (The relevant certification should be attached without sufficient proof application for empanelment will not be considered.**
6. The applicant must have valid PAN and GST No.
7. The applicant should have supplied similar rated capacity in PSU/ Nationalized Bank's/ State and Central Govt. Organizations/ Insurance companies. The work order must be in the name of the applicant (OEM) and not through the dealers. Experience through dealers will not be considered.
8. Minimum average annual turnover of last three years ending as on 31.03.2024 must not be less than Rs.2.00 crores from the sale of UPS only. The sale proceeds of other equipments (other than UPS system) shall not be considered.
9. The applicant must have a full-fledged office in Rajasthan state and service centers with contact details within Jaipur, Jodhpur, Bikaner, Kota, Udaipur is mandatory and preferably at Ajmer, Bharatpur & Jhalawar with sufficient spare parts and technically qualified service technicians to provide prompt services and regular preventive maintenance.
10. The applicant must have a valid digital certificate.
11. In the past 24 months (ending in March 2024) the firm should have installed at least one 100 KVA/ 2 Nos 50 KVA/5 Nos 15 KVA/10 Nos of 5 KVA or any other relevant installation satisfactorily in any organizations like State/ central Government /PSUs /P&T / Telephones, Financial institutions like Bank, LIC, UTI, Defense Organization, reputed institutions in the field etc. **The form** shall be supported by list

of such installations centre wise with the details / address of the clients and phone numbers. Work order copy /installation certificate copy to be attached.

12. Bank reserves the right to de-panel the UPS vendor at any stage during the validity period based on their Performance and feedback from the Regions/Branches under Jaipur circle.

13. Bank reserves the right to accept or reject any or all applications without assigning any reasons. If at any stage the information furnished by the applicant is found to be incorrect at a later stage; he shall be liable to be de-barred from participating in the tender.

14. In case discrepancies are found in the information submitted, the application shall be considered unsatisfactory, and the tenderer will not be eligible to bid. SBI will not enter any correspondence with tenderer except seek clarification when necessary.

15. For Assessing the Annual Turnover of the last 3 years, Applicant must submit the valid documents viz Copy of Income tax return, Profit & Loss Account and Balance sheet for the last 3 years.

a. The Applicant shall agree and authorize the Bank to obtain the confidential report from the clients to verify the work executed by them. The applicant's offices may be inspected by the committee formed by the Bank prior to final pre-qualification and the decision of the committee as regards to suitability of the vendor is final

16. Any amendments/ corrigendum for empanelment of contractors/ vendors shall be published in Bank's website only. Therefore, applicants are requested to visit Bank's website regarding modifications/ corrigendum issued.

17. All requisite testing equipment and facilities should be available at the factory to carry out the testing of the equipment thereat.

18. All the Relevant document such as Proof for OEM/Manufacturer/Authorized Dealer, ISO Certification, BIS standards, experience, Age of the firm, service facilities, required product brochures for all mentioned capacities should attach with documents. Without the valid proof of above-mentioned document tender will be rejected without any notice.

UNDERTAKING BY THE VENDOR

1. We have read and understood the Pre-qualification Notice & this Application form and my/our firm fulfills the eligibility described in the Pre-qualification Notice.
2. We are authorized to sign and submit these documents for pre-qualification.
3. We understand that if any stage it is found / noticed by the Bank that any information thus provided by us is untrue / incorrect partly or fully and in case of receipt of adverse / unsatisfactory report from other clients / Bankers, the SBI may not consider our application and / or may de-list us and / or may take any appropriate action against us.
4. We also understand that partly / wrongly filled application and / or applications not on prescribed pro-forma and / or applications not accompanying relevant documents / enclosures / annexed documents are liable to be summarily rejected by the Bank.
5. We understand that this is merely an application & does not entitles me /us to be necessarily pre-qualified by the Bank and Bank reserves the right to reject all and / or any application without assigning any reason whatsoever.
6. We hereby confirm and certify that the information given above is correct and true and the enclosures annexed herewith are genuine to the best of my / our knowledge.

Interested and eligible firms may submit the applications dully filled with self attested copies of all the necessary certificates and documents in a sealed envelope superscripted with legend "Application for Empanelment of **ON-LINE UPS SYSTEMS FOR SBI, JAIPUR CIRCLE**" to the undersigned on or before the stipulated date and time. The Bank reserves the right to accept or reject any or all applications without assigning any reason thereof.

Date:
Place:

EMPANELMENT OF
INDIGENIOUS UPS MANUFACTURERS/AUTHORISED DEALERS OF 2KVA/
3KVA/ 5KVA/ 7.5KVA/ 10KVA/ 15KVA/ 20KVA/ 25KVA AND Modular UPS 30KVA
to 100KVA CAPACITIES FOR SBI OFFICES & BRANCHES IN THE STATE OF
RAJASTHAN UNDER JAIPUR CIRCLE.

S No	PARTICULARS	TO BE FURNISHED BY THE TENDERER
1	Name of Tenderer/Firm	
2	Postal Address	
3	E-mail address for communications.	
4	Name, designation, address, contact number and Email of the representative of the tenderer to whom all references shall be made.	
5	Year of establishment	
6	Nature of the firm (Individual/Partnership/Consortium /Public/Private Ltd /Ltd. Co. /Public Sector, attach attested copy of registration & Partnership deed/ Memorandum of Association.	
7	Annual Turnover (from the sales of UPS, excluding battery & other products of the firm) for last three years i.e., 2021-22, 2022-23, 2023-24 (Enclose the proof.)	
8	PAN NO (copy to be enclosed)	
10	GST No. (copy to be attached)	
11	Has the tenderer/firm ever been debarred by any institution for undertaking any work	
12	Any other information attached by the tenderer (Details of Annexure/ page no. where its enclosed)	
13	Any relatives working in Bank if yes state the Name and Designation?	
14	Installation details in the past 24 months (ending in March 2023) at least one 100 KVA/ 2 Nos 50 KVA /10 Nos 15 KVA/20 Nos of 5 KVA in any State/ central Government /PSUs /P&T / Telephones, Financial institutions like Banks, LIC, UTI, Defense Organization etc only will be considered.	

Note: Please enclose separate sheets for additional information, photographs, and documents.

PARTICULARS IN RESPECT OF MAJOR WORK ORDERS FOR THE LAST 5 YEARS (WORK ORDERS & WORK COMPLETION CERTIFICATE TO BE ENCLOSED)

Sr. No	Details of project with address	Description of work executed	Name and address of the clientele	Total cost of Project	Time of completion with date
1	2	3	4	5	6

NAME AND ADDRESS OF SERVICE CENTRES WITH STAFF DETAILS

(Mandatory in Jaipur/ Udaipur/Bikaner/Jodhpur/Kota, preferable in other centers also add separate sheet if required)

S No	City	Service center with address	Details of Technical staff	
			Name & Contact details	Designation & Qualification
1	JAIPUR			
2	Udaipur			
3	Bikaner			
4	Jodhpur			
5	Kota			
6	Alwar			

OTHER RELEVANT INFORMATION (Add additional sheets if required)

S No	Particulars	Details	Remarks
1	List of major production equipment in possession of the firm		
2	List of testing instruments		
3	List of laboratories equipment's		

2. General Conditions:

- a. Vendors empanelled earlier by the SBI, Jaipur Circle (If any earlier) need to apply with fresh application.
- b. The Bank's officials or their authorized representatives may visit manufacturing unit(s)/factory of the vendors (Only OEMs Manufacturing units) to assess the facilities available for manufacturing and testing of the equipment's, original certifications, and other infrastructures, before finalizing for empanelment. The applicant shall agree and authorize SBI officials to obtain the confidential report from the clients to verify the work executed by them.
- c. This empanelment shall be valid for the state of Rajasthan under JAIPUR circle of SBI, for a period of three years from the date of empanelment and may be extended as per the requirement of the bank. The Bank may review/ update the panel during its validity period at any time(s) and may exclude/ de-list any firm from the empanelled list depending upon the instances warranting such exclusion at the sole discretion of the Bank.
- d. Any OEM delisted earlier by the Bank are ineligible and they need not apply.
- e. SBI is not responsible for the late receipt due to postal delay, strikes or any other reasons. The incomplete application is liable to be rejected summarily.
- f. In case discrepancies are found in the information submitted, the application shall be considered unsatisfactory, and the tenderer will not be eligible to bid. SBI will not enter into any correspondence with tenderer except seeking clarification when necessary. The decision of the SBIIMS to accept or reject any application for pre-qualification will be final and binding on the vendors.

Typical Technical Specifications for on-line UPS systems of 1 KVA to 5 KVA

1.	Technology	UPS systems with pulse width modulation (PWM) technology in True On-line Configuration, with double conversion using IGBTs in the Inverter and converter with inbuilt isolation transformer. It should have built in SNMP card which will be accessed by SBI.			
2.	Inversion Technique	Adaptive pulse width modulation or sine weighted pulse width modulation with high switching frequency (> 12 KHZ for IGBTs).			
3.	Input Voltage Range	(I) Single Phase 240 Volts +20% and -30%. There should be input to output isolation through an in-built Isolation transformer.			
4.	Input frequency	45 Hz to 55 Hz and it should be compatible with D G Set.			
5.	Output voltage	220 / 230 V.A.C. +/- 1%			
6.	Output frequency	50 Hz +/- 4% (Synchronous to mains) 50 Hz +/- 1% (Free running)			
7.	Power factor	The UPS shall be provided with Auto input P.F. correction system to obtain P.F. 0.90 to unity when the connected load P.F. varies from 0.6 to unity.			
8.	Total Harmonic Distortion (o/p voltage)	≤ 5% for non-linear load			
9.	Harmonic Distortion (Input current)	≤ 10% at 100% load.			
10.	Waveform (output)	Sine Wave			
11.	Overload capacity	110% for 10 minutes	During the test or in actual condition, the load should not get transferred to mains through static switch.		
		150% for 10 Sec			
12.	Transient response and voltage recovery time for step load	For 100% Step load i.e., from full load to no load and no load to full load: Dip < 3%, Peak < 3% with recovery time within 3 cycles to normal output voltage.			
13.	Efficiency: It is the ratio of output power in KW of UPS to the input power to the isolation transformer & UPS with battery disconnected, or battery charging power added to the output.	Overall Efficiency at % load			
			At 100% i.e., full load	At 66%	At 33% load
		1 and 2 KVA	85	82	80
		3 & 5 KVA	88	85	84
Penalty for lower efficiency: If the overall efficiency is found to be less than the Bank's specified value, the UPS is to be rejected and replacement passing the test to be obtained. No further tolerance is permissible.					
14.	Rated KVA	The UPS should be capable to deliver rated KVA at 0.9 P.F. i.e., 5 KVA UPS should be capable to deliver 4.5 KW load at 0.9 P.F.			
15.	Operating Temperature	Should be designed for delivering rated KVA at ambient temperature from 0 to 45 Degree Celsius. It should also be capable to deliver approx. 80% of rated output at 50-degree Celsius ambient temperature.			
16.	Relative Humidity	Up to 95%% noncondensing at 35 degrees Celsius.			
17.	Noise level	At 1 meter from the UPS. ≤ 60 decibels (On demand Proto-type test certificate be submitted).			

18.	Charger	Built in IGBT based solid state float-cum-boost charger with CVCC charger with current limiting features. The charger characteristics will be such as to match the offered with each UPS. The charger should be designed for minimum 2 hours back up period. Charger capacity min 10% Battery Ah
19	Crest factor	≥3
20	Interface facility	The UPS system should have necessary RS-232/ Port, USB Port. (SNMP may be asked if required at site).
21.	Protection	a). Isolation – Separate/ In-built isolation transformer shall be provided for fully isolation from mains and surge / spike suppressors to be incorporated. b). Current limiting protection (MCB/Electronic Fuse). Built in overload / Short circuit protection with snubber circuits for current limit. c). Soft start on Inverter and charger arrangement d). Over voltage / under voltage protection. e). Short circuit protection through HRC fuses/MCB
		f). Short circuit / overload protection through MCB / MCCB. g) All other protection systems required for safety of UPS system, such as over temperature protection etc.
22 (i)	Static Auto bye-pass switch thyristor based for 3 KVA & 5 KVA UPS systems	Bidirectional with change over time less than 10 milli seconds in free running mode and instantaneous in synchronous mode from inverter to bye-pass and vice-versa.
22 (ii)	. Manual by-pass switch
23.	Indications	LCD display to be provided mains on, Battery on charge, Battery low, Invertor on, % load, on bye pass, over temperature etc.
24.	Alarm	i). Low battery alarm to be provided (ii) % load iii) Mains failure / load on battery alarm to be provided. Both should be audio visual. iv) Over temperature alarm in two stages.
25	Metering	Digital panel Meter or LCD display system to indicate the following i). A.C. voltage: Input/ output ii). A.C. current: Input/output or % load iii). D.C. battery voltage iv). D.C. Charging / discharging current v). Frequency – Input/ Output
26.	Battery set A. SMF Batteries (To be installed in ventilated/ cooled rooms only)	i) Complete with self standing cubicle or cabinet ii) Make like: Exide/ Panasonic/ Amara raja (iii) Note: Only Valve Regulated Lead Acid (VRLA) type SMF batteries of 20 HR rated capacity electrolyte in paste form are acceptable. Any other type including calcium batteries are not acceptable.

B) Battery set Tubular batteries: (ventilated room with exhaust fan is required)	i) maintainable but regular topping necessary ii) complete with stand iii) Make like: Exide, Southern Batteries,
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Note: Even though tubular batteries have longer life at higher ambient temperature, but they require more space. Wherever maintenance facilities/ well ventilated battery room are not available at the center / branch, SMF batteries will be considered.

Minimum VAH required as per details as under:

UPS Capacity (KVA)	Minimum VAH and Back up period required		
	30 Minutes	60 Minutes	120 Minutes
1	1500	2300	3000
2	2400	4000	7200
3	4000	6200	9600
5	6700	10000	18000

In both cases, the UPS vendors to specify, the make of battery they propose to use, they have to submit detailed literature of battery and battery manufacturers capability etc.

S No.	UPS Rating	DC Voltage	Battery AH	Nos.	Total VAH	Make of Battery (From approved makes only)

a) The back-up time at full load shall be **30 Minutes/ 60 Minutes/ 120 Minutes**
Note (strike out whichever is not applicable).
b). Battery set details to be indicated by the supplier: i). D.C. Terminal voltage
ii). No. of batteries and each battery voltage iii). Ampere-Hour capacity of each battery
c). End cell voltage for cut off shall be considered as 1.75 / cell

27 Testing: i) the supplier shall have facilities to carry out all the tests at factory will have to be satisfactorily carried out before acceptance. Lists of tests prescribed are mentioned in the fourth coming pages.

(ii) If the UPS does not conform to specifications either during factory test or at site, the Bank reserves the right to reject the same. The successful tenderer shall then have to remove at no extra cost to the Bank the same at his cost from site and supply a new piece conforming to the specifications.

iii). The Bank reserves the right to randomly decide to carry out testing of a few UPS systems at site (maximum say up to 10%) after installation at the cost of UPS vendor, who will be required to arrange for all the requisite varies, maters, loads etc. and carry out the tests through vendor's personnel in the presence of Bank's Officials.

Place:

Date:

Signature of the applicant with seal

Technical Specifications for on-line UPS systems

from 7.5 KVA to 25 KVA

1.	Technology	<p>a) UPS systems with pulse width modulation (PWM) technology in True On-line Configuration, with double conversion using IGBTs in the Inverter and converter. Provided with SNMP card.</p> <p>b) Provision for configuring three or more UPS system in parallel load sharing mode. Maximum six no's UPS system can be connected in parallel configuration in one cluster.</p> <p>c) The requirement is for fully rated capacity of single module in parallel with similar module sharing the load having provision for adding one or two modules of similar units. Paralleling of UPS should be achieved by paralleling the output on the power side using control logic signal bus. Each UPS should be capable of individually starting, running and feeding to the load apart from parallel operation.</p> <ul style="list-style-type: none"> • Individual battery backup is necessary. • Inverters should be synchronized with common bypass supply if required • can be connected in parallel for forming N + 1 (Configuration) 	
2.	Inversion Technique	Adaptive pulse width modulation or sine weighted pulse width modulation with high switching frequency (> 12 KHZ for IGBTs).	
3.	Input Voltage Range	<p>Single phase 220 Volts + 20 % and -20% (Up to 7.5 KVA)</p> <p>Three Phase 415 Volts \pm 15% (for 10 KVA and above)</p> <p>There should be input to output Isolation through a inbuilt Isolation transformer.</p>	
4.	Input frequency	45 Hz to 55 Hz and it should be compatible with D G Set.	
5.	Output voltage	220 / 230 V.A.C. + 1% single phase.	
6.	Output frequency	<p>50 Hz +/- 4% (Synchronous to mains)</p> <p>50 Hz +/- 1% (Free running)</p>	
7.	Power factor	The UPS shall be provided with Auto input P.F. correction system to obtain P.F. 0.99 to unity when the connected load P.F. varies from 0.6 to unity.	
8.	Total Harmonic Distortion (o/p voltage)	< 5% for non-linear load	
9.	Total Harmonic Distortion (Input current)	<p>\leq 8% at 50% load.</p> <p>< 5% at full load.</p>	
10	Waveform (output)	Sine Wave	
11	Overload capacity	110% for 10 minutes	During the test or actual condition, the load should not get transferred to mains through static switch.
		150% for 10 Sec	
12	Transient response and voltage recovery time for step load	<p>For 100% Step load i.e. from full load to no load and no load to full load:</p> <p>Dip < 3%</p> <p>Peak < 3% with recovery time within 3 cycles to normal</p>	

13	<p>Efficiency: It is the ratio of output power in KW of UPS to the input power to the isolation transformer & UPS with battery disconnected, or battery charging power added to the output. The overall efficiency is found to be less than the Bank's specified value, the UPS is to be rejected and replacement passing the test to be obtained. No further tolerance is permissible.</p>		Minimum overall Efficiency at % load		
			At 100% i.e., Full load	At 66%	At 33% load
		7.5KVA-10 KVA (Single phase I/p- Single phase O/p)	88%	88%	86%
			Minimum overall Efficiency at % load		
		At 100% i.e. fu ll load	At 66%	At 33% load	
	7.5 KVA-20 KVA (Three phase I/p- Single phase O/p)	92%	91%	89%	
		<p>Penalty for lower efficiency: If the overall efficiency is found to be less than the Bank's specified value, the UPS is to be rejected and replacement passing the test to be obtained. No further tolerance is permissible.</p>			
14	Rated KVA	The UPS should be capable to deliver rated KVA at 0.9 P. F i.e., 10 KVA UPS should be capable to deliver 9 KW load at 0.9 p.p. (output)			
15	Operating Temperature	Should be designed for delivering rated KVA at ambient temperature from 0 to 40 Degree Celsius. It should also be capable to deliver approx. 80% of rated output at 50-degree Celsius ambient temperature.			
16	Relative Humidity	Up to 95% at 35-degree Celsius non-condensing			
17	Noise level	At 1 meter from the UPS. ≤ 65 decibels (On demand Proto-type test certificate be submitted).			
18	Charger	Built in IGBT based solid state float-cum-boost charger with automatic boost/trickle charge modes with current limiting features. The charger characteristics shall be such as to match the float/boost charging of the batteries as per battery characteristic, for enhancing the life of batteries. The charger should be designed for 2 hours back up period at rated KVA. (Charger capacity 10% of Battery Ah)			
19	Crest factor	3:1			
20	Interface facility	The UPS system should have necessary hardware and software with RS-232 port to work on DOS/SCO Unix (Open screen) Novell / Network/ Current & advanced window operating system. It should be compatible for connecting to Building Management System. (B) Remote manageability through SNMP facility. There is a facility to monitor and broad cast to server wherever necessary condition such as: i) Power failure, back up time, low battery warning & auto file closure.			
21	Remote Indication unit (It may be asked if	In system/systems Administrator Room with indications like Mains on, Inverter ON / OFF / Faulty / Trip, Battery Low			

	required at site)	and static by-pass ON. 25 meters interconnecting cable to be included in price quoted.
22	Protection	<p>a). Isolation –In-built isolation transformer shall be provided for isolation transformer for fully isolation from mains and surge / spike suppressors to be incorporated.</p> <p>b). Current limiting protection (MCB/Electronic Fuse). Built in overload / short circuit protection with snubber circuits for current limit.</p> <p>c). Soft start on Inverter and charger arrangement</p> <p>*d). UPS rectifier should work on mains during Phase reversal</p> <p>e). Over voltage / under voltage protection.</p> <p>*f). Short circuit protection through HRC fuses (high speed) for devices such as IGBTs.</p> <p>g). Short circuit / overload protection through MCB / MCCB.</p> <p>h). All other protection systems required for safety of UPS system, such as over temperature protection etc.</p>
23	*I). Thyristor based Static (Auto) bye-pass switch	Bi-directional with change over time less than 10 milliseconds in free running mode and instantaneous in synchronous mode from Inverter to bye-pass and vice-versa
	II). Manual by-pass switch	Should be provided.
24	Indications	<p>a). Mains ON with phase indication for single phase / 3 phase separately for all the phases.</p> <p>b). Inverter ON / OFF / FAULTY / TRIP (Reason)</p> <p>c). Battery Low</p> <p>d). Static by-pass ON</p> <p>e). Over temperature</p>
25	Alarm	<p>i). Low battery alarm to be provided (ii) % load</p> <p>iii) Failure of inverter</p> <p>iv) Mains failure / load on battery alarm to be provided. Both should be audio visual.</p> <p>v) Over temperature alarm in two stages 1st stage: Warning, intermittent audio alarm 2nd stage: Tripping, continuous audio visual and resettable.</p>
26	Metering	<p>Digital panel Meter or LCD display system to indicate the following</p> <p>i). A.C. voltage: Input/ output</p> <p>ii). A.C. current: Input/output or % load</p> <p>iii). D.C. battery voltage</p> <p>iv). D.C. Charging / discharging current</p> <p>v). Frequency – Input/ Output</p>
27	Battery set A. SMF Batteries (To be installed in ventilated/ cooled rooms only)	<p>i) Complete with self standing cubicle or cabinet</p> <p>ii) Make like: Exide/ Panasonic/ Amara raja</p> <p>(iii) Note: Only Valve Regulated Lead Acid (VRLA) type SMF batteries with electrolyte in paste form are acceptable. Any other type including calcium batteries are not acceptable date and year of manufacturing of batteries have to specify along with Sr. Nos.</p>
	B) Battery set Tubular batteries: (ventilated room with exhaust fan is required)	<p>I) maintainable but regular topping necessary</p> <p>ii) complete with stand</p> <p>iii) Make like: Exide, Southern Batteries, Kirloskar, AMCO insta power.</p>

Note: Even though tubular batteries have longer life at higher ambient temperature but they require more space. Wherever maintenance facilities/ well ventilated battery room are not available at the center / branch, SMF batteries will be considered.

Minimum VAH required as per details as under:

UPS Capacity (KVA)	VAH required		
	30 Minutes	60 Minutes	120 Minutes
7.5	8000	9700	20100
10	9700	20100	28600
15	18700	28600	43000
20	24000	34500	69000

In both cases, the UPS vendors to specify, the make of battery they propose to use, they have to submit detailed literature of battery and battery manufacturers capability etc.							
Sr No.	UPS Rating	DC Voltage	Battery AH	Nos.	Total VAH	Make of Battery (From approved makes only)	
<p>a) The back-up time at full load shall be 30 Minutes/ 60 Minutes/ 120 Minutes Note (strike out whichever is not applicable).</p> <p>b). Battery set details to be indicated by the supplier:</p> <p>i). D.C. Terminal voltage</p> <p>ii). No. of batteries and each battery voltage</p> <p>iii). Ampere-Hour capacity of each battery</p> <p>c). End cell voltage for cut off shall be considered as 1.75 / cell</p>							

27 Testing: i). the supplier shall have facilities to carry out all the tests at factory center, and tests will have to be satisfactorily carried out before acceptance. Lists of tests prescribed are enclosed in Annexure- "D".

ii) Tests shall be carried out and certified by the manufacturer and by the agencies specified here under (a). CPRI (b). ETDC (c). ERTL (d) IISTs, IITs (e) ERDA Vadodara

(f) I.I.T.s (g) NITs (h) National Research & Technology Consortium, Parwanoo (H.P.), (i) Reputed Government /Government aided Engineering colleges (discretion with SBI) (j) Regional Testing Centre (E.R.), Govt. Of India, Kolkata, (k) JNTU, JAIPUR/ (l), as per sampling below:

UPS Rating	% Sampling in lot
6VA to 10 KVA (Single phase I/P – Single phase O/P)	25% of total supply subject to certain minimum numbers at LHO discretion
7.5 KVA to 20 KVA (Three phase I/P – Single O/P)	50% of total supply subject to certain
	minimum numbers at LHO discretion

30 KVA and above (Three phase I/P – Three phase O/P	100% of total supply subject to certain minimum numbers at LHO discretion in presence of Bank's Engineer at Factory.
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(iii) If the UPS does not conform to specifications either during factory test or at site, the Bank reserves the right to reject the same. The successful tenderer shall then have to remove the same at his cost from site and supply a new piece conforming to the specifications.

iv). The Bank also reserves the right to randomly decide to carry out testing of a few UPS systems at site after installation at the cost of UPS vendor, who will be required to arrange for all the requisite transportation, loading/unloading etc. and carry out the tests through vendor's personnel in the presence of Bank's Officials.

Place:

Applicant's Signature

Date:

Stamp:

**TECHNICAL SPECIFICATIONS FOR ON-LINE MODULAR UPS systems
OF 30 KVA TO 100 KVA**

Sl. No.	Description	Specifications of Modular 30 KVA & above
1	Technology	<p>Digital Signal Processing (DSP) controlled Microprocessor based technology true On-line configuration.</p> <p>a) Modular UPS design in N+1 redundant configuration with scalability (vertical paralleling)</p> <p>b) Provision for configuring three or more modules in parallel load sharing mode. Indicate the maximum No. of modules that can be connected in parallel for forming N + 1 (Configuration)</p> <p>c) UPS should have both automatic and manual bypass</p> <p>d) The requirement is for fully rated capacity of single module in parallel with similar module sharing the load having provision for adding one or two modules of similar units. Paralleling of UPS should be achieved by paralleling the output on the power side Using control logic single bus. Each UPS should be capable of individually starting, running and feeding to the load apart from parallel operation</p> <p>e) Each charger module should have rectifier, Inverter, charger with specific bypass.</p> <p>f)</p> <p>g) UPS should have out power factor of unity.</p> <p>h) UPS should have back feed protection</p> <p>i) UPS should have multiple control panel at least two to monitor redundancy in N+1 configuration</p> <p>j) UPS should have I/P power factor of .99 to unity</p>
2	Scalability	For vertical scalability in multiple of 5 KVA to 25 KVA.
3	Module Rating	5 KVA to 25 KVA each.
4	Inversion technique	Adaptive pulse width modulation or sine weighted Pulse width modulation with high switching frequency.
5	Input Voltage range	<p>[ii] Three phase: 380/400/415 V ± 20%</p> <p>In either case, there should be input to output isolation through separate isolation transformer (External to UPS).</p> <p>Note: Static bypass arrangement may be connected in such a way that the input and output sides shall Always remain galvanically isolated.</p>
6	Input Frequency	47 Hz to 55 Hz
7	Generator compatibility	Should be compatible with Generator
8	Type of rectifier	DSP controlled IGBT based Rectifier.

9	Duration in which totally discharged batteries are to be recharged	8-10 hrs
10	Inverter	
10.1	Technology	DSP controlled PWM using IGBTs
10.2	Efficiency of Inverter	> 95 %
11	Output Voltage	380/400/415VAC \pm 1% Above for 3Ph IP / 3Ph OP 230 \pm 1% for 3 phase I/P/ single phase O/P
12	Output Frequency	50 Hz \pm 4% (Synchronous to mains) 50 Hz \pm 0.1% (free running)
	Power factor	The UPS shall be provided with Active Input P.F. Correction system to obtain P.F from 0.96 to Unity. (Where the connected load P.F varies from 0.8 to Unity.
13	Harmonic Distortion (input current)	\leq 5% at 50 % load
14	Wave form (output)	Sine wave
15	Crest factor	\geq 3
16	Overload capacity	110% for 10 minutes 135% for 1 minute (During the test the load should not get transferred to mains through static switch)
17	Efficiency	
	i) Efficiency AC/AC (Overall)	
	At Full load	> 95 %
	At 75 % load	> 95 %
	At 50% load	> 95 %
	At 25% load	\geq 94 %
	<p>Definition of overall efficiency: It is the ratio of output power in KW to the input power to the UPS system, keeping battery disconnected.</p> <p>Penalty for lower efficiency: If the overall efficiency is found to be less than the Bank's specified value, the UPS is to be rejected and replacement passing the test to be obtained. No further tolerance is permissible.</p>	
18	Operating temperature	Should be designed for delivering rated KVA at ambient temperature from 0 to 40 Degree Celsius; however, it should operate up to 50degree Celsius.
20	Relative Humidity	10-90% at 35 C non-condensing. It should be capable to work in the entire geographical region of the Circle including coastal region.

19	Noise level	At 1 meter from the UPS ≤ 65 decibels for > 10kVA (Prototype test certificate required).
20	Charger	Built-in solid-state float-cum-boost charger with automatic boost/trickle charge modes with current Limiting features. The charger characteristics will be such as to match the float/boost charging of the Batteries as per battery characteristic, for enhancing the life of batteries. The charger is designed for at least 10% of the total battery current.
21	Interface Facility	The UPS System has necessary hardware and software with RS 232 port to work on DOS/SCO Unix (Open Server) Novell Netware/Windows NT OS. Operating systems. It should be compatible for connecting to Building Management System. B) Remote Manageability through SNMP Facility. There is facility to monitor & broadcast to servers whenever necessary, conditions such as: i) Power failure, backup time, low battery warning & auto file closure. ii) The software is capable of automatically closing the files ("Auto File Closure" feature) in the server So that the data/ programmed files on the server are not lost / corrupted.
22	Protection	a) Current limiting protection (MCB/ Electronic fuse). Built in overload/ short circuit protection with snubber circuits for current limit. b) Soft start on inverter and charger arrangement. c) Phase locking mechanism for UPS and mains frequency. - For 3 phase outputs. d) Over voltage/ under voltage protection. e) Short circuit/ overload protection through MCB / MCCB f) All other protection systems required for safety of UPS system, such as over temperature protection etc. g) Protection against earth leakage current by suitable protective devices like negative sequence current sensor/ RCCB.
23	*i) Thyristor based Static (Auto) bye-pass switch	Bi-directional with change over time less than 10 milliseconds in free running mode and instantaneous in synchronous mode from inverter to by-pass and vice-versa.

24	Indications	<p>a) Mains ON with phase indication for single phase/ 3 phases separately for all the phases.</p> <p>b) Inverter ON/ OFF/ FAULTY/ TRIP (Reason)</p> <p>c) Charger ON/ FAULTY or TRIP (Reason)</p> <p>d) Battery Low</p> <p>e) Static by-pass ON</p> <p>f) Over temperature</p> <p>g) % Load</p>
25	Alarm	<p>i) Low battery alarm and mains failure / load on battery alarm provided.</p> <p>ii) Over temperature alarm in two stages: 1st stage: Warning 2nd stage: Tripping</p>
26	Metering	<p>Digital Panel Meter duly calibrated to indicate the following</p> <p>a) AC Voltage: Input/ Output</p> <p>b) AC Current: Input/ Output</p> <p>c) % Load</p> <p>d) DC Battery Voltage</p> <p>e) DC Charging/ Discharging Current</p> <p>f) Frequency- Input/ Output</p>
27	System Controller	<p>The System controller is a redundant device that provides.</p> <ul style="list-style-type: none"> * All system measurements from modules and Static Switch. * Basic system configuration * Alarm indications * Power Analysis * Remote monitoring * Battery handling <p>In case of System controller failure, the operation of the UPS should not change even though the UPS features will not be available.</p> <p>It should also be possible to replace System controller without interrupting the UPS system operation</p>
28	Event logging at front panel	Should be Available
29	SNMP web Monitoring and software compatibility.	Should be available

30	Battery set A. SMF Batteries (To be installed in ventilated/ cooled rooms only)	i) Complete with self standing cubicle or cabinet ii) Make/ Brands: Exide/ Panasonic / Amaron/ any other reputed brand (iii) Note: Only Valve Regulated Lead Acid (VRLA) type SMF batteries of 20 Hour rating with electrolyte in paste form are acceptable. Any other type including calcium batteries are not acceptable. The sr. no., date and year of manufacturing of batteries shall be specified.
	B) Battery set Tubular batteries: (ventilated room with exhaust fan is required)	i) maintainable but regular topping necessary ii) complete with stand iii) Make like: Exide, Southern Batteries, Kirloskar, AMCO insta power/any other reputed brand

Note: Tubular batteries have longer life at higher ambient temperature, but they require more space. Wherever maintenance facilities/ well ventilated battery room are available, the tubular batteries should be preferred over SMF batteries.

The life of SMF batteries reduces drastically with increase in temperature, where the space is costlier and a site constraint, SMF batteries may be used.

Minimum VAH required as per details as under:

UPS Capacity (KVA)	Minimum VAH and Back-up required	
	30 Minutes	60 Minutes
30	28800	48000
40	37800	60400
60	50400	75600
80	75600	100800
100	100800	120960

In both cases, the UPS vendors to specify, the make of battery they propose to use, they have to submit detailed literature of battery and battery manufacturers capability etc. with following details:							
S No.	UPS Rating	DC Voltage	Battery AH	Nos.	Total VAH	Make of Batteries (From approved makes only)	
a) The back-up time at full load shall be 30 Minutes/ 60 Minutes Note (strike out whichever is not applicable). (End cell voltage for cut off shall be considered as 1.75 / cell)							

31 Testing: I). the supplier shall have facilities to carry out all the tests at factory center, and tests will have to be satisfactorily carried out before acceptance. Lists of tests prescribed are enclosed in annexure- "D".

ii) Tests shall be carried out and certified by the manufacturer and by the agencies specified here under (a). CPRI (b). ETDC (c). ERTL (d) IISTs (e) ERDA Vadodara (f) I.I.T.s (g) NITs h) National Research & Technology Consortium, Parwanoo (H.P.), i) Reputed Government /Government aided Engineering colleges (discretion with LHO) j) Regional Testing Centre (E.R.), Govt. Of India, Kolkata, (k) JNTU, JAIPUR/ (l) Electronics Quality Development Centre, Gandhinagar, as per sampling below:

UPS Rating	% Sampling in lot
30 KVA and above	100% in presence of Bank's Engineer at factory

(iii) If the UPS does not conform to specifications either during factory test or at site, the Bank reserves the right to reject the same. The successful tenderer shall then have to remove the same at his cost from site and supply a new piece conforming to the specifications.

iv). The Bank reserves the right to randomly decide to carry out testing of a few UPS systems at site after installation at the cost of UPS vendor, who will be required to arrange for all the requisite variances, maters, loads etc. and carry out the tests through vendor's personnel in the presence of Bank's Officials.

Place:
Date:

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TEST PARAMETERS

Sr. No	Parameters to be measured
1	Technology
2	Nominal input voltage
3	No load input voltage range =Voltage regulation
4	Input frequency range (on D.G set)
5	Input power factor
6	Inversion Technique
7	Capacity
8	Output voltages
9	Output frequency
10	Distortion (o/p voltage) THD
11	Crest factor
12	Static bypass switch
13	Wave form (output)
14	Efficiency
15	Indications
16	Alarm
17	Metering
18	DC isolation between input line & output line
19	Input current harmonics
20	Batteries
21	Rated KVA
22	Charger
23	Manual bypass switch
24	Transient response
25	Overload capacity 110% & 150%

(C-AMC) CLAUSE

Comprehensive Annual Maintenance Contract (C-AMC) for UPS covers the following scope of work (after empanelment).

1. The vendor shall provide maintenance service to keep the UPS in good and efficient working condition covered under this contract. In addition to this, the vendor should provide preventive and corrective maintenance of UPS and should get verified from authorized official of the concerned firm. He should also carry out necessary repairs and provide suitable replacement (equivalent or higher configuration) of defective part(s) / equipments as required.
2. The AMC is comprehensive i.e., no cost of parts replaced by vendor will be borne by the SBI.
3. The break down calls registered by users must be attended within 4 hours for local and following day for out stations. If they are not rectified within one day, the vendor shall provide a suitable replacement for the defective UPS. Maintenance of all the UPS pertaining to these would be the responsibility of the vendor.
4. Agreement between vendor and SBI will remain in force for period of 3 years from the end of defect liability period.
5. SBI has the right to move UPS between floors. The equipment however will continue to be under AMC at the new location.
6. The firm has to provide a new equivalent parts / item with higher specifications available in the market as standby of the faulty items inside the SBI premises. No UPS will be allowed to go outside of SBI for repair.
7. If the UPS is not repaired within reasonable time after reporting the complaint and not replaced by other units, the LD charge will be levied at the rate of 0.5 % per week of AMC value and there after the machine can be repaired from other agency at the risk and expense of the firm.
8. The vendor will be responsible for any mishap or accident or untoward incidence during the maintenance of machine which may occur due to negligence of the service engineer.
9. **The vendor shall be responsible for the discipline and good conduct of their service engineers.**
10. Vendor should have enough spare parts of UPS at their service centre so that UPS could be repaired timely. Vendor has to maintain the service centre in the specified locations till the end of the AMC period.
11. The firm shall not take any advantage of any misinterpretation of the conditions due to typing or any other error and if any in doubt shall bring it to the notice of the SBI

authorities without delay. In case of any contradictions, only the printed rules and books should be followed and no claim for the misinterpretation shall be entertained. The administration's decision in such cases shall be final.

12. The preventive maintenance (PM) to be carried out once in 3 months. The preventive maintenance includes following:

- i. Cleaning of UPS and batteries
- ii. Checking fitment of internal and external hardware and heating of the system
- iii. Cleaning of PCBs if any and operating power parameters
- iv. Break up call shall be attended immediately.
- v. Checking of input /output voltage of batteries
- vi. Tightening of all nuts/ Bolts

13. Service engineer should submit **JOB COMPLETION CERTIFICATE** certified by user at each complaint. The one copy of certificate to be retained by user group and another to be given to the officer nominated for compilation of job work and to release the payment.

14. Payment will be made on quarterly basis after submitting preventive maintenance report of all the UPS.

15. Service engineer has to display their phone numbers on the UPS under C-AMC under intimation to in-charge officer for preparing necessary security clearance.

16. No transport will be provided to the service engineer for maintaining UPS. The engineer shall use his own vehicles for reporting. No transportation allowances will be allowed.

17. Engineers must be fully equipped with maintenance tool kit and accessories.

18. Any UN-towards incidents in respect of service engineers will be the sole responsibility of the service provider. Engineers should be suitably covered for insurance.

I/We hereby declare that I/we have read and understood the above instructions.

*****END OF DOCUMENTS*****