

**CMC/BY/20-21/RB/SV/29 - DESIGN, ENGINEERING, SUPPLY, ERECTION, TESTING, & COMMISSIONING OF NEW 5X200 kWh CAPACITY BATTERY ENERGY STORAGE SYSTEM (BESS) ALONG WITH ALLIED EQUIPMENTS AND WORKS**

**PRE BID CLARIFICATION**

Sr. No.	Clause No.	Description	Query	BYPL Clarification
1	Volume-III,Tech. Spec 2.0:Code & Standards;  Page No. 3	National/International Standards related to operation & safety of PCS/ PCU, testing procedures and protection devices	MNRE allows self certification above 20 KVA considering the limitations of labs in India and to offer a level playing field for players outside India who are allowed to submit certificates from International labs.	MNRE letter is issued regarding Solar off grid program. Whereas application of BESS project is different from applications of solar off grid projects.
			Also, manufacturer should be allowed to get certifications post order award and before material supply from NABL accredited.	Offered PCS and Battery should meet the testing requirement mentioned in technical specification
2	Volume-III,Tech. Spec 2.0.2.15	General and safety requirements:  IEC 62040-1 or IEC 62477-1 or Equivalent	IEC 62109- 1 & 2 which are equivalent safety standard should also be allowed instead of mentioned standards.	IEC 62109 - 1&2 are regarding Safety of power converters for use in photovoltaic power systems. In present case PCS are required for BESS application, not for Photovoltaic application. Hence may not be allowed.
			Self certification should be allowed along with 3 <sup>rd</sup> party certificate from NABL approved lab as per MNRE guidelines attached void ANNEXURE-A.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted. MNRE guideline are applicable for solar off grid projects only.
			If required, certificate for 200KW can be availed post order award and before dispatch.	Test certificated shall be submitted during technical bid evaluation stage.
		Interconnecting distributed resources with electrical power system: IEEE 1547/IEC 61850(communication standard) UL 1741 (testing)	IEC 62116 & IEC 61727 should be added as equivalent to this.	IEC 62116:2014 provides a test procedure to evaluate the performance of islanding prevention measures used with utility-interconnected PV systems  IEC 61727 instructs regarding Photovoltaic (PV) systems - Characteristics of the utility interface.  Hence may not be included.
		Test certificate from NABL accredited lab as per lab suitability/ availability in India.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted.	

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2	Spec 2.9-2.15, Page No. 3 & 4		Self certification should be allowed along with 3 <sup>rd</sup> party certificate from NABL approved lab as per MNRE guidelines attached void ANNEXURE-A.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted. MNRE guideline are applicable for solar off grid projects only.
			If required, certificate for 200KW can be availed post order award and before dispatch.	Test certificated shall be submitted during technical bid evaluation stage.
		Power conditioners - Procedure for measuring efficiency: IEC 61683 or, Equivalent	Self certification should be allowed along with 3 <sup>rd</sup> party certificate from NABL approved lab as per MNRE guidelines attached void ANNEXURE-A.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted. MNRE guideline are applicable for solar off grid projects only.
			If required, certificate for 200KW can be availed post order award and before dispatch.	Test certificated shall be submitted during technical bid evaluation stage.
		Environmental testing:  IEC 60068-2 (1,2,14,30)	Self certification should be allowed along with 3 <sup>rd</sup> party certificate from NABL approved lab as per MNRE guidelines attached void ANNEXURE-A.	Test certificates as per relevant IEC shall be are required to be submitted. MNRE guideline are applicable for solar off grid projects
			If required, certificate for 200KW can be availed post order award and before dispatch.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted.
		Power quality parameters IEEE 519-2003 or IEC 61000-4 series	Self certification should be allowed along with 3 <sup>rd</sup> party certificate from NABL approved lab as per MNRE guidelines attached void ANNEXURE-A.	Test certificates as per relevant IEC as mentioned in technical specification are required to be submitted. MNRE guideline are applicable for solar off grid projects only.
			If required, certificate for 200KW can be availed post order award and before dispatch.	Test certificated shall be submitted during technical bid evaluation stage.
3	Page 89, 6.1	Battery Discharge when DT loading exceeds the defined threshold	How it will be detected that there is overload /exceeds threshold? is there any communicable meter existing at site that could be synced with EMS.	As per clause 8.11.1 of tender technical specification, BEMS shall be capable for continuous sensing and monitoring of DT phase and Neutral load currents.  Overload/threshold shall be measured by continuous sensing and monitoring of DT phase and Neutral load currents.

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4	Page 90, 6.4	To serve the critical feeder of BYPL independently whenever required	Is there any provision for detection of critical load? What are the provision for detection of critical load now? how they serving critical load now, whether by DG or any other system? What functionality are required by BESS and EMs for supporting critical load independently?	Feeder with critical load shall be identified by BYPL.  Critical loads are presently being met using Ring Main system with (n-1) redundancy.  BESS should be capable to serve the critical load independently even in case of grid disconnection/unstability/failure.
5	Page 90, 7.10	Cycle Definition--Complete one charge cycle is used when an amount that equals 100% of battery's capacity is discharged — but not necessarily all from one charge. For instance, if 75% of your battery's capacity is used one day, then recharged it fully overnight. If 25% capacity is used the next day, then total discharged 100 % capacity, and the two days will add up to one charge cycle	we request for consideration of years also either cycle /years/ah delivered whichever completed . We request for firm utilization pattern /cycle per day count ?	For DISCOM, there is not a set loading pattern. Requirement of battery charge-discharge cycles (no's) shall vary from one time frame to other.  In technical specification, guaranteed number of cycle is specified.  Also as per clause 7.14 of technical specification, bidders are asked to specify the Service life of battery system

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6	Page 93, 8.0	Battery Energy Management System	For EMS function all the parameters will be discussed with EMS vendors. General function of EMS is peak shaving, Energy Time Shift etc. for special requirement - interoperability/License for Energy management software/SCADA Interface through Substation FRTU/Time synchronization/ other required point. We can discuss at the time of detailed engineering.	<p>Please discuss the specified parameters with EMS vendors before technical evaluation stage. Once ordering is completed, technical requirements shall not be changed.</p> <p>Any deviation from technical specification have to be stated in deviation sheet, to be submitted along with technical bid.</p> <p>Deviations not mentioned in Technical bid will not be considered post ordering.</p>
7	Page 102, 10.2.22	Number of operating cycles at rated current (open + close) without changing arcing contact- 5000 nos	Need clarification.	Clause specifies the Electrical Endurance requirements of circuit breaker
8	Page 102, 10.2.22	Number of mechanical operating cycles (open + close)- 20000	Need clarification.	Clause specifies the Mechanical Endurance requirements of circuit breaker
9			Please share details on space availability / any initial site survey details available?	As per clause 11.2 of tender specification, Bidder to specify the BESS container footprint size. Most compact design shall be preferred. Space for installation of BESS shall be offered accordingly.
10	Clause no. 2.01	Technical Criteria, Sl. No. 4 - type test reports of offered PCS and Battery are asked to be submitted along with bid	<p>Bidder will ensure that the type test reports of the finalized PCS and Battery, meeting the tender technical specifications shall be submitted to BSES BYPL for approval during detailed engineering stage after award of contract.</p> <p>Bidder shall submit an 'Undertaking' in this regards along with the Bid as a document against Clause no 2.01 Technical Criteria, Sl. No. 4 for your acceptance.</p> <p>Please accept and confirm the same.</p>	Please suggest name of prospective OEMs of Battery and PCS and respective test reports shall be submitted for evaluation.

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11	1.01	BSES Yamuna Power Ltd (hereinafter referred to as "BYPL") invites sealed tenders in 2 envelopes for establishing Rate Contract from reputed manufacturers valid for a period of one year.	Please clarify whether this tender is for rate contract or EPC supply of 5x200 kWh BESS.	DESIGN, ENGINEERING, SUPPLY, ERECTION, TESTING, & COMMISSIONING OF NEW 5X200 kWh CAPACITY BATTERY ENERGY STORAGE SYSTEM (BESS) ALONG WITH ALLIED EQUIPMENTS AND WORKS ON TURNKEY BASIS
12	1.01	Delivery & Installation at: Delhi Various Sites	Please share site locations and layout details of sites where BESS to be installed.	BESS installation shall be floor mounted. Location of all sites shall be in Delhi only. Space for BESS installation shall be provided based on finalized footprint size.
13	2.01 (4)	Bidder should have valid type test report of offered model of Power Conversion System (PCS) and Battery.	Bidder being a PSU has to finalize/shortlist the subcontractors for supply/services of the major item of the project through tendering process only. The valid type test report of offered PCS and Battery meeting the tender requirements will be submitted during detailed engineering stage after award of Contract. A declaration for the same shall be submitted along with the Bid. Please accept.	Please suggest name of prospective OEMs of Battery and PCS and respective test reports shall be submitted for evaluation.

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14	5	Bidder shall procure equipment's from the approved vendor list of BYPL for individual items. The bidder is supposed to have agreement with manufacturer/service provider to provide support to BYPL for any service & spares related issues for time stipulated in the specification or service life of the equipments. The bidder must submit the undertaking for the same.	As there's no approved vendor list provided in the tender, Bidder understand that only Undertaking for Back up support by OEM's to be provided. Please confirm.	Bidder shall have agreement with OEM/service provider to provide support to BYPL for any service & spares related issues for time stipulated in the specification or service life of the equipments.  For BYPL, single point of contact shall be the bidder only.
15	3.00	Bidders are requested to submit their offer strictly in line with this tender document. NO DEVIATION IS ACCEPTABLE.	Both the clauses are contradictory.  Please confirm whether deviations can be submitted along with the Bid or not.	Any deviation from technical specification have to be stated in deviation sheet to be submitted along with technical bid.  Deviations not mentioned in Technical bid will not be considered post ordering.
16	Table, Sr. no. 3	Power of Attorney - In prescribed stamp paper & format	No POA format is provided in the tender. Bidder understands that standard POA format is acceptable. Please confirm.	Kindly use standard legal prescribed formats

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17	3.02	Bidder has to submit the item wise price bifurcation in bid. Un priced copy must be attached with the Part A (Technical Bid). Reverse Auction will be carried out on Lump sum Basis/Total Landed Cost i.e. Supply + Services REVERSE AUCTION CLAUSE :: Purchaser reserves the right to use reverse auction as optional tool through SAP – SRM as an integral part of the entire tendering process.	Both the clauses are contradictory.  Please clarify whether Reverse Auction is applicable in this tender or not.	RA is applicable
18	29.0	Force Majeure	In addition to the terms of tender, kindly consider Pandemic/Epidamic and lockdown condition as a Force Majeure	Noted
19	7.9	Guaranteed complete charge and discharge cycles >5000 nos	Requested no. of cycles (>5000) is on higher side comparing to prevailing industrial standard of supply from majority of Li-ion battery OEMs (4000 cycles). This may lead to availability of limited suppliers. Bidder requests that total cycles may please be revised to 4000. Please accept.	No change in the requirement mentioned in technical specification
20	4.2.2	Useful DC battery bank kWh rating (usable capacity) : 200 kWh	Bidder understands that usable capacity at beginning of system life is 200 kWh. Considering the annaual degradation of Li-ion batteries, please specify the expected usable capacity at the end of system life.	As per clause 7.15 of tender technical specification, it is asked to explain Yearly %age degradation of battery capacity from date to installation till end of service life

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21	5.06	Purchaser reserves the right to send any material being supplied to any recognized laboratory for testing, wherever necessary and the cost of testing shall be borne by the Bidder.	Bidder requests that charges for any additional testing so desired by Customer may please be borne by Customer Please accpet.	BESS system integration and testing as per the scope mentioned in tender document shall be carried by bidder. Charges for all relevant testings pertaining to the specified scope shall be borne by bidder.
22	QUANTITY AND DELIVERY REQUIREMENTS	SITC OF OF NEW 5X200 kWh CAPACITY BATTERY ENERGY STORAGE SYSTEM (BESS) ALONG WITH ALLIED EQUIPMENTS AND WORKS - Total Qty. 05 Nos	Total quantity mentioned for 5X200 KWH is 5 nos.Is it correct?	Yes, Scope is mentioned for 5 No's units with each unit having 200 kWh useful capacity
23	11.4	IP protection - IP 56	Pl note that the containers have IP 54 protection.Kinldy re-confirm.	Outdoor enclosuren shall have Ingress protection rating - IP54
24	8.3.4	License for Energy management software - a. Perpetual license of Energy management software shall be provided to BYPL and shall be installed in BYPL servers	Energy management Software being proprietary in nature, the OEMs won't allow sharing the software for installation at Customer's dedicated servers. OEMs provide secured access to the the site data through dedicated online portals via issued Login ID and password details. Please accept the same.	It is a mandatory requirement to provide Perpetual license of Energy management software to BYPL and It shall be installed in BYPL servers
25	INFORMATION TO BIDDER (ITB) 2.01	Technical Qualification	Can we meet this criteria by consortium ? . We meet the financial criteria and bringing consortium partner we woill meet Technical qualification.In this way we can participate in the tender.	Bidder should meet the qualifying criteria as mentioned in the tender document
26	Technical Specification 6.1 - 6.4	BESS Applications	4 different applications are specified. Kindly clarify if there is any priority to be defined in the applications. E.g. If battery is discharged during peak-shaving, during peak hour, battery will not be able to discharge	As per required operating condition, all settings of individual BESS system should be programmable , manually at site as well as remotely from EMS software.



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27	Technical Specification 7.9	Guaranteed complete charge and discharge cycles >5000 cycles	Most manufacturers give lesser number of cycles at 80% DoD. Bidder requests to change number of cycles to 3000 cycle	No change in the requirement mentioned in technical specification
28	Technical Specification 11.4	OUTDOOR ENCLOSURE PARTICULARS: IP Protection IP56	Bidder requests to change it to IP54 as per the market standard	Outdoor enclosures shall have Ingress protection rating - IP54
29	General	-	Please specify the area available for the ESS container to be installed	As per clause 11.2 of tender specification, Bidder to specify the footprint size. Most compact design shall be preferred. Space for installation of BESS shall be offered accordingly.
30	General	-	Please specify the distance in each plant between: 1. ESS installation area and the evacuation point 2. ESS installation area and the SCADA room	As per clause 12.3 of tender specification, Power cable for connection between Evacuation point (Distribution transformer) and ESS Installation location (BESS) shall be free issue from BYPL. Exact location of BESS installation shall be clarified during post order detailed engineering based on footprint requirement.
31	6.1	Peak Shaving  Battery Discharge when DT loading exceeds the defined threshold	Manual Setpoints shall be entered (through HMI) by the operator to, 1. Enable / Disable Peak shaving 2. Load limit above which BESS will start to discharge thus peak shaving achieved.	As per required operating condition, all settings of individual BESS system should be programmable, manually at site as well as remotely from EMS software.
32	6.2	Energy Time – Shift:  BESS to draw power from grid for battery charging during off peak hours; battery discharge during peak hours.	Manual Setpoints shall be entered (through HMI) by the operator to set, 1. off peak hours, 2. on peak hours 3. Enable / Disable Time-shift	As per required operating condition, all settings of individual BESS system should be programmable, manually at site as well as remotely from EMS software.

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33	8.3.3	<p>Interoperability</p> <p>a. EMS design to be inter – operable with any other EMS or distributed energy resource management system (DERMS) of BYPL.</p> <p>b. Capable to take and accept analog/digital data from other BESS of similar/different size and with different technology.</p>	<p>a. Whether DERMS is existing or to be supplied as a part of the current scope. ? Our solution shall communicate with DERMS (SE or 3rd party) on OPC protocol. BYPL to confirm.</p> <p>b. Complied. But BYPL to confirm the the no of BESS of similar/different size to be connected with EMS in future ?</p>	<p>a. DERMS is not existing in present BSES infrastructure. Protocol for communication between BESS and EMS - IEC 61840 Protocol for communication between EMS and future DERMS - IEC 61968</p> <p>b. As of now, offered EMS should be capable for integration with 5 No's BESS. EMS should have capability for software/firmware upgradation in case of additional numbers of BESS are required to be integrated.</p>
34	8.3.4	<p>License for Energy management software</p> <p>a. Perpetual license of Energy management software shall be provided to BYPL and shall be installed in BYPL servers.</p>	<p>1. BYPL to share the architecture for the EMS to be installed at BYPL servers i.e no. of servers, workstations etc.</p> <p>2. BYPL to confirm the type of communication medium for communication between EMS (at BYPL servers) and substations.</p>	<p>Perpetual license of the software is to be installed in BSES servers. 3 No's LAN based user licenses to be provided for access from any PC.</p>
35	8.4.1	<p>Direct SCADA Interface:</p> <p>4G Modem with backward compatibility to 2G/3G shall be provided for integration with SCADA on IEC 104 protocol</p>		<p>For communication via existing FRTU -via MODBUS and IEC 103</p> <p>For direct SCADA Interface - IEC 104 via 4G modem provided by bidder as mentioned in technical specification</p>

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36	2.0 Qualification Criteria		Kindly allow Consortium /Technical Collaboration under this tender for meeting the qualification requirement.	Bidder should meet the qualifying criteria as mentioned in the tender document
37	2.01 Technical Criteria ( Sl.no 3)	Bidder should have the experience of supply, installation, testing, commissioning & AMC of Battery Energy storage system of cumulative installed capacity 1 MWh	Request you to Please consider: the experience of supply, installation, testing, commissioning & AMC of Battery Energy storage system of cumulative installed capacity: 500 kWh.	Bidder should meet the qualifying criteria as mentioned in the tender document
38	2.1 Codes and standards: Safety requirements	IEC-62133 or IEC 62620:2014 or UL-1642 or UL-1973 UL-9540 (for every components of BESS)	<p align="center"><b>Complied with UL 1973</b></p> <p><b>UL 9540 is released in 2019</b> and is available with limited battery manufactures like: narada, catl,samsung and they too have <b>UL 9540 A</b> which is only for battery cells and for the whole system.We are a system integrator thus we do not have this certificate and to get it done we need to make replica of the system and get done which will take approx 2 years and will be a very costly process( approx equal to the system cost). we are complying to <b>UL 1973</b> which is quite equivalent to UL-9540</p>	Offered BESS system should meet the requirements mention in IEC-62133 or IEC 62620:2014 or UL-1642 or UL-1973 or UL-9540
39	2.2 Codes and standards: Performance tests, designations, markings, dimensions and other requirements	IEC 62619/62620	Complied with IEC 62619	Complied with IEC 62619 is acceptable

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40	2.3 Test methods and requirements to ensure safety during transport other than for recycling or disposal	IEC 62281 or UL-1973	Complied with UL 1973	Complied with UL 1973 is acceptable
41	2.4 Tests and requirements for verifying the mechanical behaviour	IEC-61959/ IEC-62897	IEC 62619 will be applicable as it is an industrial application where as IEC 61959 talks about standards for portable batteries (i.e. in EV's etc) so kindly consider IEC 62619 as a safety standard for batteries.  IEC 62897 is equivalent to IEC 62619	Compliance with IEC 62619 is acceptable
42	2.5 Protection of Stationary Battery Systems	IEEE 1375	Kindly give us the guidelines/format for these standard and compliances. From whom do we need to get these either from battery manufacturer or do we need to get from our end as system integrator.	Compliance of offered BESS system shall be submitted by bidder on behalf of OEMs certifying that the offered system meets the requirement mentioned in respective standards. Relevant test reports/certification shall be submitted in this regard.
43	2.6 Design, Operation & Maintenance of BESS	IEEE 2030.2.1-2019 or equivalent		
44	2.7 Planning & Installation of Electrical Energy Storage System	IEC-62935		
45	2.8 Guide for Selection and Use of BMS in Stationary Applications	IEEE 1491		

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46	Page 89, 6.1-		Battery Discharge when DT loading exceeds the defined threshold-- How it will be detected that there is overload /exceeds threshold? is there any communicable meter existing at site that could be synced with EMS.	As per clause 8.11.1 of tender technical specification, BEMS shall be capable for continuous sensing and monitoring of DT phase and Neutral load currents.  Overload/threshold shall be measured by continuous sensing and monitoring of DT phase and Neutral load currents.
47	Page 90, 6.4 -		To serve the critical feeder of BYPL independently whenever required- Is there any provision for detection of critical load? What are the provision for detection of critical load now? how they serving critical load now, whether by DG or any other system? What functionality are required by BESS and EMs for supporting critical load independently?	Feeder with critical load shall be identified by BYPL.  Critical loads are presently being met using Ring Main system with (n-1) redundancy.  BESS should be capable to serve the critical load independently even in case of grid disconnection/unstability/failure.
48	Page 90, 7.10 -		Cycle Definition--Complete one charge cycle is used when an amount that equals 100% of battery's capacity is discharged — but not necessarily all from one charge. For instance, if 75% of your battery's capacity is used one day, then recharged it fully overnight. If 25% capacity is used the next day, then total discharged 100 % capacity, and the two days will add up to one charge cycle.--- we request for consideration of years also either cycle /years/ah delivered whichever completed . We request for firm utilization pattern /cycle per day count ?	For DISCOM, there is not a set loading pattern. Requirement of battery charge-discharge cycles (no's) shall vary from one time frame to other.  In technical specification, guaranteed number of cycle is specified.  Also as per clause 7.14 of technical specification, bidders are asked to specify the Service life of battery system

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49	* Page 93, 8.0 -		Battery Energy Management System - For EMS function all the parameters will be discussed with EMS vendors. General function of EMS is peak shaving, Energy Time Shift etc. for special requirement - interoperability/License for Energy management software/SCADA Interface through Substation FRTU/Time synchronization/ other required point. We can discuss at the time of detailed engineering.	<p>Please discuss the specified parameters with EMS vendors before technical evaluation stage. Once ordering is completed, technical requirements shall not be changed.</p> <p>Any deviation from technical specification have to be stated in deviation sheet, to be submitted along with technical bid.</p> <p>Deviations not mentioned in Technical bid will not be considered post ordering.</p>
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51	* Page 102, 10.2.22 -		Number of mechanical operating cycles (open + close)- 20000- Need clarification.	Clause specifies the Mechanical Endurance requirements of circuit breaker
52	General		Please share details on space availability / any initial site survey details available?	As per clause 11.2 of tender specification, Bidder to specify the BESS container footprint size. Most compact design shall be preferred. Space for installation of BESS shall be offered accordingly.
53	General	SITC OF NEW 200 kWh CAPACITY BATTERY ENERGY STORAGE SYSTEM (BESS) ALONG WITH ALLIED EQUIPMENTS AND WORKS	Kindly share the details of Power requirement in KW and Power backup time.	Please refer technical specification; Useful capacity for each location, PCS capacity - 200 kW Battery Capacity - 200 kWh
54	6 of 111 / Point- 5	Bidder shall procure equipment's from the approved vendor list of BYPL for individual items.	Kindly share the approved vendor list.	<p>Bidder shall have agreement with OEM/service provider/vendor to provide support to BYPL for any service &amp; spares related issues for time stipulated in the specification or service life of the equipments.</p> <p>For BYPL, single point of contact shall be the bidder only.</p>

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55	7.9	TECHNICAL SPECIFICATION FOR BATTERY ENERGY STORAGE SYSTEM FOR DISTRIBUTION SUBSTATIONS	Guaranteed complete charge and discharge cycles: >5000 No's	The possible maximum guarantee duration is 10 years as per the battery supplier standard (Samsung SDI).
56	7.27	TECHNICAL SPECIFICATION FOR BATTERY ENERGY STORAGE SYSTEM FOR DISTRIBUTION SUBSTATIONS	Battery module suitability for interchangeability with other makes/manufacturers	Not possible. Battery module cannot be compatible to other brand/maker's rack. The condition is the same for any makers.