

Amendment 01 for setting up of 02 MW solar PV power plant with 01 MWh BESS at KAZA

Reference of Original EOI Document					
Sl. No.	Section	Page No.	Clause	Original Version	Amendment - I
1	IFB	4 of 9	15	For multiple packages, separate Performance Securities shall be furnished against each package being executed under this Tender (indicating the list of Packages as per Tender where project(s) are to be executed) by the successful bidder after issuance of Notification of Award (NOA)/ Letter of Intent (LOI)/ Letter of Allocation (LOA) by Owner.	NA
2	IFB	9 of 9	5 (i)	FOR destination basis Supply including Transportation for delivery at site and Insurance of all Equipment and materials including mandatory spares and any other supplies specified in the Contract Documents & providing all services i.e., including Unloading, Storage, Handling at Site, Civil Works, Erection, Installation, Testing and Commissioning	FOR destination basis Supply including Transportation for delivery at site and Insurance of all Equipment and materials including mandatory spares and any other supplies specified in the tender Documents & providing all services i.e., including Designing , Unloading, Storage, Handling at Site, Civil Works, Erection, Installation, Testing and Commissioning
3	IFB	9 of 9	5 (ii)	Second Contract (O&M): For providing Comprehensive operation & maintenance of the Solar PV plant for 5 (Five) years from the date of commissioning or Operational Acceptance, whichever is later, as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc.	Second Contract (O&M): For providing Comprehensive operation & maintenance of the Solar PV plant for 5 (Five) years from the date of Operational Acceptance, as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc.
4	ITB	15 of 45	16.7.e.i	Acknowledge receipt the NOA/ LOI/ LOA within 15 (Fifteen) days from issuance of same.	Acceptance of the LOA within 15 (Fifteen) days from issuance of same.
5	ITB	17 of 45	19.2	Force Majeure & Applicable Laws	Force Majeure & Applicable Laws/ Terms of payment
6	ITB	27 of 45	36.3	The of "Notification of Award (NOA)"/ "Letter of Intent (LOI)"/ "Letter of Allocation (LOA)" shall be issued to successful bidder in duplicate. The successful bidder is required to return its duplicate copy duly signed and stamped on each page including all the Appendix, Annexures as a token of acknowledgement within 15 (Fifteen) days from the date of its issuance.	The of "Letter of Allocation (LOA)" shall be issued to successful bidder in duplicate. The successful bidder is required to return its duplicate copy duly signed and stamped on each page including all the Appendix, Annexures as a token of acceptance within 15 (Fifteen) days from the date of its issuance.
7	Tender document			"Notification of Award (NOA)"/ "Letter of Intent (LOI)"/ "Letter of Allocation (LOA)"	Anywhere written as "Notification of Award (NOA)"/ "Letter of Intent (LOI)"/ "Letter of Allocation (LOA)" in tender document shall be read as " Letter of Allocation" only
8	SCC	Table No 3.1			Please see in Annexure - IV of Amendment01
9	GCC	9 of 76	1.1.41	FINAL ACCEPTANCE means acceptance of Facilities by the Owner at the end of O&M period, as stated in this NIT, from the date of Commissioning or demonstration of minimum annual CUF whichever comes later which certifies the Contractor's fulfillment of the Contract in respect of Functional and Plant Performance Guarantees of the Facilities	FINAL ACCEPTANCE means acceptance of Facilities by the Owner as stated in this NIT, from the date of Commissioning or demonstration of minimum annual CUF whichever comes later which certifies the Contractor's fulfillment of the Contract in respect of Functional and Plant Performance Guarantees of the Facilities
10	GCC	10 of 76	1.1.45	INSTALLATION SERVICES means all those services ancillary to the supply of the Plant and Equipment for the Facilities, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, site preparation works (including the provision and use of Contractor's Equipment and the supply of all construction materials required), installation, testing, pre-commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training, etc	INSTALLATION SERVICES means all those services ancillary to the supply of the Plant and Equipment for the Facilities, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, site preparation works (including the provision and use of Contractor's Equipment and the supply of all construction materials required), installation, testing, pre-commissioning, commissioning, operations.
11	GCC	23 of 76	20.1	Subject to Force Majeure Clause, if the Contractor fails to comply with the Time for Completion /successful commissioning of Plant in accordance with SCC Clause for the whole of the facilities, (or a part for which a separate time for completion is agreed) then the Contractor shall pay to the Owner a sum equivalent to one percent (1%) of the Contract Price for the whole of the facilities, (or a part for which a separate time for completion is agreed) as liquidated damages for such default and not as a penalty, without prejudice to the Owner's other remedies under the Contract, for each week or part thereof which shall elapse between the Time for commissioning (as per SCC) and actual commissioning of plant (or a part for which a separate time for completion is agreed) subject to the limit of ten percent (10%) of Contract Price for the whole of the facilities, (or a part for which a separate time for completion is agreed). The Owner may, without prejudice to any other method of recovery, deduct the amount of such damages from any amount due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract. Once the maximum limit is reached, Owner may consider the termination of contract. Any such recovery on account of the Liquidated damages can be done from the running bills of the contractor by Owner.	Subject to Force Majeure Clause, if the Contractor fails to comply with the successful commissioning of Plant in accordance with SCC Clause for the whole of the facilities, (or a part for which a separate time for completion is agreed) then the Contractor shall pay to the Owner a sum equivalent to one percent (1%) of the Contract Price for the whole of the facilities, (or a part for which a separate time for completion is agreed) as liquidated damages for such default and not as a penalty, without prejudice to the Owner's other remedies under the Contract, for each week or part thereof which shall elapse between the Time for commissioning (as per SCC) and actual commissioning of plant (or a part for which a separate time for completion is agreed) subject to the limit of ten percent (10%) of Contract Price for the whole of the facilities, (or a part for which a separate time for completion is agreed). The Owner may, without prejudice to any other method of recovery, deduct the amount of such damages from any amount due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the Contract. Once the maximum limit is reached, Owner may consider all options to execute the balance works including risk and cost of the main contractor/termination of contract.
12	GCC	35 of 76	43.3.1	Operational Acceptance shall occur in respect of the Facilities when: • The Plant Performance Guarantee Test (PR Test) in accordance with the procedure specified IN The Tender document Specifications has been successfully completed and the Functional Guarantees are met; and The Contractor has paid the liquidated damages, if any, specified in GCC Clause hereof,	Operational Acceptance shall occur in respect of the Facilities when: • The Functional Guarantees in accordance with the procedure specified in the Tender document Specifications has been successfully completed and the Functional Guarantees are met; Facilities has been completed operationally and structurally as per scope mentioned in NIT; and The Contractor has paid the liquidated damages, if any, specified in GCC Clause hereof and the O&M manuals, As-built drawings, etc should also have been handed over by Contractor

13	GCC	35 of 76	New Clause (43.3.6)		<p>The milestone payment linked with successful Operation acceptance shall be released subjected to following:</p> <p>a) All "As-Built" Drawings and documents are submitted. b) Detailed Engineering Document with detailed specification, schematic drawing, circuit drawing, cable routing plans and test results, manuals for all deliverable items, Operation, Maintenance & Safety Instruction Manual and other information about the project are submitted c) Bill of material of the installed Facility is submitted. d) Inventory of recommended and mandatory spares including special tools and tackles at project Site are provided e) All the required approvals and NOC's as required, are submitted f) List of deviation from the approved drawings with reason for deviation is submitted g) List of punch points, duly signed, is provided. h) Settlement of liquidity damages against delay and performance (Liquidity Damages) i) Certificates of final levels as set out for various works j) Certificates of tests performed for various Works. k) Material appropriation, Statement for the materials issued by the Owner, if applicable for the Work and list of surplus materials returned to the Owner's store duly supported by necessary documents</p>
14	GCC	36 of 76	43.4.1	<p>Final Acceptance shall occur in respect of the Facilities when:</p> <ul style="list-style-type: none"> • The Plant have achieved the Operational acceptance and served the O&M for the period stipulated under the contract agreement; and • All the contractors' liabilities under the O&M contract have been satisfied; and • Contractor has provided the list of recommended spares with detailed specification, source and price for further procurement; and • The Contractor has paid the liquidated damages, if any thereto 	<p>Final Acceptance shall occur in respect of the Facilities when:</p> <p>a) The plant have achieved the Operational acceptance; and b) Handing over – Taking over should have been completed; and c) Successful demonstration of the CUF as mentioned in the NIT d) The Contractor has paid the liquidated damages, if any, thereto</p>
15	GCC	37 of 76	45.3	<p>Whenever a fault occurs, the Contractor has to attend to rectify the fault & the fault must be rectified within the 24 hours from the time of occurrence of fault, failing which the Contractor will be liable for additional liquidated damages as per reference to the generation parameters accumulated in similar/associated equipment of the Plant (for example if a block consists of 4 inverters and one inverter is down for more than 24 hours, then the generation for faulty inverter shall be calculated as the average of accumulated generation for the other 3 inverters over the 24 hours duration of fault as the deemed generation) and the LD shall be levied on the deemed generation as per the tariff of (to be decided with MES LEH). The contractor must maintain all the records pertaining to all such faults and necessary measures taken. The date of Comprehensive Operation & Maintenance Contract period shall begin on the date of Operational acceptance. However, operation of the Power Plant means operation of system as per bid and workmanship in order to keep the project trouble free covering the guarantee period including O&M period. The contractor must demonstrate the committed CUF at the end of every year in accordance with commitment made in the Techno-Commercial Enclosures of the Bid.</p>	<p>Whenever any breakdown (which impacts the plant generation) occurs, the Contractor has to attend to rectify the fault & the fault must be rectified within 2 (two) weeks from the time of occurrence of fault, failing which the Contractor will be liable for additional liquidated damages as per reference to the generation parameters accumulated in similar/ associated equipment of the Plant (for example if a block consists of 4 inverters and one inverter is down for more than 2 (two) weeks, then the generation for faulty inverter shall be calculated as the average of accumulated generation for the other 3 inverters over the 2 (two) weeks duration of fault as the deemed generation) and the LD shall be levied on the deemed generation as per the tariff of (to be decided with HRL). The contractor must maintain all the records pertaining to all such faults and necessary measures taken. In case of any LD is levied the same will be deducted during the quarterly payment against the O&M. However to avoid any double penalty, the value of deemed generation considered for LD (if any) shall be considered/adjusted during the final CUF measurement at the end of every year. Operation of the Power Plant means operation of system as per bid and workmanship in order to keep the project trouble free covering the guarantee period including O&M period. The contractor must demonstrate the committed CUF at the end of every year in accordance with commitment made in the Techno-Commercial Enclosures of the Bid.</p>
16	GCC	38 of 76	45.4.4	<p>Any complaint related to unserviceability/improper functioning of any & all component of the plant including but not limited to PV Module, PCU, Transformers, switchgears, SCADA, roads, drainage, water supply lighting system, office infrastructure, CCTV system which is not attended & rectified within 48 hours, shall attract a penalty of Rs. 1000 per 24 hours, which shall be over & above GCC Clause. If such complaint is not rectified within 480 hours from logging of complaint. Executing Agency/Owner may choose to rectify the same through any other agency at the risk of Contractor and Executing Agency/Owner shall recover 110% of such cost incurred from subsequent payment to the contractor.</p>	<p>Any complaint related to unserviceability/improper functioning of any & all component of the plant including but not limited to PV Module, PCU, Transformers, switchgears, SCADA, roads, drainage, water supply lighting system, office infrastructure, CCTV system should be attended & rectified within 48 hours.</p>
17	GCC	38 of 76	45.4.6	<p>O&M Routine & Manpower: Contractor shall provide Preventive / Routine Maintenance schedule based on Original Equipment manufacturer and good engineering practices. The team deployed for the O&M must have a minimum manpower structure with following qualification: Project Manager (B.E./B. Tech Electrical, with minimum 5 years of relevant experience) -1 No. Shift Engineers (BE/B-Tech Electrical, with minimum 3 years of relevant experience) –1 No / Shift Polytechnic/Diploma Electrical (with minimum 3 years of relevant experience) -2 / shift Polytechnic/Diploma Mechanical or Civil (with minimum 3 years of relevant experience) -1/shift Unskilled for cleaning & other unskilled works with respect to Plant -minimum 3/shift. However contractor shall engage additional manpower as and when need arise.</p>	<p>O&M Routine & Manpower: Contractor shall provide Preventive / Routine Maintenance schedule based on Original Equipment manufacturer and good engineering practices. The team deployed for the O&M must have a minimum manpower structure with following qualification: Engineers (BE/B-Tech) –1 no., Polytechnic/Diploma -1 no., Unskilled for cleaning & other unskilled works with respect to Plant - as required. However contractor shall engage additional manpower as and when need arise.</p>
18	SCC		8.2	<p>Difference in units derived from committed and achieved CUF x Rs. 7.37; for period after commissioning till the O&M contract closure. The CUF shall be evaluated as per the formula mentioned Section VII, Scope of Work and Technical Specifications.</p>	<p>Difference in units derived from committed and achieved CUF x Rs. 7.37/unit; for period after commissioning till the O&M contract closure. The CUF shall be evaluated as per the formula mentioned Section VII, Scope of Work and Technical Specifications. Also, kindly see the Annexure - III of Amendment01</p>
19	SCC		9. ii	<p>Second Contract (O&M): For providing Comprehensive operation & maintenance of the Solar PV plant for 5 (five) years from the date of commissioning or Operational Acceptance, whichever is later, as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc.</p>	<p>Second Contract (O&M): For providing Comprehensive operation & maintenance of the Solar PV plant for 5 (five) years from the date of Operational Acceptance, as detailed in technical specification including supply and storage of all spare parts, consumables, repairs/ replacement of any defective equipment etc.</p>
20	SCC		New Clause (Compensation for BESS availability shortfall)	<p>If the annual BESS availability is less than 90% during any year, then Contractor shall compensate the Owner an amount calculated as per the following formula. $COM = ((99 - EA) / EA) \times C \times E$ where, COM is Compensation payable to the Owner in rupees EA is Annual BESS Availability C is the applicable tariff (₹ 7.37/kWh) E is the energy output from BESS in kWh during the respective year</p>	

21	SCC	9 of 9	12	<p>The work shall be taken over by the Owner upon successful completion of all tasks to be performed at Site(s) on equipment supplied, installed, erected and commissioned by the Contractor in accordance with provision of Tender Document. During handing over complete project work, the Contractor shall submit the following for considering final payment:</p> <p>(a) All as-Built Drawings and documents as per the contract coordination procedure set out for the successful completion of the project.</p> <p>(b) Detailed Engineering Document with detailed specification, schematic drawing, circuit drawing, cable routing plans and test results, manuals for all deliverable items, Operation, Maintenance & Safety Instruction Manual and other information about the project.</p> <p>(c) Bill of material.</p> <p>(d) Inventory of recommended and mandatory spares at project Site.</p> <p>(e) Immediately after Operational acceptance certificate, same will be handed over to the Contractor for Operation & Maintenance for a period of as mentioned in the bidding document.</p>	<p>Subsequent to Operational Acceptance of the Facilities by the Employer and within 10 days of the commencement of the O&M period, the Contractor shall furnish an Indemnity Bond/ undertaking as per "Sample Forms and Formats" which is to be executed by the contractor for the plant handed over by owner for performance of its O&M Contract (Entire Solar Photo Voltaic Plant).</p> <p>The Facility shall be taken over by the owner upon successful Operational Acceptance in accordance with GCC Clause 43.3 (Operational Acceptance).</p> <p>Immediately after taking over of complete facilities (s), the Facilities will be handed over to the Contractor for Comprehensive Operation & Maintenance for a period as mentioned in the Contract document.</p>
22	SCC	5 of 9	8 (1)	<p>During the Operational Acceptance any shortfall in the Performance Ratio (PR) as determined through the PR Test Procedure specified Section VII, Scope of Work and Technical Specifications, Annexure – B "PERFORMANCE GUARANTEE TEST PROCEDURE", will attract imposition of penalty. For every 0.01 shortfall in PR below 0.78 by the bidder, a penalty of 0.1% of the total Contract Value (i.e., total sum of all the Supply Contract, Service Contract and absolute value of O & M Contract) shall be levied. In case the Plant PR result is 0.05 below 0.78, i.e., 0.73 or lower, the total Contract Performance Security submitted by the bidder will be forfeited. In case the Contract Performance Security has already been encashed on account of delays, the due amount will be recovered from the Final Installment of the EPC payable at the end of the first year (as per the Terms of Payment specified in SCC)</p>	<p>During the Operational Acceptance after providing 03 chances for the PR demonstration, any shortfall in the Performance Ratio (PR) as determined through the PR Test Procedure specified in Section VI, Technical Specifications & Annexure – D (PG Test Procedure) will attract imposition of penalty. For every 0.01 shortfall in PR below 0.80, a penalty of 1% of the total Contract Value (i.e., total sum of all the Supply, Service and absolute value of O & M Contract) shall be levied. In case the Contract Performance Security has already been encashed on account of any default/delays, the penalty amount will be recovered from any due payments to the contractor. In case the Plant PR result is less than 0.75, then the total plant will be rejected & the total Contract Performance Security submitted by the contractor will be forfeited & no further payments due to the contractor will be made.</p>
23	SCC		10. i	<p>Interest bearing adjustable initial advance (OPTIONAL) of 10% of the Contract Value (i.e., total sum of all the Supply Contract & Service Contract) shall be released to successful bidder upon receipt of unconditional acceptance of NOA/ LOI/ LOA, detailed Performa invoice of contractor and against submission of unconditional & irrevocable Advance Bank Guarantee (ABG) with a validity period up to date of final commissioning total amounting to 110% of total advance amount. The ABG needs to be submitted in addition to the Contract Performance Security. The annual interest rate shall be calculated based on SBI one year MCLR as applicable.</p>	<p>Interest bearing adjustable initial advance (OPTIONAL) of 10% of the Contract Value (i.e., total sum of all the Supply Contract & Service Contract) shall be released to successful bidder upon receipt of unconditional acceptance of NOA/ LOI/ LOA, detailed Performa invoice of contractor and against submission of unconditional & irrevocable Advance Bank Guarantee (ABG) with a validity period up to date of final commissioning total amounting to 110% of total advance amount. The ABG needs to be submitted in addition to the Contract Performance Security. The advance shall be payable only on submission of both the BG's The annual interest rate shall be calculated based on SBI one year MCLR as applicable.</p>
24	Scope of Works	7 of 10	7.1	<p>Total Operation & Maintenance of the Plant and Equipment shall be with the Contractor, after commissioning of the plant till final acceptance which shall include deployment of engineering personnel, technicians and security personnel.</p>	<p>Total Operation & Maintenance of the Plant and Equipment shall be with the Contractor, after operational acceptance of the plant till final acceptance which shall include deployment of engineering personnel, technicians and security personnel.</p>
25	Technical Specifications	50 of 140	16	SCADA	Kindly refer Annexure-I of Amendment-1.
26	Technical Specifications	55 of 140	17.4.1		Kindly refer Annexure-II of Amendment-1.
27	Technical Specifications	59 of 140	19.1	<p>CCTV Cameras along with monitoring stations (sufficient numbers) and all other accessories required for its proper operation must be installed to have complete coverage of following areas for 24 hours.</p> <p>(i) Main entry: Covering all the entry/exit</p> <p>(ii) Along the Plant Perimeter: Covering complete perimeter of Plant Area to capture all possible intrusion</p> <p>(iii) Control Rooms: Covering Entry/Exit and activities within Control Rooms</p> <p>(iv) The Contractor has to propose the locations and number of cameras required for the Plant during bidding, however Employer's decision on number of cameras shall be final.</p>	<p>CCTV Cameras along with monitoring stations (sufficient numbers) and all other accessories required for its proper operation must be installed to have complete coverage of following areas for 24 hours.</p> <p>(i) Main entry: Covering all the entry/exit</p> <p>(ii) Along the Plant Perimeter: Covering complete perimeter of Plant Area to capture all possible intrusion</p> <p>(iii) Control Rooms: Covering Entry/Exit and Equipment Rooms</p> <p>(iv) Switchyard</p>
28	Technical Specifications	85 of 140	35.25	<p>Modules shall be clamped & bolted with the structure properly. The material of clamps shall be Al / SS – 316 having weather resistant properties. Clamp/ bolt shall use EPDM rubber and shall be designed in such a way so as not to cast any shadow on the active part of a module.</p>	<p>Modules shall be clamped or bolted with the structure properly. The material of clamps shall be Al / SS – 316 having weather resistant properties. Clamp shall use EPDM rubber and shall be designed in such a way so as not to cast any shadow on the active part of a module.</p>
29	Technical Specifications	87 of 140	38.2.1	<p>Air-conditioned area (with provision of split A/C unit of adequate capacity) for SCADA room (min. carpet area 12m²) & Conference room (min. carpet area 20 m²)</p>	<p>Air-conditioned area (with provision of split A/C unit of adequate capacity) for SCADA room (min. carpet area 12m²), Conference room (min. carpet area 20 m²) & Supervisor cabin and office area (min. carpet area 20 m²)</p>
30	Technical Specifications	95 of 140	53.5.1	<p>The septic shall be designed as liquid retaining structure conforming to IS:3370 for design loads as specified under Cl. No. 57.</p>	<p>The septic shall be designed as liquid retaining structure conforming to IS:3370 for design loads as specified under Cl. No. 32.</p>
31	Technical Specifications	106 of 140	70.1	<p>Electrical infrastructure - Expected variations in voltage, frequency and phase imbalance at PCC:</p> <p>Voltage: ±15% (Poor due to nearest substation at 120 km)</p> <p>Frequency: 49.5 Hz to 50.2 Hz</p> <p>Phase Imbalance: ±3%</p>	<p>Electrical infrastructure - Expected variations in voltage, frequency and phase imbalance at PCC:</p> <p>Voltage: ±15%</p> <p>Frequency: 49.5 Hz to 50.2 Hz</p> <p>Phase Imbalance: ±3%</p>
32	Technical Specifications	108 of 140	71.1	<p>Rated No of Cycles (Minimum): 4000 cycles at rated energy capacity at 80% Depth of Discharge (DoD) at 25°C and C/3 Rate of Discharge</p>	<p>Rated No of Cycles (Minimum): 4000 cycles at rated energy capacity at 80% Depth of Discharge (DoD) at 25°C and 1C Rate of Discharge</p>
33	Annexure-A	3 of 5	3(v)	<p>The developer has to carry out soil investigation through any Govt. Approved laboratory for designing of the civil foundations, structures, control room building, inverter building etc.</p>	<p>The developer has to carry out soil investigation through any Govt. Approved/NABL accredited laboratory for designing of the civil foundations, structures, control room building, inverter building etc.</p>
34	Annexure-A	3 of 5	4	<p>At Rongtong power house both the buses at 415KV and 22KV are placed indoor along with all the CBs, CTs, PTs.</p>	<p>At Rongtong power house both the buses at 415V and 22KV are placed indoor along with all the CBs, CTs, PTs.</p>
35	Annexure-A	1 of 12	Cover Page	<p>Annexure – A Pre-dispatch Inspection Protocol for Crystalline PV Modules by Employer or Employer Deputed Agency</p>	<p>Annexure – B Pre-dispatch Inspection Protocol for Crystalline PV Modules by Employer or Employer Deputed Agency</p>
36	Annexure-D	1 of 10	Cover Page	<p>Annexure – B PG Test Procedure</p>	<p>Annexure – D PG Test Procedure</p>
37	Annexure-C	3 of 10	2	<p>FUNCTIONAL GUARANTEE TESTS FOR SOLAR PV PLANT Functional Guarantee for Solar PV Plant shall comprise of following Guarantees: (1) Performance Ratio Guarantee test for operational acceptance. (2) Annual Generation Guarantee up to a period of 10 years (O&M Period), starting from the date of Operational Acceptance.</p>	<p>TESTS FOR SOLAR PV PLANT Tests for Solar PV Plant shall comprise of following: (1) Performance Ratio Guarantee test for operational acceptance. (2) Annual Generation Guarantee up to a period of 5 years (O&M Period), starting from the date of Operational Acceptance.</p>

38	Annexure-D	8 of 10	2.2	Capacity Utilization Factor for Solar Plant shall be calculated as per the following formula. $CUF = \frac{E_{ac}}{(8760 \times P_{ac} \times (1 - DF \times N))}$ where, Eac is the number of units recorded in the plant end ABT meter, kWh 8760 refers to the number of hours in non-leap year. It shall be replaced by 8784 hours during leap year Pac is the plant AC capacity, kW DF is module degradation factor, 0.7% per year N is the number of years of operation after operational acceptance of the plant CUF shall be calculated on annual basis from the date of operational acceptance of the plant till the end of O&M period.	Capacity Utilization Factor for Solar Plant shall be calculated as per the following formula. $CUF = \frac{E_{ac}}{(8760 \times P_{ac} \times [1 - DF \times (N - 1)])}$ where, Eac is the number of units recorded in the plant end ABT meter excluding auxiliary consumption , kWh 8760 refers to the number of hours in non-leap year. It shall be replaced by 8784 hours during leap year Pac is the plant AC capacity, kW DF is module degradation factor, 0.7% per year N is the number of years of operation after operational acceptance of the plant CUF shall be calculated on annual basis from the date of operational acceptance of the plant till the end of O&M period. Module degradation factor will not be considered for first year CUF calculation. It is the Contactor's responsibility to envisage and install extra DC capacity to accommodate any degradation during first year. 0.7% per year will be considered from second year of operation only.
39	Annexure-2	2 of 3	2	Criterion: np, as determined through the process described above shall be >80% at the time of commissioning.	Criterion: np, as determined through the process described above shall be >75% at the time of commissioning.
40	Annexure-A	3 of 5		At Rongtong power house both the buses at 415KV and 22KV are placed indoor along with all the CBs, CTs, PTs. The power transformers are also stationed indoor. Only, isolator, earth switches and LAs are provided at the switchyard. The Rongtong Power House is located about 200m from the proposed Solar & Wind plant. It is desired that all the power cables coming out of Solar PV plant, Wind Electric Generators and ESS may be terminated at local Busbar at a common voltage level and only a single 22KV cable circuit to be taken to the switchyard at Rongtong Power House. At Rongtong HEP there is sufficient space to place only one or two panels for 22KV CB, CT & PT. It will be in the contractor's scope to provide all these along with cable terminations at switchyard through isolator, earth-switch and LA.	At Rongtong power house both the buses at 415KV and 22KV are placed indoor along with all the CBs, CTs, PTs. The power transformers are also stationed indoor. Only isolator, earth switches and LAs are provided at the switchyard. The Rongtong Power House is located about 200m from the proposed site. All the power cables coming out of Solar PV plant and BESS may be terminated at local Busbar at a common voltage level and only a single 22KV cable circuit to be taken to the switchyard at Rongtong Power House. At Rongtong HEP there is sufficient space to place only one or two panels for 22KV CB, CT & PT. It will be in the contractor's scope to provide all these along with cable terminations at switchyard through isolator, earth-switch and LA.
41	Technical Specifications	120 of 140	73.5.1	End of battery life – End of battery life is that point in time when the BESS can no longer meet the power and/or energy discharge requirements of this Specification due to age or non-repairable malfunction of the battery subsystem, and/or non-replaceable components. When the system is no longer able to provide these requirements, the system has reached its end of life. Battery End of life shall be not less than 10 years from the date of Commissioning.	End of battery life – End of battery life is that point in time when the BESS can no longer meet the power and/or energy discharge requirements of this Specification due to age or non-repairable malfunction of the battery subsystem, and/or non-replaceable components. When the system is no longer able to provide these requirements, the system has reached its end of life. Battery End of life shall be not less than 5 years from the date of Commissioning.